CORE CURRICULUM CONTENT STANDARDS

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NEW JERSEY CORE CURRICULUM CONTENT STANDARDS

INTRODUCTION

The people of the United States need to know that individuals in our society who do not possess the levels of skill, literacy, and training essential to this new era will be effectively disenfranchised, not simply from the material rewards that accompany competent performance, but also from the chance to participate fully in our national life. A high level of shared education is essential to a free, democratic society and to the fostering of a common culture, especially in a country that prides itself on pluralism and individual freedom.

--A Nation at Risk, 1983

More than two decades have passed since the National Commission on Excellence in Education issued *A Nation at Risk: The Imperative for Education Reform.* Many educators see the publication of that report as the initiating event of the modern standards-based reform movement. First developed by national subject-matter organizations, content standards varied widely in character, scope, and level of detail. However, the standards were intended to clarify and raise expectations by providing a common set of expectations for all students.

In 1996, the New Jersey State Board of Education adopted the New Jersey Core Curriculum Content Standards, an ambitious framework for educational reform in the State's public schools. New Jersey's standards were created to improve student achievement by clearly defining what all students should know and be able to do at the end of thirteen years of public education. Since the adoption of those standards, the New Jersey Department of Education has continuously engaged in discussion with educators, business representatives, and national experts about the impact of the standards on classroom practices. To assist teachers and curriculum specialists in aligning curriculum with the standards, the department provided local school districts with a curriculum framework for each content area. The frameworks provided classroom teachers and curriculum specialists with sample teaching strategies, adaptations, and background information relevant to each of the content areas. In addition, the statewide assessments were aligned to the Core Curriculum Content Standards. This alignment of standards, instruction, and assessment was unprecedented.

The State Board wisely required that the standards be reviewed and revised every five years. The review process, begun in May 2001, involved teachers, school administrators, students, parents, and representatives from business, higher education, and the community. In addition, several content areas were reviewed by Achieve, Inc. and the Council of Chief State School Officers (CCSSO). In response to this unprecedented review, the 2004 New Jersey Core Curriculum Content Standards provide the level of specificity and depth of content that will better prepare students for post secondary education and employment. The standards are based on the latest research in each of the content areas and identify the essential core of learning for all students. They are clear, concise, and appropriate for the benchmarked grade levels and enhance a student's capacity to access new information, problem solve, employ research methods, and ask questions across disciplines.

New Jersey continues to wrestle with a paradox regarding the governance of public education. It is a state with a 120-year-old constitutional guarantee that regardless of residency, its children will receive a "thorough and efficient" education. Throughout this same time period, the State has evolved into approximately 600 independent school districts and charter schools that exercise considerable local control to develop and implement curriculum. Thus, the New Jersey Core Curriculum Content Standards are an attempt to define the meaning of "thorough" in the context of the 1875 State constitutional guarantee that students would be educated within a thorough and efficient system of free public schools. The New Jersey Core Curriculum Content Standards are not meant to serve as a statewide curriculum guide. Local school districts must use the standards to develop and/or align curriculum to ensure that students achieve the expectations.

Since the adoption of the original 1996 New Jersey Core Curriculum Content Standards, the State Board approved administrative code that implements all aspects of standards-based reform. N.J.A.C. 6A:8 requires districts to: align all curriculum to the standards; ensure that teachers provide instruction according to the standards; ensure student performance is assessed in each content area; and, provide teachers with opportunities for professional development that focuses on the standards. The regulations also include the state's accountability system for schools and districts, including new high school graduation requirements.

New Jersey's standards-based reform agenda has also been impacted by the adoption of the federal No Child Left Behind Act of 2001 (NCLB). NCLB requires states to develop challenging content standards and academic assessments and it holds states and local districts accountable for results. Each state must create annual assessments, based on the state's standards, which measure what children know and are able to do in reading and mathematics in grades 3 through 8, and at grade 11. Science will also be assessed at grades 4, 8, and 11. NCLB further requires that students be taught by highly qualified teachers and that research-based methodologies be used in the classroom.

IMPLEMENTATION

The New Jersey Core Curriculum Content Standards are intended for all students. This includes students who are college-bound or career-bound, gifted and talented, those whose native language is not English, students with disabilities, and students from diverse socioeconomic backgrounds. Insistence on the core curriculum means that every student will be involved in experiences addressing all of the expectations set forth in all nine content areas. A core curriculum does not mean that all students will be enrolled in the same courses. Different groups of students should address the standards at different levels of depth and should complete the core curriculum according to different timetables. Depending on their interests, abilities, and career plans, many students will and should development knowledge and skills that go beyond the specific indicators on the Core Curriculum Content Standards. Nevertheless, all students should complete all elements of the core curriculum.

While New Jersey's Core Curriculum Content Standards and cumulative progress indicators have been developed in terms of separate academic disciplines, this familiar approach was chosen primarily for the sake of organizational convenience and simplicity of communication. The results expected of New Jersey's students could have been described in more integrative terms which would have reflected more accurately how students would someday apply what they have learned in school. Because students obtain knowledge and skills in a multiplicity of ways,

it is most productive to concentrate on how we can best use resources to achieve higher order results across an array of content areas. Each content area focuses on the development of higher order thinking skills and requires students to read, write, think, and create. Although the standards have been organized into separate academic disciplines, this is not meant to imply that each standard can only be met through content-specific courses. The very nature of learning lends itself to an integrated approach with reinforcement through experiences beyond the schools walls, such as community service, mentorships, and structured learning experiences.

All schools must have, as their common goal, student achievement of these standards. However, the standards themselves will not result in major improvements unless there is continued commitment to their implementation in each and every school. Changing a school's instructional program to implement the vision of these standards will be a continuous, ongoing process. Of key importance to the successful implementation of these standards is teacher preparation and on-going, high quality professional development. Teacher preparation programs must focus on both content and pedagogy. Programs must focus on the increasing complexity of content set forth in these standards. In addition, schools must demonstrate a high level commitment to well-planned, sustained professional development that increases a teacher's content knowledge and instructional competency. District and school administrators will need to create opportunities for teachers to explore, discuss, plan, and implement creative ways to engage students in higher order thinking skills across all disciplines. This can only happen when schools and teachers make high quality professional development a priority.

FORMAT AND ORGANIZATION

Since our schools need to produce both excellent thinkers and excellent doers, the New Jersey Core Curriculum Content Standards describe what students should know and be able to do in nine academic areas: visual and performing arts, comprehensive health and physical education, language arts literacy, mathematics, science, social studies, world languages, technological literacy, and career education and consumer, family, and life skills. The last two standards areas replace the cross-content workplace readiness standards, adopted in 1996. Each of the nine content sections in this document begins with an introduction that articulates the vision for the content area and provides information on the revision process. Each content area has numbered **standards** (e.g., 3.1, 5.2) followed by a **descriptive statement.** The descriptive statement provides a brief overview of the content and skills enumerated in the standard.

The content standards themselves are concerned with the knowledge students should acquire and the skills they should develop in the course of their PK-12 experience. They are broad outcome statements that provide the framework for **strands** and **cumulative progress indicators** (**CPIs**). Strands are organizational tools that help teachers locate specific content and skills. Under each strand is a number of CPIs at specific benchmark grades. The CPIs provide the specific content or skills to be taught and are cumulative; that is, the progress indicators begin at a foundational or basic level and increase in complexity as the student matures, requiring more complex interaction with the content.

In one sense, the New Jersey Core Curriculum Content Standards mark with precision the results expected of all students. In another sense, they serve as a banner behind which all segments of the education community and the state at large can mobilize to reshape our approach to

education. Collectively, they embody a vision of the skills and understandings all of New Jersey's children need to be successful in their careers and daily lives.

New Jersey Core Curriculum Content Standards for Visual and Performing Arts

INTRODUCTION

The Vision

Experience with and knowledge of the arts is a vital part of a complete education. The arts are rich disciplines that include a vibrant history, an exemplary body of work to study, and compelling cultural traditions. An education in the arts is an essential part of the academic curriculum for the achievement of human, social, and economic growth. The education of our students in the disciplines of dance, music, theater, and visual art is critical to their personal success and to the success of New Jersey as we move into the twenty-first century. The arts offer tools for development. They enable personal, intellectual, and social development for each individual. Teaching in and through the arts within the context of the total school curriculum, especially during the formative years of an elementary K-6 education, is key to maximizing the benefits of the arts in education.

For students, an education in the arts provides:

- The ability to be creative and inventive decision-makers;
- Varied and powerful ways of communicating ideas, thoughts, and feelings;
- An enhanced sense of poise and self-esteem;
- The confidence to undertake new tasks;
- An increased ability to achieve across the curriculum;
- A framework that encourages teamwork and fosters leadership skills;
- Knowledge of the less recognized experiences of aesthetic engagement and intuition;
- Increased potential for life success; and
- An enriched quality of life.

Recent studies such as *Critical Links* and *Champions of Change* provide evidence of the positive correlations between regular, sequential instruction in the arts and improved cognitive capacities and motivations to learn. These often result in improved academic achievement through near and far transfer of learning (i.e., music and spatial reasoning, visual art and reading readiness, dance and non-verbal reasoning and expressive skills, theater and reading comprehension, writing proficiency, and increased peer interaction). Additionally, the arts are uniquely qualified to cultivate a variety of multiple intelligences.

For our society, an education in the arts fosters a population that:

- Is equipped with essential technical skills and abilities significant to many aspects of life and work;

- Understands and can impact the increasingly complex technological environment around us;
- Has a humanities focus that allows social, cultural, and intellectual interplay, among men and women of different ethnic, racial, and cultural backgrounds; and
- Is critically empowered to create, reshape, and fully participate in the enhancement of the quality of life for all.

It is the intent of the standards to ensure that all students have regular sequential arts instruction and that specialization takes into account student choice. This is in keeping with the National Standards for Arts Education (1994), which states:

> "All basic subjects, including the arts, require more than mere exposure or access. While valuable, a once-a-month visit from an arts specialist, visits to or from professional artists, or arts courses for the specially motivated do not qualify as basic or adequate arts instruction. They certainly cannot prepare all students to meet the standards presented here. These standards assume that students in all grades will be actively involved in comprehensive, sequential programs that include creating, performing, and producing on the one hand, and study, analysis, and reflection on the other. Both kinds of activities are indispensable elements of a well-rounded education in the arts."

In New Jersey, equitable access to arts instruction can only be achieved if the four arts disciplines are offered throughout the K-12 spectrum. At the K-6 level, it is the expectation that students are given broad-based exposure through instruction as well as opportunities for participation in each of the four arts forms. In grades 7-8, they should gain greater depth of understanding in at least one of those disciplines. In grades 9-12, it is the expectation that students demonstrate competency in at least one arts discipline.

The state arts standards also reflect the same expectations as those stated in the National Standards for Arts Education (1994). The goal is that by graduation all students will be able to communicate at a basic level in the arts, and that they:

- Communicate proficiently, demonstrating competency in at least one art form, including the ability to define and solve artistic problems with insight, reason, and technical proficiency;
- Be able to develop and present basic analysis of works of art from structural, historical, and cultural perspectives;
- Have an informed acquaintance with exemplary works of art from a variety of cultures and historical periods; and
- Relate various types of arts knowledge and skills within and across the arts disciplines.

The revised arts standards assist educators in delineating the required knowledge and expected behaviors in all four of the arts disciplines. This format reflects the critical importance of locating the separate arts disciplines as one common body of knowledge and skills.

Revision of the Standards

By establishing visual and performing arts standards in 1996, New Jersey conveyed its strong commitment to arts education for all students. In its first periodic review and revision of the standards, two independent consultants were contracted by the state through the Arts Education Partnership, a national consortium of arts, education, business, philanthropic, and government organizations. Since New Jersey's original approach to creating arts standards was to convey the significant kinds of abilities common to all four arts disciplines – dance, music, theater, and visual art, the reviewers examined the standards though a wide lens for overall strengths and improvement needs. The review team's findings informed the process of the arts revision committee. The committee also studied the National Standards for Arts Education: What Every Young American Should Know and Be Able to Do in the Arts; McRel's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education; and arts content standards from all states.

The independent reviewers found the original 1996 arts standards effective in defining the scope of necessary arts content knowledge, and in identifying key concepts that influence the most current approaches to arts education, namely aesthetics, production/performance, criticism/evaluation, and history. However, they fell short in addressing the depth or focus for learning. It was recommended that strengthening the focus of the standards, and specifying what was to be learned in each standard would create more concrete images of the activities students would engage in to demonstrate their understanding.

The revision committee retained the structure of the original 1996 standards document with respect to standards 1, 4 and 5. These standards pertain to all the arts disciplines. Those standards having to do with creating and performing works of art, and the elements of art are divided into content-specific subsets of expectations for each of the four arts disciplines. The design standard (formerly standard 6) has been subsumed by the other standards and realigned with each of the arts disciplines. Smaller grade level bands, increased specificity, and content strands have been outlined to allow teachers to focus on developmentally appropriate content and skills in ways that will boost student achievement in the arts.

Standards and Strands

The visual and performing arts standards provide both the foundation for creating local curricula decisions and the opportunity for meaningful assessments in all four art forms. There are five standards for visual and performing arts, each of which has a number of lettered strands. These standards, and their associated strands, include:

1.1 Aesthetics
- A. Knowledge
- B. Skills

1.2 Creation and Performance
- A. Dance

B. Music
C. Theater
D. Visual Art

1.3 Elements and Principles of the Arts
A. Dance
B. Music
C. Theater
D. Visual Art

1.4 Critique
A. Knowledge
B. Skills

1.5 World Cultures, History, and Society
A. Knowledge
B. Skills

Cumulative Progress Indicators (CPIs) further define each content standard. These CPIs delineate expected student progress in grades 2, 4, 6, 8, and 12. The CPIs may be used as a basis for the development of curriculum at all grade levels as well as for developing local assessments to ensure that the desired level of understanding or skill has been achieved. Throughout this document, the term "works of art" refers to selections of works from each of the four disciplines.

Resources

Consortium of National Arts Education Associations: American Alliance for Theatre & Education, Music Educators National Conference, National Arts Education Association, National Dance Association (1994). *National standards for arts education: What every young American should know and be able to do in the arts*. Reston, VA: Music Educators National Conference.

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Literacy in the arts: An imperative for New Jersey schools. (1989, October). Literacy in the Arts Task Force.

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STANDARD 1.1 (AESTHETICS) ALL STUDENTS WILL USE AESTHETIC KNOWLEDGE IN THE CREATION OF AND IN RESPONSE TO DANCE, MUSIC, THEATER, AND VISUAL ART.

Descriptive Statement: The arts strengthen our appreciation of the world, as well as our ability to be creative and inventive decision-makers. The acquisition of knowledge and skills that contribute to aesthetic awareness of dance, music, theater, and visual art enhances these abilities. Through experience in the arts, students develop the capacity to perceive and respond imaginatively to works of art. These experiences result in knowledge of forms of artistic expression and in the ability to draw personal meaning from works of art.

Key skills necessary to an understanding of aesthetics include the abilities to identify arts elements within a work to articulate informed emotional responses to works of art, to engage in cultural reflection, and to communicate through the use of metaphor and critical evaluation. Aesthetics involves the following key understandings: appreciation and interpretation; stimulating imagination; the value and significance of the arts; art as object; the creation of art; developing a process of valuing; and acquaintance with aesthetic philosophies.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Knowledge

1. Observe the four art forms of dance, music, theater, and visual art.
2. Explain that dance, music, theater and visual art can generate personal feelings.
3. Interpret basic elements of style in dance, music, theater, and visual art as the foundation for a creative project.

B. Skills

1. Communicate observational and emotional responses to works of art from a variety of social and historical contexts.
2. Provide an initial response when exposed to an unknown artwork.
3. Use imagination to create a story based on an arts experience in each of the art forms.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Knowledge

1. Compose simple works of art in response to stylized characteristics observed in the dance, music, theater, and visual art of various cultures and time periods.
2. Communicate ideas reflecting on the nature and meaning of art and beauty.
3. Recognize works of art and art elements designed to imitate systems in nature.

B. Skills

1. Apply basic domain-specific arts language to communicate personal responses to dance, theater, music, and visual art.
2. Compare and contrast works of art that communicate significant cultural meanings.
3. Apply qualitative terms when responding to works of art.
4. Create an arts experience that communicates a significant emotion or feeling.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Knowledge

1. Examine works of art that have a utilitarian purpose (Functionalism).
2. Analyze works of art that place emphasis on structural arrangement (Formalism).
3. Describe how an element of an art form contributes to the aesthetic value of a particular work.
4. Describe the compositional design in selected works of art or performance.

B. Skills

1. Explain the aesthetic qualities of specified art works in oral and written responses.
2. Incorporate personal life experiences into an aesthetic response about an artwork.
3. Examine how exposure to various cultures and styles influence individuals' feelings toward art forms and artworks.
4. Communicate ideas about the social and personal value of art.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Knowledge

1. Examine works of art that communicate significant cultural beliefs or set of values.
2. Use domain-specific vocabulary relating to symbolism, genre, and performance technique in all arts areas.
3. Analyze how art is often defined by its originality.

B. Skills

1. Differentiate between the unique and common properties in all of the arts.
2. Distinguish among artistic styles, trends, and movements in various art forms.
3. Express how art is inspired by an individual's imagination.
4. Describe changes in meaning over time in the perception of a known work of art.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Knowledge

1. Formulate responses to fundamental elements within an art form, based on observation, using the domain-specific terminology of that art form.

2. Discern the value of works of art, based on historical significance, craftsmanship, cultural context, and originality using appropriate domain specific terminology.
3. Determine how historical responses affect the evolution of various artistic styles, trends and movements in art forms from classicism to post-modernism.

B. Skills

1. Compose specific and metaphoric cultural messages in works of art, using contemporary methodologies.
2. Formulate a personal philosophy or individual statement on the meaning(s) of art.

STANDARD 1.2 (CREATION AND PERFORMANCE) ALL STUDENTS WILL UTILIZE THOSE SKILLS, MEDIA, METHODS, AND TECHNOLOGIES APPROPRIATE TO EACH ART FORM IN THE CREATION, PERFORMANCE, AND PRESENTATION OF DANCE, MUSIC, THEATER, AND VISUAL ART.

Descriptive Statement: Through developing products and performances in the arts, students enhance their perceptual, physical, and technical skills and learn that pertinent techniques and technologies apply to the successful completion of the tasks. The development of sensory acuity (perceptual skills) enables students to perceive and acknowledge various viewpoints. Appropriate physical movements, dexterity, and rhythm pertain to such activities as brush strokes in painting, dance movement, and fingering of musical instruments.

Active participation in the arts is essential to deep understanding of the imaginative and creative processes of the arts as they relate to the self and others. Involvement in the presentational aspects of art and art making also leads to awareness and understanding of arts-related careers.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Dance

1. Perform planned and improvised dance sequences using the elements of time, space/shape, and energy.
2. Communicate through the creation and performance of planned and improvised sequences in response to meter, rhythm, and variations in tempo.
3. Create and perform using objects and other art forms as creative stimuli for dance.
4. Perform such movements as bending, twisting, stretching, and swinging using various levels in space.

B. Music

1. Clap, sing or play from simple notation that includes pitch, rhythm, dynamics, and tempo.
2. Vocalize the “home tone” of familiar and unfamiliar songs, and demonstrate appropriate posture and breathing technique while performing songs, rounds, or canons in unison and with a partner.
3. Improvise short tonal and rhythmic patterns.

C. Theater

1. Portray characters and describe basic plots and themes in creative drama.
2. Experiment with the use of voice and movement in creative drama and storytelling.
3. Employ theatrical elements to create and express stories in various cultural settings.
4. Show how different uses of and approaches to theater can communicate experiences.

D. Visual Art

1. Create works of art using the basic elements of color, line, shape, form, texture, and space for a variety of subjects and basic media.
2. Cite basic visual art vocabulary used to describe works of art.
3. Present completed works of art in exhibition areas inside and outside the classroom.
4. Recognize how art is part of everyday life.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Dance

1. Perform planned and improvised dance sequences with and without musical accompaniment, demonstrating aspects of time, space/shape, and energy with the intent to communicate meaning.
2. Present planned and improvised dance sequences on a variety of themes using curved and straight pathways and levels in space and discuss their meanings.
3. Demonstrate kinesthetic awareness and basic anatomical principles of concentration and focus in performing dance movement.
4. Utilize arts media and technology in the creation and/or performance of short phrases and compositions.
5. Create and perform the eight locomotor movements of walking, running, hopping, jumping, leaping, galloping, sliding, and skipping in a dance context.
6. Define and maintain personal space.

B. Music

1. Clap, sing on pitch, or play from progressively complex notation while maintaining a steady tempo.
2. Recognize and vocalize the tonal triad (do, mi, sol) after being given the "home tone."
3. Sing or play simple melodies or rhythmic accompaniments in AB and ABA forms independently and in groups, while blending both unison and/or harmonic parts and vocal and/or instrumental timbres, matching dynamic levels and responding to cues of a conductor.
4. Modify elements of music within a piece to create different expressive ideas.

C. Theater

1. Demonstrate clarity of intent, character, and logical story sequence through classroom dramatizations.
2. Use movement as a medium for storytelling and as a means of projecting creative decisions regarding character.
3. Assume the roles of theater participants (e.g., director, actor, playwright, designer), and collaborate to enact classroom dramatizations using available materials that suggest scenery, properties, sound, costumes, and makeup.
4. Project an understanding of the intent of dialogue by performing from a script.

D. Visual Art

1. Apply the basic principles of balance, harmony, unity, emphasis, proportion, and rhythm/movement to a work of art.
2. Explore the use of paint, clay, charcoal, pastels, colored pencils, markers, and printing inks and select appropriate tools in the production of works of art.
3. Generate works of art based on selected themes.
4. Investigate careers in the world of visual arts.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Dance

1. Perform planned and improvised sequences demonstrating aspects of time, space/shape, and energy accurately transferring a rhythmic pattern from the auditory to the kinesthetic.
2. Choreograph and perform dances that communicate meaning on a variety of themes, demonstrating the ability to work in small groups in the choreographic process.
3. Develop dance technique that uses strength, flexibility, balance, and coordination appropriate to age and physical development.
4. Accurately identify and demonstrate basic sequences of movement from at least two different styles or traditions, demonstrating awareness of movement principles in dance (e.g., alignment, balance, initiation of movement, directing of focus).
5. Investigate arts-related careers.

B. Music

1. Read music from progressively complex notation, including mixed meters, compound meters, and the grand staff.
2. Sing independently and in groups, both melodic and harmonizing parts, adjusting to the range and timbre of the developing voice.
3. Perform simple melodies and rhythmic accompaniments in expanded binary, ternary, and rondo form independently and in groups.
4. Improvise simple harmonic accompaniment, melodic embellishments, and simple melodies.
5. Demonstrate how the elements of music are used to achieve unity and variety, tension and release, and balance in composition.
6. Investigate arts-related careers.

C. Theater

1. Discuss and demonstrate the connection between body, movement, and voice in theatrical expression.
2. Create characterizations in context through manipulation of vocal and physical qualities and circumstances.
3. Collaboratively plan and execute group scenes stemming from improvisation.
4. Analyze classroom dramatizations from different perspectives (e.g., playwright, actor, director, designer) and suggest alternatives for creating and interpreting roles, arranging environments, and developing situations.

5. Differentiate among vocal rate, pitch, and volume as they affect articulation, meaning, and character.
6. Investigate arts-related careers.

D. Visual Art

1. Individually or collaboratively create two and three-dimensional works of art employing the elements and principles of art.
2. Distinguish drawing, painting, ceramics, sculpture, printmaking, textiles, and computer imaging by physical properties.
3. Recognize and use various media and materials to create different works of art.
4. Employ appropriate vocabulary for such categories as realistic, abstract, nonobjective, and conceptual.
5. Investigate arts-related careers.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Dance

1. Demonstrate a broad range of dynamics and movement qualities by manipulating aspects of time, space, and energy.
2. Choreograph and perform dance works based on social themes, using elements and production values that serve the selected theme.
3. Develop and perform movement sequences and dance phrases that demonstrate rhythmic acuity, and employ such choreographic structures as AB, ABA, canon, call and response, or the use of narratives.
4. Design a dance work that incorporates at least two other art forms to enhance the central idea.

AND/OR

B. Music

1. Perform compositions containing progressively complex notation and use standard notation to record musical ideas.
2. Perform independently and in groups a repertoire of diverse genres and cultures with appropriate expressive qualities.
3. Improvise original melodies and/or rhythms over given chordal progressions or rhythmic accompaniments in a consistent style, meter, and tonality**.**
4. Identify careers and lifelong opportunities for making music.

AND/OR

C. Theater

1. Analyze descriptions, dialogue, and actions to discover, articulate, and create and portray character behaviors and justify character motivation.
2. Participate in theatrical presentations individually and in ensemble, interacting as invented characters across a spectrum of social/historical contexts.
3. Create dramatic action within the context of a given situation, using acting skills that generate a sense of truth, focus, character, personal or emotional ownership, ensemble relationship, physical control, and vocal clarity.

4. Describe and analyze the components of theatrical design and production.

AND/OR

D. Visual Art

1. Incorporate various art elements and principles in the creation of works of art.
2. Explore various media, technologies and processes in the production of two and three dimensional art.
3. Identify form, function, craftsmanship, and originality when creating a work of art.
4. Identify careers and lifelong opportunities for making art.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Dance

1. Demonstrate technical proficiency and artistic application of anatomical and kinesthetic principles in performance.
2. Craft dances with themes that have unity of form and content and demonstrate the ability to work alone and in small groups to create dances with coherence and aesthetic unity.
3. Collaborate in the design and production of a dance work.
4. Outline a variety of pathways and the requisite training for careers in dance.

AND/OR

B. Music

1. Sing or play musical works from different genres with expression and technical accuracy.
2. Analyze original or prepared musical scores and demonstrate how the elements of music are manipulated.
3. Improvise or compose melodies, stylistically appropriate harmonizing parts and rhythmic accompaniments using a chosen system of notation.
4. Arrange simple pieces for voices or instruments using a variety of traditional and nontraditional sound sources and electronic media.
5. Outline a variety of pathways and the requisite training for careers in music.

AND/OR

C. Theater

1. Create original interpretations of scripted roles demonstrating a range of appropriate acting styles and methods.
2. Interpret a script by creating a production concept with informed, supported, and sustained directorial choices.
3. Collaborate in the design and production of a theatrical work.
4. Plan and rehearse improvised and scripted scenes.
5. Outline a variety of pathways and the requisite training for careers in theater.

AND/OR

D. Visual Art

1. Interpret themes using symbolism, allegory, or irony through the production of two or three-dimensional art.
2. Perform various methods and techniques used in the production of works of art.
3. Produce an original body of work in one or more mediums that demonstrates mastery of methods and techniques.
4. Outline a variety of pathways and the requisite training for careers in the visual arts.

STANDARD 1.3 (ELEMENTS AND PRINCIPLES) ALL STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE ELEMENTS AND PRINCIPLES OF DANCE, MUSIC, THEATER, AND VISUAL ART.

Descriptive Statement: In order to understand the visual and performing arts, students must discover the elements and principles both unique and common to dance, music, theater, and the visual arts. The elements, such as color, line, shape, form and rhythm, time, space and energy, are the basis for the creation of works of art. An understanding of these elements and practice of the principles ensure the strengthening of interdisciplinary relationships with all content area curricula and their applications in daily life.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Dance

1. Identify the basic dance elements of time, space/shape, and energy in planned and improvised dance sequences.
2. Identify movement qualities such as jagged, sharp, smooth, bouncy, or jerky using the vocabulary of dance.
3. Explore arts media and themes as catalysts in the composition of dance.
4. Explore personal space.

B. Music

1. Identify musical elements in response to diverse aural prompts, such as rhythm, timbre, dynamics, form, and melody.
2. Recognize ways to organize musical elements such as scales and rhythmic patterns.

C. Theater

1. Identify basic elements of theater such as setting, costumes, plots, scenes, and themes.
2. Explore the use of voice, movement, and facial expression in conveying emotions in creative drama and storytelling.

D. Visual Art

1. Identify the basic art elements of color, line, shape, form, texture, and space.
2. Discuss how art elements are used in specific works of art.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Dance

1. Investigate the relationship of dance and other art forms.
2. Differentiate basic compositional structures in choreography.
3. Recognize contrasting and complementary shapes and shared weight centers in composition and performance.

B. Music

1. Explore musical elements through verbal and written responses to diverse aural prompts and printed scores.
2. Identify and categorize sound sources by common traits.
3. Differentiate basic structures in music composition.

C. Theater

1. Recognize basic stage directions in the dramatization of stories/plays.
2. Examine the basic structural characteristics of the well-made play.

D. Visual Art

1. Identify the design principles of balance, harmony, unity, emphasis, proportion, and rhythm/movement.
2. Identify elements and principles of design in specific works of art.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Dance

1. Analyze both formal and expressive aspects of time, shape, space, and energy in various dance works.
2. Analyze the principles of choreography applied in a master dance work.
3. Differentiate among the various artistic and non-artistic contributions involved in dance production.
4. Analyze the interrelationship between dance movement and the movements of everyday life, and effectively demonstrate the difference between pantomiming and abstracting a gesture.
5. Interpret compositional use of dance elements for expressive purposes.

B. Music

1. Analyze musical elements in response to aural prompts and printed scores representing diverse genres and cultures and notational systems.
2. Demonstrate knowledge of the basic concepts of meter, rhythm, tonality, intervals, chords, and harmonic progressions.

C. Theater

1. Examine the range of roles and characterizations possible in theatrical production and performance.
2. Examine the relationship between physicality and character development.
3. Identify various tactics employed by actors to create believable, motivated action.

D. Visual Art

1. Describe the emotional significance conveyed in the application of the elements.
2. Describe a work of art that clearly illustrates a principle of design.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Dance

1. Describe the principles of contrast and transition, the process of reordering and chance, and the structures of AB, ABA, canon, call and response, and narrative.
2. Observe and explain how different accompaniment such as sound, music, or spoken text can affect the meaning of a dance.

AND/OR

B. Music

1. Analyze the application of the elements of music in a diversity of musical works.
2. Examine how aspects of meter, rhythm, tonality, intervals, chords, and harmonic progressions are organized and manipulated to establish unity and variety in musical compositions.
3. Describe various roles that musicians perform and identify representative individuals and their achievements that have functioned in each role.

AND/OR

C. Theater

1. Investigate the structural characteristic of plays.
2. Assess character motivations within the construct of scripted plays.
3. Explain the interdependent relationship between the performance, technical design, and management functions of production.
4. Analyze scenes with regard to thematic and artistic intent, situation, character, and motivation.

AND/OR

D. Visual Art

1. Define the elements of art and principles of design that are evident in everyday life.
2. Apply the principles of design to interpret various masterworks of art.
3. Compare and contrast works of art in various media that utilize the same arts elements and principles of design.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Dance

1. Categorize the elements, principles, and choreographic structure of specific dance masterworks.
2. Articulate understanding of choreographic structures or forms such as palindrome, theme and variation, rondo, retrograde, inversion, narrative, and accumulation.
3. Analyze issues of ethnicity, gender, social/economic status, age, and physical conditioning in relation to dance.

AND/OR

B. Music

1. Evaluate a diversity of musical works to discern similarities and differences in how the elements of music have been utilized.
2. Synthesize knowledge of the elements of music.
3. Identify how the elements of music are utilized in a variety of careers.

AND/OR

C. Theater

1. Describe the process of character analysis and identify physical, emotional, and social dimensions of characters from dramatic texts.
2. Analyze the structural components of plays from a variety of social, historical, and political contexts.
3. Interpret a script to develop a production concept.
4. Explain the basic physical properties inherent in components of technical theater such as light, color, pigment, scenic construction, costumes, and makeup.

AND/OR

D. Visual Art

1. Compare and contrast innovative applications of the elements of art and principles of design.
2. Analyze how a literary, musical, theatrical, and/or dance composition can provide inspiration for a work of art.

STANDARD 1.4 (CRITIQUE) ALL STUDENTS WILL DEVELOP, APPLY AND REFLECT UPON KNOWLEDGE OF THE PROCESS OF CRITIQUE.

Descriptive Statement: Through the informed criticism of works of art, students will develop a process by which they will observe, describe, analyze, interpret and evaluate artistic expression and quality in both their own artistic creation and in the work of others. Through this critical process, students will arrive at informed judgments of the relative artistic and aesthetic merits of the work examined.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Knowledge

1. Explain that critique is a positive tool.
2. Define the basic concepts of color, line, shape, form, texture, space, and rhythm.

B. Skills

1. Orally communicate opinion regarding dance, music, theater, and visual art based on observation.
2. Express how individuals can have different opinions toward works of art.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Knowledge

1. Utilize basic arts terminology and arts elements in all four arts domains.
2. Recognize the value of critiquing one's own work as well as the work of others.

B. Skills

1. Observe the basic arts elements in performances and exhibitions.
2. Formulate positive analysis of arts performances by peers and respond positively to critique.
3. Recognize the main subject or theme in a work of art.

Building upon knowledge and skills gained in preceding grades by the end of Grade 6, students will:

A. Knowledge

1. Classify elements of unity or repetition in a work of art.
2. Apply domain specific arts terminology to express statements of both fact and opinion regarding works of art.
3. Describe the technical proficiency of the artist's work, orally and in writing.

B. Skills

1. Critique performances and exhibitions based on the application of the elements of the art form.
2. Identify and differentiate among basic formal structures within artworks.
3. Consider the impact of traditions in the critique of works of art.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Knowledge

1. Explain the process of critique using the progression of description, analysis, interpretation, and evaluation.
2. Compare artistic content among contrasting art works in the same domain.

B. Skills

1. Evaluate the judgment of others based on the process of critique.
2. Compare and contrast the technical proficiency of artists.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Knowledge

1. Examine the artwork from a variety of historical periods in both western and non-western culture(s).
2. Categorize the artistic subject, the formal structure, and the principal elements of art used in exemplary works of art.
3. Determine the influence of tradition on arts experience, as an arts creator, performer, and consumer.

B. Skills

1. Develop criteria for evaluating art in a specific domain and use the criteria to evaluate one's personal work and that of their peers, using positive commentary for critique.
2. Provide examples of how critique may affect the creation and/or modification of an existing or new work of art.

STANDARD 1.5 (HISTORY/CULTURE) ALL STUDENTS WILL UNDERSTAND AND ANALYZE THE ROLE, DEVELOPMENT, AND CONTINUING INFLUENCE OF THE ARTS IN RELATION TO WORLD CULTURES, HISTORY, AND SOCIETY.

Descriptive Statement: In order to become culturally literate, students need to understand the historical, societal, and multicultural aspects and implications of dance, music, theater, and visual art. This includes understanding how the arts and cultures continue to influence each other.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Knowledge

1. Recognize works of art from diverse cultures.

B. Skills

1. Identify family and community as themes in art.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Knowledge

1. Identify works of art from various historical periods and diverse cultures.
2. Recognize arts resources that exist in communities.

B. Skills

1. Describe the general characteristics of artworks from various historical periods and world cultures.
2. Examine art as a reflection of societal values and beliefs.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Knowledge

1. Reflect on a variety of works of art representing important ideas, issues, and events in a society.
2. Recognize that a chronology exists in all art forms.

B. Skills

1. Compare and contrast the contributions of significant artists from an historical period.
2. Hypothesize how the arts have impacted world culture.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Knowledge

1. Analyze how technological changes have influenced the development of the arts.
2. Examine how the social and political environment influences artists in various social/historical/political contexts.

B. Skills

1. Identify the common artistic elements that help define a given historical period.
2. Discuss how cultural influences add to the understanding of works of art.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Knowledge

1. Parallel historical events and artistic development found in dance, music, theater, and visual art.
2. Summarize and reflect upon how various art forms and cultural resources preserve cultural heritage and influence contemporary art.

B. Skills

1. Evaluate the impact of innovations in the arts from various historical periods in works of dance, music, theater, and visual art stylistically representative of the times.
2. Compare and contrast the stylistic characteristics of a given historical period through dance, music, theater, and visual art.

New Jersey Core Curriculum Content Standards
For
Comprehensive Health and Physical Education

INTRODUCTION

No knowledge is more crucial than knowledge about health. Without it, no other life goal can be successfully achieved.

Ernest Boyer

The Vision

Schools have enormous potential for helping students develop the knowledge and skills they need to be healthy and to achieve academically. As rapidly changing and evolving disciplines, health education and physical education must look and be different than the old "hygiene and gym class." Health education and physical education are separate disciplines each with a distinct body of knowledge and skills; however, the two disciplines clearly complement and reinforce each other to support "wellness".

Quality health education and physical education programs promote each student's optimum physical, mental, emotional, and social development. Effective programs are grounded in scientifically-based research and public health knowledge. They are student-centered and utilize multiple learning theories and models to support and promote health-enhancing behaviors. As a result, students are empowered to develop and demonstrate increasingly sophisticated knowledge, skills, attitudes, and practices.

Quality programs provide cognitive content and learning experiences that support a variety of physical activity areas including basic movement skills; team, dual, and individual sports; physical fitness; rhythm and dance; and lifetime recreational activities. These activities are linked to health concepts and skills, such as healthy eating, safety, and stress management. Additionally, effective programs consider children's changing capacities to move based on their developmental status, previous experiences, skill level, body size, body type, and age and are culturally, ethnically, and gender sensitive.

Quality health education and physical education programs address and integrate the full range of categorical health problems and issues that impact the quality of life. Unfortunately, quality classroom instruction is not enough. School policies and procedures must support and reinforce classroom instruction. Health messages must be clear and consistent. Students must be given every opportunity to enact healthful behaviors--in the classroom, the gym or cafeteria, or on the playground.

Quality programs incorporate the use of technology and encourage students to research and use valid and reliable sources of health information. For example, using heart rate monitors makes aerobic exercise safer and more productive by helping the teacher and student individualize participation in physical activity. As a form of authentic assessment, this teaching tool enhances interdisciplinary technological instruction while allowing for a more objective

estimation of a student's effort and individual progress. Students are able to set goals, monitor performance, and experience real gains in fitness status.

Quality programs are student-centered and interactive--that is, teachers encourage classroom discussion, research, modeling, and skill practice. Skilled health teachers address the social influences on behavior and strengthen individual and group norms that support health-enhancing behaviors (Marx, 1998). Students discuss issues that have real application to their lives with assessments that are authentic and contextual. Teachers, well-versed in current health issues and resources, challenge students to take responsibility for their own health. Providing information is not enough. Information must be coupled with skill development and practice in order to have any impact on behavior. As a result, students are progressively prepared and empowered to use higher level thinking skills to address a myriad of wellness issues, now, and throughout their lifetime.

Rationale

Many of the health challenges that young people face today are different than those of past generations. Advances in medicines and vaccines have largely addressed the illness, disability, and death that resulted from infectious disease. Today, the health of young people and the adults that they will become is critically linked to the health-related behaviors they choose to adopt (CDC, June 28, 2002; CDC, School Health Programs, 2001). For example:

- Chronic diseases account for 7 of every 10 U.S. deaths and for more than 60 percent of medical care expenditures.
- In the adult population, about two-thirds of all mortality and a great amount of morbidity, suffering, and rising health care costs result from three causes: heart disease, cancer, and stroke. Tobacco use, unhealthful dietary patterns, and physical inactivity contribute to the incidence of these conditions (CDC, Risk Behaviors Overview, 2001).
- There are nearly twice as many overweight children and almost three times as many overweight adolescents as there were in 1980.
- Sixty percent of overweight 5-10 year old children already have at least one risk factor for heart disease (National Center for Chronic Disease Prevention and Health Promotion, 2000).
- Approximately two-thirds of all deaths among children and adolescents aged 5-19 years result from injury related causes: motor vehicle crashes, all other unintentional injuries, homicide, and suicide (MMWR, December 7, 2001).
- A substantial portion of motor vehicle crashes involves the use of alcohol.
- Injuries requiring medical attention or resulting in restricted activity affect more than 20 million children and adolescents and cost $17 billion annually for medical treatment.
- Approximately 4 million students are injured at school each year and more than 1 million serious sport-related injuries occur annually to adolescents aged 10-17 (CDC Fact Sheet, December 2001).
- Every year, nearly one-quarter of all new HIV and STD infections occur among our nation's teenagers.
- While teen birth rates have declined substantially over the last ten years, teen pregnancy remains a significant health and educational issue. Teenage childbearing is generally

associated with educational, social, and economic consequences for the teenage mothers and for their children (Kirby, 1997).

Clearly, not all health conditions are preventable. However, it is clear that interrelated and preventable behaviors established during youth and persisting into adulthood lead to serious health problems. These behaviors contribute to many of the social and educational problems that confront our nation, including failure to complete high school, unemployment, and crime (CDC, 2001). The health of our nation is a complex problem that calls for complex, collaborative, and multidisciplinary interventions. Addressing this need, the New Jersey Comprehensive Health and Physical Education Standards are an educational response to a public health problem.

Revision of the Standards

New Jersey has a long-standing commitment to school health, safety, and physical education. N.J.S.A.18A:35, adopted in 1917, requires all pupils in grades 1-12 to participate in two and one-half hours per week of instruction in health, safety, and physical education. In addition, there are a number of content-specific mandates including instruction on drugs, alcohol, tobacco, controlled dangerous substances and anabolic steroids (N.J.S.A. 18A:40); Lyme disease prevention (18A:35-5.1); breast self examination (18A:35-5.4); stress abstinence (18A:35-4.19); accident and fire prevention (18A:6-2); cancer awareness (18A:40-33); sexual assault prevention (18A:35-4.3); bullying prevention programs (18A:37-17); and domestic violence education (18A:35-4.23). The Comprehensive Health and Physical Education Core Curriculum Content Standards focus on the health needs of students and attempt to reconcile the ever-increasing number of state mandates with evidence from public health research.

The State Board of Education first adopted the New Jersey Core Curriculum Content Standards for Comprehensive Health and Physical Education in 1996. The New Jersey standards were developed after substantial review of two national documents: *Moving Into the Future: National Standards for Physical Education* (1995) and *The National Health Education Standards: Achieving Health Literacy* (1995). Since that time, the Surgeon General of the United States released a landmark report, *Physical Activity and Health* (1996) that called upon schools to take a more active role in health promotion and disease prevention. Acknowledging that childhood and adolescence may be pivotal times for preventing sedentary behavior among adults, the report recommended that schools make every effort to require daily physical education in each grade and to promote physical activities that can be enjoyed throughout life. In December 2000, the United States Department of Health and Human Services and the Department of Education published *Promoting Better Health for Young People Through Physical Activity and Sports.* The report to the President reemphasized the need for quality health and physical education programs in our schools. The report describes our nation's young people as inactive, unfit, and increasingly overweight and explains how the increase in serious health problems, such as diabetes, is a direct result of inactivity and unhealthy eating patterns.

In a landmark national report, *A Call to Action* (2001) schools were identified as a key setting for public health strategies to prevent and decrease the prevalence of overweight and obesity. The report called upon schools to offer age appropriate and culturally-sensitive health education programs that help students develop the knowledge, attitudes, skills, and behaviors to adopt,

maintain, and enjoy healthy eating habits and a physically active lifestyle. The report emphasized that all schools should provide all children, from pre-kindergarten through grade 12, with quality daily physical education programs supplemented by daily recess for elementary students and extracurricular physical activity programs for older students.

The Comprehensive Health and Physical Education Standards Revision Panel examined these significant reports as well as health education and physical education standards from twenty other states. They considered the thoughtful comments of a national consultant and spent hours looking at new research on effective programs as well as the impact of movement on health and academic success. In addition, panel members looked at commercial curricula, textbooks, software, and on-line resources and considered feedback from teachers, curriculum specialists, healthcare specialists, and representatives from higher education and business. Panel members reviewed the national public health agenda document *Healthy People 2010* and looked at New Jersey's companion public health document and health goals, as well as existing New Jersey public health data.

Standards and Strands

There are six comprehensive health and physical education standards, each of which has a number of lettered ***strands***. The strands are an organizational tool allowing teachers to locate specific content and skills. Related ***cumulative progress indicators (CPIs)*** are clustered together at each grade level so that a teacher can easily identify what should be taught about a specific subset of health and physical education, such as movement skills, nutrition, or safety. The knowledge and skills outlined in the revised standards are cumulative; that is, the progress indicators begin at a foundational or basic level and increase in complexity as the student matures, requiring more complex interaction with the content. Since the indicators are cumulative, students at succeeding grade levels are responsible for the knowledge and skills taught in previous grade level clusters as well as that of their current grade. Smaller grade level bands, increased specificity, and content strands allow teachers to focus on developmentally appropriate content and skills.

The New Jersey Comprehensive Health and Physical Education Standards are essentially five "content" standards and one "integrated skills" standard. *Standard 2.2: Integrated Skills* focuses on decision-making, goal setting, and effective communication in situations that impact health and safety. The standard has been expanded to include character and leadership development, health careers and services, and health advocacy. All teachers should integrate the skills outlined in Standard 2.2 into every other health and physical education standard. In addition, every health and physical education standard supports interdisciplinary instruction in one or more of the remaining eight content areas.

The standards and strands for all students are delineated below:

2.1 Wellness

A. Personal Health
B. Growth and Development
C. Nutrition

D. Diseases and Health Conditions
E. Safety
F. Social and Emotional Health

2.2 Integrated Skills
A. Communication
B. Decision Making
C. Planning and Goal Setting
D. Character Development
E. Leadership, Advocacy, and Service
F. Health Services and Careers

2.3 Drugs and Medicines
A. Medicines
B. Alcohol, Tobacco, and Other Drugs
C. Dependency/Addiction and Treatment

2.4 Human Relationships and Sexuality
A. Relationships
B. Sexuality
C. Pregnancy and Parenting

2.5 Motor Skill Development
A. Movement Skills
B. Movement Concepts
C. Strategy
D. Rules, Safety, and Sportsmanship
E. Sport Psychology

2.6 Fitness
A. Fitness and Physical Activity
B. Training
C. Achieving and Assessing Fitness

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STANDARD 2.1 (WELLNESS) ALL STUDENTS WILL LEARN AND APPLY HEALTH PROMOTION CONCEPTS AND SKILLS TO SUPPORT A HEALTHY, ACTIVE LIFESTYLE.

Descriptive Statement: This standard aims to increase student knowledge about the physical, social, emotional, and intellectual dimensions of wellness, thus enabling them to make informed choices about their health now and in the future. Wellness can be defined as a way of life that emphasizes health promotion measures such as healthy eating, learning to manage stress, reducing one's risk of contracting a disease, and preventing and treating simple injuries. Taking responsibility for one's own health is an essential step towards developing and maintaining a healthy, active lifestyle.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Personal Health

1. Define wellness and explain how making healthy choices and having healthy relationships contribute to wellness.
2. Describe and demonstrate self-care practices that support wellness, such as brushing and flossing teeth, washing hands, and wearing appropriate attire for weather or sports.

B. Growth and Development

1. Name and locate body organs and parts.
2. Describe how children are alike and how they are different.

C. Nutrition

1. Explain why some foods are healthier to eat than others.
2. Sort foods according to food groups and food sources.
3. Explain what information can be found on food and product labels.

D. Diseases and Health Conditions

1. Explain why diseases and health conditions need to be detected and treated early.
2. Explain the difference between communicable and non-communicable diseases.
3. Discuss common symptoms of diseases and health conditions.
4. Explain ways to prevent the spread of diseases such as hand washing, immunizations, covering coughs, and not sharing cups, hats, or combs.

E. Safety

1. Explain and demonstrate ways to prevent injuries, including seat belts and child safety seats in motor vehicles, protective gear, and fire, bus, and traffic safety procedures.
2. Explain and demonstrate simple first aid procedures, including getting help and calling 911, knowing personal information such as address and phone number, avoiding contact with blood and other body fluids, and caring for small cuts.

3. Distinguish among "good/safe touch," "bad/unsafe touch," and "confusing touch" and explain what to do if touching causes uncomfortable feelings.
4. Identify safe and appropriate behavior for use when interacting with strangers, acquaintances, and trusted adults.
5. Identify warning labels found on medicines and household products.

F. Social and Emotional Health

1. Explain that all human beings have basic needs including food, water, sleep, shelter, clothing, and love.
2. Recognize various emotions and demonstrate sympathy and empathy.
3. Describe and demonstrate appropriate ways to express wants, needs, and emotions.
4. Identify the possible causes of conflict and discuss appropriate ways to prevent and resolve conflicts.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Personal Health

1. Describe the physical, social, and emotional dimensions of wellness.
2. Describe and demonstrate personal hygiene practices that support wellness.
3. Analyze the impact of health choices and behaviors on wellness.

B. Growth and Development

1. Describe the structure and function of human body systems.
2. Describe each human life stage and the physical changes that occur at each stage.
3. Discuss factors that contribute to healthy physical, social, emotional, and intellectual growth and uniqueness.

C. Nutrition

1. Differentiate between healthy and unhealthy eating patterns.
2. Classify foods by food group, food source, nutritional content, and nutritional value.
3. Interpret food product labels.
4. Discuss how healthy eating provides energy, helps to maintain healthy weight, lowers risk of disease, and keeps body systems working.

D. Diseases and Health Conditions

1. Discuss the importance of the early detection of diseases and health conditions.
2. Investigate ways to treat common childhood diseases and health conditions.
3. Explain that some diseases and health conditions are preventable and some are not.
4. Describe the signs and symptoms of diseases and health conditions common in children.
5. Investigate how the use of universal precautions, sanitation and waste disposal, proper food handling and storage, and environmental controls help to prevent diseases and health conditions.
6. Discuss myths and facts about mental illness.

E. Safety

1. Describe the characteristics of safe and unsafe situations and develop strategies to reduce the risk of injuries at home, school, and community.
2. Describe and demonstrate simple first aid procedures, including the assessment of choking and breathing, the control of bleeding, and the care of minor wounds and burns.
3. Explain that abuse can take several forms, including verbal, emotional, sexual, and physical, and identify ways to get help should abuse be suspected.
4. Describe the characteristics of strangers, acquaintances, and trusted adults and demonstrate safe and appropriate ways to deal with each.

F. Social and Emotional Health

1. Describe basic human needs and how individuals and families attempt to meet those needs.
2. Discuss how culture, peers, and the media impact the way individuals communicate and express emotions, and how emotions can affect communication, choices, and behaviors.
3. Distinguish among conflict, violence, vandalism, harassment, and bullying and discuss factors that contribute to each.
4. Describe and demonstrate strategies to prevent, reduce, or mediate conflict.
5. Discuss the causes of stress and demonstrate ways to deal with stressful situations.
6. Explain and demonstrate ways to cope with rejection, loss, and separation.
7. Explain how stereotypes influence personal growth and behavior.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Personal Health

1. Discuss the physical, social, emotional, and intellectual dimensions of wellness.
2. Describe the appropriate use of healthcare and personal hygiene products.
3. Discuss how health data, such as blood pressure, body composition, and cholesterol, can be used to assess and improve wellness.
4. Discuss how health knowledge, health choices, self-control, resistance, and self-management skills influence wellness.
5. Discuss how technology impacts wellness.

B. Growth and Development

1. Compare and contrast body systems, their parts and functions, and explain that body systems must work together to ensure wellness.
2. Compare the rate of physical, social, emotional, and intellectual change during various life stages and discuss ways to foster healthy growth.
3. Discuss how heredity and physiological changes contribute to an individual's uniqueness.

C. Nutrition

1. Discuss factors that influence food choices.
2. Compare food choices based on nutrient content and value, calories, and cost and create a healthy meal plan.

3. Analyze nutrition information on food packages and labels.
4. Discuss the short- and long-term benefits and risks associated with nutritional choices.

D. Diseases and Health Conditions

1. Compare and contrast methods used to diagnose and treat diseases and health conditions.
2. Differentiate among communicable, non-communicable, acute, chronic, and inherited diseases and health conditions.
3. Compare and contrast diseases and health conditions prevalent in adolescents, including asthma, obesity, diabetes, Lyme disease, STDs, and HIV/AIDS.
4. Discuss the use of public health strategies to prevent diseases and health conditions.
5. Compare and contrast forms of mental illness such as phobias, anxiety and panic disorders, and depression.

E. Safety

1. Compare and contrast the incidence and characteristics of intentional and unintentional injuries in adolescents.
2. Analyze the short- and long-term impacts of injuries on individuals and families and develop strategies to reduce the incidence of such injuries.
3. Demonstrate and assess basic first aid procedures, including victim and situation assessment, rescue breathing and choking, and care of minor cuts, sprains, and bleeding.
4. Discuss the physical, social, and emotional impacts of all forms of abuse and discuss what to do if any form of abuse is suspected or occurs.

F. Social and Emotional Health

1. Examine how personal assets, (e.g., self esteem, positive peer relationships) and protective factors (e.g., parental involvement) support healthy social and emotional development.
2. Choose and justify appropriate strategies to deal with conflict, violence, harassment, vandalism, and bullying.
3. Describe home, school, and community efforts to prevent conflict, vandalism, bullying, harassment, and violence.
4. Describe the physical and emotional signs of stress and the short-and long-term impacts of stress on the human body.
5. Compare and contrast ways that individuals, families, and communities cope with change, crisis, rejection, loss, and separation.
6. Discuss how stereotyping might influence one's goals, choices, and behaviors.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Personal Health

1. Describe the appropriate selection and use of healthcare and personal hygiene products.
2. Evaluate the impact of health behaviors and choices on personal and family wellness.
3. Interpret health data to make predictions about wellness.
4. Investigate how technology and medical advances impact wellness.

B. Growth and Development

1. Discuss how body systems are interdependent and interrelated.
2. Investigate the physical, social, emotional, and intellectual changes that occur at each life stage and how those changes impact wellness.
3. Discuss how heredity, physiological changes, environmental influences, and varying social experiences contribute to an individual's uniqueness.

C. Nutrition

1. Analyze how culture, health status, age, and eating environment influence personal eating patterns and discuss ways to improve nutritional balance.
2. Describe healthy ways to lose, gain, or maintain weight.
3. Describe the impact of nutrients on the functioning of human body systems.
4. Analyze how healthy eating patterns throughout life can reduce the risk of heart disease and high cholesterol, cancer, osteoporosis, and other health conditions.

D. Diseases and Health Conditions

1. Investigate current and emerging methods to diagnose and treat diseases and health conditions.
2. Classify diseases and health conditions as communicable, noncommunicable, acute, chronic, or inherited.
3. Compare and contrast diseases and health conditions, including hepatitis, STDs, HIV/AIDS, breast cancer, and testicular cancer.
4. Analyze local and state public health efforts to prevent and control diseases and health conditions.
5. Investigate various forms of mental illness including impulse disorders such as gambling or shopping, depression, eating disorders, and bipolar disorders.

E. Safety

1. Assess situations in the home, school, and community for perceived vs. actual risk of injuries.
2. Investigate the short- and long-term impacts of injuries on the individual, the family and the community.
3. Describe and demonstrate first aid procedures including, situation and victim assessment, Basic Life Support, and the care of bleeding and wounds, burns, fractures, shock, and poisoning.
4. Discuss the short- and long-term physical, social, and emotional impacts of all forms of abuse.
5. Describe and demonstrate strategies to increase personal safety while in public places and discuss what to do if one's safety is compromised.

F. Social and Emotional Health

1. Analyze how personal assets, resiliency, and protective factors support healthy social and emotional development.

2. Discuss the developmental tasks of adolescence, including the development of mature relationships, gender identification, a healthy body image, emotional independence, and life skills.
3. Investigate factors and choices that contribute to the incidence of conflict, harassment, bullying, vandalism, and violence and demonstrate strategies to deal with each.
4. Analyze the effectiveness of home, school, and community efforts to prevent conflict, harassment, vandalism, and violence.
5. Debate the consequences of conflict and violence on the individual, the family, and the community.
6. Describe situations that may produce stress, describe the body's responses to stress, and demonstrate healthy ways to manage stress.
7. Analyze how culture influences the ways families and groups cope with crisis and change.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Personal Health

1. Compare and contrast healthcare and personal hygiene products and services commonly used by adolescents and young adults.
2. Investigate the impact of health choices and behaviors on personal, family, and community wellness.
3. Use health data to make predictions about wellness and recommend behavior changes to improve lifelong wellness.
4. Debate the social and ethical implications of the use of technology and medical advances to support wellness.

B. Growth and Development

1. Recommend behaviors to enhance and support the optimal functioning of body systems.
2. Predict and discuss significant developmental issues or concerns that impact each life stage.
3. Predict the impact of heredity and genetics on human growth and development.

C. Nutrition

1. Analyze and evaluate current dietary recommendations, resources, and trends from a variety of sources.
2. Design and evaluate a nutrition plan for a healthy young adult considering cost, availability, nutritional balance, freshness, nutritional value, and culture.
3. Recommend healthy ways to lose, gain, or maintain weight.
4. Analyze and evaluate how healthy and unhealthy eating patterns impact the functioning of the human body, including healthy bone development and immune system functioning.

D. Diseases and Health Conditions

1. Analyze the availability and effectiveness of current and emerging diagnostic and treatment modalities for various diseases and health conditions.

2. Discuss the relationship between signs and symptoms of disease and the functioning of the body's immune system.
3. Compare and contrast diseases and health conditions occurring in adolescence and young adulthood with those occurring later in life, including cancer, cardiovascular diseases, respiratory diseases, arthritis, osteoporosis, and Alzheimer's.
4. Investigate and assess local, state, national, and international public health efforts.
5. Investigate the impact of mental illness on personal, family, and community wellness.

E. Safety

1. Evaluate work and leisure situations for perceived and actual risk of intentional and unintentional injuries,
2. Develop personal protection strategies to reduce the incidence of injuries and evaluate their effectiveness.
3. Assess the short- and long-term impacts of injuries on the individual, family members, the community, and the workplace.
4. Describe and demonstrate first aid procedures, including Basic Life Support and automatic external defibrillation, caring for bone and joint emergencies, caring for cold and heat injuries, and responding to medical emergencies.
5. Describe and demonstrate ways to protect against sexual assault and discuss what to do if sexually assaulted.

F. Social and Emotional Health

1. Discuss psychological principles and theories of personality development.
2. Analyze the impact of physical development, social norms and expectations, self-esteem, and perceived vulnerability on adolescent social and emotional growth and behavior.
3. Analyze how peer norms and expectations, the availability of weapons, substance abuse, media images, and poor role models contribute to violent behavior.
4. Predict the consequences of conflict, harassment, bullying, vandalism, and violence on individuals, families, and the community.
5. Predict how a family might cope with crisis or change and suggest ways to restore family balance and function.

STANDARD 2.2 (INTEGRATED SKILLS) ALL STUDENTS WILL USE HEALTH-ENHANCING PERSONAL, INTERPERSONAL, AND LIFE SKILLS TO SUPPORT A HEALTHY, ACTIVE LIFESTYLE.

Descriptive Statement: This standard seeks to foster responsible health behaviors through the enhancement of critical thinking, decision making, problem solving, and communication skills used in situations impacting personal, family, and community health. It enables students to locate and evaluate health information and resources and to develop character, leadership, and advocacy skills so they can become more active participants in the promotion of wellness. Competency in these skills enables and empowers students to resist destructive behaviors and seek out positive opportunities for growth and learning. These skills may be cross-disciplinary and should be integrated into each Comprehensive Health and Physical Education Standard.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Communication

1. Identify sources of health information.
2. Express ideas and opinions about wellness issues.
3. Explain when and how to use refusal skills in health and safety situations.
4. Demonstrate effective communication and listening skills.

B. Decision Making

1. Explain the steps to making an effective health decision.
2. Discuss how parents, peers, and the media influence health decisions.

C. Planning and Goal Setting

1. Develop a wellness goal and explain why setting a goal is important.

D. Character Development

1. Explain that a person's character and values are reflected in the way the person thinks, feels, and acts.

E. Leadership, Advocacy, and Service

1. Act as a leader and a follower.
2. Identify factors that lead to group success and help solve group problems.
3. Motivate group members to work together and provide constructive feedback.
4. Demonstrate respect for varying ideas and opinions.
5. Participate in a class or school service activity and explain how volunteering enhances self-esteem.

F. Health Services and Careers

1. Discuss how community helpers and healthcare workers contribute to personal and community wellness.

2. Explain when and how to seek help when feeling ill, scared, sad, lonely, or bullied.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Communication

1. Explain how to determine the validity and reliability of a health resource.
2. Present health information, orally and in writing, to peers.
3. Describe and demonstrate the effective use of communication skills, including refusal, negotiation, and assertiveness.
4. Identify and employ ways to improve listening skills.
5. Explain how to identify a health problem or issue for possible research.

B. Decision Making

1. Outline the steps to making an effective decision.
2. Discuss how parents, peers, and the media influence health decisions and behaviors.
3. Describe situations that might require a decision about health and safety.

C. Planning and Goal Setting

1. Develop a personal health goal and track progress.
2. Describe ways to support the achievement of health goals.

D. Character Development

1. Describe character traits and core ethical values such as trustworthiness, responsibility, respect, caring, justice, fairness, civic virtue, and citizenship.
2. Discuss how an individual's character positively impacts individual and group goals and success.

E. Leadership, Advocacy, and Service

1. Describe and demonstrate the characteristics of an effective leader.
2. Acknowledge the contributions of group members and choose appropriate ways to motivate them and celebrate their accomplishments.
3. Demonstrate respect for the opinions and abilities of group members.
4. Develop and articulate group goals.
5. Develop a position on a wellness issue.
6. Discuss laws and regulations created to enhance wellness.
7. Organize and participate in a school or community service activity and discuss how helping others impacts personal and community wellness.

F. Health Services and Careers

1. Describe health and fitness services provided in the school and community.
2. Describe and demonstrate how to seek help for a variety of health and fitness concerns.
3. Discuss wellness and fitness careers.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Communication

1. Summarize health information from a variety of valid and reliable health resources.
2. Present health information using a multimedia approach, adapting the wording and delivery method for the topic and audience.
3. Demonstrate and evaluate the effective use of communication skills, including refusal, negotiation, and assertiveness.
4. Describe and demonstrate active and reflective listening.
5. Compare and contrast the economic and social purposes of health messages presented in the media.

B. Decision Making

1. Demonstrate effective decision making in health and safety situations.
2. Analyze the influence of family, peers, and the media on health decisions and investigate how conflicting interests may influence decisions and choices.
3. Analyze significant health decisions and discuss how the outcome(s) might have been different if a different decision had been made.
4. Explain how personal ethics influence decision making.

C. Planning and Goal Setting

1. Use health data and information to formulate health goals.
2. Develop strategies to support the achievement of short- and long-term health goals.

D. Character Development

1. Describe actions and situations that show evidence of good character.
2. Discuss the characteristics of a role model and how role models influence the personal goals and ethical standards of others.

E. Leadership, Advocacy, and Service

1. Compare various forms of leadership and implement appropriate leadership strategies when serving in a leadership role.
2. Evaluate personal and group contributions towards the achievement of a goal or task, analyze a group's ability to improve its performance, and provide appropriate feedback.
3. Develop and articulate a group's goals and vision.
4. Compare the use of cooperative and competitive strategies to achieve a group goal and recommend strategies to keep a group on target and free from conflict.
5. Discuss how individuals can make a difference by helping others, investigate opportunities for volunteer service, and participate in activities through school or community-based health or service organizations.
6. Formulate and express a position on health issues and educate peers about the health issue or cause.
7. Discuss local and state laws that impact personal, family, and community wellness and formulate ways that individuals and groups can work together to improve wellness.

F. Health Services and Careers

1. Categorize health and fitness services available in the school and community and demonstrate how to access them.
2. Investigate health and fitness career opportunities.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Communication

1. Analyze health ideas, opinions, and issues from a variety of valid and reliable health sources.
2. Present health information using a multimedia approach, adapting the wording and delivery method for various topics and audiences.
3. Assess the use of refusal, negotiation, and assertiveness skills and recommend strategies for improvement.
4. Assess the use of active and reflective listening.
5. Analyze the economic and political purposes and impacts of health messages found in the media.

B. Decision Making

1. Demonstrate and assess the use of decision-making skills in health and safety situations.
2. Compare and contrast the influence of peers, family, the media, and past experiences on the use of decision-making skills and predict how these influences may change or conflict as one ages.
3. Predict social situations and conditions that may require adolescents and young adults to use decision making skills.
4. Discuss how ethical decision making requires careful thought and action.
5. Critique significant health decisions and discuss how the outcome(s) might have changed if the appropriate communication and decision-making skills had been employed.

C. Planning and Goal Setting

1. Analyze factors that support or hinder the achievement of personal health goals.

D. Character Development

1. Analyze how character development can be enhanced and supported by individual, group, and team activities.
2. Compare and contrast the characteristics of various role models and the core ethical values they represent.
3. Explain how community and public service supports the development of core ethical values.
4. Analyze personal and group adherence to student codes of conduct.

E. Leadership, Advocacy, and Service

1. Demonstrate the ability to function effectively in both leadership and supportive roles.

2. Discuss motivational techniques used to improve personal and group achievement and develop rewards and sanctions for group accomplishments.
3. Develop and articulate a group's goals, shared values, and vision.
4. Plan and implement volunteer activities to benefit a health organization or cause.
5. Develop and defend a position or opinion on a health issue or problem and educate students and parents about the health issue or cause.

F. Health Services and Careers

1. Compare and contrast health and fitness services available in the school and community, demonstrate how to access them, and evaluate each comparing benefits and costs.
2. Compare and contrast preparation and job requirements for health and fitness careers.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Communication

1. Use appropriate research methodology to investigate a health problem or issue.
2. Develop, present, and evaluate a multimedia health presentation and adapt it to address the needs and interests of varying audiences.
3. Teach others how to use communication skills, including refusal, negotiation, and assertiveness.
4. Employ strategies to improve communication and listening skills and assess their effectiveness.
5. Evaluate the economic, political, social, and aesthetic impacts of health messages found in literature, art, music, theater, and television.

B. Decision Making

1. Demonstrate and evaluate the use of decision making skills.
2. Evaluate factors that influence major health decisions and predict how those factors will change or conflict at various life stages.
3. Use reliable and valid health information to assess social situations and conditions that impact health and safety.
4. Analyze the use of ethics and personal values when making decisions.
5. Critique significant health decisions and debate the choices made.

C. Planning and Goal Setting

1. Appraise individual and family needs in order to achieve and maintain wellness and design a plan for lifelong wellness.
2. Evaluate how family, peers, healthcare providers, and the community support or hinder the achievement of a wellness plan.

D. Character Development

1. Demonstrate character based on core ethical values.
2. Analyze how role models, and the core ethical values they represent, influence society.

3. Analyze the impact of community or public service on individual and community core ethical values.

E. Leadership. Advocacy, and Service

1. Assess personal and group contributions and strengths that lead to the achievement of goals and tasks.
2. Evaluate personal participation as both a leader and follower.
3. Discuss factors that influence intrinsic and extrinsic motivation and employ motivational techniques to enhance group productivity.
4. Evaluate a group's ability to be respectful, supportive, and adherent to codes of conduct.
5. Develop and articulate the group's goals, shared values, vision, and work plan.
6. Plan, implement, and evaluate activities to benefit a health organization, cause, or issue.
7. Assess community awareness and understanding about a local, state, national, or international health issue.

F. Health Services and Careers

1. Access health and fitness services, programs, and resources and evaluate them for cost, availability, accessibility, benefits, and accreditation.
2. Analyze the preparation, licensing, and responsibilities of wellness and fitness professionals.
3. Compare and contrast health insurance and reimbursement plans.

STANDARD 2.3 (DRUGS AND MEDICINES) ALL STUDENTS WILL LEARN AND APPLY INFORMATION ABOUT ALCOHOL, TOBACCO, OTHER DRUGS AND MEDICINES TO MAKE DECISIONS THAT SUPPORT A HEALTHY, ACTIVE LIFESTYLE.

Descriptive Statement: This standard aims to provide students with information on the responsible use of medicines as well as the effects of alcohol, tobacco, and other drugs. The appropriate use of medicines can prevent serious health problems, reduce absenteeism from work and school, and enhance the quality of life. Conversely, the misuse or abuse of substances such as alcohol, tobacco, and other drugs can impair judgment and lead to illness and injury. Helping students to acknowledge the internal and external pressures that influence them to use substances enables and empowers them to make choices that support a healthy, active lifestyle.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Medicines

1. Identify different kinds of medicines.
2. Explain that medicines can be helpful or harmful and that when used correctly, medicines can help keep people healthy.
3. Discuss basic rules when taking medicines.

B. Alcohol, Tobacco and Other Drugs

1. Define drug and give examples of harmful and/or illegal drugs.
2. Explain that tobacco use contributes to lung diseases and fires.
3. Discuss how tobacco smoke impacts the environment and the health of nonsmokers.
4. Discuss how alcohol use contributes to injuries such as falls and motor vehicle crashes
5. Identify substances that should never be consumed or inhaled such as drug look-alikes, glue, poisons, and cleaning fluids.

C. Dependency/Addiction and Treatment

1. Explain that some people cannot control their use of alcohol, tobacco, and other drugs.
2. Explain that people who abuse alcohol, tobacco, and other drugs can get help.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Medicines

1. Distinguish between over-the-counter and prescription medicines.
2. Identify commonly used medicines and discuss why they are used.
3. Discuss the importance of taking medicines as ordered, not sharing medicines with others, and reporting any side effects to a trusted adult.

B. Alcohol, Tobacco, and Other Drugs

1. Explain why it is illegal to use or possess certain drugs/substances.
2. Describe the short- and long-term physical effects of tobacco use.
3. Discuss the impact of second-hand/passive smoke on the health of nonsmokers.
4. Identify the short- and long-term physical and behavioral effects of alcohol use and abuse.
5. Identify the physical and behavioral effects of marijuana use.
6. Explain that brain damage, lung damage, and death can occur from inhaling certain substances, such as solvents, propellants, and medicinal gases.

C. Dependency/Addiction and Treatment

1. Discuss signs that a person might have a problem with the use of alcohol, tobacco, and other drugs.
2. Identify where individuals with a substance abuse problem can get help.
3. Differentiate among drug use, abuse, and misuse.
4. Describe how advertising, peers, and adults influence children and teenagers to try alcohol, tobacco, and other drugs.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Medicines

1. Discuss factors to consider when choosing an over-the-counter medicine.
2. Discuss medicines used to treat common diseases and health conditions.
3. Discuss the safe administration and storage of over-the-counter and prescription medicines.
4. Describe factors that impact the effectiveness of a medicine.

B. Alcohol, Tobacco, and Other Drugs

1. Describe how tobacco use contributes to the incidence of respiratory diseases, cancer, and cardiovascular disease.
2. Describe ways to reduce the health impact of tobacco smoke on non-smokers.
3. Describe how the use and abuse of alcohol impacts behavior and contributes to the incidence of illness and injuries.
4. Discuss the short- and long-term physical and behavioral effects of inhalant use, including brain, heart, and lung damage and death.
5. Discuss the classifications of illegal drugs and controlled substances and give examples of each.
6. Describe the physical and behavioral effects of each classification of drugs.
7. Discuss the relationship between injected drug use and diseases such as HIV/AIDS and hepatitis.
8. Discuss the legal and financial consequences of the use, sale, and possession of illegal substances.

C. Dependency/Addiction and Treatment

1. Describe the signs and symptoms of a substance abuse problem and the stages that lead to dependency/addiction.
2. Identify ways to quit using alcohol, tobacco, and other drugs and discuss factors that support an individual to quit.
3. Discuss factors that contribute to the use and abuse of alcohol, tobacco, and other drugs by adolescents, such as advertising and the media, group pressures, low self-esteem, genetics, and poor role models.
4. Describe how substance abuse affects the individual and the family and describe ways that family and friends can support a drug-free lifestyle.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Medicines

1. Compare and contrast commonly used over-the-counter medicines.
2. Classify commonly administered medicines and describe the potential side effects of each classification.
3. Recommend safe practices for the use of prescription medicines.
4. Compare and contrast the benefits and dangers of naturally occurring substances, such as herbs, organics, and supplements.

B. Alcohol, Tobacco, and Other Drugs

1. Investigate the relationship between tobacco use and respiratory diseases, cancer, heart disease, stroke, and injuries.
2. Investigate the health risks posed to nonsmokers by second hand/passive smoking.
3. Investigate how the use and abuse of alcohol contributes to illnesses such as cancer, liver disease, heart disease, and injuries.
4. Analyze how the use and abuse of alcohol impacts thinking, reaction time, and behavior.
5. Describe sudden sniffing syndrome and the resultant brain, nerve, and vital organ damage that can result from the use of inhaled substances.
6. Compare and contrast the physical and behavioral effects of each classification of drugs.
7. Analyze health risks associated with injecting drug use.
8. Investigate the legal and financial consequences of the use, sale, and possession of illegal substances.
9. Discuss how the use of alcohol and other drugs influences decision-making and places one at risk for sexual assault, pregnancy, and STDs.

C. Dependency/Addiction and Treatment

1. Analyze the physical, social, and emotional indicators and stages of dependency.
2. Discuss ways to quit using substances and discuss factors that support the ability to quit.
3. Analyze factors that influence the use and abuse alcohol, tobacco, and other drugs.
4. Describe how substance abuse affects the individual, the family, and the community.

5. Discuss how tolerance, synergistic effects, and antagonistic effects have an impact on the use of drugs and medicines.
6. Discuss theories about dependency, such as genetic predisposition, gender-related predisposition, and multiple risks.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Medicines

1. Investigate the use of new or experimental medicines and discuss the potential risks and benefits.
2. Evaluate the effectiveness of a medicine, considering the dosage, side effects, route of administration, cost, and benefits vs. risks.
3. Debate the benefits and dangers of naturally occurring substances such as herbal supplements.

B. Alcohol, Tobacco, and Other Drugs

1. Investigate tobacco use as a contributing or causative factor in the incidence of cancer, heart disease, emphysema and other lung diseases, and stroke.
2. Assess the impact of passive smoke on the health of children, individuals with allergies and asthma, and nonsmokers and describe initiatives created to lessen the impact.
3. Summarize the impact of alcohol use and abuse on body systems and organs including the cardiovascular system, the liver, the reproductive system, and the immune system.
4. Describe the impact of alcohol and other drugs on those areas of the brain that control vision, sleep, coordination, and reaction time and assess how the use and abuse of alcohol and other drugs impairs behavior, judgment, and memory.
5. Investigate the relationship between alcohol and other drug use and the incidence of motor vehicle crashes.
6. Predict the physical, behavioral, and legal impacts of commonly abused substances, such as marijuana, inhalants, anabolic steroids, and party drugs.
7. Investigate the relationship between injected drug use and the incidence of diseases such as HIV and hepatitis.
8. Investigate the relationship between the use of alcohol, GHB, Ecstasy, and other drugs and the incidence of date rape, sexual assault, STDs, and unintended pregnancy.

C. Dependency/Addiction and Treatment

1. Compare and contrast the physical, social, and emotional indicators of possible substance abuse.
2. Compare and contrast the physical and psychological stages of dependency.
3. Assess and evaluate factors that influence the use of alcohol, tobacco, and other drugs.
4. Evaluate factors that support an individual to quit using substances.
5. Predict the short-and long-term impacts of substance abuse on the individual, the family, the community, and society.

STANDARD 2.4 (HUMAN RELATIONSHIPS AND SEXUALITY) ALL STUDENTS WILL LEARN THE PHYSICAL, EMOTIONAL, AND SOCIAL ASPECTS OF HUMAN RELATIONSHIPS AND SEXUALITY AND APPLY THESE CONCEPTS TO SUPPORT A HEALTHY, ACTIVE LIFESTYLE.

Descriptive Statement: This standard seeks to provide students with an understanding of the physical, emotional and social aspects of human relationships and sexuality and how they support a healthy, active lifestyle. Students learn how to develop and maintain healthy relationships with friends and family. Additionally, students learn medically-accurate information about both abstinence and contraception and learn the skills to enact behaviors to reduce or eliminate the occurrence of sexually transmitted diseases, HIV/AIDS, and unintended pregnancy.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Relationships

1. Identify different kinds of families and explain that families may differ for many reasons.
2. Explain that all family members have certain rights and responsibilities that contribute to the successful functioning of the family.
3. Explain that families experiencing a change or crisis can get help if they need it.
4. Define friendship and explain that friends are important throughout life.
5. Identify appropriate ways for children to show affection and caring.

B. Sexuality

1. Explain the physical differences and similarities of the genders.

C. Pregnancy and Parenting

1. Explain that human beings develop inside their birth mother, are helpless when born, and must be fed, clothed, and nurtured.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Relationships

1. Describe different kinds of families and discuss how families can share love, values, and traditions, provide emotional support, and set boundaries and limits.
2. Compare the roles, rights, and responsibilities of various family members.
3. Discuss ways that families adjust to changes in the nature or structure of the family.
4. Discuss how culture and tradition influence personal and family development.
5. Discuss factors that support healthy relationships with friends and family.
6. Describe the characteristics of a friend.
7. Describe appropriate ways to show affection and caring.

B. Sexuality

1. Describe the physical, social, and emotional changes occurring at puberty.
2. Discuss why puberty begins and ends at different ages for different people.

C. Pregnancy and Parenting

1. Explain that after fertilization, cells divide to create a fetus/embryo that grows and develops inside the uterus during pregnancy.
2. Discuss how the health of the birth mother impacts the development of the fetus.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Relationships

1. Compare and contrast the interconnected and cooperative roles of family members.
2. Investigate ways that individuals and families enhance and support social and emotional health and meet basic human needs.
3. Describe the characteristics of a healthy relationship and discuss factors that support and sustain it.
4. Describe how peer relationships may change during adolescence.
5. Discuss different forms of dating and explain the role of dating in personal growth.

B. Sexuality

1. Describe the individual growth patterns of males and females during adolescence.
2. Discuss strategies to remain abstinent and resist pressures to become sexually active.
3. Discuss the possible physical, social, and emotional impacts of adolescent sexual activity.
4. Describe behaviors that place one at risk for HIV/AIDS, STDs, or unintended pregnancy.
5. Identify sexual feelings common to young adolescents and differentiate between having sexual feelings and acting on them.
6. Discuss how parents, peers, and the media influence attitudes about sexuality.

C. Pregnancy and Parenting

1. Discuss fertilization, embryonic development, and fetal development.
2. Describe the signs and symptoms of pregnancy.
3. Recommend prenatal practices that support a healthy pregnancy.
4. Discuss the potential challenges faced by adolescent parents and their families.
5. Recommend sources of information and help for parents.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Relationships

1. Compare and contrast the current and historical role of marriage and the family in community and society.

2. Discuss changes in family structures and the forces that influence change.
3. Analyze how relationships evolve over time, focusing on changes in friendships, family, dating relationships, and lifetime commitments such as marriage.
4. Discuss factors that enhance and sustain loving, healthy relationships.
5. Describe how various cultures date or select life partners.
6. Differentiate among affection, love, commitment, and sexual attraction.
7. Describe the signs of an unhealthy relationship and develop strategies to end it.
8. Develop standards for dating situations, such as dating in groups, setting limits, or only dating someone of the same age.

B. Sexuality

1. Discuss the influence of hormones, heredity, nutrition, and the environment on the physical, social, and emotional changes that occur at puberty.
2. Analyze internal and external pressures to become sexually active.
3. Describe the physical, emotional, and social benefits of sexual abstinence and develop strategies to resist pressures to become sexually active.
4. Discuss the potential short- and long-term physical, emotional, and social impacts of adolescent sexual activity.
5. Analyze how certain behaviors place one at greater risk for HIV/AIDS, STDs, and unintended pregnancy.
6. Compare and contrast methods of contraception, risk reduction, and risk elimination and explain how reliability, religious beliefs, age, gender, health history, and cost may influence their use.
7. Discuss topics regarding sexual orientation.
8. Discuss the importance of routine healthcare procedures such as breast self examination and testicular examination.

C. Pregnancy and Parenting

1. Describe fertilization and each stage of embryonic and fetal development.
2. Discuss the signs and symptoms of pregnancy and explain how pregnancy is confirmed.
3. Analyze the physical and emotional changes that occur during each stage of pregnancy, including the stages of labor and childbirth.
4. Discuss the importance of regular prenatal care to help prevent complications that may occur during pregnancy and childbirth.
5. Describe the potential impact of alcohol, tobacco, other drugs, medicines, diseases, and environmental hazards on pre-natal and post-natal development.
6. Describe the physical, economic, emotional, social, cultural and intellectual responsibilities of parenthood.
7. Describe effective parenting strategies and resources for help with parenting.
8. Analyze the challenges and responsibilities of being a teen mother and/or teen father.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Relationships

1. Investigate how different family structures, values, rituals, and traditions meet basic human needs.
2. Discuss how personal independence, past experiences, and social responsibility influence the choice of friends in young adulthood.
3. Recommend strategies to enhance and maintain mature, loving, respectful, and healthy relationships.
4. Compare and contrast adolescent and adult dating practices.
5. Describe the important characteristics of a spouse or life partner and describe factors to consider when contemplating a lifetime commitment such as marriage.
6. Discuss the importance of physical and emotional intimacy in a healthy relationship.
7. Develop strategies to address domestic or dating violence and end unhealthy relationships.

B. Sexuality

1. Appraise internal and external influences and pressures to become sexually active and demonstrate strategies to resist those pressures.
2. Critique behaviors that place one at greater risk for HIV/AIDS, STDs, and unintended pregnancy.
3. Analyze factors that influence the choice, use, and effectiveness of contraception, risk reduction, or risk elimination strategies.
4. Predict how cultural and religious beliefs, popular trends and fads, and current and emerging technological advances influence sexuality and reproductive health.
5. Investigate current and emerging topics related to sexual orientation.
6. Investigate female and male reproductive and sexual health issues and discuss the importance of education and preventive healthcare (e.g., breast/testicular exam).

C. Pregnancy and Childbirth

1. Compare and contrast embryonic and fetal development in single and multiple pregnancies.
2. Describe the stages of labor and childbirth and compare childbirth options.
3. Analyze the physical and emotional changes that occur during each trimester of pregnancy and postpartum.
4. Compare and contrast pregnancy options.
5. Discuss physical, emotional, social, cultural, religious, and legal issues related to pregnancy termination.
6. Investigate the relationship between prenatal exposure to alcohol, tobacco and other drugs, infections, and environmental hazards, and the incidence of fetal alcohol syndrome, sudden infant death syndrome, low birth weight, and disabilities.
7. Analyze the physical, economic, emotional, social, intellectual, and cultural demands of raising a child.
8. Assess and evaluate parenting strategies used at various stages of child development.
9. Investigate the legal rights and responsibilities of teen mothers and fathers.
10. Discuss factors that influence the decision to have or to adopt a child.
11. Analyze trends in teen pregnancy rates, teen births, and out-of-wedlock births, considering shifts in marriage patterns, sexual norms, contraceptive practices, the availability of abortion, and the size and composition of the teen population.

STANDARD 2.5 (MOTOR SKILL DEVELOPMENT) ALL STUDENTS WILL UTILIZE SAFE, EFFICIENT, AND EFFECTIVE MOVEMENT TO DEVELOP AND MAINTAIN A HEALTHY, ACTIVE LIFESTYLE.

Descriptive Statement: This standard enables students to understand how to move and why it is necessary. When individuals learn to move safely, effectively, and efficiently, and feel comfortable and confident in the performance of motor skills, they are more likely to participate in health-enhancing forms of physical activity throughout life. In order to meet this standard, students must participate in a wide range of developmentally-appropriate games, sports, dance, and lifetime recreational activities that will help students develop and maintain a healthy, active lifestyle.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Movement Skills

1. Perform movement skills (locomotor, nonlocomotor, and manipulative skills) with developmentally appropriate control in isolated (skill practice) and applied (game/sport/dance/recreational) settings.
2. Demonstrate smooth transitions between sequential movement skills used in combination.
3. Demonstrate control in traveling, weight bearing, and balance activities on a variety of body parts.
4. Move in personal and general space at different levels, directions, and pathways.
5. Respond in movement to changes in tempo, beat, rhythm, or musical style.
6. Change the effort (force, flow, energy) or range (extension) of a movement skill or skill combination.
7. Change a movement skill in response to a changing environment such as a dance partner, obstacle, smaller target, or larger space.
8. Respond appropriately to verbal and visual cues during physical activity.
9. Correct movement errors in response to feedback.
10. Demonstrate the use of creative movement in response to music, poetry, or stories.

B. Movement Concepts

1. Identify body planes and parts.
2. Explain how changes in direction, pathways and levels can alter movement.
3. Explain how changes in rhythm, tempo, beat, and musical style can alter movement.
4. Distinguish between personal and general space.
5. Explain verbal and visual cues used to improve skill performance.
6. Define and use basic movement vocabulary to describe physical activity.

C. Strategy

1. Differentiate between competitive and cooperative strategies.

D. Sportsmanship, Rules, and Safety

1. Explain why good sportsmanship is important and demonstrate positive behaviors during participation.
2. Follow basic activity and safety rules and explain why they are important.
3. Explain that practice and being healthy contribute to safe and improved performance.

E. Sport Psychology

1. Explain that mental attitude influences physical performance.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Movement Skills

1. Perform movement skills with developmentally appropriate form in both isolated and applied settings.
2. Demonstrate smooth transitions between sequential movement skills used in applied settings (e.g., creative dance, gymnastics routine, trap-dribble-shoot).
3. Demonstrate weight transfer, balance, coordination, and agility while employing various movement skills.
4. Employ various rhythms, tempos, musical styles, relationships, directions, pathways, speeds, and levels during movement.
5. Respond to multiple changes in rhythm, tempo, beat, and musical style.
6. Change the effort or range of a movement skill or combination to improve performance.
7. Modify and adapt movement skills in relation to body parts (e.g., clapping over one's head), other participants (e.g., dance partner, teammate), objects, and boundaries.
8. Respond appropriately to visual and verbal cues during physical activity.
9. Correct movement errors in response to feedback and explain how the change improves performance.
10. Apply a learned skill to another movement setting.
11. Demonstrate both improvised and choreographed movement sequences such as moving to poetry, or performing a folk dance or an aerobic routine.

B. Movement Concepts

1. Discuss the importance of proper body mechanics when performing movement skills.
2. Explain the fundamental principles of force, motion, base of support, and center of gravity as applied to physical activity.
3. Explain how changing the energy, flow, effort, or range of movement skill changes the quality of the movement (e.g., baby steps vs. giant steps).
4. Discuss ways to refine and increase control when performing movement skills.
5. Discuss ways that personal and general space is used in all forms of physical activity (e.g., using the entire dance floor, position play in a sport).
6. Explain how a movement skill can be used in another movement setting.
7. Give examples of verbal and visual cues used to improve movement skill performance.
8. Define and use skill- and activity-specific vocabulary.

C. Strategy

1. Explain and demonstrate the use of simple strategies, including player positioning, faking and dodging, and defending space.

D. Sportsmanship, Rules and Safety

1. Discuss the characteristics of good sportsmanship and demonstrate appropriate behavior as both a player and an observer during physical activity.
2. Describe activity-specific rules, explain their importance for the safety and enjoyment of participants, and follow the rules during physical activity.
3. Describe and demonstrate ways to handle and care for equipment safely and responsibly.

E. Sport Psychology

1. Describe a variety of mental strategies used to prepare for physical activity.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Movement Skills

1. Demonstrate developmentally appropriate form when using movement skills in applied settings.
2. Demonstrate the use of force and motion to impact the quality of physical movement.
3. Employ the principles of space, effort, and relationships to modify movement.
4. Modify movement in response to dynamic, interactive environments.
5. Use visual and verbal cues to improve performance during a physical activity.
6. Evaluate the critical elements of a movement skill or skill combination and provide appropriate feedback.
7. Apply a learned skill to another movement setting.
8. Perform planned movement sequences based on a theme and using rhythm or music.

B. Movement Concepts

1. Analyze movement sequences for the proper use of body mechanics and suggest improvements.
2. Discuss how the principles of force and motion impact the quality of movement.
3. Analyze how the use of energy and flow contributes to more effective, efficient, or creative movement.
4. Describe how to refine and increase control when performing movement skills.
5. Discuss how to modify movement in response to dynamic, interactive environments.
6. Analyze how a movement skill can be transferred to another movement setting.
7. Discuss how practice, regular participation, and appropriate feedback improve performance.
8. Discuss how movement activities pose opportunities for self-expression, creativity, and teamwork.

C. Strategy

1. Describe and demonstrate the use of offensive, defensive, and cooperative strategies.

D. Sportsmanship, Rules, and Safety

1. Compare the roles and responsibilities of participants and observers and recommend strategies to improve behavior, participation, and enjoyment.
2. Summarize general and specific activity rules, describe how they enhance participation and safety, and follow them during activities.
3. Select, use, and care for equipment used during physical activity.

E. Sport Psychology

1. Describe and demonstrate the use of mental preparation strategies prior to and during participation in physical activity.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Movement Skills

1. Demonstrate mechanically correct form and control when using and combining movement skills in applied settings.
2. Demonstrate how equilibrium, rotation, and range of motion impact performance
3. Apply the impact of various applications of force and motion during physical activity.
4. Perform and assess the quality of movement flow in response to dynamic, interactive environments.
5. Compare and contrast the use of movement skills across various forms of physical activity and transfer a movement skill from one activity to another.
6. Detect and correct errors in personal movement performance and modify it in response to internal and external feedback.
7. Create and perform movement activities that combine movement skills into smooth flowing sequences (e.g., gymnastic routine, interpretative dance, tai chi).

B. Movement Concepts

1. Describe how equilibrium, rotation, and range of motion impact performance.
2. Analyze the application of balance and counterbalance when performing or observing movement skills.
3. Compare and contrast the use of space and flow in physical activities.
4. Summarize how movement can be made more interesting, creative, or effective.
5. Discuss the stages of movement skill development and the importance of practice.
6. Describe the influence of history and culture on games, sports, and dance.

C. Strategy

1. Compare and contrast offensive, defensive, and cooperative strategies and use them effectively in applied settings.

D. Sportsmanship, Rules, and Safety

1. Analyze participant and observer behaviors for evidence of good sportsmanship.
2. Employ general- and activity-specific rules and analyze their impact on participation.

E. Sport Psychology

1. Use specific strategies, including visualization and positive self-talk, to prepare for physical activity and assess their effectiveness.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Movement Skills

1. Demonstrate mature, mechanically correct form and control when combining and modifying movement skills in applied settings.
2. Use information from internal and external sources to detect, analyze, and correct errors in movement skills and patterns used in applied settings.
3. Apply and analyze the use of momentum, force, and torque to enhance or change the performance of movement skills during physical activity.
4. Transfer specialized movement skills that use similar patterns from one movement activity to another.
5. Design and perform smooth flowing sequences with intentional changes in direction, flow, and speed (e.g., martial arts, line dance, roller blading, swimming).

B. Movement Concepts

1. Analyze a movement performance and discuss how each part can be made more interesting, creative, efficient, and/or more effective.
2. Predict changes in movement performance based on the application of balance, counter balance, weight transfer, and agility.
3. Analyze the impact of kinesthetic awareness, "perfect" practice, motivation, and appropriate challenges in facilitating the learning and refinement of a movement skill.
4. Analyze how movement activities reflect culture, era, geography, or historical context.

C. Strategy

1. Demonstrate and assess tactical understanding by using appropriate and effective offensive, defensive, and cooperative strategies in applied settings.

D. Sportsmanship, Rules, and Safety

1. Analyze the role, responsibilities, and preparation of players, officials, trainers, and other participants and recommend strategies to improve their performance and behavior.
2. Investigate the impact of rules and regulations on the health and safety of participants.

E. Sport Psychology

1. Compare, contrast, and apply sport psychology techniques to mentally prepare for physical activity.

STANDARD 2.6 (FITNESS) ALL STUDENTS WILL APPLY HEALTH-RELATED AND SKILL-RELATED FITNESS CONCEPTS AND SKILLS TO DEVELOP AND MAINTAIN A HEALTHY, ACTIVE LIFESTYLE.

Descriptive Statement: This standard enables students to understand the components of health-related fitness (cardiorespiratory endurance, body composition, flexibility, muscular strength and muscular endurance) and skill-related fitness (speed, agility, reaction time, coordination, and power). Students learn how each component is developed and measured and how to design and implement a personal fitness plan that supports a healthy, active lifestyle.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Fitness and Physical Activity

1. Identify the components of health-related and skill-related fitness and identify activities that develop each component.
2. Identify body responses associated with moderate to vigorous physical activity including sweating, a fast heart rate, and heavy breathing.

B. Training

1. Explain that too much or not enough exercise can be harmful.
2. Explain that participation in regular physical activity contributes to wellness.

C. Achieving and Assessing Fitness

1. Engage in moderate to vigorous physical activity that develops all components of fitness.
2. Monitor heart rate and breathing before, during, and after exercise.
3. Develop a fitness goal and monitor achievement of the goal.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Fitness and Physical Activity

1. Discuss the physical, social, and emotional benefits of regular physical activity.
2. Explain each component of health-related and skill-related fitness and explain how specific activities develop each component.
3. Describe how body systems respond to vigorous exercise.
4. Discuss factors such as heredity, training, and diet that influence fitness.
5. Describe how technology has improved fitness activities.

B. Training

1. Discuss the importance of regular physical activity.
2. Describe and apply the training principles of frequency, intensity, and time (FIT) during physical activity.

3. Explain that using performance-enhancing substances, including anabolic steroids and supplements, may be unsafe and illegal.

C. Achieving and Assessing Fitness

1. Engage in moderate to vigorous physical activity that develops all components of fitness.
2. Maintain continuous aerobic activity for a specified time period.
3. Monitor physiological responses before, during, and after exercise.
4. Develop a health-related fitness goal and use technology to track fitness status.
5. Demonstrate age and gender-specific progress towards improving each component of fitness.
6. Demonstrate safe and appropriate techniques while engaging in fitness activities.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Fitness and Physical Activity

1. Describe the physical, social, and emotional benefits of regular physical activity.
2. Differentiate among activities that improve skill fitness versus health-related fitness.
3. Describe how body systems adapt over time to regular physical activity.
4. Describe how gender, age, heredity, training, and health behaviors impact fitness.
5. Investigate technological advances that impact physical activity and fitness.
6. Describe the relationship between physical activity, healthy eating, and body composition.

B. Training

1. Discuss the relationship between practice, training, and injury prevention.
2. Discuss how the principles of training including FIT, overload, progression, and specificity improve personal fitness.
3. Apply the appropriate training principles to various forms of physical activity used to improve personal fitness.
4. Describe the physical and behavioral effects of anabolic steroids and other performance enhancing substances and discuss legal and competition issues related to their use.

C. Achieving and Assessing Fitness

1. Engage in moderate to vigorous forms of physical activity that address each component of fitness.
2. Engage in physical activity at a target heart rate for a minimum of 20 minutes.
3. Monitor physiological indicators before, during, and after exercise.
4. Assess personal fitness, develop a personal fitness plan based on the findings, and use technology to implement the plan.
5. Demonstrate age- and gender-specific progress towards improving each component of fitness.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Fitness and Physical Activity

1. Summarize the potential short- and long-term physical, social, and emotional benefits of regular physical activity.
2. Differentiate how body systems adapt to acute exercise vs. regular exercise over a period of time.
3. Predict how factors such as health status, interests, environmental conditions, and available time impact personal fitness.
4. Analyze the positive and negative impacts of technological advances on exercise, health, and fitness.
5. Describe ways to achieve a healthy body composition through healthy eating and physical activity.
6. Distinguish between facts and fallacies regarding the marketing of fitness products, services, and information.

B. Training

1. Recognize signs and symptoms that warrant exercise termination and possible follow-up with a healthcare professional.
2. Apply training principles to establish a progression of activity that will improve each component of fitness.
3. Describe and demonstrate various training methods, including isotonic, isometric, interval, and circuit methods.
4. Investigate the physical, behavioral, legal, and competitive consequences of the use of anabolic steroids and other performance enhancing substances.

C. Achieving and Assessing Fitness

1. Engage in a variety of sustained, vigorous physical activities that enhance each component of fitness.
2. Perform at the intensity level needed to enhance cardiovascular fitness, as determined by target heart rate, perceived exertion, and recovery heart rate.
3. Monitor physiological responses before, during and after exercise and compare changes.
4. Use health data and information from internal and external sources to develop a personal fitness plan, and use technology to evaluate the implementation and outcomes of the plan.
5. Demonstrate age- and gender-specific progress towards improving each component of fitness.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Fitness and Physical Activity

1. Predict the short- and long-term physical, social, and emotional benefits and potential problems associated with regular physical activity.

2. Summarize the causes, influences, and responses of body systems during exercise.
3. Describe how preventive healthcare, physiological monitoring, hydration, a safe environment, and exercising with a partner contribute to safe fitness activities.
4. Evaluate the role of genetics, gender, age, nutrition, activity level, and exercise type on body composition.

B. Training

1. Develop and implement a training program to maximize health benefits and prevent exercise-related injuries and illnesses.
2. Apply training principles to establish a progression of activity that will improve each component of fitness and justify the use of each principle.
3. Compare and contrast the use of drugs, fitness products, and fads to achieve fitness.

C. Achieving and Assessing Fitness

1. Engage in a variety of sustained, vigorous physical activities to enhance each component of fitness.
2. Perform at the intensity level needed to enhance cardiovascular fitness, monitor physiological responses before, during, and after exercise, and modify exercise appropriately in response.
3. Assess personal level of fitness, design a personal fitness plan considering current health and fitness status, goals and interests, skill level, accessibility and costs, and use technology to implement, monitor, and evaluate the plan.
4. Demonstrate age and gender-specific progress towards the achievement of fitness goals for each component of health-related and skill-related fitness.
5. Modify a fitness plan to accommodate for injury, illness, pregnancy, aging, and disability.
6. Discuss the use of body mass index, body fat percentage, and fat deposition as measures of fitness.

New Jersey Core Curriculum Content Standards for Language Arts Literacy

INTRODUCTION

The Vision

The New Jersey Core Curriculum Content Standards for language arts literacy capture language experiences all children need in order to grow intellectually, socially, and emotionally in classrooms across the curriculum. The standards are intended to promote students' capacities to construct meaning in any arena, with others as well as on their own. If students learn to read, write, speak, listen, and view critically, strategically, and creatively, and if they learn to use these arts individually and with others, they will have the literacy skills they need to discover personal and shared meaning throughout their lives.

The language arts are integrative, interactive ways of communicating that develop through reading, writing, speaking, listening, and viewing. They are the means through which one is able to receive information; think logically and creatively; express ideas; understand and participate meaningfully in spoken, written, and nonverbal communications; formulate and answer questions; and search for, organize, evaluate, and apply information. Literacy is a way to acquire knowledge for thinking and communicating; it is more than the acquisition of a specific, predetermined set of skills in reading, writing, speaking, listening, and viewing. Literacy is also recognizing and understanding one's own purposes for thinking and communicating (through print or nonprint, verbal or nonverbal means) and being able to use one's own resources to achieve those purposes.

Underlying the standards for language arts literacy are four assumptions about language learning. First, language is an active process for constructing meaning. Even the quiet listener is actively working to link prior knowledge and understanding to what other people say. Second, language develops in a social context. While language is used in private activities, the use of language almost always relates to others. Each of us is an active audience for those who create spoken, written, or visual texts; others listen to our thoughts and read our writing. Third, language ability increases in complexity if language is used in increasingly complex ways. Language learners must engage in texts and conversations that are rich in ideas and increasingly complex in the patterns of language they display. Finally, learners achieve mastery of language arts literacy not by adding skills one-by-one to their repertoire, but rather by using and exploring language in its many dimensions.

Although the standards define five separate strands of the language arts, these arts are integrative and meant to work together to inform and enrich each other. The language arts are interdependent processes that often merge in an integrated act of rehearsal, reflection, and learning. The division of language arts into separate standards and lettered strands is merely a method that allows us to highlight the special features of each and to identify developmentally

appropriate skills and behaviors among language arts learners. The separation is not meant to suggest hierarchical order or any linear or sequential approach to literacy instruction. The standards are not intended to be a curriculum guide but should be used as a catalyst for curriculum alignment and renewal. They are the foundation for the universal thinking skills and strategies that enable all learners to contribute effectively to a global society.

The standards represent the importance of language arts to learning in two distinct but complementary ways. On the one hand, students develop the skills they will carry with them into adulthood as contributing members of society: critical thinking, problem solving, and creativity. On the other hand, students discover the inner joy and self-illumination that come with reading great literature and communicating through speech and writing. These two views are complementary; in striving for the goals of one, the goals of the other are fostered.

State Reading Goal

A primary state goal for reading, and cornerstone of Governor McGreevey's education reform initiative, is that **"Students will read well and independently by the end of the third grade."** In order to accomplish this goal, the language arts committee has placed a strong emphasis on developing performance benchmarks in grades K-12 that reflect both a state and national perspective on reading achievement. Teachers and parents can assist students in achieving these proficiencies by recognizing that learning extends beyond the classroom door to everyday experiences related to self, others, and the world.

The following set of beliefs about students, teaching, and the language arts learning process were established as the underlying framework for standards revisions. A "balanced and comprehensive approach" to instruction is essential in all language arts programs, and classrooms should provide students with:

- Differentiated instructional strategies to address individual learning styles and diverse student needs;
- Exposure to and experience with many literary genres through reaction, reflection, and introspection;
- Instructional skills and strategies, including direct and explicit instruction; modeling of skills/strategies for students, and opportunities for students to be a teacher to others, that ready students to become competent readers, writers, speakers, listeners, and viewers;
- Instruction delivered in meaningful contexts so that students preserve the learning for future use or transfer to other learning;
- "Active learning" in which students are engaged in active questioning, active listening, authentic activities, and the learning process;
- Explicit teaching of skills as a means of supporting mastery of standard English conventions, comprehension strategies, and communication skills;
- Acquisition of reading and literacy skills in all content areas to support learning;
- Development of self-help strategies that are practiced across all disciplines;
- Connections to prior knowledge as a necessary component of new learning and retention;
- Immersion in reading, writing, listening, speaking, and viewing strands that leads to deeper and wider understanding;
- Use of textual resources, especially those linked to current technologies, as an integral part

of a language arts literacy program;
- Experiences using technology as a tool for learning, especially as it applies to research and data retrieval;
- Time to practice learned skills and reflect on one's work as an important part of the learning process;
- Activities encouraging problem-solving and inquiry skills as critical attributes to learning; and
- Explicit and systematic instruction in phonics and phonemic awareness, fluency, comprehension, and vocabulary development.

The language arts classroom should be purposeful, stimulating to the senses, and engaging for all types of learners, including varied activities for visual, auditory, and kinesthetic learners. Classroom organization should include some form of team and partner work and provide an environment that is responsive to students' personal and academic goals.

Brain research clearly shows implications for student learning when there are links to the arts, like classical music, and the real world. For example, having young children recite the alphabet with a song enables the learner to remember and retain the information longer. Language arts classrooms should be alive with authentic learning opportunities that motivate and incorporate the arts.

Revised Standards

The language arts standards adopted by the State Board of Education in 1996 and the revised standards continue to be aligned with national standards developed by the National Council of Teachers of English and the International Reading Association. Achieve, Inc., reviewed New Jersey's 1996 standards in language arts literacy and provided recommendations for improvement. They suggested that the standards provide more clarity and specificity by including benchmarking at more grade levels. In addition, New Jersey standards should reflect sufficient rigor and complexity from grade level to grade level. Achieve recommended that attention be given to the primary grades and integration of phonics instruction in the context of meaningful reading and writing tasks. Achieve's recommendations are reflected in the revised standards.

The revised standards are also influenced by the research of the National Reading Panel (2000). There are five dimensions in early reading, plus a child's motivation to read, that must be developed so that young students become proficient readers. A comprehensive and balanced elementary literacy program should include the following areas:
- Phonemic awareness;
- Explicit and systematic phonics;
- Reading fluency;
- Reading comprehension;
- Vocabulary development; and
- The child's motivation.

The reading standard (3.1) incorporates these literacy components throughout the grades and

takes into consideration individual learning differences and student motivation. Specific to reading, speaking, and listening standards are oral language, decoding, comprehension, vocabulary development, and phonemic awareness. Phonemic awareness, a child's ability to hear, identify, and manipulate individual sounds (phonemes) in spoken words, contributes to early, emergent reading development. Since phonemic awareness is mastered by most students prior to the third grade, these skills are included only at the K-2 grade level. With regard to phonics, even though there are different approaches to teaching phonics, research findings indicate that comprehensive phonics programs should incorporate explicit and systematic phonics instruction. Phonics programs should provide ample opportunities for children to apply what they are learning about letters and sounds to the reading of words, sentences, and stories. Effective instruction in the early grades includes providing students with a variety of literary genres, including decodable books that contain specific letter-sound words they are learning. Hence, students understand that there is a predictable relationship between sounds and letters in spoken and written language, and in the language found in their favorite books.

The expectation for reading at all grade levels is that students will read widely. It is important for all students, including students with disabilities and second language learners, to have multiple opportunities to participate in read-alouds, shared and individual reading of high quality materials. Guided repeated oral reading is an effective way of helping students improve their comprehension and fluency skills. Many studies have found that students who become fluent readers read a great deal (National Reading Panel, 2000). Good readers read and comprehend text using similar strategies. Effective strategies used by successful readers at all grade levels include:

- Drawing from prior knowledge to make meaning from print;
- Creating visual images in one's mind to enhance understanding;
- Monitoring one's own reading and checking for understanding;
- Asking questions to identify key points in text and remembering them;
- Making conscious inferences about important information presented;
- Synthesizing new information with existing understanding about a topic;
- Summarizing and understanding how different parts of text are related; and
- Evaluating and forming opinions about ideas presented.

In the language arts classroom, the role of writing is an integral part of reading instruction and offers a means for readers to extend and clarify their ideas. Students need many opportunities to write each day. Through writing workshops, students learn specific writing strategies and produce their own authentic writings. It is important that students at all grade levels write a range of pieces, including narrative, persuasive, informational, fiction, and poetry. In addition, there should be a seamless integration of word processing activities into a program of reading and writing instruction. Technology can be used as an effective tool for literacy tasks, and can facilitate reading comprehension and provide individualized instruction in areas like vocabulary development, phonemic awareness, and word processing.

Standards and Strands

There are five language arts literacy standards, each of which has lettered strands and learning

expectations for each grade level in grades K-8, as well as a combined cluster for grades 9-12. The standards and strands are outlined below:

3.1 Reading
- A. Concepts About Print
- B. Phonological Awareness
- C. Decoding and Word Recognition
- D. Fluency
- E. Reading Strategies (before, during, and after reading)
- F. Vocabulary and Concept Development
- G. Comprehension Skills and Response to Text
- H. Inquiry and Research

3.2 Writing
- A. Writing as a Process
- B. Writing as a Product
- C. Mechanics, Spelling, and Handwriting
- D. Writing Forms, Audiences, and Purposes

3.3 Speaking
- A. Discussion
- B. Questioning (Inquiry) and Contributing
- C. Word Choice
- D. Oral Presentation

3.4 Listening
- A. Active Listening
- B. Listening Comprehension

3.5 Viewing and Media Literacy
- A. Constructing Meaning
- B. Visual and Verbal Messages
- C. Living with Media

On February 25, 2003, Governor McGreevey's Executive Order No. 8 created the Early Literacy Task Force and required the development of individual grade-level indicators in kindergarten through fourth grade for all five language arts. Subsequently, the department developed grade-level expectations for grades 5-8 to comply with requirements set forth in the No Child Left Behind Act of 2001 and to align with federal testing requirements.

The early elementary school experiences are critical to school success. Five-year-olds enter school with a wide range of abilities, motivation to learn, and preschool and home literacy experiences. It is understood that some schools continue to provide half-day kindergartens, while others provide full-day programs for children. Half-day kindergarten programs should make every effort to address the prescribed grade-level expectations outlined in this document. It may be necessary for administrators to review their existing kindergarten schedule, program, staff

needs, or classroom materials in order for all students to achieve these standards.

Summary

The revised standards for language arts literacy, along with the vision statement, offer a framework for classroom instruction and curriculum development in our schools. While this is a powerful challenge to students, teachers, principals, and parents, it can be met through a united commitment. The singular goal of increasing student achievement through effective instruction in the skills required to live and work in a 21st century global community is the driving force of this challenge and these standards. The primary grades are building blocks that lay the foundation for learning and skill development so that each succeeding grade builds on the foundation achieved by all students in their efforts to become fluent readers, writers, speakers, listeners, and viewers. As language arts skills spiral and become increasingly sophisticated, students progress through the grades with increased confidence and proficiency in oral and written language, comprehension, and critical thinking skills. Language skills are essential to furthering learning, communication, career development, and the human spirit.

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STANDARD 3.1 (READING) ALL STUDENTS WILL UNDERSTAND AND APPLY THE KNOWLEDGE OF SOUNDS, LETTERS, AND WORDS IN WRITTEN ENGLISH TO BECOME INDEPENDENT AND FLUENT READERS, AND WILL READ A VARIETY OF MATERIALS AND TEXTS WITH FLUENCY AND COMPREHENSION.

Descriptive Statement: A primary reading goal is for students of all grades to read independently with fluency and comprehension so that they become lifelong readers and learners. In order to achieve this goal, students benefit from "daily opportunities to read books they choose for themselves, for their own purposes, and their own pleasures" (Calkins, 2001). Students should read grade-level appropriate or more challenging classic and contemporary literature and informational readings, both self-selected and assigned. In order to grow as readers and deepen their understanding of texts, students need many opportunities to think about, talk about, and write about the texts they are reading. A diversity of reading material (including fiction and nonfiction) provides students with opportunities to grow intellectually, emotionally, and socially as they consider universal themes, diverse cultures and perspectives, and the common aspects of human existence.

In early reading instruction (preK-2), children need rich experiences with oral language and learning about sounds, letters and words, and their relationships. Phonemic awareness, knowledge of the relationships between sounds and letters, and an understanding of the features of written English texts are essential to beginning reading. Direct systematic phonics instruction enables many students to develop their knowledge of phonics, and provides a bridge to apply this knowledge in becoming independent and fluent readers. Systematic phonics instruction typically involves explicitly teaching students a pre-specified set of letter-sound relations and having students read text that provides practice using these relations to decode words (National Reading Panel, 2000). Additionally, direct instruction and time to practice these skills should be provided in comprehension, strategy, reading fluency, and vocabulary development at all grade levels. It is important to help students become fluent readers in the early years, and then help them expand their literacy abilities as they progress through the middle and high school grades.

The reading process requires readers to respond to texts, both personally and critically, and relate prior knowledge and personal experiences to written texts. Students apply literal, inferential, and critical comprehension strategies before, during, and after reading to examine, construct, and extend meaning. In becoming fluent readers, students must draw on the word meaning and sentence structure of text and sound/symbol relationships, and use these cueing systems interchangeably in order to comprehend and gain meaning. Students need to recognize that what they hear, speak, write, and view contributes to the content and quality of their reading experiences.

Strands and Cumulative Progress Indicators

By the end of Kindergarten, students will:

A. Concepts About Print

1. Realize that speech can be recorded in words (e.g., his/her own name; words and

symbols in the environment).
2. Distinguish letters from words.
3. Recognize that words are separated by spaces.
4. Follow words left to right and from top to bottom.
5. Recognize that print represents spoken language.
6. Demonstrate understanding of the function of a book and its parts, including front and back and title page.

B. Phonological Awareness (includes phonemic awareness)

1. Demonstrate understanding that spoken words consist of sequences of phonemes.
2. Demonstrate phonemic awareness by rhyming, clapping syllables, and substituting sounds.
3. Understand that the sequence of letters in a written word represents the sequence of sounds (phonemes) in a spoken word (alphabetic principle).
4. Learn many, though not all, one-to-one letter-sound correspondences.
5. Given a spoken word, produce another word that rhymes with it.

C. Decoding and Word Recognition

1. Recognize some words by sight.
2. Recognize and name most uppercase and lowercase letters of the alphabet.
3. Recognize and read one's name.

D. Fluency

1. Practice reading behaviors such as retelling, reenacting, or dramatizing stories.
2. Recognize when a simple text fails to make sense when listening to a story read aloud.
3. Attempt to follow along in book while listening to a story read aloud.
4. Listen and respond attentively to literary texts (e.g., nursery rhymes) and functional texts (e.g., science books).

E. Reading Strategies (before, during, and after reading)

1. Begin to track or follow print when listening to a familiar text being read.
2. Think ahead and make simple predictions about text.
3. Use picture clues to aid understanding of story content.
4. Relate personal experiences to story characters' experiences, language, customs, and cultures with assistance from teacher.
5. "Read" familiar texts from memory, not necessarily verbatim from the print alone.

F. Vocabulary and Concept Development

1. Continue to develop a vocabulary through meaningful, concrete experiences.
2. Identify and sort words in basic categories.
3. Explain meanings of common signs and symbols.
4. Use new vocabulary and grammatical construction in own speech.

G. Comprehension Skills and Response to Text

1. Respond to a variety of poems and stories through movement, art, music, and drama.
2. Verbally identify the main character, setting, and important events in a story read aloud.

3. Identify favorite books and stories.
4. Retell a story read aloud using main characters and events.
5. Participate in shared reading experiences.
6. Make predictions based on illustrations or portions of stories.

H. Inquiry and Research

1. Locate and know the purposes for various literacy areas of the classroom and the library/media center.
2. Choose books related to topics of interest.

Building upon knowledge and skills gained in the preceding grade, by the end of Grade 1, students will:

A. Concepts About Print

1. Match oral words to printed words (e.g., pointing to print as one reads).
2. Practice reading print in the environment at school and at home with assistance.
3. Locate and identify the title, author, and illustrator of a book or reading selection.
4. Interpret simple graphs, charts, and diagrams**.**

B. Phonological Awareness (includes phonemic awareness)

1. Demonstrate understanding of all sound- symbol relationships.
2. Blend or segment the phonemes of most one-syllable words.
3. Listen and identify the number of syllables in a word.
4. Merge spoken segments into a word.
5. Add, delete, or change sounds to change words (e.g., cow to how, cat to can).

C. Decoding and Word Recognition

1. Identify all consonant sounds in spoken words (including blends such as bl, br; and digraphs such as th, wh).
2. Recognize and use rhyming words to reinforce decoding skills.
3. Decode regular one-syllable words and nonsense words (e.g., sit, zot).
4. Use sound-letter correspondence knowledge to sound out unknown words when reading text.
5. Recognize high frequency words in and out of context.
6. Decode unknown words using basic phonetic analysis.
7. Decode unknown words using context clues.

D. Fluency

1. Answer questions correctly that are posed about stories read.
2. Begin to read simple text with fluency.
3. Read with fluency both fiction and nonfiction that is grade-level appropriate.

E. Reading Strategies (before, during, and after reading)

1. Use prior knowledge to make sense of text.
2. Establish a purpose for reading and adjust reading rate.
3. Use pictures as cues to check for meaning.

4. Check to see if what is being read makes sense.
5. Monitor their reading by using fix-up strategies (e.g., searching for clues).
6. Use graphic organizers to build on experiences and extend learning.
7. Begin to apply study skills strategies (e.g., survey, question, read, recite, and review—SQ3R) to assist with retention and new learning.

F. Vocabulary and Concept Development

1. Develop a vocabulary of 300-500 high-frequency sight words and phonetically regular words.
2. Use and explain common antonyms and synonyms.
3. Comprehend common and/or specific vocabulary in informational texts and literature.

G. Comprehension Skills and Response to Text

1. Draw simple conclusions from information gathered from pictures, print, and people.
2. Demonstrate familiarity with genres of text, including storybooks, expository texts, poetry, and newspapers.
3. Sequence information learned from text into a logical order to retell facts.
4. Identify, describe, compare, and contrast the elements of plot, setting, and characters.
5. Make simple inferences.
6. Read regularly in independent-level materials**.**
7. Engage in silent independent reading for specific purposes.

H. Inquiry and Research

1. Ask and explore questions related to a topic of interest.
2. Draw conclusions from information and data gathered.
3. Be exposed to and read a variety of fiction and nonfiction, and produce evidence of reading.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 2, students will:

A. Concepts About Print/Text

1. Use titles, tables of contents, and chapter headings to locate information.
2. Recognize the purpose of a paragraph.

B. Phonological Awareness (includes phonemic awareness)

1. Add, delete, or change middle sounds to change words (e.g., pat to put).
2. Use knowledge of letter-sound correspondences to sound out unknown words.

C. Decoding and Word Recognition

1. Look for known chunks or small words to attempt to decode an unknown word.
2. Reread inserting the beginning sound of the unknown word.
3. Decode regular multisyllable words and parts of words (e.g., capital, Kalamazoo).
4. Read many irregularly spelled words and such spelling patterns as diphthongs, special vowel spellings, and common endings.

D. Fluency

1. Pause at appropriate end points (e.g., comma, period).
2. Use appropriate pace; "not choppy" or word-by-word.
3. Use appropriate inflection (e.g., dialogue, exclamations, questions).
4. Read silently without finger or lip movement.
5. Self-monitor when text does not make sense.
6. Employ learned strategies to determine if text makes sense without being prompted.

E. Reading Strategies (before, during, and after reading)

1. Skip over difficult words in an effort to read on and determine meaning.
2. Return to the beginning of a sentence and try again.

F. Vocabulary and Concept Development

1. Develop a vocabulary of 500-800 regular and irregular sight words.
2. Know and relate meanings of simple prefixes and suffixes.
3. Demonstrate evidence of expanding language repertory.
4. Understand concept of antonyms and synonyms.
5. Begin to use a grade-appropriate dictionary with assistance from teacher.

G. Comprehension Skills and Response to Text

1. Demonstrate ability to recall facts and details of text.
2. Recognize cause and effect in text.
3. Make inferences and support them with textual information.
4 Continue to identify story elements in text.
5. Respond to text by using how, why, and what-if questions.

H. Inquiry and Research

1. Locate information using alphabetical order.
2. Read a variety of nonfiction and fiction books and produce evidence of reading.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:

A. Concepts About Print/Text

1. Recognize that printed materials provide specific information.
2. Recognize purposes for print conventions such as end-sentence punctuation, paragraphing, and bold print.
3. Use a glossary or index to locate information in a text.

B. Phonological Awareness (includes phonemic awareness)

1. Demonstrate a sophisticated sense of sound-symbol relationships, including all phonemes (e.g., blends, digraphs, diphthongs).

C. Decoding and Word Recognition

1. Know sounds for a range of prefixes and suffixes (e.g., re-, ex-, -ment, -tion).

2. Use letter-sound knowledge and structural analysis to decode words.
3. Use context to accurately read words with more than one pronunciation.

D. Fluency

1. Recognize grade-level words accurately and with ease so that a text sounds like spoken language when read aloud.
2. Read longer text and chapter books independently and silently.
3. Read aloud with proper phrasing, inflection, and intonation.

E. Reading Strategies (before, during, after reading)

1. Set purpose for reading and check to verify or change predictions during/after reading.
2. Monitor comprehension and accuracy while reading in context and self-correct errors.
3. Use pictures and context clues to assist with decoding of new words.
4. Develop and use graphic organizers to build on experiences and extend learning.

F. Vocabulary and Concept Development

1. Spell previously studied words and spelling patterns accurately.
2. Point to or clearly identify specific words or wording that cause comprehension difficulties.
3. Infer word meanings from taught roots, prefixes, and suffixes.
4. Use a grade-appropriate dictionary with assistance from teacher.
5. Use pictures and context clues to assist with meaning of new words.

G. Comprehension Skills and Response to Text

1. Recognize purpose of the text.
2. Distinguish cause/effect, fact/opinion, and main idea/supporting details in interpreting texts.
3. Interpret information in graphs, charts, and diagrams.
4. Ask how, why, and what-if questions in interpreting nonfiction texts.
5. Recognize how authors use humor, sarcasm, and imagery to extend meaning.
6. Discuss underlying theme or message in interpreting fiction.
7. Summarize major points from fiction and nonfiction texts.
8. Draw conclusions and inferences from texts.
9. Recognize first-person "I" point of view.
10. Compare and contrast story plots, characters, settings, and themes.
11. Participate in creative responses to texts (e.g., dramatizations, oral presentations).
12. Read regularly in materials appropriate for their independent reading level.
13. Read and comprehend both fiction and nonfiction that is appropriately designed for grade level.
14. Use information and reasoning to examine bases of hypotheses and opinions.

H. Inquiry and Research

1. Use library classification systems, print or electronic, to locate information.
2. Draw conclusions from information and data gathered.
3. Read a variety of nonfiction and fiction books and produce evidence of understanding.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Concepts About Print/Text

1. Identify differences of various print formats, including newspapers, magazines, books, and reference resources.
2. Recognize purposes and uses for print conventions such as paragraphs, end-sentence punctuation, and bold print.
3. Identify and locate features that support text meaning (e.g., maps, charts, illustrations).

B. Phonological Awareness

No additional indicators at this grade level.

C. Decoding and Word Recognition

1. Use letter-sound correspondence and structural analysis (e.g., roots, affixes) to decode words.
2. Know and use common word families to decode unfamiliar words.
3. Recognize compound words, contractions, and common abbreviations.

D. Fluency

1. Use appropriate rhythm, flow, meter, and pronunciation in demonstrating understanding of punctuation marks.
2. Read at different speeds using scanning, skimming, or careful reading as appropriate.

E. Reading Strategies (before, during, and after reading)

1. Use knowledge of word meaning, language structure, and sound-symbol relationships to check understanding when reading.
2. Identify specific words or passages causing comprehension difficulties and seek clarification.
3. Select useful visual organizers before, during, and after reading to organize information (e.g., Venn diagrams).

F. Vocabulary and Concept Development

1. Infer word meanings from learned roots, prefixes, and suffixes.
2. Infer specific word meanings in the context of reading passages.
3. Identify and correctly use antonyms, synonyms, homophones, and homographs.
4. Use a grade-appropriate dictionary (independently) to define unknown words.

G. Comprehension Skills and Response to Text

1. Discuss underlying themes across cultures in various texts.
2. Distinguish cause and effect, fact and opinion, main idea, and supporting details in nonfiction texts (e.g., science, social studies).
3. Cite evidence from text to support conclusions.
4. Understand author's opinions and how they address culture, ethnicity, gender, and

historical periods**.**
5. Follow simple multiple-steps in written instructions**.**
6. Recognize an author's point of view.
7. Identify and summarize central ideas in informational texts.
8. Recognize differences among forms of literature, including poetry, drama, fiction, and nonfiction.
9. Recognize literary elements in stories, including setting, characters, plot, and mood.
10. Identify some literary devices in stories.
11. Identify the structures in poetry.
12. Identify the structures in drama**.**
13. Read regularly in materials appropriate for their independent reading level.

H. Inquiry and Research
1. Use library classification systems, print or electronic, to locate information.
2. Investigate a favorite author and produce evidence of research.
3. Read independently and research topics using a variety of materials to satisfy personal, academic, and social needs, and produce evidence of reading.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:

A. Concepts About Print/Text
1. Use a text index and glossary appropriately.
2. Survey and explain text features that contribute to comprehension (e.g., headings, introductory and concluding paragraphs).

B. Phonological Awareness
No additional indicators at this grade level.

C. Decoding and Word Recognition
1. Use the pronunciation key of a dictionary to decode new words.
2. Use context clues or knowledge of phonics, syllabication, prefixes, and suffixes to decode new words.
3. Interpret new words correctly in context.
4. Apply spelling and syllabication rules that aid in decoding and word recognition.

D. Fluency
1. Adjust reading speed appropriately for different purposes and audiences.
2. Apply knowledge of letter-sound associations, language structures, and context to recognize words.
3. Read aloud in ways that reflect understanding of proper phrasing and intonation.
4. Read silently for the purpose of increasing speed, accuracy, and reading fluency.
5. Apply self-correcting strategies to decode and gain meaning from print both, orally and silently.

E. Reading Strategies (before, during, and after reading)

1. Activate prior knowledge and anticipate what will be read or heard.
2. Vary reading strategies according to their purpose for reading and the nature of the text.
3. Reread to make sense of difficult paragraphs or sections of text.
4. Make revisions to text predictions during and after reading.
5. Apply graphic organizers to illustrate key concepts and relationships in a text**.**

F. Vocabulary and Concept Development

1. Infer word meanings from learned roots, prefixes, and suffixes.
2. Infer specific word meanings in the context of reading passages.
3. Identify and correctly use antonyms, synonyms, homophones, and homographs.
4. Use a grade-level appropriate dictionary independently to define unknown words.
5. Use a thesaurus to identify alternative word choices and meanings.

G. Comprehension Skills and Response to Text

1. Identify author's purpose, views, and beliefs.
2. Identify genre by their distinctive elements (e.g. tall tale-exaggeration).
3. Use cause and effect and sequence of events to gain meaning.
4. Anticipate and construct meaning from text by making conscious connections to self, an author, and others.
5. Recognize persuasive and propaganda techniques used to influence readers.
6. Recognize historical and cultural biases and different points of view.
7. Understand that theme refers to the central idea or meaning of a selection and recognize themes, whether implied or stated directly.
8. Distinguish between major and minor details.
9. Make inferences using textual information and provide supporting evidence.
10. Recognize common organizational patterns in text that support comprehension (e.g., headings, captions).
11. Identify and analyze text types, formats, and elements in nonfiction.
12. Recognize literary elements in stories, including setting, characters, plot, and mood.
13. Recognize figurative language in text (e.g. simile, metaphor, personification, alliteration).
14. Identify and respond to the elements of sound and structure in poetry.
15. Identify the structures in drama.
16. Read regularly in materials appropriate for their independent reading level.
17. Interpret idiomatic expressions.

H. Inquiry and Research

1. Use library classification systems, print or electronic, to locate information.
2. Develop and revise questions for investigations prior to, during, and after reading.
3. Use multiple sources to locate information relevant to research questions.
4. Read independently and research topics using a variety of materials to satisfy personal, academic, and social needs, and produce evidence of reading.
5. Draw conclusions from information gathered from multiple sources.
6. Interpret and use graphic sources of information such as maps, graphs, timelines, or tables to address research questions.

7. Summarize and organize information by taking notes, outlining ideas, and/or making charts.
8. Produce projects and reports, using visuals, media, and/or technology to show learning and support the learning of an audience.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Concepts About Print/Text

1. Use a text index and glossary independently and appropriately.
2. Survey and explain text features that contribute to comprehension (e.g., headings, introductory, concluding paragraphs).
3. Recognize and use common print formats to obtain information (e.g., newspapers, magazines, electronic sources).

B. Phonological Awareness

No additional indicators at this grade level.

C. Decoding and Word Recognition

1. Use a dictionary to decode new words independently.
2. Use context clues or knowledge of phonics, syllabication, prefixes, and suffixes to decode new words.
3. Apply knowledge of new words correctly (refer to word parts and word origin).
4. Apply spelling and syllabication rules that aid in decoding and word recognition.

D. Fluency

1. Adjust reading speed appropriately for different purposes and audiences.
2. Read aloud in ways that reflect understanding of proper phrasing and intonation.
3. Read silently for the purpose of increasing speed, accuracy, and reading fluency.
4. Apply self-correcting strategies to decode and gain meaning from print, both orally and silently.

E. Reading Strategies (before, during, and after reading)

1. Activate prior knowledge and anticipate what will be read or heard.
2. Vary reading strategies according to their purpose for reading and the nature of the text.
3. Reread to make sense of difficult paragraphs or sections of text.
4. Make revisions to text predictions during and after reading.
5. Use reference aids for word meanings when reading.
6. Apply graphic organizers to illustrate key concepts and relationships in a text.

F. Vocabulary and Concept Development

1. Infer word meanings from learned roots, prefixes, and suffixes.
2. Infer specific word meanings in the context of reading passages.
3. Identify and correctly use antonyms, synonyms, homophones, and homographs.
4. Use the dictionary for a variety of purposes (e.g., definitions, word origins, parts of speech).

5. Use a thesaurus to identify alternative word choices and meanings.

G. Comprehension Skills and Response to Text

1. Respond critically to an author's purpose, ideas, views, and beliefs.
2. Identify genre by their distinctive elements (e.g. tall tale-exaggeration).
3. Use cause and effect and sequence of events to gain meaning.
4. Construct meaning from text by making conscious connections to self, an author, and others.
5. Recognize persuasive and propaganda techniques used to influence readers.
6. Recognize and understand historical and cultural biases and different points of view.
7. Identify and analyze features of themes conveyed through characters, actions, and images.
8. Distinguish between major and minor details.
9. Make inferences using textual information and provide supporting evidence.
10. Recognize common organizational patterns in text that support comprehension (e.g., headings captions).
11. Identify and analyze text types, formats, and elements in nonfiction.
12. Recognize characterization, setting, plot, theme, and point of view in fiction.
13. Recognize sensory details, figurative language, and other literary devices in text.
14. Identify and respond to the elements of sound and structure in poetry.
15. Analyze drama as a source of information, entertainment, persuasion, or transmitter of culture.
16. Identify and analyze elements of setting, plot, and characterization in plays that are read, written, or performed.
17. Explain ways that the setting contributes to the mood of a novel, play, or poem.
18. Interpret idiomatic expressions.

H. Inquiry and Research

1. Develop and revise questions for investigations prior to, during, and after reading.
2. Select and use multiple sources to locate information relevant to research questions.
3. Draw conclusions from information gathered from multiple sources.
4. Interpret and use graphic sources of information such as maps, graphs, timelines, or tables to address research questions.
5. Summarize and organize information by taking notes, outlining ideas, and/or making charts.
6. Produce projects and reports, using visuals, media, and/or technology to show learning and support the learning of an audience.
7. Compare themes, characters, settings, and ideas across texts or works and produce evidence of understanding.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:

A. Concepts About Print/Text

1. Identify and use common textual features (e.g., paragraphs, topic, sentence, index, glossary, table of contents) and graphic features, (e.g., charts, maps, diagrams) to

comprehend information.
2. Develop an understanding of the organizational structure of printed material (e.g. chronological, sequential, procedural text).

B. Phonological Awareness

No additional indicators at this grade level.

C. Decoding and Word Recognition

1. Distinguish among the spellings of homophones (e.g. cite, site, sight).
2. Apply spelling rules and syllabication that aid in correct spelling.
3. Continue to use structural analysis and context analysis to decode new words.

D. Fluency

1. Read aloud in selected texts reflecting understanding of the text and engaging the listener.
2. Read increasingly difficult texts silently with comprehension and fluency.
3. Apply self-correcting strategies automatically to decode and gain meaning from print both orally and silently.
4. Reread informational text for clarity.

E. Reading Strategies (before, during, and after reading)

1. Monitor reading for understanding by setting a purpose for reading, making and adjusting predictions, asking essential questions, and relating new learning to background experiences.
2. Use increasingly complex text guides to understand different text structure and organizational patterns (e.g. chronological sequence or comparison and contrast).

F. Vocabulary and Concept Development

1. Develop an extended vocabulary through both listening and independent reading.
2. Clarify word meanings through the use of a word's definition, example, restatement, or contrast.
3. Clarify pronunciations, meanings, alternate word choice, parts of speech, and etymology of words using the dictionary, thesaurus, glossary, and technology resources.
4. Expand reading vocabulary by identifying and correctly using idioms and words with literal and figurative meanings in their speaking and writing experiences.

G. Comprehension Skills and Response to Text

1. Speculate about text by generating literal and inferential questions.
2. Distinguish between essential and nonessential information.
3. Differentiate between fact, opinion, bias, and propaganda in newspapers, periodicals, and electronic texts.
4. Articulate the purposes and characteristics of different genres.
5. Analyze ideas and recurring themes found in texts, such as bravery, loyalty, friendship, and loneliness.
6. Develop an awareness of a variety of perspectives on a single event, setting, character, personality, or topic as expressed by different authors.

7. Locate and analyze the elements of setting, characterization, and plot to construct understanding of how characters influence the progression and resolution of the plot.
8. Read critically by identifying, analyzing, and applying knowledge of the purpose, structure, and elements of nonfiction and providing support from the text as evidence of understanding.
9. Read critically by identifying, analyzing, and applying knowledge of the theme, structure, style, and literary elements of fiction and providing support from the text as evidence of understanding.
10. Respond critically to text ideas and the author's craft by using textual evidence to support interpretations.
11. Identify and analyze literary techniques and elements, such as figurative language, meter, rhetorical and stylistic features of text.
12. Identify and analyze recurring themes across literary works.
13. Identify and understand the author's use of idioms, analogies, metaphors, and similes in prose and poetry.
14. Compare and contrast the perspectives of authors in a variety of interdisciplinary works.
15. Interpret text ideas through journal writing, discussion, and enactment.
16. Demonstrate the use of everyday texts (e.g., train schedules, directions, brochures) and make judgments about the importance of such documents.
17. Interpret idiomatic expressions.

H. Inquiry and Research

1. Produce written and oral work that demonstrates comprehension of informational materials.
2. Analyze a work of literature, showing how it reflects the heritage, traditions, attitudes, and beliefs of its authors.
3. Collect materials for a portfolio that reflect possible career choices.
4. Self-select materials appropriately related to a research project.
5. Read and compare at least two works, including books, related to the same genre, topic, or subject and produce evidence of reading (e.g., compare central ideas, characters, themes, plots, settings).

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Concepts About Print/Text

1. Identify and use organizational structures to comprehend information. (e.g., logical order, comparison/contrast, cause/effect, chronological, sequential, procedural text).

B. Phonological Awareness

No additional indicators at this grade level.

C. Decoding and Word Recognition

1. Distinguish among the spellings of homophones to determine meaning (e.g. cite, site, sight).
2. Apply spelling and syllabication rules that aid in decoding and word recognition.

3. Continue to use structural analysis and context analysis to decode new words.
4. Apply knowledge of word structures and patterns to read with automaticity.

D. Fluency

1. Read grade-level text orally with high accuracy and appropriate pacing, intonation, and expression.
2. Read increasingly difficult texts silently with comprehension and fluency.
3. Apply self-correcting strategies automatically to decode and gain meaning from print both orally and silently.
4. Adjust reading rate in response to the type of text and level of difficulty (e.g. recreational reading vs. informational reading).

E. Reading Strategies (before, during, and after reading)

1. Monitor reading for understanding by automatically setting a purpose for reading, making and adjusting predictions, asking essential questions, and relating new learning to background experiences.
2. Use increasingly complex text guides to understand different text structure and organizational patterns (e.g. chronological sequence or comparison and contrast).

F. Vocabulary and Concept Development

1. Develop and refine an extended vocabulary through listening and exposure to a variety of texts and independent reading.
2. Clarify word meanings through the use of a word's definition, example, restatement, or contrast.
3. Clarify pronunciations, meanings, alternate word choice, parts of speech, and etymology of words using the dictionary, thesaurus, glossary, and technology resources.
4. Expand reading vocabulary by identifying and correctly using idioms and words with literal and figurative meanings in their speaking and writing experiences.
5. Explain relationships between and among words including connotation/denotation, antonyms/synonyms, and words with multiple meanings.

G. Comprehension Skills and Response to Text

1. Differentiate between fact/opinion and bias and propaganda in newspapers, periodicals, and electronic texts.
2. Compare and analyze several authors' perspectives of a character, personality, topic, setting, or event.
3. Analyze ideas and recurring themes found in texts, such as good versus evil, across traditional and contemporary works.
4. Locate and analyze the elements of setting, characterization, and plot to construct understanding of how characters influence the progression and resolution of the plot.
5. Read critically by identifying, analyzing, and applying knowledge of the purpose, structure, and elements of nonfiction and providing support from the text as evidence of understanding.
6. Read critically by identifying, analyzing, and applying knowledge of the theme, structure, style, and literary elements of fiction and providing support from the text as evidence of understanding.

7. Respond critically to text ideas and the author's craft by using textual evidence to support interpretations.
8. Identify and analyze literary techniques and elements, such as figurative language, meter, rhetorical, and stylistic features of text.
9. Identify and analyze recurring themes across literary works.
10. Read critically and analyze poetic forms (e.g., ballad, sonnet, couplet).
11. Identify and understand the author's use of idioms, analogies, metaphors, and similes in prose and poetry.
12. Understand perspectives of authors in a variety of interdisciplinary works.
13. Interpret text ideas through journal writing, discussion, and enactment.
14. Demonstrate the use of everyday texts (e.g., train schedules, directions, brochures) and make judgments about the importance of such documents.
15. Compare and analyze the various works of writers through an author's study.

H. Inquiry and Research

1. Produce written and oral work that demonstrates comprehension of informational materials.
2. Analyze a work of literature, showing how it reflects the heritage, traditions, attitudes, and beliefs of its authors.
3. Collect materials for a portfolio that reflect personal career choices.
4. Self-select materials appropriately related to a research project.
5. Read and compare at least two works, including books, related to the same genre, topic, or subject and produce evidence of reading (e.g., compare central ideas, characters, themes, plots, settings).

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Concepts About Print/Text

No additional indicators at this grade level.

B. Phonological Awareness

No additional indicators at this grade level.

C. Decoding and Word Recognition

No additional indicators at this grade level.

D. Fluency

1. Read developmentally appropriate materials at an independent level with accuracy and speed.
2. Use appropriate rhythm, flow, meter, and pronunciation when reading.
3. Read a variety of genres and types of text with fluency and comprehension.

E. Reading Strategies (before, during, and after reading)

1. Identify, assess, and apply personal reading strategies that were most effective in previous learning from a variety of texts.

2. Practice visualizing techniques before, during, and after reading to aid in comprehension.
3. Judge the most effective graphic organizers to use with various text types for memory retention and monitoring comprehension.

F. Vocabulary and Concept Development

1. Use knowledge of word origins and word relationships, as well as historical and literary context clues, to determine the meanings of specialized vocabulary.
2. Use knowledge of root words to understand new words.
3. Apply reading vocabulary in different content areas.

G. Comprehension Skills and Response to Text

1. Identify, describe, evaluate, and synthesize the central ideas in informational texts.
2. Understand the study of literature and theories of literary criticism.
3. Understand that our literary heritage is marked by distinct literary movements and is part of a global literary tradition.
4. Compare and evaluate the relationship between past literary traditions and contemporary writing.
5. Analyze how works of a given period reflect historical and social events and conditions.
6. Recognize literary concepts, such as rhetorical device, logical fallacy, and jargon, and their effect on meaning.
7. Interpret how literary devices affect reading emotions and understanding.
8. Analyze and evaluate the appropriateness of diction and figurative language (e.g., irony, paradox).
9. Distinguish between essential and nonessential information, identifying the use of proper references and propaganda techniques where present.
10. Differentiate between fact and opinion by using complete and accurate information, coherent arguments, and points of view.
11. Analyze how an author's use of words creates tone and mood, and how choice of words advances the theme or purpose of the work.
12. Demonstrate familiarity with everyday texts such as job and college applications, W-2 forms, and contracts**.**
13. Read, comprehend, and be able to follow information gained from technical and instructional manuals (e.g., how-to books, computer manuals, or instructional manuals).

H. Inquiry and Research

1. Select appropriate electronic media for research and evaluate the quality of the information received.
2. Develop materials for a portfolio that reflect a specific career choice.
3. Develop increased ability to critically select works to support a research topic.
4. Read and critically analyze a variety of works, including books and other print materials (e.g., periodicals, journals, manuals), about one issue or topic, or books by a single author or in one genre, and produce evidence of reading.
5. Apply information gained from several sources or books on a single topic or by a single author to foster an argument, draw conclusions, or advance a position.
6. Critique the validity and logic of arguments advanced in public documents, their appeal

to various audiences, and the extent to which they anticipate and address reader concerns.

STANDARD 3.2 (WRITING) ALL STUDENTS WILL WRITE IN CLEAR, CONCISE, ORGANIZED LANGUAGE THAT VARIES IN CONTENT AND FORM FOR DIFFERENT AUDIENCES AND PURPOSES.

Descriptive Statement: Writing is a complex process that begins with the recording of one's thoughts. It is used for composition, communication, expression, learning, and engaging the reader. Proficient writers use a repertoire of strategies that enables them to vary form, style, and conventions in order to write for different purposes, audiences, and contexts. Students should have multiple opportunities to craft and practice writing, to generate ideas, and to refine, evaluate, and publish their writing. In a successful writing program, students develop and demonstrate fluency in all phases of the writing process, including prewriting, drafting, revising, editing of multiple drafts, and postwriting processes that include publishing, presenting, evaluating, and/or performing.

Students should be helped to understand the recursive nature and shifting perspectives of the writing process, in moving from the role of writer to the role of reader and back again. It is important for students to understand that writers write, then plan and revise, and then write again. They will learn to appreciate writing not only as a product, but also as a process and mode of thinking and communicating. "By the mysterious alchemy of the written word, we range over time and space, expanding our experiences, enriching our souls, and ultimately becoming more fully, more consciously human" (Keene, 1999). Students should recognize that what they hear, speak, read, and view contributes to the content and quality of their writing.

Strands and Cumulative Progress Indicators

By the end of Kindergarten, students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Recognize that thoughts and talk can be written down in words.
2. Observe the teacher modeling writing.
3. Generate and share ideas and experiences for a story.
4. Attempt to put ideas into writing using pictures, developmental spelling, or conventional text.
5. Write (print) own first and last name.
6. Participate in group writing activities such as experience stories, interactive writing, and shared writing.
7. Begin to sequence story events for writing using pictures, developmental spelling, or conventional text.

B. Writing as a Product (resulting in work samples)

1. Show and talk about work samples containing pictures, developmental spelling, or conventional text.
2. Begin to collect favorite work samples to place in personal writing folder.

C. Mechanics, Spelling, and Handwriting

1. Use letter/sound knowledge in attempting to write (print) some words.

2. Spell own name.
3. Recognize and begin to use left-to-right and top-to-bottom directionality and spacing between words when writing.
4. Gain increasing control of penmanship, including pencil grip, paper position, and beginning strokes.
5. Write all uppercase and lowercase letters of the alphabet from teacher copy.

D. Writing Forms, Audiences, and Purposes (exploring a variety of writing)

1. Communicate personal response to literature through drawing, telling, or writing.
2. Show and talk about favorite work samples (drawing or writing) with teacher and family.

Building upon knowledge and skills gained in the preceding grade, by the end of Grade 1, students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Begin to generate ideas for writing through talking, sharing, and drawing.
2. Observe the modeling of writing.
3. Begin to use a basic writing process to develop writing.
4. Use simple sentences to convey ideas.
5. Increase fluency (ability to write ideas easily) to improve writing.
6. Continue to use pictures, developmental spelling or conventional text to create writing drafts.
7. Revisit pictures and writings to add detail.
8. Begin to mimic an author's voice and patterns.
9. Begin to use a simple checklist to improve writing with teacher support.
10. Begin to use simple computer writing applications during some parts of the writing process.

B. Writing as a Product (resulting in a product or publication)

1. Produce finished writings to share with class and/or for publication.
2. Produce stories from personal experiences.
3. Show and talk about own writing for classroom audience.
4. Collect favorite works to place in personal writing folder.

C. Mechanics, Spelling, and Handwriting

1. Write all upper and lowercase letters of the alphabet from memory.
2. Begin to use basic punctuation and capitalization.
3. Apply sound/symbol relationships to writing words.
4. Use developmental spelling or phonics-based knowledge to spell independently, when necessary.
5. Develop awareness of conventional spelling.
6. Use left-to-right and top-to-bottom directionality and use appropriate spacing between words.

D. Writing Forms, Audiences, and Purposes (exploring a variety of writing)

1. Create written texts for others to read.
2. Produce a variety of writings, including stories, descriptions, and journal entries, showing relationships between illustrations and printed text.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 2, students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Generate ideas for writing: hearing stories, recalling experiences, brainstorming, and drawing.
2. Observe the modeling of writing.
3. Begin to develop an awareness of simple story structures and author's voice.
4. Use sentences to convey ideas in writing.
5. Maintain the use of a basic writing process to develop writing.
6. Use graphic organizers to assist with planning writing.
7. Compose readable first drafts.
8. Use everyday words in appropriate written context.
9. Reread drafts for meaning, to add details, and to improve correctness.
10. Focus on elaboration as a strategy for improving writing.
11. Participate with peers to comment on and react to each other's writing.
12. Use a simple checklist to improve elements of own writing.
13. Use computer writing applications during some parts of the writing process.

B. Writing as a Product (resulting in a formal product or publication)

1. Produce finished writings to share with classmates and/or for publication.
2. Produce stories from personal experiences.
3. Produce a narrative with a beginning, middle, and end.
4. Write nonfiction pieces, such as letters, procedures, biographies, or simple reports.
5. Organize favorite work samples in a writing folder or portfolio.

C. Mechanics, Spelling, and Handwriting

1. Use correct end point punctuation.
2. Apply basic rules of capitalization.
3. Use correct spelling of some high frequency words.
4. Apply sound/symbol relationships to writing words.
5. Recognize and apply basic spelling patterns.
6. Write legibly to meet district standards.

D. Writing Forms, Audiences, and Purposes (exploring a variety of forms)

1. Create written texts for others to read.
2. Generate ideas and write on topics in forms appropriate to science, social studies, or other subject areas.
3. Use writing as a tool for learning self-discovery and reflection.
4. Use reading and technology to support writing.

5. Write in a variety of simple genres to satisfy personal, academic, and social needs, such as letters, plays, procedures, biographies, or simple reports.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 3 students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Generate possible ideas for writing through recalling experiences, listening to stories, reading, brainstorming, and discussion.
2. Examine real-world examples of writing in various genres to gain understanding of how authors communicate ideas through form, structure, and author's voice.
3. Use graphic organizers to assist with planning writing.
4. Compose first drafts from prewriting work.
5. Revise a draft by rereading for meaning, narrowing the focus, sequencing, elaborating with detail, improving openings, closings, and word choice to show voice.
6. Participate with peers to comment on and react to each other's writing.
7. Build awareness of ways authors use paragraphs to support meaning.
8. Begin to develop author's voice in own writing.
9. Use reference materials to revise work, such as a dictionary or internet/software resource.
10. Edit work for basic spelling and mechanics.
11. Use computer word-processing applications during parts of the writing process.
12. Understand and use a checklist and/or rubric to improve writing.
13. Reflect on own writing, noting strengths and areas needing improvement.

B. Writing as a Product (resulting in a formal product or publication)

1. Write a descriptive piece, such as a description of a person, place, or object.
2. Write a narrative piece based on personal experiences.
3. Write a nonfiction piece and/or simple informational report across the curriculum.
4. Present and discuss writing with other students.
5. Apply elements of grade-appropriate rubrics to improve writing.
6. Develop a collection of writings (e.g., a literacy folder or portfolio).

C. Mechanics, Spelling, Handwriting

1. Use Standard English conventions that are developmentally appropriate to the grade level: sentences, punctuation, capitalization, and spelling.
2. Use grade-appropriate knowledge of English grammar and usage to craft writing**,** such as singular and plural nouns, subject/verb agreement, and appropriate parts of speech.
3. Study examples of narrative and expository writing to develop understanding of paragraphs and indentation.
4. Develop knowledge of English spelling through the use of patterns, structural analysis, and high frequency words.
5. Write legibly in manuscript or cursive to meet district standards.

D. Writing Forms, Audiences, and Purposes (exploring a variety of forms)

1. Write for a variety of purposes (e.g., to inform, entertain, persuade) and audiences (e.g.,

self, peers, community).
2. Develop fluency by writing daily and for sustained amounts of time.
3. Generate ideas for writing in a variety of situations and across the curriculum.
4. Write to express thoughts and ideas, to share experiences, and to communicate socially.
5. Write the events of a story sequentially.
6. Produce writing that demonstrates the use of a variety of sentence types, such as declarative, interrogative, exclamatory, and imperative.
7. Respond to literature through writing to demonstrate an understanding of a text.
8. Write narrative text (e.g., realistic or humorous story).
9. Write non-fiction text (e.g., reports, procedures, letters).

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Generate possible ideas for writing through talking, recalling experiences, hearing stories, reading, discussing models of writing, asking questions, and brainstorming.
2. Develop an awareness of form, structure, and author's voice in various genres.
3. Use strategies such as reflecting on personal experiences, reading, doing interviews or research, and using graphic organizers to generate and organize ideas for writing.
4. Draft writing in a selected genre with supporting structure according to the intended message, audience, and purpose for writing.
5. Revise drafts by rereading for meaning, narrowing the focus, elaborating, reworking organization, openings, and closings, and improving word choice and consistency of voice.
6. Review own writing with others to understand the reader's perspective and to consider ideas for revision.
7. Review and edit work for spelling, mechanics, clarity, and fluency.
8. Use a variety of reference materials to revise work, such as a dictionary, thesaurus, or internet/software resources.
9. Use computer writing applications during most of the writing process.
10. Understand and apply elements of grade-appropriate rubrics to improve and evaluate writing.
11. Reflect on one's writing, noting strengths and areas needing improvement.

B. Writing as a Product (resulting in a formal product or publication)

1. Create narrative pieces, such as memoir or personal narrative, which contain description and relate ideas, observations, or recollections of an event or experience.
2. Write informational reports across the curriculum that frame an issue or topic, include facts and details, and draw from more than one source of information.
3. Craft writing to elevate its quality by adding detail, changing the order of ideas, strengthening openings and closings, and using dialogue.
4. Build knowledge of the characteristics and structures of a variety of genres.
5. Sharpen focus and improve coherence by considering the relevancy of included details,

and adding, deleting, and rearranging appropriately.
6. Write sentences of varying lengths and complexity, using specific nouns, verbs, and descriptive words.
7. Recognize the difference between complete sentences and sentence fragments and examine the uses of each in real-world writing.
8. Improve the clarity of writing by rearranging words, sentences, and paragraphs.
9. Examine real-world writing to expand knowledge of sentences, paragraphs, usage, and authors' writing styles.
10. Provide logical sequence and support the purpose of writing by refining organizational structure and developing transitions between ideas.
11. Engage the reader from beginning to end with an interesting opening, logical sequence, and satisfying conclusion.

C. Mechanics, Spelling, and Handwriting

1. Use Standard English conventions that are appropriate to the grade level**,** such as sentence structure, grammar and usage, punctuation, capitalization, spelling, and handwriting.
2. Use increasingly complex sentence structure and syntax to express ideas.
3. Use grade appropriate knowledge of English grammar and usage to craft writing, such as subject/verb agreement, pronoun usage and agreement, and appropriate verb tenses.
4. Use punctuation correctly in sentences, such as ending punctuation, commas, and quotation marks in dialogue.
5. Use capital letters correctly in sentences, for proper nouns, and in titles.
6. Study examples of narrative and expository writing to develop understanding of the reasons for and use of paragraphs and indentation.
7. Indent in own writing to show the beginning of a paragraph.
8. Spell grade-appropriate words correctly with particular attention to frequently used words, contractions, and homophones.
9. Use knowledge of base words, structural analysis, and spelling patterns to expand spelling competency in writing.
10. Use a variety of reference materials, such as a dictionary, grammar reference, and internet/software resources to edit written work.
11. Write legibly in manuscript or cursive to meet district standards.

D. Writing Forms, Audiences, and Purposes (exploring a variety of forms)

1. Write for different purposes (e.g., to express ideas, to inform, to entertain, to respond to literature, to question, to share) and a variety of audiences (e.g., self, peers, community).
2. Study the characteristics of a variety of genres, including expository, narrative, poetry, and reflection.
3. Develop independence by setting self-selected purposes and generating topics for writing.
4. Write independently to satisfy personal, academic, and social needs (e.g., stories, summaries, letters, or poetry).
5. Use writing to paraphrase, clarify, and reflect on new learning across the curriculum.
6. Respond to literature in writing to demonstrate an understanding of the text, to explore personal reactions, and to connect personal experiences with the text.

7. Write narratives that relate recollections of an event or experience and establish a setting, characters, point of view, and sequence of events.
8. Write informational reports that frame a topic, include facts and details, and draw information from several sources.
9. Write formal and informal letters for a variety of audiences and purposes.
10. Use a variety of strategies to organize writing, including sequence, chronology, and cause/effect.
11. Demonstrate higher-order thinking skills through responses to open-ended and essay questions in content areas or as responses to literature.
12. Use relevant graphics in writing (e.g., maps, charts, illustrations).
13. Demonstrate the development of a personal style and voice in writing.
14. Review scoring criteria of a writing rubric.
15. Develop a collection of writings (e.g., a literacy folder or a literacy portfolio).

Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Write stories with multiple paragraphs that develop a situation or plot, describe the setting, and include an ending.
2. Write informational compositions with multiple paragraphs that present important ideas, provide details, and offer a concluding paragraph.
3. Generate possible ideas for writing through listening, talking, recalling experiences, hearing stories, reading, discussing models of writing, asking questions, and brainstorming.
4. Develop an awareness of form, structure, and author's voice in various genres.
5. Use strategies such as graphic organizers and outlines to elaborate and organize ideas for writing.
6. Draft writing in a selected genre with supporting structure according to the intended message, audience, and purpose for writing
7. Make decisions about the use of precise language, including adjectives, adverbs, verbs, and specific details, and justify the choices made.
8. Revise drafts by rereading for meaning, narrowing focus, elaborating and deleting, as well as reworking organization, openings, closings, word choice, and consistency of voice.
9. Review own writing with others to understand the reader's perspective and to consider and incorporate ideas for revision.
10. Review and edit work for spelling, usage, clarity, organization, and fluency.
11. Use a variety of reference materials to revise work.
12. Use computer writing applications during the writing process.
13. Understand and apply the elements of a scoring rubric to improve and evaluate writing.
14. Reflect on own writing, noting strengths and setting goals for improvement.

B. Writing as a Product (resulting in a formal product or publication)

1. Expand knowledge of characteristics and structures of selected genres.

2. Write a range of grade appropriate essays across curricula (e.g., persuasive, personal, descriptive, issue- based)
3. Write grade appropriate, multi-paragraph, expository pieces across curricula (e.g., problem/solution, cause/effect, hypothesis/results, feature articles, critique, research reports).
4. Write various types of prose, such as short stories, biography, autobiography, or memoir, that contain narrative elements.
5. Support main idea, topic, or theme with facts, examples, or explanations, including information from multiple sources.
6. Sharpen focus and improve coherence by considering the relevancy of included details and adding, deleting, and rearranging appropriately.
7. Write sentences of varying length and complexity, using specific nouns, verbs, and descriptive words.
8. Prepare a works consulted page for reports or research papers.
9. Provide logical sequence throughout multi-paragraph works by refining organizational structure and developing transitions between ideas.
10. Engage the reader from beginning to end with an interesting opening, logical sequence, and satisfying conclusion.

C. Mechanics, Spelling, and Handwriting

1. Use Standard English conventions in all writing, such as sentence structure, grammar and usage, punctuation, capitalization, spelling, and handwriting.
2. Use increasingly complex sentence structure and syntax to express ideas.
3. Use knowledge of English grammar and usage to express ideas effectively.
4. Use correct capitalization and punctuation, including commas and colons, throughout writing.
5. Use quotation marks and related punctuation correctly in passages of dialogue.
6. Use knowledge of roots, prefixes, suffixes, and English spelling patterns to spell words correctly in writing.
7. Study examples of narrative and expository writing to develop understanding of the reasons for and use of paragraphs and indentation.
8. Edit writing for correct grammar usage, capitalization, punctuation, and spelling.
9. Use a variety of reference materials, such as a dictionary, grammar reference, and/or internet/software resources to edit written work.
10. Write legibly in manuscript or cursive to meet district standards

D. Writing Forms, Audiences, and Purposes (exploring a variety of forms)

1. Write for different purposes (e.g., to express ideas, inform, entertain, respond to literature, persuade, question, reflect, clarify, share) and a variety of audiences (e.g., self, peers, community).
2. Gather, select, and organize information appropriate to a topic, task, and audience.
3. Develop and use knowledge of a variety of genres, including expository, narrative, persuasive, poetry, critiques, and everyday/ workplace writing.
4. Organize a response that develops insight into literature by exploring personal reactions, connecting to personal experiences, and referring to the text through sustained use of examples.

5. Use transitions between and within paragraphs.
6. Organize paragraphs using topic sentences.
7. Write narratives, establishing a plot or conflict, setting, characters, point of view, and resolution.
8. Use narrative techniques (e.g., dialogue, specific actions of characters, sensory description, and expression of thoughts and feelings of characters).
9. Write reports based on research with a scope narrow enough to be thoroughly covered, supporting the main ideas or topic with facts, examples, and explanations, and including a works consulted page.
10. Write persuasive essays with clearly stated positions or opinions supported by organized and relevant evidence to validate arguments and conclusions, and sources cited when needed.
11. Demonstrate the ability to write friendly/business letters in correct format and coherent style.
12. Use a variety of strategies to organize writing, including sequence, chronology, cause/effect, problem/solution, and order of importance.
13. Demonstrate higher-order thinking skills and writing clarity when answering open-ended and essay questions in content areas or as responses to literature.
14. Use relevant graphics in writing (e.g., maps, charts, illustrations, graphs, photographs).
15. Demonstrate the development of a personal style and voice in writing.
16. Review scoring criteria of relevant rubrics.
17. Develop a collection of writings (e.g., a literacy folder, a literacy portfolio).

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Write informational compositions of several paragraphs that engage the interest of the reader, state a clear purpose, develop the topic, and conclude with a detailed summary.
2. Generate ideas for writing through reading and making connections across the curriculum and with current events.
3. Expand knowledge about form, structure, and voice in a variety of genres.
4. Use strategies such as graphic organizers and outlines to elaborate and organize ideas for writing.
5. Draft writing in a selected genre with supporting structure and appropriate voice according to the intended message, audience, and purpose for writing.
6. Make decisions about the use of precise language, including adjectives, adverbs, verbs, and specific details, and justify the choices made.
7. Revise drafts by rereading for meaning, narrowing focus, elaborating and deleting, as well as reworking organization, openings, closings, word choice, and consistency of voice.
8. Review own writing with others to understand the reader's perspective and to consider and incorporate ideas for revision.
9. Review and edit work for spelling, usage, clarity, organization, and fluency.
10. Use a variety of reference materials to revise work.
11. Use computer writing applications during the writing process.

12. Understand and apply the elements of a scoring rubric to improve and evaluate writing.
13. Reflect on own writing, noting strengths and setting goals for improvement.

B. Writing as a Product (resulting in a formal product or publication)

1. Expand knowledge of characteristics, structures, and tone of selected genres.
2. Write a range of grade appropriate essays across curricula (e.g., persuasive, personal, descriptive, issue- based)
3. Write grade appropriate, multi-paragraph expository pieces across curricula (e.g., problem/solution, cause/effect, hypothesis/results, feature articles, critique, research reports).
4. Write various types of prose, such as short stories, biography, autobiography, or memoir that contain narrative elements.
5. Support main idea, topic, or theme with facts, examples, or explanations, including information from multiple sources.
6. Sharpen focus and improve coherence by considering the relevancy of included details, and adding, deleting, and rearranging appropriately.
7. Write sentences of varying length and complexity, using specific nouns, verbs, and descriptive words.
8. Prepare a works consulted page for reports or research papers.
9. Provide logical sequence throughout multi-paragraph works by refining organizational structure and developing transitions between ideas.
10. Engage the reader from beginning to end with an interesting opening, logical sequence, and satisfying conclusion.

C. Mechanics, Spelling, and Handwriting

1. Use Standard English conventions in all writing, such as sentence structure, grammar and usage, punctuation, capitalization, spelling, handwriting.
2. Use a variety of sentence types and syntax, including independent and dependent clauses and prepositional and adverbial phrases, to connect ideas and craft writing in an interesting and grammatically correct way.
3. Use knowledge of English grammar and usage to express ideas effectively.
4. Use correct capitalization and punctuation, including commas and colons, throughout writing.
5. Use quotation marks and related punctuation correctly in passages of dialogue.
6. Use knowledge of roots, prefixes, suffixes, and English spelling patterns to spell words correctly in writing.
7. Demonstrate understanding of reasons for paragraphs in narrative and expository writing and indent appropriately in own writing.
8. Edit writing for correct grammar usage, capitalization, punctuation, and spelling.
9. Use a variety of materials, such as a dictionary, grammar reference, and/or internet/software resources to edit written work.
10. Write legibly in manuscript or cursive to meet district standards.

D. Writing Forms, Audiences, and Purposes (exploring a variety of forms)

1. Write for different purposes (e.g., to express ideas, inform, entertain, respond to literature, persuade, question, reflect, clarify, share) and a variety of audiences (e.g., self,

peers, community).

2. Gather, select, and organize information appropriate to a topic, task, and audience.
3. Develop and use knowledge of a variety of genres, including expository, narrative, persuasive, poetry, critiques, and everyday/ workplace writing.
4. Organize a response that develops insight into literature by exploring personal reactions, connecting to personal experiences, and referring to the text through sustained use of examples.
5. Write narratives, establishing a plot or conflict, setting, characters, point of view, and resolution.
6. Use narrative techniques (e.g., dialogue, specific actions of characters, sensory description, and expression of thoughts and feelings of characters).
7. Write reports based on research with a scope narrow enough to be thoroughly covered, supporting the main ideas or topic with facts, examples, and explanations from authoritative sources, and including a works consulted page.
8. Write persuasive essays with clearly stated positions or opinions supported by organized and relevant evidence to validate arguments and conclusions, and sources cited when needed.
9. Demonstrate the ability to write business letters in correct format and coherent style.
10. Use a variety of strategies to organize writing, including sequence, chronology, cause/effect, problem/solution, and order of importance.
11. Demonstrate higher-order thinking skills and writing clarity when answering open-ended and essay questions in content areas or as responses to literature.
12. Use relevant graphics in writing (e.g., maps, charts, illustrations, graphs, photographs).
13. Demonstrate the development of a personal style and voice in writing.
14. Review scoring criteria of relevant rubrics.
15. Develop a collection of writings (e.g., a literacy folder or a literacy portfolio).

Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Write stories or scripts with well-developed characters, setting, dialogue, clear conflict and resolution, and sufficient descriptive detail.
2. Write multi-paragraph compositions that have clear topic development, logical organization, effective use of detail, and variety in sentence structure.
3. Generate and narrow topics by considering purpose, audience, and form with a variety of strategies (e.g., graphic organizers, brainstorming, or technology-assisted processes).
4. Revise and edit drafts by rereading for content and organization, usage, sentence construction, mechanics, and word choice.
5. Demonstrate understanding of a scoring rubric to improve and evaluate writing.
6. Compose, revise, edit, and publish writing using appropriate word processing software.
7. Reflect on own writing, noting strengths and setting goals for improvement.

B. Writing as a Product (resulting in a formal product or publication)

1. Extend knowledge of specific characteristics, structures, and appropriate voice and tone of selected genres and use this knowledge in creating written work, considering the

purpose, audience, and context of the writing.
2. Write various types of prose, such as short stories, biographies, autobiographies, or memoirs that contain narrative elements.
3. Write reports and subject-appropriate nonfiction pieces across the curriculum based on research and including citations, quotations, and a works consulted page.
4. Write a range of essays, including persuasive, speculative (picture prompt), descriptive, personal, or issue-based.

C. Mechanics, Spelling, and Handwriting

1. Use Standard English conventions in all writing, such as sentence structure, grammar and usage, punctuation, capitalization, and spelling.
2. Use a variety of sentence types correctly, including combinations of independent and dependent clauses, prepositional and adverbial phrases, and varied sentence openings to develop a lively and effective personal style.
3. Understand and use parallelism, including similar grammatical forms, to present items in a series or to organize ideas for emphasis.
4. Experiment in using subordination, coordination, apposition, and other devices to indicate relationships between ideas.
5. Use transition words to reinforce a logical progression of ideas.
6. Edit writing for correct grammar, usage, capitalization, punctuation, and spelling.
7. Use a variety of reference materials, such as a dictionary, thesaurus, grammar reference, and/or internet/software resources to edit written work.
8. Write legibly in manuscript or cursive to meet district standards.

D. Writing Forms, Audiences, and Purposes (exploring a variety of forms)

1. Gather, select, and organize information appropriate to a topic, task, and audience.
2. Apply knowledge and strategies for composing pieces in a variety of genres (e.g., narrative, expository, persuasive, poetic, and everyday/ workplace or technical writing).
3. Write responses to literature and develop insights into interpretations by connecting to personal experiences and referring to textual information.
4. Write personal narratives, short stories, memoirs, poetry and persuasive and expository text that relate clear, coherent events or situations through the use of specific details.
5. Use narrative and descriptive writing techniques that show compositional risks (e.g., dialogue, literary devices, sensory words and phrases, background information, thoughts and feelings of characters, and comparison and contrast of characters).
6. Use primary and secondary sources to understand the value of each when writing a research report.
7. Write reports based on research and include citations, quotations, and works consulted page.
8. Explore the central idea or theme of an informational reading and support analysis wit details from the article and personal experiences.
9. Demonstrate writing clarity and supportive evidence when answering open-ended an essay questions across the curriculum.
10. State a position clearly in a persuasive essay by stating the issue, giving facts, examples and details to support the position, and citing sources when appropriate.
11. Present evidence when writing persuasive essays, examples, and justification to suppo

arguments.
12. Choose an appropriate organizing strategy, such as cause/effect, pro and con, or parody to effectively present a topic, point of view, or argument.
13. Develop the use of a personal style and voice effectively to support the purpose and engage the audience of a piece of writing.
14. Maintain a collection of writing (e.g., a literacy folder, or a literacy portfolio).
15. Review scoring criteria of relevant rubrics.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Write stories or scripts with well-developed characters, setting, dialogue, clear conflict and resolution, and sufficient descriptive detail.
2. Write multi-paragraph compositions that have clear topic development, logical organization, effective use of detail, and variety in sentence structure.
3. Generate and narrow topics by considering purpose, audience, and form with a variety of strategies (e.g., graphic organizers, brainstorming, technology-assisted processes).
4. Revise and edit drafts by rereading for content and organization, usage, sentence construction, mechanics, and word choice.
5. Utilize the New Jersey Registered Holistic scoring rubric to improve and evaluate their writing and the writing of peers.
6. Compose, revise, edit, and publish writing using appropriate word processing software.
7. Reflect on own writing, noting strengths and setting goals for improvement.

B. Writing as a Product (resulting in a formal product or publication)

1. Extend knowledge of specific characteristics, structures, and appropriate voice and tone of selected genres and use this knowledge in creating written work, considering the purpose, audience, and context of the writing.
2. Write various types of prose, such as short stories, biographies, autobiographies, or memoirs that contain narrative elements.
3. Write reports and subject-appropriate nonfiction pieces across the curriculum based on research and including citations, quotations, and a works cited page.
4. Write a range of essays, including persuasive, speculative (picture prompt), descriptive, personal, or issue-based.

C. Mechanics, Spelling, and Handwriting

1. Use Standard English conventions in all writing, such as sentence structure, grammar and usage, punctuation, capitalization, spelling.
2. Use a variety of sentence types correctly, including combinations of independent and dependent clauses, prepositional and adverbial phrases, and varied sentence openings to develop a lively and effective personal style.
3. Understand and use parallelism, including similar grammatical forms, to present items in a series or to organize ideas for emphasis.
4. Refine the use of subordination, coordination, apposition, and other devices to indicate relationships between ideas.

5. Use transition words to reinforce a logical progression of ideas.
6. Edit writing for correct grammar, usage, capitalization, punctuation, and spelling.
7. Use a variety of reference materials, such as a dictionary, thesaurus**,** grammar reference, and/or internet/software resources to edit written work.
8. Write legibly in manuscript or cursive to meet district standards.

D. Writing Forms, Audiences, and Purposes (exploring a variety of forms)

1. Gather, select, and organize the most effective information appropriate to a topic, task and audience.
2. Apply knowledge and strategies for composing pieces in a variety of genres (e.g narrative, expository, persuasive, poetic, and everyday/ workplace or technical writing).
3. Write responses to literature and develop insights into interpretations by connecting t personal experiences and referring to textual information.
4. Write personal narratives, short stories, memoirs, poetry, and persuasive and expositor text that relate clear, coherent events, or situations through the use of specific details.
5. Use narrative and descriptive writing techniques that show compositional risks (e.g dialogue, literary devices sensory words and phrases, background information, thought and feelings of characters, comparison and contrast of characters.)
6. Use a variety of primary and secondary sources to understand the value of each whe writing a research report.
7. Write reports based on research and include citations, quotations, and works cited page.
8. Explore the central idea or theme of an informational reading and support analysis wit details from the article and personal experiences.
9. Demonstrate writing clarity and supportive evidence when answering open-ended an essay questions across the curriculum.
10. State a position clearly and convincingly in a persuasive essay by stating the issue, givin facts, examples, and details to support the position, and citing sources when appropriate.
11. Present evidence when writing persuasive essays, examples, and justification to suppoı arguments.
12. Choose an appropriate organizing strategy such as cause/effect, pro and con, parody, t effectively present a topic, point of view, or argument.
13. Use of a personal style and voice effectively to support the purpose and engage the audience of a piece of writing.
14. Maintain a collection of writing (e.g., a literacy folder, or a literacy portfolio).
15. Review scoring criteria of relevant rubrics.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Writing as a Process (prewriting, drafting, revising, editing, postwriting)

1. Engage in the full writing process by writing daily and for sustained amounts of time.
2. Use strategies such as graphic organizers and outlines to plan and write drafts according to the intended message, audience, and purpose for writing.
3. Analyze and revise writing to improve style, focus and organization, coherence, clarity of thought, sophisticated word choice and sentence variety, and subtlety of meaning.
4. Review and edit work for spelling, usage, clarity, and fluency.

5. Use the computer and word-processing software to compose, revise, edit, and publish a piece.
6. Use a scoring rubric to evaluate and improve own writing and the writing of others.
7. Reflect on own writing and establish goals for growth and improvement.

B. Writing as a Product (resulting in a formal product or publication)

1. Analyzing characteristics, structures, tone, and features of language of selected genres and apply this knowledge to own writing.
2. Critique published works for authenticity and credibility.
3. Draft a thesis statement and support/defend it through highly developed ideas and content, organization, and paragraph development.
4. Write multi-paragraph, complex pieces across the curriculum using a variety of strategies to develop a central idea (e.g., cause-effect, problem/solution, hypothesis/results, rhetorical questions, parallelism).
5. Write a range of essays and expository pieces across the curriculum, such as persuasive, analytic, critique, or position paper**.**
6. Write a literary research paper that synthesizes and cites data using researched information and technology to support writing.
7. Use primary and secondary sources to provide evidence, justification, or to extend a position, and cite sources, such as periodicals, interviews, discourse, and electronic media.
8. Foresee readers' needs and develop interest through strategies such as using precise language, specific details, definitions, descriptions, examples, anecdotes, analogies, and humor as well as anticipating and countering concerns and arguments and advancing a position.
9. Provide compelling openings and strong closure to written pieces.
10. Employ relevant graphics to support a central idea (e.g., charts, graphic organizers, pictures, computer-generated presentation).
11. Use the responses of others to review content, organization, and usage for publication.
12. Select pieces of writing from a literacy folder for a presentation portfolio that reflects performance in a variety of genres.

C. Mechanics, Spelling, and Handwriting

1. Use Standard English conventions in all writing**,** such as sentence structure, grammar and usage, punctuation, capitalization, and spelling.
2. Demonstrate a well-developed knowledge of English syntax to express ideas in a lively and effective personal style.
3. Use subordination, coordination, apposition, and other devices effectively to indicate relationships between ideas.
4. Use transition words to reinforce a logical progression of ideas.
5. Exclude extraneous details, repetitious ideas, and inconsistencies to improve writing.
6. Use knowledge of Standard English conventions to edit own writing and the writing of others for correctness.
7. Use a variety of reference materials, such as a dictionary, grammar reference, and/or internet/software resources to edit written work.
8. Write legibly in manuscript or cursive to meet district standards.

D. Writing Forms, Audiences, and Purposes (exploring a variety of forms)

1. Employ the most effective writing formats and strategies for the purpose and audience.
2. Demonstrate command of a variety of writing genres, such as:
   - Persuasive essay
   - Personal narrative
   - Research report
   - Literary research paper
   - Descriptive essay
   - Critique
   - Response to literature
   - Parody of a particular narrative style (fable, myth, short story)
   - Poetry
3. Evaluate the impact of an author's decisions regarding tone, word choice, style, content, point of view, literary elements, and literary merit, and produce an interpretation of overall effectiveness.
4. Apply all copyright laws to information used in written work.
5. When writing, employ structures to support the reader, such as transition words, chronology, hierarchy or sequence, and forms, such as headings and subtitles.
6. Compile and synthesize information for everyday and workplace purposes, such as job applications, resumes, business letters**,** and college applications.
7. Demonstrate personal style and voice effectively to support the purpose and engage the audience of a piece of writing.
8. Select pieces of writing from a literacy folder for a presentation portfolio that reflects performance in a variety of genres.

STANDARD 3.3 (SPEAKING) ALL STUDENTS WILL SPEAK IN CLEAR, CONCISE, ORGANIZED LANGUAGE THAT VARIES IN CONTENT AND FORM FOR DIFFERENT AUDIENCES AND PURPOSES.

Descriptive Statement: Oral language is a powerful tool for communicating, thinking, and learning. Through speaking and listening, students acquire the building blocks necessary to connect with others, develop vocabulary, and perceive the structure of the English language. An important goal in the language arts classroom is for students to speak confidently and fluently in a variety of situations.

Speaking is the process of expressing, transmitting, and exchanging information, ideas, and emotions. When students listen and talk to others about their ideas, they are able to clarify their thinking. Whether in informal interactions with others or in more formal settings, communicators are required to organize and deliver information clearly and adapt to their listeners. Students should have multiple opportunities to use speaking for a variety of purposes, including questioning, sharing information, telling a humorous story, or helping others to achieve goals. Students should recognize that what they hear, write, read, and view contributes to the content and quality of their oral language.

Strands and Cumulative Progress Indicators

By the end of Kindergarten, students will:

A. Discussion
1. Share experiences and express ideas.
2. Participate in conversations with peers and adults.
3. React to stories, poems, and songs.

B. Questioning (Inquiry) and Contributing
1. Share in conversations with others.
2. Use oral language to extend learning.

C. Word Choice
1. Use language to describe feelings, people, objects, and events.
2. Suggest rhyming words during word play, songs, or read-aloud.

D. Oral Presentation
1. Sing familiar songs and rhymes to promote oral language development.
2. Begin to use social conventions of language.

Building on the knowledge and skills gained in the preceding grade, by the end of Grade 1, students will:

A. Discussion
1. Speak in complete sentences.
2. Offer personal opinions in discussion and retell personal experiences.

3. Role-play situations and dramatize story events.

B. Questioning (Inquiry) and Contributing

1. Respond to ideas and questions posed by others.
2. Ask and answer various types of questions.

C. Word Choice

1. Attempt to use new vocabulary learned from shared literature and classroom experiences.
2. Use descriptive words to clarify and extend ideas.

D. Oral Presentation

1. Recite poems, stories, or rhymes orally (e.g., favorite nursery rhymes).
2. Participate in choral reading to develop phonemic awareness, oral language, and fluency.
3. Retell a story to check for understanding.
4. Read aloud from developmentally appropriate texts with attention to expression.

Building on the knowledge and skills gained in preceding grades, by the end of Grade 2, students will:

A. Discussion (small group and whole class)

1. Elaborate on experiences and ideas.
2. Begin to stay focused on a topic of discussion.
3. Offer personal opinions related to topics of discussion.
4. Wait their turn to speak.

B. Questioning (Inquiry) and Contributing

1. Ask for explanation to clarify meaning.
2. Respond to ideas posed by others.
3. Restate to demonstrate understanding.
4. Identify a problem and simple steps for solving the problem.

C. Word Choice

1. Use new vocabulary learned from literature and classroom experiences.
2. Recognize and discuss how authors use words to create vivid images.

D. Oral Presentation

1. Participate in a dramatization or role play.
2. Begin to understand the importance of looking at a speaker.
3. Talk about an experience or work sample in front of a small group.

Building on the knowledge and skills gained in preceding grades, by the end of Grade 3, students will:

A. Discussion (small group and whole class)

1. Listen and follow a discussion in order to contribute appropriately.
2. Stay focused on topic.
3. Take turns.
4. Support an opinion with details.

B. Questioning (Inquiry) and Contributing

1. Develop appropriate questions to explore a topic.
2. Contribute information, ideas, and experiences to classroom inquiry.

C. Word Choice

1. Use vocabulary related to a particular topic.
2. Adapt language to persuade, explain, or seek information.
3. Use new vocabulary and figurative language learned from literature and classroom experiences.

D. Oral Presentation

1. Use pictures to support an oral presentation.
2. Attempt to revise future presentations based on feedback from peers and teacher.
3. Use appropriate strategies to prepare, rehearse, and deliver an oral presentation, such as word choice, expression, eye contact, and volume.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Discussion (small group and whole class)

1. Use details, examples and reasons to support central ideas or clarify a point of view.
2. Stay focused on a topic and ask relevant questions.
3. Take turns without dominating.

B. Questioning (Inquiry) and Contributing

1. Develop questioning techniques (e.g., who, what, when, where, why, and how).
2. Use interview techniques to develop inquiry skills.
3. Explore concepts by describing, narrating, or explaining how and why things happen.
4. Discuss information heard, offer personal opinions, and ask for restatement or general explanation to clarify meaning.
5. Reflect and evaluate information learned as a result of the inquiry.
6. Solve a problem or understand a task through group cooperation.

C. Word Choice

1. Use convincing dialogue to role-play short scenes involving familiar situations or emotions.
2. Use figurative language purposefully in speaking situations.
3. Use appropriate vocabulary to support or clarify a message.
4. Adapt language to persuade, explain, or seek information.

D. Oral Presentation

1. Speak for a variety of audiences and purposes.
2. Prepare, rehearse, and deliver a formal presentation in logical or sequential order, including an opening, supportive details, and a closing statement.
3. Use notes or other memory aids to structure a presentation.
4. Maintain audience interest during formal presentations, incorporating adequate volume, proper pacing, and clear enunciation.
5. Participate in a dramatization or role-play across the curriculum.
6. Read aloud with fluency.
7. Understand and use criteria for a rubric to improve an oral presentation.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:

A. Discussion (small group and whole class)

1. Use details, examples, and reasons to support central ideas or clarify a point of view.
2. Stay focused on a topic and ask relevant questions.
3. Accept others' opinions and respond appropriately.
4. Respond orally to literature.
5. Participate in class discussions appropriately.

B. Questioning (Inquiry) and Contributing

1. Respond orally by adding questions and comments while integrating knowledge.
2. Use interview techniques to develop inquiry skills.
3. Explore concepts by describing, narrating, or explaining how and why things happen.
4. Discuss information heard, offer personal opinions, and ask for restatement or genera explanation to clarify meaning.
5. Reflect and evaluate information learned as a result of the inquiry.
6. Solve a problem or understand a task through group cooperation.

C. Word Choice

1. Use convincing dialogue to role-play short scenes involving familiar situations or emotions.
2. Use varied word choice to clarify, illustrate, and elaborate.
3. Use figurative language purposefully in speaking situations.
4. Select and use suitable vocabulary to fit a range of audiences.

D. Oral Presentation

1. Develop and deliver a formal presentation based on a central theme, including logical sequence, introduction, main ideas, supporting details, and concluding remarks to an audience of peers, younger students, and/or parents.
2. Prepare, rehearse, and deliver a formal presentation in logical or sequential order, including an opening, supportive details, and a closing statement.
3. Use clear, precise, organized language that reflects the conventions of spoken English.
4. Use visuals such as charts or graphs when presenting for clarification.
5. Use props effectively while speaking.

6. Maintain audience interest during formal presentations, incorporating adequate volume, proper pacing, and clear enunciation.
7. Use verbal and non verbal elements of delivery (e.g., eye contact, stance) to maintain audience focus.
8. Read aloud with fluency.
9. Understand and use criteria from a rubric to improve an oral presentation.
10. Incorporate peer feedback and teacher suggestions for revisions in content, organization, and delivery.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Discussion (small group and whole class)

1. Support a position with organized, appropriate details.
2. Stay focused on a topic and ask relevant questions.
3. Acknowledge others' opinions and respond appropriately.
4. Respond orally to literature.
5. Participate in class discussion appropriately.

B. Questioning (Inquiry) and Contributing

1. Respond orally by adding questions and comments while integrating knowledge.
2. Demonstrate effective use of a variety of questions, including literal, inferential, an evaluative questions.
3. Explore concepts by describing, narrating, or explaining how and why things happen.
4. Discuss information heard, offer personal opinions, and ask for restatement or genera explanation to clarify meaning.
5. Reflect and evaluate information learned as a result of the inquiry.
6. Solve a problem or understand a task through group cooperation.

C. Word Choice

1. Use varied word choice to clarify, illustrate, and elaborate.
2. Use figurative language purposefully in speaking situations.
3. Select and use suitable vocabulary to fit a range of audiences.

D. Oral Presentation

1. Develop and deliver a formal presentation based on a central theme, including logica sequence, introduction, main ideas, supporting details, and concluding remarks to a audience of peers, younger students, and/or parents.
2. Prepare, rehearse, and deliver a formal presentation in logical or sequential orde including an opening, supportive details, and a closing statement.
3. Use clear, precise, organized language that reflects the conventions of spoken English.
4. Use visuals such as charts or graphs when presenting for clarification.
5. Use props effectively while speaking.
6. Use verbal and non verbal elements of delivery (e.g., eye contact, stance) to maintai audience focus.

7. Read aloud with fluency.
8. Understand and use criteria from a rubric to improve an oral presentation.
9. Incorporate peer feedback and teacher suggestions for revisions in content, organization, and delivery.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:

A. Discussion (small group and whole class)

1. Support a position, acknowledging opposing views.
2. Present ideas and opinions spontaneously in response to a topic or other speakers.
3. Apply rules for cooperative or whole class debate on a controversial issue.
4. Define group roles using consensus to ensure task is understood and completed.
5. Participate in an informal debate (e.g., small group discussion).
6. Respond orally to literature.
7. Participate in class discussions appropriately.

B. Questioning (Inquiry) and Contributing

1. Paraphrase others' comments to clarify viewpoints.
2. Question to clarify others' opinions.
3. Talk with others to identify and explore issues and problems.
4. Solve a problem or understand a task through group cooperation.

C. Word Choice

1. Paraphrase, illustrate, clarify, and/or expand on a topic or idea.
2. Develop and use advanced vocabulary related to a topic.
3. Use language that stimulates an audience's interest.
4. Incorporate varied sentence structure and correct grammar.

D. Oral Presentation

1. Use writing to prompt discussion and enhance planning of formal and informal presentations.
2. Use visual aids, media, and/or technology to support oral communication.
3. Give oral presentations to different audiences for various purposes, such as summaries of books and articles, narratives, and persuasive topics.
4. Acknowledge the audience with eye contact and use appropriate verbal responses to clarify questions and inquiries.
5. Incorporate peer feedback and teacher suggestions for revisions in content, organization, and delivery.
6. Develop speaking techniques, including voice modulation, inflection, tempo, enunciation, and eye contact for effective presentations.
7. Use a scoring rubric to prepare, evaluate, and improve the oral presentations of self and others.
8. Read aloud with fluency.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Discussion (small group and whole class)

1. Support a position, acknowledging opposing views.
2. Present ideas and opinions spontaneously in response to a topic or other speakers.
3. Apply rules for cooperative or whole class debate on a controversial issue.
4. Define group roles using consensus to ensure task is understood and completed.
5. Participate in a formal debate (e.g., panel discussion).
6. Respond orally to literature.
7. Participate in class discussion appropriately**.**

B. Questioning (Inquiry) and Contributing

1. Paraphrase others' comments to clarify viewpoints.
2. Question to clarify others' opinions.
3. Integrate relevant information regarding issues and problems from group discussions an interviews for reports, issues, projects, debates, and oral presentations.
4. Solve a problem or understand a task through group cooperation.

C. Word Choice

1. Paraphrase, illustrate, clarify, and/or expand on a topic or idea.
2. Develop and use advanced vocabulary related to a topic.
3. Use language that stimulates an audience's interest.
4. Incorporate varied sentence structure and correct grammar.

D. Oral Presentation

1. Use writing to prompt discussion and enhance planning of formal and informal presentations.
2. Use visual aids, media, and/or technology to support oral communication.
3. Give oral presentations to different audiences for various purposes, such as summaries of books and articles, narratives, and persuasive topics, research projects, and extemporaneous/impromptu, dramatic speeches.
4. Acknowledge the audience with eye contact and use appropriate verbal responses to clarify questions and inquiries.
5. Incorporate peer feedback and teacher suggestions for revisions in content, organization, and delivery.
6. Use speaking techniques, including voice modulation, inflection, tempo, enunciation, and eye contact, for effective presentations.
7. Use a scoring rubric to prepare, evaluate, and improve the oral presentations of self and others.
8. Read aloud with fluency.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Discussion

1. Support a position integrating multiple perspectives.
2. Support, modify, or refute a position in small or large-group discussions.
3. Assume leadership roles in student-directed discussions, projects, and forums.
4. Summarize and evaluate tentative conclusions and take the initiative in moving discussions to the next stage.

B. Questioning (Inquiry) and Contributing

1. Ask prepared and follow-up questions in interviews and other discussions.
2. Extend peer contributions by elaboration and illustration.
3. Analyze, evaluate, and modify group processes.
4. Select and discuss literary passages that reveal character, develop theme, and illustrate literary elements.
5. Question critically the position or viewpoint of an author.
6. Respond to audience questions by providing clarification, illustration, definition, and elaboration.
7. Participate actively in panel discussions, symposiums, and/or business meeting formats (e.g., explore a question and consider perspectives).

C. Word Choice

1. Modulate tone and clarify thoughts through word choice.
2. Improve word choice by focusing on rhetorical devices (e.g., puns, parallelism, allusion, alliteration).

D. Oral Presentation

1. Speak for a variety of purposes (e.g., persuasion, information, entertainment, literary interpretation, dramatization, personal expression).
2. Use a variety of organizational strategies (e.g., focusing idea, attention getters, clinchers, repetition, transition words).
3. Demonstrate effective delivery strategies (e.g., eye contact, body language, volume, intonation, articulation) when speaking.
4. Edit drafts of speeches independently and in peer discussions.
5. Modify oral communications through sensing audience confusion, and make impromptu revisions in oral presentation (e.g., summarizing, restating, adding illustrations/details).
6. Use a rubric to self-assess and improve oral presentations.

STANDARD 3.4 (LISTENING) ALL STUDENTS WILL LISTEN ACTIVELY TO INFORMATION FROM A VARIETY OF SOURCES IN A VARIETY OF SITUATIONS.

Descriptive Statement: Listening is the process of hearing, receiving, constructing meaning from, and responding to spoken and/or nonverbal messages. Through active listening, students gain understanding and appreciation of language and communication. Students call on different listening skills depending on their purpose for listening (e.g., listening to letter sounds to gain phonemic awareness, comprehending information, evaluating a message, appreciating a performance). Effective listeners are able to listen actively, restate, interpret, respond to, and evaluate increasingly complex messages. Students need to recognize that what they say, read, write, and view contributes to the content and quality of their listening experiences.

Strands and Cumulative Progress Indicators

By the end of Kindergarten students will:

A. Active Listening

1. Listen fully to understand instructions or hear daily messages.
2. Listen to identify main characters and events in stories.
3. Listen to rhymes and songs to begin developing an understanding of letter/sound relationships.

B. Listening Comprehension

1. Listen attentively to books teacher reads to class.
2. Answer questions correctly about books read aloud.

Building upon knowledge and skills gained in the preceding grade, by the end of Grade 1, students will:

A. Active Listening

1. Listen and respond appropriately to directions.
2. Listen to hear initial, final, and eventually middle sounds in words.
3. Listen to a familiar text being read to begin tracking print.
4. Listen to a spoken word to produce another word that rhymes with it.

B. Listening Comprehension

1. Listen to make predictions about stories read aloud.
2. Follow simple oral directions.
3. Recall information from listening to stories, poems, television, and film.
4. Retell, reenact, or dramatize stories or parts of stories heard.
5. Respond appropriately to questions about stories read aloud.
6. Begin to track print when listening to a familiar text being read or when rereading their own writing.
7. Ask questions for clarification and explanation of stories and ideas heard.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 2, students will:

A. Active Listening

1. Listen critically to identify main ideas and supporting details.
2. Begin to distinguish between types of speech (e.g., a joke, a chat, a warning).
3. Listen and contribute to class discussions.

B. Listening Comprehension

1. Follow one- and two- step oral directions.
2. Develop a strong listening vocabulary to aid comprehension and oral and written language growth.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:

A. Active Listening

1. Connect messages heard to prior knowledge and experiences.
2. Exchange information through verbal and nonverbal messages.

B. Listening Comprehension

1. Follow two-and three-step directions.
2. Listen to a story read aloud and/or information from television or film, and summarize main ideas.
3. Paraphrase information shared by others.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Active Listening

1. Listen actively for a variety of purposes such as enjoyment and obtaining information.
2. Listen attentively and critically to a variety of speakers.
3. Interpret vocabulary gained through listening.

B. Listening Comprehension

1. Demonstrate competence in active listening through comprehension of a story, interview, and oral report of an event or incident.
2. Develop listening strategies (e.g., asking questions and taking notes) to understand what is heard.
3. Demonstrate competence in active listening by interpreting and applying received information to new situations and solving problems.
4. Make inferences based on an oral report or presentation.
5. Describe how language reflects specific regions and/or cultures.
6. Follow three-and four-step oral directions.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:

A. Active Listening

1. Listen actively for a variety of purposes such as enjoyment and obtaining information.
2. Listen attentively and critically to a variety of speakers.
3. Acknowledge the speaker through eye contact and use appropriate feedback and questions to clarify the speaker's message.
4. Recognize and analyze persuasive techniques while listening.
5. Recognize the rich and varied language of literature (e.g., listen to a recording of poetry or classic literature).
6. Listen to determine a speaker's purpose, attitude, and perspective.
7. Use, when appropriate, criteria/rubric to evaluate oral presentations, such as purpose, delivery techniques, content, visual aids, body language, and facial expressions.

B. Listening Comprehension

1. Demonstrate competence in active listening through responding to a story, interview, or oral report (e.g., summarizing, reacting, retelling).
2. Demonstrate competence in active listening by interpreting and applying received information to new situations and in solving problems.
3. Ask pertinent questions, take notes, and draw conclusions based on information presented.
4. Make inferences based on an oral report or presentation.
5. Follow three-and four-step oral directions.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Active Listening

1. Listen actively for a variety of purposes such as enjoyment and obtaining information.
2. Listen attentively and critically to a variety of speakers.
3. Acknowledge the speaker through eye contact and use appropriate feedback an questions to clarify the speaker's message.
4. Recognize and analyze persuasive techniques while listening.
5. Recognize the rich and varied language of literature (e.g., listen to a recording of poetry or classic literature).
6. Listen to determine a speaker's purpose, attitude, and perspective.
7. Use, when appropriate, criteria/rubric to evaluate oral presentations, such as purpose, delivery techniques, content, visual aids, body language, and facial expressions.

B. Listening Comprehension

1. Demonstrate competence in active listening through responding to a story, interview, or oral report (e.g. summarizing, reacting, retelling).
2. Demonstrate competence in active listening by interpreting and applying received

information to new situations and in solving problems.
3. Ask pertinent questions, take notes, and draw conclusions based on information presented.
4. Make inferences based on an oral report or presentation.
5. Follow three and four-step oral directions.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:

A. Active Listening

1. Demonstrate active listening behaviors in a variety of situations (e.g., one-on-one or small group).
2. Demonstrate active listening by analyzing information, ideas, and opinions to determine relevancy.
3. Acknowledge the speaker through eye contact and use appropriate feedback and questions to clarify the speaker's message.
4. Recognize persuasive techniques and credibility in oral communication.
5. Listen to determine a speaker's purpose, attitude, and perspective.
6. Use, when appropriate, criteria/rubric to evaluate oral presentations, such as purpose delivery techniques, content, visual aids, body language, and facial expressions.

B. Listening Comprehension

1. Interpret a speaker's verbal and nonverbal messages, purposes, and perspectives.
2. Exhibit proficiency in integrating oral reading with listening, writing, and viewing.
3. Critique information heard or viewed.
4. Critique oral presentations using agreed-upon criteria for evaluation (e.g., rubric).
5. Ask probing questions to elicit information, including evidence to support the speaker' claims and conclusions.
6. Make inferences based on an oral report or presentation.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Active Listening

1. Demonstrate active listening behaviors in a variety of situations (e.g., one-on-one o small group).
2. Demonstrate active listening by analyzing information, ideas, and opinions to determin relevancy.
3. Acknowledge the speaker through eye contact and use appropriate feedback an questions to clarify the speaker's message.
4. Recognize persuasive techniques and credibility in oral communication.
5. Listen to determine a speaker's purpose, attitude, and perspective.
6. Use, when appropriate, criteria/rubric to evaluate oral presentations, such as purpose delivery techniques, content, visual aids, body language, and facial expressions.

B. Listening Comprehension

1. Interpret a speaker's verbal and nonverbal messages, purposes, and perspectives.
2. Exhibit proficiency in integrating oral reading with listening, writing, and viewing.
3. Critique information heard or viewed.
4. Critique oral presentations using agreed-upon criteria for evaluation (e.g., rubric).
5. Ask probing questions to elicit information, including evidence to support the speaker' claims and conclusions.
6. Paraphrase a speaker's purpose and point of view.
7. Make inferences based on an oral report or presentation.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12 students will:

A. Active Listening

1. Explore and reflect on ideas while hearing and focusing attentively.
2. Listen skillfully to distinguish emotive and persuasive rhetoric.
3. Demonstrate appropriate listener response to ideas in a persuasive speech, oral interpretation of a literary selection, or scientific or educational presentation.

B. Listening Comprehension

1. Listen to summarize, make judgments, and evaluate.
2. Evaluate the credibility of a speaker.
3. Determine when propaganda and argument are used in oral forms.
4. Listen and respond appropriately to a debate.

STANDARD 3.5 (VIEWING AND MEDIA LITERACY) ALL STUDENTS WILL ACCESS, VIEW, EVALUATE, AND RESPOND TO PRINT, NONPRINT, AND ELECTRONIC TEXTS AND RESOURCES.

Descriptive Statement: Students learn how to view critically and thoughtfully in order to respond to visual messages and images in print, nonverbal interactions, the arts, and electronic media. Effective viewing is essential to comprehend and respond to personal interactions, live performances, visual arts that involve oral and/or written language, and both print media (graphs, charts, diagrams, illustrations, photographs, and graphic design in books, magazines, and newspapers) and electronic media (television, computers, and film). A media-literate person is able to evaluate media for credibility and understands how words, images, and sounds influence the way meanings are conveyed and understood in contemporary society. Students need to recognize that what they speak, hear, write, and read contributes to the content and quality of their viewing.

Strands and Cumulative Progress Indicators

By the end of Kindergarten, students will:

A. Constructing Meaning

1. Make predictions about visual information (e.g., pictures in books).
2. Discuss favorite characters from books, film, and television.

B. Visual and Verbal Messages

1. Begin to sequence a series of pictures or images to tell a story.
2. Show understanding of purpose for pictures in books.

Building upon knowledge and skills gained in the preceding grade, by the end of Grade 1, students will:

A. Constructing Meaning

1. Retell the story from a favorite media program (e.g., television, movie).
2. Distinguish between "pretend" and "real" in the media.
3. Begin to recognize that media messages have different purposes.
4. Speculate about visual representations (e.g., pictures, artwork).
5. Use simple graphs and charts to report data.
6. Begin to recognize the work of a favorite illustrator.
7. Begin to compare and contrast media characters.

B. Visual and Verbal Messages

1. Begin to interpret messages in simple advertisements.
2. Sequence a series of pictures or images to tell a story.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 2, students will:

A. Constructing Meaning

1. Speculate about characters, events, and settings in books, film, and television.
2. Recognize that media messages are created for a specific purpose (e.g., to inform, entertain, persuade).
3. Use graphs and charts to report data.
4. Recognize the work of a favorite illustrator.
5. Compare and contrast media characters.

B. Visual and Verbal Messages

1. Interpret messages in simple advertisements.
2. Use a simple rating scale to judge media products.
3. Begin to look at the effects of visual arts on one's mood and emotions.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:

A. Constructing Meaning

1. Begin to demonstrate an awareness of different media forms and how they contribute to communication.
2. Identify the central theme and main ideas in different media.

B. Visual and Verbal Messages

1. Recognize the effects of visual arts on one's mood and emotions.
2. Begin to explore and interpret messages found in advertisements and other texts.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Constructing Meaning

1. Interpret information found in pictorial graphs, map keys, and icons on a computer screen.
2. Respond to and evaluate the use of illustrations to support text.
3. Use graphs, charts, and diagrams to report data.
4. Distinguish between factual and fictional visual representations.
5. Identify the central theme in a movie, film, or illustration.
6. Identify the target audience for a particular program, story, or advertisement.
7. Demonstrate an awareness of different media forms and how they contribute to communication.

B. Visual and Verbal Messages

1. Understand that creators of both print media and electronic media have a purpose and target audience for their work.
2. Explore and interpret various messages found in advertisements and other texts.

3. Discuss the emotional impact of photos and how they aid understanding.
4. Compare and contrast media sources, such as film and book versions of a story.

C. Living with Media

1. Express preferences for media choices.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:

A. Constructing Meaning

1. Respond to and evaluate the use of illustrations to support text.
2. Use graphs, charts, and diagrams to report data.
3. Distinguish between factual and fictional visual representations (e.g. political cartoons).
4. Identify the central theme in a movie, film, or illustration.
5. Identify the target audience for a particular program, story, or advertisement.
6. Demonstrate an awareness of different media forms (e.g. newspapers, internet, magazines) and how they contribute to communication.
7. Understand uses of persuasive text related to advertising in society.
8. Distinguish different points of view in media texts.

B. Visual and Verbal Messages

1. Understand that creators of both print media and electronic media have a purpose and target audience for their work.
2. Evaluate media messages for credibility.
3. Explore and interpret various messages found in advertisements and other texts.
4. Interpret verbal and nonverbal messages reflected in personal interactions with others.
5. Discuss the emotional impact of a still image (e.g., photo, poster, painting) and how i aids understanding.
6. Compare and contrast media sources, such as film and book versions of a story.
7. Understand the uses of technology (e.g., the Internet for research).

C. Living with Media

1. Express and justify preferences for media choices.
2. Choose the most appropriate media for a presentation.
3. Use a rubric to evaluate the content of media presentations.
4. Examine and evaluate effects of media on the family, home, and school.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Constructing Meaning

1. Respond to and evaluate the use of illustrations to support text.
2. Use graphs, charts, and diagrams to report data.
3. Distinguish between factual and fictional visual representations (e.g. political cartoons).
4. Identify the central theme in a movie, film, or illustration.
5. Identify the target audience for a particular program, story, or advertisement.

6. Demonstrate an awareness of different media forms (e.g. newspapers, internet, magazines) and how they contribute to communication.
7. Understand uses of persuasive text related to advertising in society.
8. Distinguish different points of view in media texts.

B. Visual and Verbal Messages

1. Understand that creators of both print media and electronic media have a purpose and target audience for their work.
2. Evaluate media messages for credibility.
3. Explore and interpret various messages found in advertisements and other texts.
4. Interpret verbal and nonverbal messages reflected in personal interactions with others.
5. Discuss the emotional impact of a still image (e.g., photo, poster, painting) and how i aids understanding.
6. Compare and contrast media sources, such as film and book versions of a story.
7. Understand the uses of technology (e.g., the Internet for research).

C. Living with Media

1. Express and justify preferences for media choices.
2. Choose the most appropriate media for a presentation.
3. Use a rubric to evaluate the content of media presentations.
4. Examine and evaluate effects of media on the family, home, and school.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:

A. Constructing Meaning

1. Analyze aspects of print and electronic texts that support the author's point of view opinion, or attitude.
2. Analyze the use of elements (e.g., setting plot, theme, characters) to understand medi presentations, such as film, video, television, and theatrical productions.
3. Analyze and respond to visual and print messages (e.g., humor, irony, metaphor) an recognize how words, sounds, and still or moving images are used in each medium t convey the intended messages.
4. Compare and contrast how the various forms of media (e.g. newspapers, radio, television, internet news outlets) cover the same topic.

B. Visual and Verbal Messages

1. Analyze and compare the pros and cons of visual and verbal advertising.
2. Evaluate various media messages for credibility.
3. Develop criteria/rubric to judge the effectiveness of visual and verbal presentations.
4. Make inferences based upon the content of still images.
5. Compare and contrast media sources, such as film and book versions of a story.

C. Living with Media

1. Evaluate media forms, such as television, video, games, music, and film for conten appropriateness (e.g. rating systems, rubric).

2. Analyze media content for emotional effect on audience.
3. Create media presentations and written reports, using multi-media resources such as an overhead projector, computer, and/or a tape recorder to communicate information.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Constructing Meaning

1. Analyze aspects of print and electronic texts that support the author's point of view, opinion, or attitude.
2. Analyze the use of elements (e.g., setting plot, theme, characters) to understand media presentations, such as film, video, television, and theatrical productions.
3. Analyze and respond to visual and print messages (e.g. humor, irony, metaphor) and recognize how words, sounds, and still or moving images are used in each medium to convey the intended messages.
4. Compare and contrast how the various forms of media (e.g. newspapers, radio, television, internet news outlets) cover the same topic.

B. Visual and Verbal Messages

1. Analyze and compare the pros and cons of visual and verbal advertising.
2. Evaluate various media messages for credibility.
3. Develop criteria/rubric to judge the effectiveness of visual and verbal presentations.
4. Make inferences based upon the content of still images
5. Compare and contrast media sources, such as film and book versions of a story.

C. Living with Media

1. Evaluate media forms, such as television, video, games, music, and film for conter appropriateness (e.g., rating systems, rubric).
2. Analyze media content for emotional effect on audience.
3. Create media presentations and written reports, using multi-media resources such as an overhead projector, computer, and/or a tape recorder to communicate information.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Constructing Meaning from Media

1. Understand that messages are representations of social reality and vary by historic time periods and parts of the world.
2. Identify and evaluate how a media product expresses the values of the culture that produced it.
3. Identify and select media forms appropriate for the viewer’s purpose.

B. Visual and Verbal Messages

1. Analyze media for stereotyping (e.g., gender, ethnicity).
2. Compare and contrast three or more media sources.

C. Living with Media

1. Use print and electronic media texts to explore human relationships, new ideas, and aspects of culture (e.g., racial prejudice, dating, marriage, family, and social institutions).
2. Determine influences on news media based on existing political, historical, economical, and social contexts (e.g., importance of audience feedback).
3. Recognize that creators of media and performances use a number of forms, techniques, and technologies to convey their messages.

New Jersey Core Curriculum Content Standards for Mathematics

INTRODUCTION

The Vision

The vision of the mathematics standards is focused on achieving one crucial goal:

> **To enable ALL of New Jersey's children to acquire the mathematical skills, understandings, and attitudes that they will need to be successful in their careers and daily lives.**

We want ALL students to achieve the standards. There may be exceptions, but those exceptions should be exceptional.

Perhaps the most compelling reason for this vision is that all of our children, as well as our state and our nation, will be better served by higher expectations, by curricula that go far beyond basic skills and include a variety of mathematical models, and by programs which devote a greater percentage of instructional time to problem-solving and active learning.

Many students respond to the traditional curriculum with boredom and discouragement. They feel that mathematics will never be useful in their lives, and they develop the perception that success in mathematics depends on some innate ability that they simply do not have.[1] We must overcome the feelings among students that they don't like mathematics, they don't need mathematics, and they can't do mathematics. Curricula that evoke these responses in students, curricula that assume student failure, are bound to fail; we need to develop curricula that assume student success.

Our curricula are often preoccupied with what national reports call "shopkeeper arithmetic,"[2] competency in the basic operations that were needed to run a small store several generations ago. The economy in which graduates of our schools will seek employment is more competitive than ever and is rapidly changing in response to advances in technology. To compete in today's global, information-based economy, students must be able to solve real problems, reason effectively, and make logical connections.

American schools have done well in the past at producing a relatively small mathematical elite that adequately served the needs of an industrial/mechanical economy. But that level of "production" is no longer good enough. Our state and our country need people with the skills to

[1] "Only in the United States do people believe that learning mathematics depends on special ability. In other countries, students, parents, and teachers all expect that most students can master mathematics if only they work hard enough. The record of accomplishment in these countries — and in some intervention programs in the United States — shows that most students can learn much more mathematics than is commonly assumed in this country." *Everybody Counts*, Mathematical Sciences Education Board, National Academy of Sciences (1989)

[2] *Everybody Counts*, Mathematical Sciences Education Board, National Academy of Sciences (1989).

develop and manage these new technologies. Jobs increasingly require mathematical knowledge and skills in areas such as data analysis, problem-solving, pattern recognition, statistics, and probability. We must not only strive to provide our graduates with the skills for 21st century jobs, but also to ensure that the number of graduates with those skills is sufficient for the needs of our state and our nation.

This vision of excellent mathematical education is based on the twin premises that *all* students *can* learn mathematics and that all students *need* to learn mathematics. These mathematics standards were not designed as minimum standards, but rather as world-class standards which will enable all of our students to compete in the global marketplace of the 21st century.

The vision of success for all students in mathematics depends on:

- establishing learning environments that facilitate student learning of mathematics;
- a commitment to equity and to excellence; and
- defining the critical goals of mathematics education today--what students should know and be able to do (i.e., content and processes).

These three themes are discussed in the next three sections.

The mathematics standards are intended to be a definition of excellent practice, and a description of what can be achieved if all New Jersey communities rally behind the standards, so that this excellent practice becomes common practice. Making the vision a reality is an achievable goal.

The Vision – Learning Environments

The vision, if it is to be realized, must include learning environments with the following characteristics, as described in the mathematics standards adopted in 1996[3]:

> **Students excited by and interested in their activities.** A principal aim is for children to learn to enjoy mathematics. Students who are excited by what they are doing are more likely to truly understand the material, to stay involved over a longer period of time, and to take more advanced courses voluntarily. When math is taught with a problem-solving spirit, and when children are allowed to make their own hands-on mathematical discoveries, math can be engaging for all students.
>
> **Students learning important mathematical concepts rather than simply memorizing and practicing procedures.** Student learning should be focused on understanding when and how mathematics is used and how to apply mathematical concepts. With the availability of technology, students need no longer spend the same amount of study time practicing lengthy computational processes. More effort should be devoted to the development of number sense, spatial sense, and estimation skills.

[3] Based on *Mathematics to Prepare Our Children for the 21st Century: A Guide for New Jersey Parents*, published by the New Jersey Mathematics Coalition in September 1994.

Students posing and solving meaningful problems. When students are challenged to use mathematics in meaningful ways, they develop their reasoning and problem-solving skills and come to realize the potential usefulness of mathematics in their lives.

Students working together to learn mathematics. Children learn mathematics well in cooperative settings, where they can share ideas and approaches with their classmates.

Students writing and talking about math topics every day. Putting thoughts into words helps to clarify and solidify thinking. By sharing their mathematical understandings in written and oral form with their classmates, teachers, and parents, students develop confidence in themselves as mathematical learners; this practice also enables teachers to better monitor student progress.

Students using calculators and computers as important tools of learning. Technology can be used to aid teaching and learning, as new concepts are presented through explorations with calculators or computers. But technology can also be used to assist students in solving problems, as it is used by adults in our society. Students should have access to these tools, both in school and after school, whenever they can use technology to do more powerful mathematics than they would otherwise be able to do.

Students whose teachers who have high expectations for ALL of their students. This vision includes a set of achievable, high-level expectations for the mathematical understanding and performance of all students. Although more ambitious than current expectations for most students, these standards are absolutely essential if we are to reach our goal. Those students who can achieve more than this set of expectations must be afforded the opportunity and encouraged to do so.

Students being assessed by a variety of assessment strategies, not just traditional short-answer tests. Strategies including open-ended problems, teacher interviews, portfolios of best work, and projects, in combination with traditional methods, will provide a more complete picture of students' performance and progress.

The Vision – Equity and Excellence

In order for all their students to succeed in mathematics, districts will need to commit themselves to the principles of equity and excellence, which comprised Standard 16 in the 1996 version of the mathematics standards, and which remain an important priority for all New Jersey schools. The equity and excellence component of the vision has four features:

Fostering respect for the power of mathematics. All students should learn that mathematics is integral to the development of all cultures and civilizations, and in particular to the advances in our own society. They should be aware that the adults in their world (parents, relatives, mentors, community members, role models) use mathematics on a daily basis. And they should know that success in mathematics may be a critical gateway to success in their careers, citizenship, and lives.

Setting high expectations. All students should have high expectations of themselves. These high expectations should be fostered by their teachers, administrators, and parents all of whom should themselves believe that all students can and will succeed in mathematics. This belief in his or her abilities often makes it possible for a child to succeed**.**

Providing opportunities for success. High expectations can only be achieved if students are provided with the appropriate opportunities. At all grade levels, students should receive instruction by teachers who have had the training and professional development appropriate for their grade level. Students should receive prompt and appropriate services essential to ensure that they can learn the mathematical skills and concepts included in the core curriculum, and to ensure that their weaknesses do not result in trapping them in a cycle of failure. Students should receive equitable treatment without regard to gender or ethnicity, and should not be conditioned to fail by predetermined low expectations.

Encouraging all students to go beyond the standards. Teachers should help students develop a positive attitude about mathematics by engaging them in exploring and solving interesting mathematical problems, by using mathematics in meaningful ways, by focusing on concepts and understanding as well as on rules and procedures, and by consistently expecting them to go beyond repetition and memorization to problem solving and understanding. Every effort should be made to ensure that all students are continuously encouraged, nurtured, and challenged to maximize their potential at all grade levels and to become prepared for college-level mathematics. Students who have achieved the standards should be encouraged to go beyond the standards. If schools challenge all students at lower grade levels, they will attain the goal of having advanced mathematics classrooms whose students reflect the diversity of the school's total population.

What Students Should Know and Be Able to Do

New Jersey's mathematics standards[4] rest on the notion that an appropriate mathematics curriculum results from a series of critical decisions about three inseparably linked components: content, instruction, and assessment. The standards will only promote substantial and systemic improvement in mathematics education if the *what* of the content being learned, the *how* of the problem-solving orientation, and the *where* of the active, equitable, involving learning environment are synergistically woven together in every classroom. The mathematical environment of every child must be rich and complex and all students must be afforded the opportunity to develop an understanding and a command of mathematics in an environment that provides for both affective and intellectual growth.

Although ours is a geographically small state, it has a widely diverse population. Children enter our schools from a tremendous variety of backgrounds and cultures. One of the roles of New

[4] The term *standards* as used here encompasses both *goals* and *expectations,* but it also is meant to convey the older meaning of *standards*, a *banner*, or a *rallying point*.

Jersey's mathematics standards, therefore, is to specify a set of achievable high-level expectations for the mathematical understanding and performance of *all* students. The expectations included in the standards are substantially more ambitious than traditional expectations for most students, but we believe that they are attainable by all students in the state. Those New Jersey students who can achieve more than this set of expectations must be afforded the opportunity and encouraged to do so.

Background

In May 1996, the New Jersey State Board of Education adopted Core Curriculum Content Standards, including a set of 16 standards in mathematics. The development and review of the 1996 version of the New Jersey's mathematics standards spanned a four-year period and involved two working panels and hundreds of educators and other citizens.

The adoption of the standards was followed in December by the publication of the *New Jersey Mathematics Curriculum Framework* that was developed to provide assistance and guidance to districts and teachers in how to implement these standards, in translating the vision into reality. The development of the framework was a joint effort of the New Jersey Mathematics Coalition and the New Jersey State Department of Education, with funding from the United States Department of Education.

New assessments have been introduced to reflect the new standards. The mathematics portions of New Jersey's Elementary School Proficiency Assessment (ESPA), Grade Eight Proficiency Assessment (GEPA), and the High School Proficiency Assessment (HSPA) are all based on the mathematics standards adopted by the State Board of Education.

The mathematics standards adopted in 1996 were philosophically aligned with the *Curriculum and Evaluation Standards for School Mathematics* of the National Council of Teachers of Mathematics (NCTM, 1989), but went beyond that document in a number of ways, reflecting national discussions of that document between 1989 and 1996 and taking into consideration conditions specific to New Jersey. Since 1996, NCTM has published a new document, *Principles and Standards for School Mathematics* (NCTM, 2000), and 49 of the 50 states have now adopted mathematics standards.

Revised Standards

The State Board of Education intended that a review of the standards take place after five years. The panel that drafted these revised standards, in preparing its recommendations, reviewed many of the state standards as well as *Principles and Standards for School Mathematics* (NCTM, 2000). The panel also took into consideration a review of New Jersey's 1996 standards prepared by Achieve, Inc. with the support of the Department of Education and Prudential. The panel kept in mind two important principles:

1. Retain the *content* of the current standards and the structure of the current assessments, so that the standards will not be a major departure from what is currently expected of students.

2. Revise the *presentation* of the standards, so that teachers will find them easier to understand and implement, and so that standards and assessments are better aligned.

The content of the new mathematics standards is therefore largely the same as the previous version. However, the new standards are different in that:

- The new standards are more specific and clearer than the previous standards;
- The new standards are organized into a smaller number of standards that correspond to the content clusters of the statewide assessments;
- The new standards are intended to serve as clear guides to the assessment development committees so that there should be no gaps between the standards and the test specifications; and
- The new standards include expectations at grades 2, 3, 5, 6, and 7, as well as at grades 4, 8, and 12.

Standards and Strands

There are five standards altogether, each of which has a number of lettered strands. These standards, and their associated strands, are enumerated below:

4.1. Number and Numerical Operations
- A. Number Sense
- B. Numerical Operations
- C. Estimation

4.2. Geometry and Measurement
- A. Geometric Properties
- B. Transforming Shapes
- C. Coordinate Geometry
- D. Units of Measurement
- E. Measuring Geometric Objects

4.3. Patterns and Algebra
- A. Patterns and Relationships
- B. Functions
- C. Modeling
- D. Procedures

4.4. Data Analysis, Probability, and Discrete Mathematics
- A. Data Analysis (Statistics)
- B. Probability
- C. Discrete Mathematics--Systematic Listing and Counting
- D. Discrete Mathematics--Vertex-Edge Graphs and Algorithms

4.5. Mathematical Processes

A. Problem Solving
B. Communication
C. Connections
D. Reasoning
E. Representations
F. Technology

The first four of these "standards" also serve as what have been called "content clusters" in the current state assessments; the lettered strands replace what have been called "macros" in the directories of test specifications. The fifth standard will continue to provide the "power base" of the assessments. It is anticipated that the expectations presented here will be used as the basis for test specifications for the next version of the statewide assessments.

For the first four standards, student expectations are provided for each strand at each of eight grade levels: 2, 3, 4, 5, 6, 7, 8, and 12. The expectations for the fifth standard are intended to address every grade level. With the exception of indicators for grades 3, 5, and 7, which were developed at a later time, items presented at one grade level are not generally repeated at subsequent grade levels.[5] Teachers at each grade will need to refer to the standards at earlier grade levels to know what topics their students should have learned at earlier grades.

Bulleted items that appear below expectations indicate terminology, concepts, or content material addressed in that expectation. When an indicator is followed by bulleted content material, the list provided is intended to be exhaustive; content material not mentioned is therefore not included in the expectation at that grade level.[6] When examples are provided, they are always introduced with "e.g." and are not intended to be exhaustive.

A Core Curriculum for Grades K-12

Implicit in the vision and standards is the notion that there should be a core curriculum for grades K-12. What does a "core curriculum" mean? It means that every student will be involved in experiences addressing all of the expectations of each of the content standards. It also means that all courses of study should have a common goal of completing this core curriculum, no matter how students are grouped or separated by needs and/or interests.

A core curriculum does not mean that all students will be enrolled in the same courses. Students have different aptitudes, interests, educational and professional plans, learning habits, and learning styles. Different groups of students should address the core curriculum at different levels of depth, and should complete the core curriculum according to different timetables. Nevertheless, all students should complete all elements of the core curriculum recommended in the mathematics standards.

[5] Since students learn at different rates, narrowing indicators to a single grade level was not always possible; thus indicators at grade levels 3, 5, and 7 are generally similar to, or modifications of, indicators developed for the next higher grade level.
[6] In the standards for content areas other than mathematics, bulleted lists are not intended to be exhaustive.

All students should be challenged to reach their maximum potential. For many students, the core curriculum described here will indeed be challenging. But if we do not provide this challenge, we will be doing our students a great disservice — leaving them unprepared for the technological and information age of the 21st century.

For other students, this core curriculum itself will not be a challenge. We have to make sure that we provide these students with appropriate mathematical challenges. We have to make sure that the raised expectations for all students do not result in lowered expectations for our high achieving students. A core curriculum does not exclude a program that challenges students beyond the expectations set in the mathematics standards. Indeed, the vision of equity and excellence calls for schools to provide opportunities for their students to learn more mathematics than is contained in the core curriculum.

Summary

These refined mathematics standards, and the vision imbedded in them, offer a powerful challenge to all teachers, all schools, and all districts in New Jersey — to enable all of our students to step into this new century with the mathematical skills, understandings, and attitudes that they will need to be successful in their careers and daily lives. It will not be easy to meet this challenge, nor can it happen overnight. But it can happen if all of us together decide to make it happen. We must not let our awareness of the obstacles we face become yet another obstacle. We shall work together to make the vision of New Jersey's mathematics standards a reality!

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STANDARD 4.1 (NUMBER AND NUMERICAL OPERATIONS) ALL STUDENTS WILL DEVELOP NUMBER SENSE AND WILL PERFORM STANDARD NUMERICAL OPERATIONS AND ESTIMATIONS ON ALL TYPES OF NUMBERS IN A VARIETY OF WAYS.

Descriptive Statement: Numbers and arithmetic operations are what most of the general public think about when they think of mathematics; and, even though other areas like geometry, algebra, and data analysis have become increasingly important in recent years, numbers and operations remain at the heart of mathematical teaching and learning. Facility with numbers, the ability to choose the appropriate types of numbers and the appropriate operations for a given situation, and the ability to perform those operations as well as to estimate their results, are all skills that are essential for modern day life.

Number Sense. Number sense is an intuitive feel for numbers and a common sense approach to using them. It is a comfort with what numbers represent that comes from investigating their characteristics and using them in diverse situations. It involves an understanding of how different types of numbers, such as fractions and decimals, are related to each other, and how each can best be used to describe a particular situation. It subsumes the more traditional category of school mathematics curriculum called numeration and thus includes the important concepts of place value, number base, magnitude, and approximation and estimation.

Numerical Operations. Numerical operations are an essential part of the mathematics curriculum, especially in the elementary grades. Students must be able to select and apply various computational methods, including mental math, pencil-and-paper techniques, and the use of calculators. Students must understand how to add, subtract, multiply, and divide whole numbers, fractions, decimals, and other kinds of numbers. With the availability of calculators that perform these operations quickly and accurately, the instructional emphasis now is on understanding the meanings and uses of these operations, and on estimation and mental skills, rather than solely on the development of paper-and-pencil proficiency.

Estimation. Estimation is a process that is used constantly by mathematically capable adults, and one that can be easily mastered by children. It involves an educated guess about a quantity or an intelligent prediction of the outcome of a computation. The growing use of calculators makes it more important than ever that students know when a computed answer is reasonable; the best way to make that determination is through the use of strong estimation skills. Equally important is an awareness of the many situations in which an approximate answer is as good as, or even preferable to, an exact one. Students can learn to make these judgments and use mathematics more powerfully as a result.

Number and operation skills continue to be a critical piece of the school mathematics curriculum and, indeed, a very important part of mathematics. But, there is perhaps a greater need for us to rethink our approach here than to do so for any other curriculum component. An enlightened mathematics program for today's children will empower them to use all of today's tools rather than require them to meet yesterday's expectations.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 2 pertain to these sets of numbers as well).
   - Whole numbers through hundreds
   - Ordinals
   - Proper fractions (denominators of 2, 3, 4, 8, 10)
2. Demonstrate an understanding of whole number place value concepts.
3. Understand that numbers have a variety of uses.
4. Count and perform simple computations with coins.
   - Amounts up to $1.00 (using cents notation)
5. Compare and order whole numbers.

B. Numerical Operations

1. Develop the meanings of addition and subtraction by concretely modeling and discussing a large variety of problems.
   - Joining, separating, and comparing
2. Explore the meanings of multiplication and division by modeling and discussing problems.
3. Develop proficiency with basic addition and subtraction number facts using a variety of fact strategies (such as "counting on" and "near doubles") and then commit them to memory.
4. Construct, use, and explain procedures for performing addition and subtraction calculations with:
   - Pencil-and-paper
   - Mental math
   - Calculator
5. Use efficient and accurate pencil-and-paper procedures for computation with whole numbers.
   - Addition of 2-digit numbers
   - Subtraction of 2-digit numbers
6. Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.
7. Check the reasonableness of results of computations.
8. Understand and use the inverse relationship between addition and subtraction.

C. Estimation

1. Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set.
2. Determine the reasonableness of an answer by estimating the result of computations (e.g., 15 + 16 is not 211).

3. Explore a variety of strategies for estimating both quantities (e.g., the number of marbles in a jar) and results of computation.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 3 pertain to these sets of numbers as well).
   - Whole numbers through hundred thousands
   - Commonly used fractions (denominators of 2, 3, 4, 5, 6, 8, 10) as part of a whole, as a subset of a set, and as a location on a number line
2. Demonstrate an understanding of whole number place value concepts.
3. Identify whether any whole number is odd or even.
4. Explore the extension of the place value system to decimals through hundredths.
5. Understand the various uses of numbers.
   - Counting, measuring, labeling (e.g., numbers on baseball uniforms)
6. Compare and order numbers.

B. Numerical Operations

1. Develop the meanings of the four basic arithmetic operations by modeling and discussing a large variety of problems.
   - Addition and subtraction: joining, separating, comparing
   - Multiplication: repeated addition, area/array
   - Division: repeated subtraction, sharing
2. Develop proficiency with basic multiplication and division number facts using a variety of fact strategies (such as "skip counting" and "repeated subtraction").
3. Construct, use, and explain procedures for performing whole number calculations with:
   - Pencil-and-paper
   - Mental math
   - Calculator
4. Use efficient and accurate pencil-and-paper procedures for computation with whole numbers.
   - Addition of 3-digit numbers
   - Subtraction of 3-digit numbers
   - Multiplication of 2-digit numbers by 1-digit numbers
5. Count and perform simple computations with money.
   - Cents notation (¢)
6. Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.
7. Check the reasonableness of results of computations.

C. Estimation

1. Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set.

2. Construct and use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the result of computations.
3. Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.
4. Use estimation to determine whether the result of a computation (either by calculator or by hand) is reasonable.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 4 pertain to these sets of numbers as well).
   - Whole numbers through millions
   - Commonly used fractions (denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 16) as part of a whole, as a subset of a set, and as a location on a number line
   - Decimals through hundredths
2. Demonstrate an understanding of place value concepts.
3. Demonstrate a sense of the relative magnitudes of numbers.
4. Understand the various uses of numbers.
   - Counting, measuring, labeling (e.g., numbers on baseball uniforms), locating (e.g., Room 235 is on the second floor)
5. Use concrete and pictorial models to relate whole numbers, commonly used fractions, and decimals to each other, and to represent equivalent forms of the same number.
6. Compare and order numbers.
7. Explore settings that give rise to negative numbers.
   - Temperatures below 0^{o}, debts
   - Extension of the number line

B. Numerical Operations

1. Develop the meanings of the four basic arithmetic operations by modeling and discussing a large variety of problems.
   - Addition and subtraction: joining, separating, comparing
   - Multiplication: repeated addition, area/array
   - Division: repeated subtraction, sharing
2. Develop proficiency with basic multiplication and division number facts using a variety of fact strategies (such as “skip counting” and “repeated subtraction”) and then commit them to memory.
3. Construct, use, and explain procedures for performing whole number calculations and with:
   - Pencil-and-paper
   - Mental math
   - Calculator
4. Use efficient and accurate pencil-and-paper procedures for computation with whole numbers.

- Addition of 3-digit numbers
- Subtraction of 3-digit numbers
- Multiplication of 2-digit numbers
- Division of 3-digit numbers by 1-digit numbers

5. Construct and use procedures for performing decimal addition and subtraction.
6. Count and perform simple computations with money.
   - Standard dollars and cents notation
7. Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.
8. Check the reasonableness of results of computations.
9. Use concrete models to explore addition and subtraction with fractions.
10. Understand and use the inverse relationships between addition and subtraction and between multiplication and division.

C. Estimation

1. Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set.
2. Construct and use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the results of computations.
3. Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.
4. Use estimation to determine whether the result of a computation (either by calculator or by hand) is reasonable.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 5 pertain to these sets of numbers as well).
   - All fractions as part of a whole, as subset of a set, as a location on a number line, and as divisions of whole numbers
   - All decimals
2. Recognize the decimal nature of United States currency and compute with money.
3. Demonstrate a sense of the relative magnitudes of numbers.
4. Use whole numbers, fractions, and decimals to represent equivalent forms of the same number.
5. Develop and apply number theory concepts in problem solving situations.
   - Primes, factors, multiples
6. Compare and order numbers.

B. Numerical Operations

1. Recognize the appropriate use of each arithmetic operation in problem situations.
2. Construct, use, and explain procedures for performing addition and subtraction with fractions and decimals with:

- Pencil-and-paper
- Mental math
- Calculator

3. Use an efficient and accurate pencil-and-paper procedure for division of a 3-digit number by a 2-digit number.
4. Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.
5. Check the reasonableness of results of computations.
6. Understand and use the various relationships among operations and properties of operations.

C. Estimation

1. Use a variety of estimation strategies for both number and computation.
2. Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.
3. Determine the reasonableness of an answer by estimating the result of operations.
4. Determine whether a given estimate is an overestimate or an underestimate.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 6 pertain to these sets of numbers as well).
   - All integers
   - All fractions as part of a whole, as subset of a set, as a location on a number line, and as divisions of whole numbers
   - All decimals
2. Recognize the decimal nature of United States currency and compute with money.
3. Demonstrate a sense of the relative magnitudes of numbers.
4. Explore the use of ratios and proportions in a variety of situations.
5. Understand and use whole-number percents between 1 and 100 in a variety of situations.
6. Use whole numbers, fractions, and decimals to represent equivalent forms of the same number.
7. Develop and apply number theory concepts in problem solving situations.
   - Primes, factors, multiples
   - Common multiples, common factors
8. Compare and order numbers.

B. Numerical Operations

1. Recognize the appropriate use of each arithmetic operation in problem situations.
2. Construct, use, and explain procedures for performing calculations with fractions and decimals with:
   - Pencil-and-paper

- Mental math
- Calculator

3. Use an efficient and accurate pencil-and-paper procedure for division of a 3-digit number by a 2-digit number.
4. Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.
5. Find squares and cubes of whole numbers.
6. Check the reasonableness of results of computations.
7. Understand and use the various relationships among operations and properties of operations.
8. Understand and apply the standard algebraic order of operations for the four basic operations, including appropriate use of parentheses.

C. Estimation

1. Use a variety of strategies for estimating both quantities and the results of computations.
2. Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.
3. Determine the reasonableness of an answer by estimating the result of operations.
4. Determine whether a given estimate is an overestimate or an underestimate.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:

A. Number Sense

1. Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 7 pertain to these sets of numbers as well):
   - Rational numbers
   - Percents
   - Whole numbers with exponents
2. Demonstrate a sense of the relative magnitudes of numbers.
3. Understand and use ratios, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations.
4. Compare and order numbers of all named types.
5. Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number.
6. Understand that all fractions can be represented as repeating or terminating decimals.

B. Numerical Operations

1. Use and explain procedures for performing calculations with integers and all number types named above with:
   - Pencil-and-paper
   - Mental math
   - Calculator

2. Use exponentiation to find whole number powers of numbers.
3. Understand and apply the standard algebraic order of operations, including appropriate use of parentheses.

C. Estimation

1. Use equivalent representations of numbers such as fractions, decimals, and percents to facilitate estimation.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Number Sense

1. Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 8 pertain to these sets of numbers as well):
   - Rational numbers
   - Percents
   - Exponents
   - Roots
   - Absolute values
   - Numbers represented in scientific notation
2. Demonstrate a sense of the relative magnitudes of numbers.
3. Understand and use ratios, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations.
4. Compare and order numbers of all named types.
5. Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number.
6. Recognize that repeating decimals correspond to fractions and determine their fractional equivalents.
   - $5/7 = 0.\ 714285714285\ldots = 0.\overline{714285}$
7. Construct meanings for common irrational numbers, such as π (pi) and the square root of 2.

B. Numerical Operations

1. Use and explain procedures for performing calculations involving addition, subtraction, multiplication, division, and exponentiation with integers and all number types named above with:
   - Pencil-and-paper
   - Mental math
   - Calculator
2. Use exponentiation to find whole number powers of numbers.
3. Find square and cube roots of numbers and understand the inverse nature of powers and roots.
4. Solve problems involving proportions and percents.
5. Understand and apply the standard algebraic order of operations, including appropriate use of parentheses.

C. Estimation

1. Estimate square and cube roots of numbers.
2. Use equivalent representations of numbers such as fractions, decimals, and percents to facilitate estimation.
3. Recognize the limitations of estimation and assess the amount of error resulting from estimation.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Number Sense

1. Extend understanding of the number system to all real numbers.
2. Compare and order rational and irrational numbers.
3. Develop conjectures and informal proofs of properties of number systems and sets of numbers.

B. Numerical Operations

1. Extend understanding and use of operations to real numbers and algebraic procedures.
2. Develop, apply, and explain methods for solving problems involving rational and negative exponents.
3. Perform operations on matrices.
   - Addition and subtraction
   - Scalar multiplication
4. Understand and apply the laws of exponents to simplify expressions involving numbers raised to powers.

C. Estimation

1. Recognize the limitations of estimation, assess the amount of error resulting from estimation, and determine whether the error is within acceptable tolerance limits.

STANDARD 4.2 (GEOMETRY AND MEASUREMENT) ALL STUDENTS WILL DEVELOP SPATIAL SENSE AND THE ABILITY TO USE GEOMETRIC PROPERTIES, RELATIONSHIPS, AND MEASUREMENT TO MODEL, DESCRIBE AND ANALYZE PHENOMENA.

Descriptive Statement: Spatial sense is an intuitive feel for shape and space. Geometry and measurement both involve describing the shapes we see all around us in art, nature, and the things we make. Spatial sense, geometric modeling, and measurement can help us to describe and interpret our physical environment and to solve problems.

Geometric Properties. This includes identifying, describing and classifying standard geometric objects, describing and comparing properties of geometric objects, making conjectures concerning them, and using reasoning and proof to verify or refute conjectures and theorems. Also included here are such concepts as symmetry, congruence, and similarity.

Transforming Shapes. Analyzing how various transformations affect geometric objects allows students to enhance their spatial sense. This includes combining shapes to form new ones and decomposing complex shapes into simpler ones. It includes the standard geometric transformations of translation (slide), reflection (flip), rotation (turn), and dilation (scaling). It also includes using tessellations and fractals to create geometric patterns.

Coordinate Geometry. Coordinate geometry provides an important connection between geometry and algebra. It facilitates the visualization of algebraic relationships, as well as an analytical understanding of geometry.

Units of Measurement. Measurement helps describe our world using numbers. An understanding of how we attach numbers to real-world phenomena, familiarity with common measurement units (e.g., inches, liters, and miles per hour), and a practical knowledge of measurement tools and techniques are critical for students' understanding of the world around them.

Measuring Geometric Objects. This area focuses on applying the knowledge and understandings of units of measurement in order to actually perform measurement. While students will eventually apply formulas, it is important that they develop and apply strategies that derive from their understanding of the attributes. In addition to measuring objects directly, students apply indirect measurement skills, using, for example, similar triangles and trigonometry.

Students of all ages should realize that geometry and measurement are all around them. Through study of these areas and their applications, they should come to better understand and appreciate the role of mathematics in their lives.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Geometric Properties

1. Identify and describe spatial relationships among objects in space and their relative shapes and sizes.
   - Inside/outside, left/right, above/below, between
   - Smaller/larger/same size, wider/ narrower, longer/shorter
   - Congruence (i.e., same size and shape)
2. Use concrete objects, drawings, and computer graphics to identify, classify, and describe standard three-dimensional and two-dimensional shapes.
   - Vertex, edge, face, side
   - 3D figures – cube, rectangular prism, sphere, cone, cylinder, and pyramid
   - 2D figures – square, rectangle, circle, triangle
   - Relationships between three- and two-dimensional shapes (i.e., the face of a 3D shape is a 2D shape)
3. Describe, identify and create instances of line symmetry.
4. Recognize, describe, extend and create designs and patterns with geometric objects of different shapes and colors.

B. Transforming Shapes

1. Use simple shapes to make designs, patterns, and pictures.
2. Combine and subdivide simple shapes to make other shapes.

C. Coordinate Geometry

1. Give and follow directions for getting from one point to another on a map or grid.

D. Units of Measurement

1. Directly compare and order objects according to measurable attributes.
   - Attributes – length, weight, capacity, time, temperature
2. Recognize the need for a uniform unit of measure.
3. Select and use appropriate standard and non-standard units of measure and standard measurement tools to solve real-life problems.
   - Length – inch, foot, yard, centimeter, meter
   - Weight – pound, gram, kilogram
   - Capacity – pint, quart, liter
   - Time – second, minute, hour, day, week, month, year
   - Temperature – degrees Celsius, degrees Fahrenheit
4. Estimate measures.

E. Measuring Geometric Objects

1. Directly measure the perimeter of simple two-dimensional shapes.
2. Directly measure the area of simple two-dimensional shapes by covering them with squares.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:

A. Geometric Properties

1. Identify and describe spatial relationships of two or more objects in space.
   - Direction, orientation, and perspectives (e.g., which object is on your left when you are standing here?)
   - Relative shapes and sizes
2. Use properties of standard three-dimensional and two-dimensional shapes to identify, classify, and describe them.
   - Vertex, edge, face, side, angle
   - 3D figures – cube, rectangular prism, sphere, cone, cylinder, and pyramid
   - 2D figures – square, rectangle, circle, triangle, pentagon, hexagon, octagon
3. Identify and describe relationships among two-dimensional shapes.
   - Same size, same shape
   - Lines of symmetry
4. Understand and apply concepts involving lines, angles, and circles.
   - Line, line segment, endpoint
5. Recognize, describe, extend, and create space-filling patterns.

B. Transforming Shapes

1. Describe and use geometric transformations (slide, flip, turn).
2. Investigate the occurrence of geometry in nature and art.

C. Coordinate Geometry

1. Locate and name points in the first quadrant on a coordinate grid.

D. Units of Measurement

1. Understand that everyday objects have a variety of attributes, each of which can be measured in many ways.
2. Select and use appropriate standard units of measure and measurement tools to solve real-life problems.
   - Length – fractions of an inch (1/4, 1/2), mile, decimeter, kilometer
   - Area – square inch, square centimeter
   - Weight – ounce
   - Capacity – fluid ounce, cup, gallon, milliliter
3. Incorporate estimation in measurement activities (e.g., estimate before measuring).

E. Measuring Geometric Objects

1. Determine the area of simple two-dimensional shapes on a square grid.
2. Determine the perimeter of simple shapes by measuring all of the sides.
3. Measure and compare the volume of three–dimensional objects using materials such as rice or cubes.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Geometric Properties

1. Identify and describe spatial relationships of two or more objects in space.
   - Direction, orientation, and perspectives (e.g., which object is on your left when you are standing here?)
   - Relative shapes and sizes
   - Shadows (projections) of everyday objects
2. Use properties of standard three-dimensional and two-dimensional shapes to identify, classify, and describe them.
   - Vertex, edge, face, side, angle
   - 3D figures – cube, rectangular prism, sphere, cone, cylinder, and pyramid
   - 2D figures – square, rectangle, circle, triangle, quadrilateral, pentagon, hexagon, octagon
   - Inclusive relationships – squares are rectangles, cubes are rectangular prisms
3. Identify and describe relationships among two-dimensional shapes.
   - Congruence
   - Lines of symmetry
4. Understand and apply concepts involving lines, angles, and circles.
   - Point, line, line segment, endpoint
   - Parallel, perpendicular
   - Angles – acute, right, obtuse
   - Circles – diameter, radius, center
5. Recognize, describe, extend, and create space-filling patterns.

B. Transforming Shapes

1. Use simple shapes to cover an area (tessellations).
2. Describe and use geometric transformations (slide, flip, turn).
3. Investigate the occurrence of geometry in nature and art.

C. Coordinate Geometry

1. Locate and name points in the first quadrant on a coordinate grid.
2. Use coordinates to give or follow directions from one point to another on a map or grid.

D. Units of Measurement

1. Understand that everyday objects have a variety of attributes, each of which can be measured in many ways.
2. Select and use appropriate standard units of measure and measurement tools to solve real-life problems
   - Length – fractions of an inch (1/8, 1/4, 1/2), mile, decimeter, kilometer
   - Area – square inch, square centimeter
   - Volume – cubic inch, cubic centimeter
   - Weight – ounce
   - Capacity – fluid ounce, cup, gallon, milliliter

3. Develop and use personal referents to approximate standard units of measure (e.g., a common paper clip is about an inch long).
4. Incorporate estimation in measurement activities (e.g., estimate before measuring).
5. Solve problems involving elapsed time.

E. Measuring Geometric Objects

1. Determine the area of simple two-dimensional shapes on a square grid.
2. Distinguish between perimeter and area and use each appropriately in problem-solving situations.
3. Measure and compare the volume of three–dimensional objects using materials such as rice or cubes.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:

A. Geometric Properties

1. Understand and apply concepts involving lines and angles.
   - Notation for line, ray, angle, line segment
   - Properties of parallel, perpendicular, and intersecting lines
   - Sum of the measures of the interior angles of a triangle is 180°
2. Identify, describe, compare, and classify polygons.
   - Triangles by angles and sides
   - Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi
   - Polygons by number of sides
   - Equilateral, equiangular, regular
   - All points equidistant from a given point form a circle
3. Identify similar figures.
4. Understand and apply the concepts of congruence and symmetry (line and rotational).

B. Transforming Shapes

1. Use a translation, a reflection, or a rotation to map one figure onto another congruent figure.
2. Recognize, identify, and describe geometric relationships and properties as they exist in nature, art, and other real-world settings.

C. Coordinate Geometry

1. Create geometric shapes with specified properties in the first quadrant on a coordinate grid.

D. Units of Measurement

1. Select and use appropriate units to measure angles and area.
2. Convert measurement units within a system (e.g., 3 feet = ___ inches).
3. Know approximate equivalents between the standard and metric systems (e.g., one kilometer is approximately 6/10 of a mile).
4. Use measurements and estimates to describe and compare phenomena.

E. Measuring Geometric Objects

1. Use a protractor to measure angles.
2. Develop and apply strategies and formulas for finding perimeter and area.
   - Square
   - Rectangle
3. Recognize that rectangles with the same perimeter do not necessarily have the same area and vice versa.
4. Develop informal ways of approximating the measures of familiar objects (e.g., use a grid to approximate the area of the bottom of one's foot).

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Geometric Properties

1. Understand and apply concepts involving lines and angles.
   - Notation for line, ray, angle, line segment
   - Properties of parallel, perpendicular, and intersecting lines
   - Sum of the measures of the interior angles of a triangle is 180°
2. Identify, describe, compare, and classify polygons and circles.
   - Triangles by angles and sides
   - Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi
   - Polygons by number of sides.
   - Equilateral, equiangular, regular
   - All points equidistant from a given point form a circle
3. Identify similar figures.
4. Understand and apply the concepts of congruence and symmetry (line and rotational).
5. Compare properties of cylinders, prisms, cones, pyramids, and spheres.
6. Identify, describe, and draw the faces or shadows (projections) of three-dimensional geometric objects from different perspectives.
7. Identify a three-dimensional shape with given projections (top, front and side views).
8. Identify a three-dimensional shape with a given net (i.e., a flat pattern that folds into a 3D shape).

B. Transforming Shapes

1. Use a translation, a reflection, or a rotation to map one figure onto another congruent figure.
2. Recognize, identify, and describe geometric relationships and properties as they exist in nature, art, and other real-world settings.

C. Coordinate Geometry

1. Create geometric shapes with specified properties in the first quadrant on a coordinate grid.

D. Units of Measurement

1. Select and use appropriate units to measure angles, area, surface area, and volume.
2. Use a scale to find a distance on a map or a length on a scale drawing.

3. Convert measurement units within a system (e.g., 3 feet = ___ inches).
4. Know approximate equivalents between the standard and metric systems (e.g., one kilometer is approximately 6/10 of a mile).
5. Use measurements and estimates to describe and compare phenomena.

E. Measuring Geometric Objects

1. Use a protractor to measure angles.
2. Develop and apply strategies and formulas for finding perimeter and area.
   - Triangle, square, rectangle, parallelogram, and trapezoid
   - Circumference and area of a circle
3. Develop and apply strategies and formulas for finding the surface area and volume of rectangular prisms and cylinders.
4. Recognize that shapes with the same perimeter do not necessarily have the same area and vice versa.
5. Develop informal ways of approximating the measures of familiar objects (e.g., use a grid to approximate the area of the bottom of one's foot).

Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:

A. Geometric Properties

1. Understand and apply properties of polygons.
   - Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi
   - Regular polygons
2. Understand and apply the concept of similarity.
   - Using proportions to find missing measures
   - Scale drawings
   - Models of 3D objects
3. Use logic and reasoning to make and support conjectures about geometric objects.

B. Transforming Shapes

1. Understand and apply transformations.
   - Finding the image, given the pre-image, and vice-versa
   - Sequence of transformations needed to map one figure onto another
   - Reflections, rotations, and translations result in images congruent to the pre-image
   - Dilations (stretching/shrinking) result in images similar to the pre-image

C. Coordinate Geometry

1. Use coordinates in four quadrants to represent geometric concepts.
2. Use a coordinate grid to model and quantify transformations (e.g., translate right 4 units).

D. Units of Measurement

1. Solve problems requiring calculations that involve different units of measurement within a measurement system (e.g., 4'3" plus 7'10" equals 12'1").

2. Select and use appropriate units and tools to measure quantities to the degree of precision needed in a particular problem-solving situation.
3. Recognize that all measurements of continuous quantities are approximations.

E. Measuring Geometric Objects

1. Develop and apply strategies for finding perimeter and area.
   - Geometric figures made by combining triangles, rectangles and circles or parts of circles
   - Estimation of area using grids of various sizes
2. Recognize that the volume of a pyramid or cone is one-third of the volume of the prism or cylinder with the same base and height (e.g., use rice to compare volumes of figures with same base and height).

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Geometric Properties

1. Understand and apply concepts involving lines, angles, and planes.
   - Complementary and supplementary angles
   - Vertical angles
   - Bisectors and perpendicular bisectors
   - Parallel, perpendicular, and intersecting planes
   - Intersection of plane with cube, cylinder, cone, and sphere
2. Understand and apply the Pythagorean theorem.
3. Understand and apply properties of polygons.
   - Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi
   - Regular polygons
   - Sum of measures of interior angles of a polygon
   - Which polygons can be used alone to generate a tessellation and why
4. Understand and apply the concept of similarity.
   - Using proportions to find missing measures
   - Scale drawings
   - Models of 3D objects
5. Use logic and reasoning to make and support conjectures about geometric objects.

B. Transforming Shapes

1. Understand and apply transformations.
   - Finding the image, given the pre-image, and vice-versa
   - Sequence of transformations needed to map one figure onto another
   - Reflections, rotations, and translations result in images congruent to the pre-image
   - Dilations (stretching/shrinking) result in images similar to the pre-image
2. Use iterative procedures to generate geometric patterns.
   - Fractals (e.g., the Koch Snowflake)
   - Self-similarity
   - Construction of initial stages

- Patterns in successive stages (e.g., number of triangles in each stage of Sierpinski's Triangle)

C. Coordinate Geometry

1. Use coordinates in four quadrants to represent geometric concepts.
2. Use a coordinate grid to model and quantify transformations (e.g., translate right 4 units).

D. Units of Measurement

1. Solve problems requiring calculations that involve different units of measurement within a measurement system (e.g., 4'3" plus 7'10" equals 12'1").
2. Use approximate equivalents between standard and metric systems to estimate measurements (e.g., 5 kilometers is about 3 miles).
3. Recognize that the degree of precision needed in calculations depends on how the results will be used and the instruments used to generate the measurements.
4. Select and use appropriate units and tools to measure quantities to the degree of precision needed in a particular problem-solving situation.
5. Recognize that all measurements of continuous quantities are approximations.
6. Solve problems that involve compound measurement units, such as speed (miles per hour), air pressure (pounds per square inch), and population density (persons per square mile).

E. Measuring Geometric Objects

1. Develop and apply strategies for finding perimeter and area.
   - Geometric figures made by combining triangles, rectangles and circles or parts of circles
   - Estimation of area using grids of various sizes
   - Impact of a dilation on the perimeter and area of a 2-dimensional figure
2. Recognize that the volume of a pyramid or cone is one-third of the volume of the prism or cylinder with the same base and height (e.g., use rice to compare volumes of figures with same base and height).
3. Develop and apply strategies and formulas for finding the surface area and volume of a three-dimensional figure.
   - Volume - prism, cone, pyramid
   - Surface area - prism (triangular or rectangular base), pyramid (triangular or rectangular base)
   - Impact of a dilation on the surface area and volume of a three-dimensional figure
4. Use formulas to find the volume and surface area of a sphere.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Geometric Properties

1. Use geometric models to represent real-world situations and objects and to solve problems using those models (e.g., use Pythagorean Theorem to decide whether an object can fit through a doorway).

2. Draw perspective views of 3D objects on isometric dot paper, given 2D representations (e.g., nets or projective views).
3. Apply the properties of geometric shapes.
   - Parallel lines – transversal, alternate interior angles, corresponding angles
   - Triangles
     a. Conditions for congruence
     b. Segment joining midpoints of two sides is parallel to and half the length of the third side
     c. Triangle Inequality
   - Minimal conditions for a shape to be a special quadrilateral
   - Circles – arcs, central and inscribed angles, chords, tangents
   - Self-similarity
4. Use reasoning and some form of proof to verify or refute conjectures and theorems.
   - Verification or refutation of proposed proofs
   - Simple proofs involving congruent triangles
   - Counterexamples to incorrect conjectures

B. Transforming Shapes

1. Determine, describe, and draw the effect of a transformation, or a sequence of transformations, on a geometric or algebraic object, and, conversely, determine whether and how one object can be transformed to another by a transformation or a sequence of transformations.
2. Recognize three-dimensional figures obtained through transformations of two-dimensional figures (e.g., cone as rotating an isosceles triangle about an altitude), using software as an aid to visualization.
3. Determine whether two or more given shapes can be used to generate a tessellation.
4. Generate and analyze iterative geometric patterns.
   - Fractals (e.g., Sierpinski's Triangle)
   - Patterns in areas and perimeters of self-similar figures
   - Outcome of extending iterative process indefinitely

C. Coordinate Geometry

1. Use coordinate geometry to represent and verify properties of lines.
   - Distance between two points
   - Midpoint and slope of a line segment
   - Finding the intersection of two lines
   - Lines with the same slope are parallel
   - Lines that are perpendicular have slopes whose product is –1
2. Show position and represent motion in the coordinate plane using vectors.
   - Addition and subtraction of vectors

D. Units of Measurement

1. Understand and use the concept of significant digits.

2. Choose appropriate tools and techniques to achieve the specified degree of precision and error needed in a situation.
   - Degree of accuracy of a given measurement tool
   - Finding the interval in which a computed measure (e.g., area or volume) lies, given the degree of precision of linear measurements

E. Measuring Geometric Objects

1. Use techniques of indirect measurement to represent and solve problems.
   - Similar triangles
   - Pythagorean theorem
   - Right triangle trigonometry (sine, cosine, tangent)
2. Use a variety of strategies to determine perimeter and area of plane figures and surface area and volume of 3D figures.
   - Approximation of area using grids of different sizes
   - Finding which shape has minimal (or maximal) area, perimeter, volume, or surface area under given conditions using graphing calculators, dynamic geometric software, and/or spreadsheets
   - Estimation of area, perimeter, volume, and surface area

STANDARD 4.3 (PATTERNS AND ALGEBRA) ALL STUDENTS WILL REPRESENT AND ANALYZE RELATIONSHIPS AMONG VARIABLE QUANTITIES AND SOLVE PROBLEMS INVOLVING PATTERNS, FUNCTIONS, AND ALGEBRAIC CONCEPTS AND PROCESSES.

Descriptive Statement: Algebra is a symbolic language used to express mathematical relationships. Students need to understand how quantities are related to one another, and how algebra can be used to concisely express and analyze those relationships. Modern technology provides tools for supplementing the traditional focus on algebraic procedures, such as solving equations, with a more visual perspective, with graphs of equations displayed on a screen. Students can then focus on understanding the relationship between the equation and the graph, and on what the graph represents in a real-life situation.

Patterns. Algebra provides the language through which we communicate the patterns in mathematics. From the earliest age, students should be encouraged to investigate the patterns that they find in numbers, shapes, and expressions, and, by doing so, to make mathematical discoveries. They should have opportunities to analyze, extend, and create a variety of patterns and to use pattern-based thinking to understand and represent mathematical and other real-world phenomena.

Functions and Relationships. The function concept is one of the most fundamental unifying ideas of modern mathematics. Students begin their study of functions in the primary grades, as they observe and study patterns. As students grow and their ability to abstract matures, students form rules, display information in a table or chart, and write equations which express the relationships they have observed. In high school, they use the more formal language of algebra to describe these relationships.

Modeling. Algebra is used to model real situations and answer questions about them. This use of algebra requires the ability to represent data in tables, pictures, graphs, equations or inequalities, and rules. Modeling ranges from writing simple number sentences to help solve story problems in the primary grades to using functions to describe the relationship between two variables, such as the height of a pitched ball over time. Modeling also includes some of the conceptual building blocks of calculus, such as how quantities change over time and what happens in the long run (limits).

Procedures. Techniques for manipulating algebraic expressions – procedures – remain important, especially for students who may continue their study of mathematics in a calculus program. Utilization of algebraic procedures includes understanding and applying properties of numbers and operations, using symbols and variables appropriately, working with expressions, equations, and inequalities, and solving equations and inequalities.

Algebra is a gatekeeper for the future study of mathematics, science, the social sciences, business, and a host of other areas. In the past, algebra has served as a filter, screening people out of these opportunities. For New Jersey to be part of the global society, it is important that algebra play a major role in a mathematics program that opens the gates for all students.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Patterns

1. Recognize, describe, extend, and create patterns.
   - Using concrete materials (manipulatives), pictures, rhythms, & whole numbers
   - Descriptions using words and symbols (e.g., "add two" or "+ 2")
   - Repeating patterns
   - Whole number patterns that grow or shrink as a result of repeatedly adding or subtracting a fixed number (e.g., skip counting forward or backward)

B. Functions and Relationships

1. Use concrete and pictorial models of function machines to explore the basic concept of a function.

C. Modeling

1. Recognize and describe changes over time (e.g., temperature, height).
2. Construct and solve simple open sentences involving addition or subtraction.
   - Result unknown (e.g., 6 – 2 = __ or n = 3 + 5)
   - Part unknown (e.g., 3 + □ = 8)

D. Procedures

1. Understand and apply (but don't name) the following properties of addition:
   - Commutative (e.g., 5 + 3 = 3 + 5)
   - Zero as the identity element (e.g., 7 + 0 = 7)
   - Associative (e.g., 7 + 3 + 2 can be found by first adding either 7 + 3 or 3 + 2)

Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:

A. Patterns

1. Recognize, describe, extend, and create patterns.
   - Descriptions using words and number sentences/expressions
   - Whole number patterns that grow or shrink as a result of repeatedly adding, subtracting, multiplying by, or dividing by a fixed number (e.g., 5, 8, 11, . . . or 800, 400, 200, . . .)

B. Functions and Relationships

1. Use concrete and pictorial models to explore the basic concept of a function.
   - Input/output tables, T-charts

C. Modeling

1. Recognize and describe change in quantities.
   - Graphs representing change over time (e.g., temperature, height)
2. Construct and solve simple open sentences involving addition or subtraction (e.g., 3 + 6 = __, n = 15 – 3, 3 + __ = 3, 16 – c = 7).

D. Procedures

1. Understand and apply the properties of operations and numbers.
   - Commutative (e.g., 3 x 7 = 7 x 3)
   - Identity element for multiplication is 1 (e.g., 1 x 8 = 8)
   - Any number multiplied by zero is zero
2. Understand and use the concepts of equals, less than, and greater than to describe relations between numbers.
   - Symbols (= , < , >)

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Patterns

1. Recognize, describe, extend, and create patterns.
   - Descriptions using words, number sentences/expressions, graphs, tables, variables (e.g., shape, blank, or letter)
   - Sequences that stop or that continue infinitely
   - Whole number patterns that grow or shrink as a result of repeatedly adding, subtracting, multiplying by, or dividing by a fixed number (e.g., 5, 8, 11, . . . or 800, 400, 200, . . .)
   - Sequences can often be extended in more than one way (e.g., the next term after 1, 2, 4, . . . could be 8, or 7, or …)

B. Functions and Relationships

1. Use concrete and pictorial models to explore the basic concept of a function.
   - Input/output tables, T-charts
   - Combining two function machines
   - Reversing a function machine

C. Modeling

1. Recognize and describe change in quantities.
   - Graphs representing change over time (e.g., temperature, height)
   - How change in one physical quantity can produce a corresponding change in another (e.g., pitch of a sound depends on the rate of vibration)
2. Construct and solve simple open sentences involving any one operation (e.g., 3 x 6 = __, n = 15 ÷ 3, 3 x __ = 0, 16 – c = 7).

D. Procedures

1. Understand, name, and apply the properties of operations and numbers.
   - Commutative (e.g., 3 x 7 = 7 x 3)
   - Identity element for multiplication is 1 (e.g., 1 x 8 = 8)
   - Associative (e.g., 2 x 4 x 25 can be found by first multiplying either 2 x 4 or 4 x 25)
   - Division by zero is undefined
   - Any number multiplied by zero is zero.
2. Understand and use the concepts of equals, less than, and greater than in simple number sentences.
   - Symbols (= , < , >)

Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:

A. Patterns

1. Recognize, describe, extend, and create patterns involving whole numbers.
   - Descriptions using tables, verbal rules, simple equations, and graphs

B. Functions & Relationships

1. Describe arithmetic operations as functions, including combining operations and reversing them.
2. Graph points satisfying a function from T-charts, from verbal rules, and from simple equations.

C. Modeling

1. Use number sentences to model situations.
   - Using variables to represent unknown quantities
   - Using concrete materials, tables, graphs, verbal rules, algebraic expressions/equations
2. Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events.
   - Changes over time
   - Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly)

D. Procedures

1. Solve simple linear equations with manipulatives and informally
   - Whole-number coefficients only, answers also whole numbers
   - Variables on one side of equation

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Patterns

1. Recognize, describe, extend, and create patterns involving whole numbers and rational numbers.
   - Descriptions using tables, verbal rules, simple equations, and graphs
   - Formal iterative formulas (e.g., NEXT = NOW * 3)
   - Recursive patterns, including Pascal's Triangle (where each entry is the sum of the entries above it) and the Fibonacci Sequence: 1, 1, 2, 3, 5, 8, . . . (where NEXT = NOW + PREVIOUS)

B. Functions and Relationships

1. Describe the general behavior of functions given by formulas or verbal rules (e.g., graph to determine whether increasing or decreasing, linear or not).

C. Modeling

1. Use patterns, relations, and linear functions to model situations.
   - Using variables to represent unknown quantities
   - Using concrete materials, tables, graphs, verbal rules, algebraic expressions/equations/inequalities
2. Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events.
   - Changes over time
   - Relations between quantities
   - Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly)

D. Procedures

1. Solve simple linear equations with manipulatives and informally.
   - Whole-number coefficients only, answers also whole numbers
   - Variables on one or both sides of equation
2. Understand and apply the properties of operations and numbers.
   - Distributive property
   - The product of a number and its reciprocal is 1
3. Evaluate numerical expressions.
4. Extend understanding and use of inequality.
   - Symbols ($\geq$, $\neq$, $\leq$)

Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:

A. Patterns

1. Recognize, describe, extend, and create patterns involving whole numbers, rational numbers, and integers.
   - Descriptions using tables, verbal and symbolic rules, graphs, simple equations or expressions
   - Finite and infinite sequences
   - Generating sequences by using calculators to repeatedly apply a formula

B. Functions and Relationships

1. Graph functions, and understand and describe their general behavior.
   - Equations involving two variables

C. Modeling

1. Analyze functional relationships to explain how a change in one quantity can result in a change in another, using pictures, graphs, charts, and equations.
2. Use patterns, relations, symbolic algebra, and linear functions to model situations.
   - Using manipulatives, tables, graphs, verbal rules, algebraic expressions/equations/inequalities

- Growth situations, such as population growth and compound interest, using recursive (e.g., NOW-NEXT) formulas (cf. science standard 5.5 and social studies standard 6.6)

D. Procedures

1. Use graphing techniques on a number line.
   - Absolute value
   - Arithmetic operations represented by vectors (arrows) (e.g., "-3 + 6" is "left 3, right 6")
2. Solve simple linear equations informally and graphically.
   - Multi-step, integer coefficients only (although answers may not be integers)
   - Using paper-and-pencil, calculators, graphing calculators, spreadsheets, and other technology
3. Create, evaluate, and simplify algebraic expressions involving variables.
   - Order of operations, including appropriate use of parentheses
   - Substitution of a number for a variable
4. Understand and apply the properties of operations, numbers, equations, and inequalities.
   - Additive inverse
   - Multiplicative inverse

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Patterns

1. Recognize, describe, extend, and create patterns involving whole numbers, rational numbers, and integers.
   - Descriptions using tables, verbal and symbolic rules, graphs, simple equations or expressions
   - Finite and infinite sequences
   - Arithmetic sequences (i.e., sequences generated by repeated addition of a fixed number, positive or negative)
   - Geometric sequences (i.e., sequences generated by repeated multiplication by a fixed positive ratio, greater than 1 or less than 1)
   - Generating sequences by using calculators to repeatedly apply a formula

B. Functions and Relationships

1. Graph functions, and understand and describe their general behavior.
   - Equations involving two variables
   - Rates of change (informal notion of slope)
2. Recognize and describe the difference between linear and exponential growth, using tables, graphs, and equations.

C. Modeling

1. Analyze functional relationships to explain how a change in one quantity can result in a change in another, using pictures, graphs, charts, and equations.

2. Use patterns, relations, symbolic algebra, and linear functions to model situations.
   - Using concrete materials (manipulatives), tables, graphs, verbal rules, algebraic expressions/equations/inequalities
   - Growth situations, such as population growth and compound interest, using recursive (e.g., NOW-NEXT) formulas (cf. science standard 5.5 and social studies standard 6.6)

D. Procedures

1. Use graphing techniques on a number line.
   - Absolute value
   - Arithmetic operations represented by vectors (arrows) (e.g., "-3 + 6" is "left 3, right 6")
2. Solve simple linear equations informally, graphically, and using formal algebraic methods.
   - Multi-step, integer coefficients only (although answers may not be integers)
   - Using paper-and-pencil, calculators, graphing calculators, spreadsheets, and other technology
3. Solve simple linear inequalities.
4. Create, evaluate, and simplify algebraic expressions involving variables.
   - Order of operations, including appropriate use of parentheses
   - Distributive property
   - Substitution of a number for a variable
   - Translation of a verbal phrase or sentence into an algebraic expression, equation, or inequality, and vice versa
5. Understand and apply the properties of operations, numbers, equations, and inequalities.
   - Additive inverse
   - Multiplicative inverse
   - Addition and multiplication properties of equality
   - Addition and multiplication properties of inequalities

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Patterns

1. Use models and algebraic formulas to represent and analyze sequences and series.
   - Explicit formulas for n^{th} terms
   - Sums of finite arithmetic series
   - Sums of finite and infinite geometric series
2. Develop an informal notion of limit.
3. Use inductive reasoning to form generalizations.

B. Functions and Relationships

1. Understand relations and functions and select, convert flexibly among, and use various representations for them, including equations or inequalities, tables, and graphs.

2. Analyze and explain the general properties and behavior of functions of one variable, using appropriate graphing technologies.
   - Slope of a line or curve
   - Domain and range
   - Intercepts
   - Continuity
   - Maximum/minimum
   - Estimating roots of equations
   - Intersecting points as solutions of systems of equations
   - Rates of change
3. Understand and perform transformations on commonly-used functions.
   - Translations, reflections, dilations
   - Effects on linear and quadratic graphs of parameter changes in equations
   - Using graphing calculators or computers for more complex functions
4. Understand and compare the properties of classes of functions, including exponential, polynomial, rational, and trigonometric functions.
   - Linear vs. non-linear
   - Symmetry
   - Increasing/decreasing on an interval

C. Modeling

1. Use functions to model real-world phenomena and solve problems that involve varying quantities.
   - Linear, quadratic, exponential, periodic (sine and cosine), and step functions (e.g., price of mailing a first-class letter over the past 200 years)
   - Direct and inverse variation
   - Absolute value
   - Expressions, equations and inequalities
   - Same function can model variety of phenomena
   - Growth/decay and change in the natural world
   - Applications in mathematics, biology, and economics (including compound interest)
2. Analyze and describe how a change in an independent variable leads to change in a dependent one.
3. Convert recursive formulas to linear or exponential functions (e.g., Tower of Hanoi and doubling).

D. Procedures

1. Evaluate and simplify expressions.
   - Add and subtract polynomials
   - Multiply a polynomial by a monomial or binomial
   - Divide a polynomial by a monomial
2. Select and use appropriate methods to solve equations and inequalities.
   - Linear equations – algebraically
   - Quadratic equations – factoring (when the coefficient of x^2 is 1) and using the quadratic formula

- All types of equations using graphing, computer, and graphing calculator techniques

3. Judge the meaning, utility, and reasonableness of the results of symbol manipulations, including those carried out by technology.

STANDARD 4.4 (DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS) ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE CONCEPTS AND TECHNIQUES OF DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS, AND WILL USE THEM TO MODEL SITUATIONS, SOLVE PROBLEMS, AND ANALYZE AND DRAW APPROPRIATE INFERENCES FROM DATA.

Descriptive Statement: Data analysis, probability, and discrete mathematics are important interrelated areas of applied mathematics. Each provides students with powerful mathematical perspectives on everyday phenomena and with important examples of how mathematics is used in the modern world. Two important areas of discrete mathematics are addressed in this standard; a third area, iteration and recursion, is addressed in Standard 4.3 (Patterns and Algebra).

Data Analysis (or Statistics). In today's information-based world, students need to be able to read, understand, and interpret data in order to make informed decisions. In the early grades, students should be involved in collecting and organizing data, and in presenting it using tables, charts, and graphs. As they progress, they should gather data using sampling, and should increasingly be expected to analyze and make inferences from data, as well as to analyze data and inferences made by others.

Probability. Students need to understand the fundamental concepts of probability so that they can interpret weather forecasts, avoid unfair games of chance, and make informed decisions about medical treatments whose success rate is provided in terms of percentages. They should regularly be engaged in predicting and determining probabilities, often based on experiments (like flipping a coin 100 times), but eventually based on theoretical discussions of probability that make use of systematic counting strategies. High school students should use probability models and solve problems involving compound events and sampling.

Discrete Mathematics—Systematic Listing and Counting. Development of strategies for listing and counting can progress through all grade levels, with middle and high school students using the strategies to solve problems in probability. Primary students, for example, might find all outfits that can be worn using two coats and three hats; middle school students might systematically list and count the number of routes from one site on a map to another; and high school students might determine the number of three-person delegations that can be selected from their class to visit the mayor.

Discrete Mathematics—Vertex-Edge Graphs and Algorithms. Vertex-edge graphs, consisting of dots (vertices) and lines joining them (edges), can be used to represent and solve problems based on real-world situations. Students should learn to follow and devise lists of instructions, called "algorithms," and use algorithmic thinking to find the best solution to problems like those involving vertex-edge graphs, but also to solve other problems.

These topics provide students with insight into how mathematics is used by decision-makers in our society, and with important tools for modeling a variety of real-world situations. Students will better understand and interpret the vast amounts of quantitative data that they are exposed to daily, and they will be able to judge the validity of data-supported arguments.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Data Analysis

1. Collect, generate, record, and organize data in response to questions, claims, or curiosity.
   - Data collected from students' everyday experiences
   - Data generated from chance devices, such as spinners and dice
2. Read, interpret, construct, and analyze displays of data.
   - Pictures, tally chart, pictograph, bar graph, Venn diagram
   - Smallest to largest, most frequent (mode)

B. Probability

1. Use chance devices like spinners and dice to explore concepts of probability.
   - Certain, impossible
   - More likely, less likely, equally likely
2. Provide probability of specific outcomes.
   - Probability of getting specific outcome when coin is tossed, when die is rolled, when spinner is spun (e.g., if spinner has five equal sectors, then probability of getting a particular sector is one out of five)
   - When picking a marble from a bag with three red marbles and four blue marbles, the probability of getting a red marble is three out of seven

C. Discrete Mathematics—Systematic Listing and Counting

1. Sort and classify objects according to attributes.
   - Venn diagrams
2. Generate all possibilities in simple counting situations (e.g., all outfits involving two shirts and three pants).

D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

1. Follow simple sets of directions (e.g., from one location to another, or from a recipe).
2. Color simple maps with a small number of colors.
3. Play simple two-person games (e.g., tic-tac-toe) and informally explore the idea of what the outcome should be.
4. Explore concrete models of vertex-edge graphs (e.g. vertices as "islands" and edges as "bridges").
   - Paths from one vertex to another

Building upon knowledge and skills gained in preceding grades, by the end of Grade 3, students will:

A. Data Analysis

1. Collect, generate, organize, and display data in response to questions, claims, or curiosity.
   - Data collected from the classroom environment

2. Read, interpret, construct, analyze, generate questions about, and draw inferences from displays of data.
   - Pictograph, bar graph, table

B. Probability

1. Use everyday events and chance devices, such as dice, coins, and unevenly divided spinners, to explore concepts of probability.
   - Likely, unlikely, certain, impossible
   - More likely, less likely, equally likely
2. Predict probabilities in a variety of situations (e.g., given the number of items of each color in a bag, what is the probability that an item picked will have a particular color).
   - What students think will happen (intuitive)
   - Collect data and use that data to predict the probability (experimental)

C. Discrete Mathematics—Systematic Listing and Counting

1. Represent and classify data according to attributes, such as shape or color, and relationships.
   - Venn diagrams
   - Numerical and alphabetical order
2. Represent all possibilities for a simple counting situation in an organized way and draw conclusions from this representation.
   - Organized lists, charts

D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

1. Follow, devise, and describe practical sets of directions (e.g., to add two 2-digit numbers).
2. Explore vertex-edge graphs
   - Vertex, edge
   - Path
3. Find the smallest number of colors needed to color a map.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Data Analysis

1. Collect, generate, organize, and display data in response to questions, claims, or curiosity.
   - Data collected from the school environment
2. Read, interpret, construct, analyze, generate questions about, and draw inferences from displays of data.
   - Pictograph, bar graph, line plot, line graph, table
   - Average (mean), most frequent (mode), middle term (median)

B. Probability

1. Use everyday events and chance devices, such as dice, coins, and unevenly divided spinners, to explore concepts of probability.

- Likely, unlikely, certain, impossible, improbable, fair, unfair
- More likely, less likely, equally likely
- Probability of tossing "heads" does not depend on outcomes of previous tosses

2. Determine probabilities of simple events based on equally likely outcomes and express them as fractions.
3. Predict probabilities in a variety of situations (e.g., given the number of items of each color in a bag, what is the probability that an item picked will have a particular color).
   - What students think will happen (intuitive)
   - Collect data and use that data to predict the probability (experimental)
   - Analyze all possible outcomes to find the probability (theoretical)

C. Discrete Mathematics—Systematic Listing and Counting

1. Represent and classify data according to attributes, such as shape or color, and relationships.
   - Venn diagrams
   - Numerical and alphabetical order
2. Represent all possibilities for a simple counting situation in an organized way and draw conclusions from this representation.
   - Organized lists, charts, tree diagrams
   - Dividing into categories (e.g., to find the total number of rectangles in a grid, find the number of rectangles of each size and add the results)

D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

1. Follow, devise, and describe practical sets of directions (e.g., to add two 2-digit numbers).
2. Play two-person games and devise strategies for winning the games (e.g., "make 5" where players alternately add 1 or 2 and the person who reaches 5, or another designated number, is the winner).
3. Explore vertex-edge graphs and tree diagrams.
   - Vertex, edge, neighboring/adjacent, number of neighbors
   - Path, circuit (i.e., path that ends at its starting point)
4. Find the smallest number of colors needed to color a map or a graph.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 5, students will:

A. Data Analysis

1. Collect, generate, organize, and display data.
   - Data generated from surveys
2. Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data.
   - Bar graph, line graph, circle graph, table
   - Range, median, and mean
3. Respond to questions about data and generate their own questions and hypotheses.

B. Probability

1. Determine probabilities of events.
   - Event, probability of an event
   - Probability of certain event is 1 and of impossible event is 0
2. Determine probability using intuitive, experimental, and theoretical methods (e.g., using model of picking items of different colors from a bag).
   - Given numbers of various types of items in a bag, what is the probability that an item of one type will be picked
   - Given data obtained experimentally, what is the likely distribution of items in the bag
3. Model situations involving probability using simulations (with spinners, dice) and theoretical models.

C. Discrete Mathematics—Systematic Listing and Counting

1. Solve counting problems and justify that all possibilities have been enumerated without duplication.
   - Organized lists, charts, tree diagrams, tables
2. Explore the multiplication principle of counting in simple situations by representing all possibilities in an organized way (e.g., you can make 3 x 4 = 12 outfits using 3 shirts and 4 skirts).

D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

1. Devise strategies for winning simple games (e.g., start with two piles of objects, each of two players in turn removes any number of objects from a single pile, and the person to take the last group of objects wins) and express those strategies as sets of directions.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Data Analysis

1. Collect, generate, organize, and display data.
   - Data generated from surveys
2. Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data.
   - Bar graph, line graph, circle graph, table, histogram
   - Range, median, and mean
   - Calculators and computers used to record and process information
3. Respond to questions about data, generate their own questions and hypotheses, and formulate strategies for answering their questions and testing their hypotheses.

B. Probability

1. Determine probabilities of events.
   - Event, complementary event, probability of an event
   - Multiplication rule for probabilities
   - Probability of certain event is 1 and of impossible event is 0
   - Probabilities of event and complementary event add up to 1

2. Determine probability using intuitive, experimental, and theoretical methods (e.g., using model of picking items of different colors from a bag).
   - Given numbers of various types of items in a bag, what is the probability that an item of one type will be picked
   - Given data obtained experimentally, what is the likely distribution of items in the bag
3. Explore compound events.
4. Model situations involving probability using simulations (with spinners, dice) and theoretical models.
5. Recognize and understand the connections among the concepts of independent outcomes, picking at random, and fairness.

C. Discrete Mathematics—Systematic Listing and Counting

1. Solve counting problems and justify that all possibilities have been enumerated without duplication.
   - Organized lists, charts, tree diagrams, tables
   - Venn diagrams
2. Apply the multiplication principle of counting.
   - Simple situations (e.g., you can make 3 x 4 = 12 outfits using 3 shirts and 4 skirts).
   - Number of ways a specified number of items can be arranged in order (concept of permutation)
   - Number of ways of selecting a slate of officers from a class (e.g., if there are 23 students and 3 officers, the number is 23 x 22 x 21)
3. List the possible combinations of two elements chosen from a given set (e.g., forming a committee of two from a group of 12 students, finding how many handshakes there will be among ten people if everyone shakes each other person's hand once).

D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

1. Devise strategies for winning simple games (e.g., start with two piles of objects, each of two players in turn removes any number of objects from a single pile, and the person to take the last group of objects wins) and express those strategies as sets of directions.
2. Analyze vertex-edge graphs and tree diagrams.
   - Can a picture or a vertex-edge graph be drawn with a single line? (degree of vertex)
   - Can you get from any vertex to any other vertex? (connectedness)
3. Use vertex-edge graphs to find solutions to practical problems.
   - Delivery route that stops at specified sites but involves least travel
   - Shortest route from one site on a map to another

Building upon knowledge and skills gained in preceding grades, by the end of Grade 7, students will:

A. Data Analysis

1. Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode).
   - Type of display most appropriate for given data
   - Box-and-whisker plot, upper quartile, lower quartile

- Scatter plot
- Calculators and computer used to record and process information

2. Make inferences and formulate and evaluate arguments based on displays and analysis of data.

B. Probability

1. Interpret probabilities as ratios, percents, and decimals.
2. Model situations involving probability with simulations (using spinners, dice, calculators and computers) and theoretical models.
   - Frequency, relative frequency
3. Estimate probabilities and make predictions based on experimental and theoretical probabilities.
4. Play and analyze probability-based games, and discuss the concepts of fairness and expected value.

C. Discrete Mathematics—Systematic Listing and Counting

1. Apply the multiplication principle of counting.
   - Permutations: ordered situations with replacement (e.g., number of possible license plates) vs. ordered situations without replacement (e.g., number of possible slates of 3 class officers from a 23 student class)
2. Explore counting problems involving Venn diagrams with three attributes (e.g., there are 15, 20, and 25 students respectively in the chess club, the debating team, and the engineering society; how many different students belong to the three clubs if there are 6 students in chess and debating, 7 students in chess and engineering, 8 students in debating and engineering, and 2 students in all three?).
3. Apply techniques of systematic listing, counting, and reasoning in a variety of different contexts.

D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

1. Use vertex-edge graphs to represent and find solutions to practical problems.
   - Finding the shortest network connecting specified sites
   - Finding the shortest route on a map from one site to another
   - Finding the shortest circuit on a map that makes a tour of specified sites

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Data Analysis

1. Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode).
   - Type of display most appropriate for given data
   - Box-and-whisker plot, upper quartile, lower quartile
   - Scatter plot
   - Calculators and computer used to record and process information
   - Finding the median and mean (weighted average) using frequency data.
   - Effect of additional data on measures of central tendency

2. Make inferences and formulate and evaluate arguments based on displays and analysis of data.
3. Estimate lines of best fit and use them to interpolate within the range of the data.
4. Use surveys and sampling techniques to generate data and draw conclusions about large groups.

B. Probability

1. Interpret probabilities as ratios, percents, and decimals.
2. Determine probabilities of compound events.
3. Explore the probabilities of conditional events (e.g., if there are seven marbles in a bag, three red and four green, what is the probability that two marbles picked from the bag, without replacement, are both red).
4. Model situations involving probability with simulations (using spinners, dice, calculators and computers) and theoretical models.
   - Frequency, relative frequency
5. Estimate probabilities and make predictions based on experimental and theoretical probabilities.
6. Play and analyze probability-based games, and discuss the concepts of fairness and expected value.

C. Discrete Mathematics—Systematic Listing and Counting

1. Apply the multiplication principle of counting.
   - Permutations: ordered situations with replacement (e.g., number of possible license plates) vs. ordered situations without replacement (e.g., number of possible slates of 3 class officers from a 23 student class)
   - Factorial notation
   - Concept of combinations (e.g., number of possible delegations of 3 out of 23 students)
2. Explore counting problems involving Venn diagrams with three attributes (e.g., there are 15, 20, and 25 students respectively in the chess club, the debating team, and the engineering society; how many different students belong to the three clubs if there are 6 students in chess and debating, 7 students in chess and engineering, 8 students in debating and engineering, and 2 students in all three?).
3. Apply techniques of systematic listing, counting, and reasoning in a variety of different contexts.

D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

1. Use vertex-edge graphs and algorithmic thinking to represent and find solutions to practical problems.
   - Finding the shortest network connecting specified sites
   - Finding a minimal route that includes every street (e.g., for trash pick-up)
   - Finding the shortest route on a map from one site to another
   - Finding the shortest circuit on a map that makes a tour of specified sites
   - Limitations of computers (e.g., the number of routes for a delivery truck visiting *n* sites is *n!*, so finding the shortest circuit by examining all circuits would overwhelm the capacity of any computer, now or in the future, even if n is less than 100)

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Data Analysis

1. Use surveys and sampling techniques to generate data and draw conclusions about large groups.
   - Advantages/disadvantages of sample selection methods (e.g., convenience sampling, responses to survey, random sampling)
2. Evaluate the use of data in real-world contexts.
   - Accuracy and reasonableness of conclusions drawn
   - Bias in conclusions drawn (e.g., influence of how data is displayed)
   - Statistical claims based on sampling
3. Design a statistical experiment, conduct the experiment, and interpret and communicate the outcome.
4. Estimate or determine lines of best fit (or curves of best fit if appropriate) with technology, and use them to interpolate within the range of the data.
5. Analyze data using technology, and use statistical terminology to describe conclusions.
   - Measures of dispersion: variance, standard deviation, outliers
   - Correlation coefficient
   - Normal distribution (e.g., approximately 95% of the sample lies between two standard deviations on either side of the mean)

B. Probability

1. Calculate the expected value of a probability-based game, given the probabilities and payoffs of the various outcomes, and determine whether the game is fair.
2. Use concepts and formulas of area to calculate geometric probabilities.
3. Model situations involving probability with simulations (using spinners, dice, calculators and computers) and theoretical models, and solve problems using these models.
4. Determine probabilities in complex situations.
   - Conditional events
   - Complementary events
   - Dependent and independent events
5. Estimate probabilities and make predictions based on experimental and theoretical probabilities.
6. Understand and use the "law of large numbers" (that experimental results tend to approach theoretical probabilities after a large number of trials).

C. Discrete Mathematics—Systematic Listing and Counting

1. Calculate combinations with replacement (e.g., the number of possible ways of tossing a coin 5 times and getting 3 heads) and without replacement (e.g., number of possible delegations of 3 out of 23 students).
2. Apply the multiplication rule of counting in complex situations, recognize the difference between situations with replacement and without replacement, and recognize the difference between ordered and unordered counting situations.
3. Justify solutions to counting problems.

4. Recognize and explain relationships involving combinations and Pascal's Triangle, and apply those methods to situations involving probability.

D. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

1. Use vertex-edge graphs and algorithmic thinking to represent and solve practical problems.
   - Circuits that include every edge in a graph
   - Circuits that include every vertex in a graph
   - Scheduling problems (e.g., when project meetings should be scheduled to avoid conflicts) using graph coloring
   - Applications to science (e.g., who-eats-whom graphs, genetic trees, molecular structures)
2. Explore strategies for making fair decisions.
   - Combining individual preferences into a group decision (e.g., determining winner of an election or selection process)
   - Determining how many Student Council representatives each class (9^{th}, 10^{th}, 11^{th}, and 12^{th} grade) gets when the classes have unequal sizes (apportionment)

STANDARD 4.5 (MATHEMATICAL PROCESSES) ALL STUDENTS WILL USE MATHEMATICAL PROCESSES OF PROBLEM SOLVING, COMMUNICATION, CONNECTIONS, REASONING, REPRESENTATIONS, AND TECHNOLOGY TO SOLVE PROBLEMS AND COMMUNICATE MATHEMATICAL IDEAS.

Descriptive Statement: The mathematical processes described here highlight ways of acquiring and using the content knowledge and skills delineated in the first four mathematics standards.

Problem Solving. Problem posing and problem solving involve examining situations that arise in mathematics and other disciplines and in common experiences, describing these situations mathematically, formulating appropriate mathematical questions, and using a variety of strategies to find solutions. Through problem solving, students experience the power and usefulness of mathematics. Problem solving is interwoven throughout the grades to provide a context for learning and applying mathematical ideas.

Communication. Communication of mathematical ideas involves students' sharing their mathematical understandings in oral and written form with their classmates, teachers, and parents. Such communication helps students clarify and solidify their understanding of mathematics and develop confidence in themselves as mathematics learners. It also enables teachers to better monitor student progress.

Connections. Making connections involves seeing relationships between different topics, and drawing on those relationships in future study. This applies within mathematics, so that students can translate readily between fractions and decimals, or between algebra and geometry; to other content areas, so that students understand how mathematics is used in the sciences, the social sciences, and the arts; and to the everyday world, so that students can connect school mathematics to daily life.

Reasoning. Mathematical reasoning is the critical skill that enables a student to make use of all other mathematical skills. With the development of mathematical reasoning, students recognize that mathematics makes sense and can be understood. They learn how to evaluate situations, select problem-solving strategies, draw logical conclusions, develop and describe solutions, and recognize how those solutions can be applied.

Representations. Representations refers to the use of physical objects, drawings, charts, graphs, and symbols to represent mathematical concepts and problem situations. By using various representations, students will be better able to communicate their thinking and solve problems. Using multiple representations will enrich the problem solver with alternative perspectives on the problem. Historically, people have developed and successfully used manipulatives (concrete representations such as fingers, base ten blocks, geoboards, and algebra tiles) and other representations (such as coordinate systems) to help them understand and develop mathematics.

Technology. Calculators and computers need to be used along with other mathematical tools by students in both instructional and assessment activities. These tools should be used, not

to replace mental math and paper-and-pencil computational skills, but to enhance understanding of mathematics and the power to use mathematics. Students should explore both new and familiar concepts with calculators and computers and should also become proficient in using technology as it is used by adults (e.g., for assistance in solving real-world problems).

Strands and Cumulative Progress Indicators

At each grade level, with respect to content appropriate for that grade level, students will:

A. Problem Solving

1. Learn mathematics through problem solving, inquiry, and discovery.
2. Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3).
   - Open-ended problems
   - Non-routine problems
   - Problems with multiple solutions
   - Problems that can be solved in several ways
3. Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.
4. Pose problems of various types and levels of difficulty.
5. Monitor their progress and reflect on the process of their problem solving activity.

B. Communication

1. Use communication to organize and clarify their mathematical thinking.
   - Reading and writing
   - Discussion, listening, and questioning
2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.
3. Analyze and evaluate the mathematical thinking and strategies of others.
4. Use the language of mathematics to express mathematical ideas precisely.

C. Connections

1. Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).
2. Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).
3. Recognize that mathematics is used in a variety of contexts outside of mathematics.
4. Apply mathematics in practical situations and in other disciplines.
5. Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).
6. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

D. Reasoning

1. Recognize that mathematical facts, procedures, and claims must be justified.
2. Use reasoning to support their mathematical conclusions and problem solutions.
3. Select and use various types of reasoning and methods of proof.
4. Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions.
5. Make and investigate mathematical conjectures.
   - Counterexamples as a means of disproving conjectures
   - Verifying conjectures using informal reasoning or proofs.
6. Evaluate examples of mathematical reasoning and determine whether they are valid.

E. Representations

1. Create and use representations to organize, record, and communicate mathematical ideas.
   - Concrete representations (e.g., base-ten blocks or algebra tiles)
   - Pictorial representations (e.g., diagrams, charts, or tables)
   - Symbolic representations (e.g., a formula)
   - Graphical representations (e.g., a line graph)
2. Select, apply, and translate among mathematical representations to solve problems.
3. Use representations to model and interpret physical, social, and mathematical phenomena.

F. Technology

1. Use technology to gather, analyze, and communicate mathematical information.
2. Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information.
3. Use graphing calculators and computer software to investigate properties of functions and their graphs.
4. Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions).
5. Use computer software to make and verify conjectures about geometric objects.
6. Use computer-based laboratory technology for mathematical applications in the sciences.

New Jersey Core Curriculum Content Standards for Science

INTRODUCTION

The Vision

The New Jersey Core Curriculum Content Standards for Science reflect the belief that all students can and must learn enough science to assume their role as concerned citizens, equipped with necessary information and decision-making skills.

The need for scientific literacy in today's increasingly technological world, for fundamental reforms in how science is taught, and for established standards in science education are by now well known and documented. Presidential appeals for excellence, combined with expressions of concern from scientists and educators, have led to national, state, and local initiatives. New Jersey is host to an impressive array of scientific and technological industries, and should play a leadership role in the development and implementation of standards for the teaching and learning of science.

The Core Curriculum Content Standards for Science are influenced by certain understandings, events, and principles in the continuing improvement of science education in New Jersey and the nation. Efforts to establish standards for the teaching and learning of science have been pursued actively at the state and national level. In 1993, Benchmarks for Science Literacy was published by the American Association for the Advancement of Science (AAAS), followed in 1994 by a comprehensive draft of the National Science Education Standards (NSES) by the National Research Council. Both of these documents contributed to an ongoing interest in the formulation of world-class educational standards rooted in reform movements such as Project 2061 of the American Association for the Advancement of Science, and the Scope, Sequence and Coordination Project of the National Science Teachers Association. The simultaneously emerging national standards presented a reliable model that was often consulted in the formulation of the original New Jersey science standards.

In New Jersey, the call for science education standards was heightened when the State was awarded a grant from the National Science Foundation for the establishment of a Statewide Systematic Initiative (NJ SSI) for the reform of mathematics, science, and technology education. The combined funding of the NJ SSI and the Mid-Atlantic Eisenhower Consortium for Math and Science Education made possible the widespread distribution of an initial draft of science standards during the 1994-95 school year.

Following extensive public exposure and review, the science standards along with those for other subjects and a newly formulated set of Cross Content Workplace Readiness Standards were adopted by the State Board of Education as New Jersey’s Core Curriculum Content Standards in May of 1996.

Revised Standards

Concurrent with the adoption of the standards themselves was a mandate that they be regularly reviewed, and revised if necessary, every five years. This process began for the science standards during the winter of 2000-2001, when a review committee was organized to oversee the revision process.

Much had occurred since the 1996 adoption as New Jersey was joined by nearly every state in the nation in formulating rigorous academic standards as part of a growing national interest in educational reform. This resulted in the availability of several nationwide surveys that acknowledged the excellence of our science standards but more importantly served to inform the committee's careful review of those standards. Particularly useful were a comprehensive research project conducted by the Council of Chief State School Officers (CCSSO) that provided a framework for the benchmarking of the New Jersey standards and a detailed assessment of our science standards reported by Achieve, Inc., an independent, bipartisan, nonprofit organization founded at the 1996 National Education Summit. Additionally, the revisions have benefited from the ongoing work of the organizations that were at the forefront of the science standards movement, particularly the Atlas for Science Literacy published by AAAS in 2001.

An enormous amount of scientific content has accumulated at an accelerating rate over the years, causing textbooks to thicken as material is added but rarely deleted. Science educators across the nation have come to recognize this as a disturbing and counterproductive trend. The science standards in this section, therefore, are not intended to include all of science, but rather are an attempt to define what all students should understand and be able to apply as they grow towards scientific literacy. A guiding principle of these standards is that an understanding of fundamental scientific principles and the development of science-related skills are not limited by gender, economic status, cultural background, or ability. While we recognize the need for the inclusion of fundamental understandings in the life, earth and space, and physical sciences, the development of critical thinking skills is considered of paramount importance. Also important are safe practices, the attitudes students display as they learn science, and the development of qualities inherent in the practice of science, such as curiosity, skepticism, open-mindedness, and honesty when collecting and interpreting findings. While these habits of mind cannot be measured easily, no science program can be considered complete or successful that does not promote them.

Science should be taught at all levels with awareness of its connection to other subjects and the needs of society. While these standards do not suggest a specific curriculum design or sequence of courses, they assume that the relationship of the various disciplines of science to each other, and of science to the overall learning experience, will be strongly emphasized. The grade clustering system implemented in the current version of the standards reflects developmental appropriateness of the content and skills to provide guidance for developmentally appropriate implementation. The standards also reflect the needs of the students and teachers of New Jersey; indeed, incorporating New Jersey's unique natural resources in the teaching of science should be a primary goal of school districts as they move towards implementation.

The formulation of standards does not ensure their proper implementation. The NSES mentioned above includes standards that address the preparation of science teachers as well as the school environment in which science is taught. While New Jersey standards are not intended to deal with such issues, these issues must be considered if the standards are to be realized. The standards are only of value if they are part of a larger, ongoing effort to improve the teaching and learning of science in New Jersey schools. Defining scientific literacy for the citizens of New Jersey is an important first step toward achieving this goal.

Standards and Strands

There are 10 standards, each of which has a number of identified strands. These standards and their associated strands are listed below:

5.1 Scientific Processes
- A. Habits of Mind
- B. Inquiry and Problem Solving
- C. Safety

5.2 Science and Society
- A. Cultural Contributions
- B. Historical Perspectives

5.3 Mathematical Applications
- A. Numerical Operations
- B. Geometry and Measurement
- C. Patterns and Algebra
- D. Data Analysis and Probability

5.4 Nature and Process of Technology
- A. Science and Technology
- B. Nature of Technology
- C. Technological Design

5.5 Life Science
- A. Matter, Energy, and Organization in Living Systems
- B. Diversity and Biological Evolution
- C. Reproduction and Heredity

5.6 Physical Science – Chemistry
- A. Structure and Properties of Matter
- B. Chemical Reactions

5.7 Physical Science – Physics
- A. Motion and Forces
- B. Energy Transformations

5.8 Earth Science

A. Earth's Properties and Materials
B. Atmosphere and Weather
C. Processes that Shape the Earth
D. How We Study the Earth

5.9 Astronomy and Space Science

A. Earth, Moon, Sun System
B. Solar System
C. Stars
D. Galaxies and Universe

5.10 Environmental Studies

A. Natural Systems and Interactions
B. Human Interactions and Impact

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STANDARD 5.1 (SCIENTIFIC PROCESSES) ALL STUDENTS WILL DEVELOP PROBLEM-SOLVING, DECISION-MAKING AND INQUIRY SKILLS, REFLECTED BY FORMULATING USABLE QUESTIONS AND HYPOTHESES, PLANNING EXPERIMENTS, CONDUCTING SYSTEMATIC OBSERVATIONS, INTERPRETING AND ANALYZING DATA, DRAWING CONCLUSIONS, AND COMMUNICATING RESULTS.

Descriptive Statement: Students best learn science by doing science. Science is not merely a collection of facts and theories but a process, a way of thinking about and investigating the world in which we live. This standard addresses those skills that are used by scientists as they discover and explain the physical universe-skills that are an essential and ongoing part of learning science.

Strands and Cumulative Progress Indicators

By the end of Grade 4, students will:

A. Habits of Mind

1. Raise questions about the world around them and be willing to seek answers through making careful observations and experimentation.
2. Keep records that describe observations, carefully distinguish actual observations from ideas and speculations, and are understandable weeks and months later.
3. Recognize that when a science investigation is replicated, very similar results are expected.
4. Know that when solving a problem it is important to plan and get ideas and help from other people.

B. Inquiry and Problem Solving

1. Develop strategies and skills for information–gathering and problem-solving, using appropriate tools and technologies.
2. Identify the evidence used in an explanation.

C. Safety

1. Recognize that conducting science activities requires an awareness of potential hazards and the need for safe practices.
2. Understand and practice safety procedures for conducting science investigations.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Habits of Mind

1. Evaluate the strengths and weaknesses of data, claims, and arguments.
2. Communicate experimental findings to others.
3. Recognize that the results of scientific investigations are seldom exactly the same and that replication is often necessary.

4. Recognize that curiosity, skepticism, open-mindedness, and honesty are attributes of scientists.

B. Inquiry and Problem Solving

1. Identify questions and make predictions that can be addressed by conducting investigations.
2. Design and conduct investigations incorporating the use of a control.
3. Collect, organize, and interpret the data that result from experiments.

C. Safety

1. Know when and how to use appropriate safety equipment with all classroom materials.
2. Understand and practice safety procedures for conducting science investigations.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Habits of Mind

1. When making decisions, evaluate conclusions, weigh evidence, and recognize that arguments may not have equal merit.
2. Assess the risks and benefits associated with alternative solutions.
3. Engage in collaboration, peer review, and accurate reporting of findings.
4. Explore cases that demonstrate the interdisciplinary nature of the scientific enterprise.

B. Inquiry and Problem Solving

1. Select and use appropriate instrumentation to design and conduct investigations.
2. Show that experimental results can lead to new questions and further investigations.

C. Safety

1. Understand, evaluate and practice safe procedures for conducting science investigations.

STANDARD 5.2 (SCIENCE AND SOCIETY) ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF HOW PEOPLE OF VARIOUS CULTURES HAVE CONTRIBUTED TO THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY, AND HOW MAJOR DISCOVERIES AND EVENTS HAVE ADVANCED SCIENCE AND TECHNOLOGY.

Descriptive Statement: Science is a human endeavor involving successes and failures, trials and tribulations. Students should know that great numbers of people from many cultures have contributed to our understanding of science and that science has a rich and fascinating history. This standard encourages students to learn about the people and events that have shaped or revolutionized important scientific theories and concepts.

Strands and Cumulative Progress Indicators

By the end of Grade 4, students will:

A. Cultural Contributions

1. Describe how people in different cultures have made and continue to make contributions to science and technology.

B. Historical Perspectives

1. Hear, read, write, and talk about scientists and inventors in historical context.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Cultural Contributions

1. Recognize that scientific theories:
   - develop over time,
   - depend on the contributions of many people, and
   - reflect the social and political climate of their time.
2. Know that scientists are men and women of many cultures who often work together to solve scientific and technological problems.
3. Describe how different people in different cultures have made and continue to make contributions to science and technology.

B. Historical Perspectives

1. Describe the impact of major events and people in the history of science and technology, in conjunction with other world events.
2. Describe the development and exponential growth of scientific knowledge and technological innovations.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Cultural Contributions

1. Recognize the role of the scientific community in responding to changing social and political conditions and how scientific and technological achievement effect historical events.

B. Historical Perspectives

1. Examine the lives and contributions of important scientists who effected major breakthroughs in our understanding of the natural and designed world.
2. Discuss significant technological achievements in which science has played an important part as well as technological advances that have contributed directly to the advancement of scientific knowledge.
3. Describe the historical origin of important scientific developments such as atomic theory, genetics, plate tectonics, etc., showing how scientific theories develop, are tested, and can be replaced or modified in light of new information and improved investigative techniques.

STANDARD 5.3 (MATHEMATICAL APPLICATIONS) ALL STUDENTS WILL INTEGRATE MATHEMATICS AS A TOOL FOR PROBLEM-SOLVING IN SCIENCE, AND AS A MEANS OF EXPRESSING AND/OR MODELING SCIENTIFIC THEORIES.

Descriptive Statement: Science cannot be practiced or learned without appreciation of the role of mathematics in discovering and expressing natural laws. This standard recognizes the need for students to fully integrate mathematics skills with their learning of science.

Strands and Cumulative Progress Indicators

By the end of Grade 4, students will:

A. Numerical Operations

1. Determine the reasonableness of estimates, measurements, and computations of quantities when doing science.
2. Recognize and comprehend the orders of magnitude associated with large and small physical quantities.
3. Express quantities using appropriate number formats, such as:
   - integers.
   - fractions.

B. Geometry and Measurement

1. Select appropriate measuring instruments based on the degree of precision required.
2. Use a variety of measuring instruments and record measured quantities using the appropriate units.

C. Patterns and Algebra

1. Identify patterns when observing the natural and constructed world.

D. Data Analysis and Probability

1. Use tables and graphs to represent and interpret data.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Numerical Operations

1. Express quantities using appropriate number formats, such as:
   - decimals.
   - percents.
   - scientific notation.

B. Geometry and Measurement

1. Perform mathematical computations using labeled quantities and express answers in correctly derived units.

C. Patterns and Algebra

1. Express physical relationships in terms of mathematical equations derived from collected data.

D. Data Analysis and Probability

1. Represent and describe mathematical relationships among variables using:
   - graphs.
   - tables.
2. Analyze experimental data sets using measures of central tendency:
   - mean.
   - mode.
   - median
3. Construct and use a graph of experimental data to draw a line of best fit and identify a linear relationship between variables.
4. Use computer spreadsheets, graphing and database applications to assist in quantitative analysis of data.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Numerical Operations

1. Reinforce indicators from previous grade level.

B. Geometry and Measurement

1. When performing mathematical operations with measured quantities, express answers to reflect the degree of precision and accuracy of the input data.

C. Patterns and Algebra

1. Apply mathematical models that describe physical phenomena to predict real world events.

D. Data Analysis and Probability

1. Construct and interpret graphs of data to represent inverse and non-linear relationships, and statistical distributions.

STANDARD 5.4 (NATURE AND PROCESS OF TECHNOLOGY) ALL STUDENTS WILL UNDERSTAND THE INTERRELATIONSHIPS BETWEEN SCIENCE AND TECHNOLOGY AND DEVELOP A CONCEPTUAL UNDERSTANDING OF THE NATURE AND PROCESS OF TECHNOLOGY.

Descriptive Statement: This standard focuses on developing students' understanding of the interrelationship between science and technology. It introduces students to and expands their understanding of the nature of technology. In addition, it introduces and develops students' abilities with technological design including experiences in predicting, decision making, critical thinking, and problem solving.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Science and Technology

1. Indicators for this strand are introduced at a higher grade level.

B. Nature of Technology

1. Select and use simple tools and materials to complete a task.

C. Technological Design

1. Make a plan in order to design a solution to a problem.
2. Describe a toy or other familiar object as a system with parts that work together.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Science and Technology

1. Distinguish between things that occur in nature and those that have been designed to solve human problems.

B. Nature of Technology

1. Demonstrate how measuring instruments are used to gather information in order to design things that work properly.

C. Technological Design

1. Describe a product or device in terms of the problem it solves or the need it meets.
2. Choose materials most suitable to make simple mechanical constructions.
3. Use the design process to identify a problem, look for ideas, and develop and share solutions with others.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Science and Technology

Reinforce indicators from previous grade level.

B. Nature of Technology

Reinforce indicators from previous grade level.

C. Technological Design

1. Select a technological problem and describe the criteria and constraints that are addressed in solving the problem.
2. Identify the basic components of a technological system:
   - input.
   - process.
   - output.
   - feedback.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Science and Technology

1. Compare and contrast science with technology, illustrating similarities and differences between these two human endeavors.

B. Nature of Technology

1. Analyze a product or system to determine the problem it was designed to solve, the design constraints, trade-offs and risks involved in using the product or system, how the product or system might fail, and how the product or system might be improved.

C. Technological Design

1. Recognize how feedback loops are used to control systems.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Science and Technology

1. Know that scientific inquiry is driven by the desire to understand the natural world and seeks to answer questions that may or may not directly influence humans, while technology is driven by the need to meet human needs and solve human problems.

B. Nature of Technology

1. Assess the impacts of introducing a new technology in terms of alternative solutions, costs, tradeoffs, risks, benefits and environmental impact.

C. Technological Design

1. Plan, develop, and implement a proposal to solve an authentic, technological problem.

STANDARD 5.5 (CHARACTERISTICS OF LIFE) ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, CHARACTERISTICS, AND BASIC NEEDS OF ORGANISMS AND WILL INVESTIGATE THE DIVERSITY OF LIFE.

Descriptive Statement: The study of science must include the diversity, complexity, and interdependence of life on Earth. Students should know how organisms evolve, reproduce, and adapt to their environments.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Matter, Energy and Organization in Living Systems

1. Investigate the basic needs of humans and other organisms.
2. Compare and contrast essential characteristics that distinguish living things from nonliving things.

B. Diversity and Biological Evolution

1. Recognize that different types of plants and animals live in different parts of the world.
2. Recognize that some kinds of organisms that once lived on earth have completely disappeared.

C. Reproduction and Heredity

1. Recognize that humans and other organisms resemble their parents.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Matter, Energy and Organization in Living Systems

1. Identify the roles that organisms may serve in a food chain.
2. Differentiate between the needs of plants and those of animals.
3. Recognize that plants and animals are composed of different parts performing different functions and working together for the well being of the organism.
4. Describe the basic functions of the major systems of the human body including, but not limited to:
   - digestive system
   - circulatory system
   - respiratory system
   - nervous system
   - skeletal system
   - muscular system
   - reproductive system

B. Diversity and Biological Evolution

1. Develop a simple classification scheme for grouping organisms.

2. Recognize that individuals vary within every species, including humans.

C. Reproduction and Heredity

1. Identify different stages in the lives of various organisms.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Matter, Energy and Organization in Living Systems

1. Explain how systems of the human body are interrelated and regulate the body's internal environment.
2. Identify and describe the structure and function of cells and cell parts.

B. Diversity and Biological Evolution

1. Describe and give examples of the major categories of organisms and of the characteristics shared by organisms.
2. Compare and contrast acquired and inherited characteristics in human and other species.

C. Reproduction and Heredity

1. Describe life cycles of humans and other organisms.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Matter, Energy and Organization in Living Systems

1. Explain how the products respiration and photosynthesis are recycled.
2. Recognize that complex multicellular organisms, including humans, are composed of and defined by interactions of the following:
   - cells
   - tissues
   - organs
   - systems

B. Diversity and Biological Evolution

1. Compare and contrast kinds of organisms using their internal and external characteristics.
2. Discuss how changing environmental conditions can result in evolution or extinction of a species.
3. Recognize that individual organisms with certain traits are more likely to survive and have offspring.

C. Reproduction and Heredity

1. Describe how the sorting and recombining of genetic material results in the potential for variation among offspring of humans and other species.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Matter, Energy and Organization in Living Systems

1. Relate the structure of molecules to their function in cellular structure and metabolism.
2. Explain how plants convert light energy to chemical energy.
3. Describe how plants produce substances high in energy content that become the primary source of energy for life.
4. Relate disease in humans and other organisms to infections or intrinsic failures of system.

B. Diversity and Biological Evolution

1. Explain that through evolution the Earth's present species developed from earlier distinctly different species.
2. Explain how the theory of natural selection accounts for extinction as well as an increase in the proportion of individuals with advantageous characteristics within a species.

C. Reproduction and Heredity

1. Describe how information is encoded and transmitted in genetic material.
2. Explain how genetic material can be altered by natural and/or artificial means; mutations and new gene combinations may have positive, negative, or no effect on organisms or species.
3. Assess the impact of current and emerging technologies on our understanding of inherited human characteristics.

STANDARD 5.6 (CHEMISTRY) ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE AND BEHAVIOR OF MATTER.

Descriptive Statement: Exploring the nature of matter and energy is essential to an understanding of the physical universe. This standard leads students from their experiences with the states and properties of matter to the development of models of the atom and the underlying principles of chemistry.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Structure and Properties of Matter

1. Sort objects according to the materials from which they are made or their physical properties, and give a rationale for sorting.
2. Use magnifiers to observe materials, then draw and describe what more can be seen using the tools.
3. Observe that water can be a liquid or a solid and can change from one form to the other.

B. Chemical Reactions

1. Indicators for this strand are introduced at a higher grade level.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Structure and Properties of Matter

1. Sort materials based on physical characteristics that can be seen by using magnification.
2. Observe that water can be a liquid or a solid and can change from one form to the other and the mass remains the same.
3. Recognize that water, as an example of matter, can exist as a solid, liquid or gas and can be transformed from one state to another by heating or cooling.
4. Show that not all materials respond in the same way when exposed to similar conditions.

B. Chemical Reactions

1. Combine two or more materials and show that the new material may have properties that are different from the original material.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Structure and Properties of Matter

1. Recognize that about 100 different elements have been identified and most materials on Earth are made of a few of them.
2. Show that equal volumes of different substances usually have different masses.

3. Describe the properties of mixtures and solutions, including concentration and saturation.
4. Describe characteristic physical properties such as boiling point, melting point, and solubility, and recognize that the property is independent of the amount of sample.

B. Chemical Reactions

1. Recognize evidence of a chemical change.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Structure and Properties of Matter

1. Know that all matter is composed of atoms that may join together to form molecules.
2. Recognize that the phase of matter is determined by the arrangement and motion of atoms and molecules and that the motion of these particles is related to the energy of the system.
3. Know that there are groups of elements that have similar properties, including highly reactive metals, less reactive metals, highly reactive non-metals, and some almost completely non-reactive gases.
4. Recognize that a mixture often can be separated into the original substances using one of more of their characteristic physical properties

B. Chemical Reactions

1. Show how substances can chemically react with each other to form new substances having properties different from those of the original substances.
2. Show that in most chemical reactions energy is transferred into or out of a system.
3. Demonstrate that regardless how substances within a simple closed system interact, the total mass of the system remains the same.
4. Illustrate how atoms are rearranged when substances react, but that the total number of atoms and the total mass of the products remain the same as the original substances.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Structure and Properties of Matter

1. Know that atoms are made of a positive nucleus surrounded by negative electrons and that the nucleus, a tiny fraction of the volume of an atom, is composed of protons and neutrons, each almost 2,000 times more massive than an electron.
2. Know that the number of protons in the nucleus defines the element.
3. Know that an atom's electron arrangement, particularly the outermost electrons, determines how the atom can interact with other atoms.
4. Explain that atoms form bonds (ionic and covalent) with other atoms by transferring or sharing electrons.
5. Explain how the Periodic Table of Elements reflects the relationship between the properties of elements and their atomic structure.

6. Know that many biological, chemical and physical phenomena can be explained by changes in the arrangement and motion of atoms and molecules.
7. Recognize that the properties of matter are related to the structure and arrangement of their molecules and atoms, such as in metallic and nonmetallic crystals and carbon compounds.
8. Know that different levels of energy of an atom are associated with different configurations of its electrons.

B. Chemical Reactions

1. Explain that the rate of reactions among atoms and molecules depends on how often they encounter one another and that the rate is affected by nature of reactants, concentration, pressure, temperature, and the presence of a catalyst.
2. Show that some changes in chemical bonds require a net input or net release of energy.

STANDARD 5.7 (PHYSICS) ALL STUDENTS WILL GAIN AN UNDERSTANDING OF NATURAL LAWS AS THEY APPLY TO MOTION, FORCES, AND ENERGY TRANSFORMATIONS.

Descriptive Statement: Basic principles of physics emerge in this standard, where the study of force and motion leads students to the concept of energy. All forms of energy are introduced and investigated, and principles of transformation and laws of conservation are developed.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Motion and Forces

1. Distinguish among the different ways objects can move such as:
   - fast and slow.
   - in a straight line.
   - in a circular path.
   - back and forth.
2. Show that the position and motion of an object can be changed by pushing or pulling the object.

B. Energy Transformations

1. Demonstrate that sound can be produced by vibrating objects.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Motion and Forces

1. Recognize that changes in the speed or direction of a moving object are caused by force and that the greater the force, the greater the change in motion will be.
2. Recognize that some forces can act at a distance.
   - gravity
   - magnetism
   - static electricity

B. Energy Transformations

1. Identify sources of heat and demonstrate that heat can be transferred from one object to another.
2. Identify sources of light and demonstrate that light can be reflected from some surfaces and pass through others.
3. Use devices that show electricity producing heat, light, sound, and magnetic effects.
4. Show that differences in sound (loud or soft, high or low) can be produced by varying the way objects vibrate.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Motion and Forces

1. Recognize that an object at rest will remain at rest and an object moving in a straight line at a steady speed will continue to move in a straight line at a steady speed unless a net (unbalanced) force acts on it.
2. Recognize that motion can be retarded by forces such as friction and air resistance.
3. Recognize that everything on or near the earth is pulled toward the earth's center by gravitational force.

B. Energy Transformations

1. Recognize that heat flows through materials or across space from warmer objects to cooler ones.
2. Show that vibrations in materials can generate waves that can transfer energy from one place to another.
3. Design an electric circuit to investigate the behavior of a system.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Motion and Forces

1. Use quantitative data to show that when more than one force acts on an object at the same time, the forces can reinforce or cancel each other producing a net (unbalanced) force that will change speed and/or direction of the object.
2. Recognize that every object exerts a gravitational force on every other object, and that the force depends on how much mass the objects have and how far apart they are.

B. Energy Transformations

1. Recognize that the sun is a major source of the Earth's energy and that solar energy includes visible, infrared and, ultraviolet radiation.
2. Describe the nature of various forms of energy, including heat, light, sound, chemical, mechanical, and electrical and trace energy transformations from one form to another.
3. Describe how heat can be conducted through materials or transferred across space by radiation and know that if the material is a fluid, convection currents may aid the transfer of heat.
4. Show that light is reflected, refracted, or absorbed when it interacts with matter and that colors may appear as a result of this interaction.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Motion and Forces

1. Apply the mathematical relationship between the mass of an object, the net force exerted on it, and the resulting acceleration.

2. Explain that whenever one object exerts a force on another, an equal and opposite force is exerted on the first object.
3. Recognize gravity as a universal force of attraction between masses and that the force is proportional to the masses and inversely proportional to the square of the distance between them.
4. Recognize that electrically charged bodies can attract or repel each other with a force that depends upon the size and nature of the charges and the distance between them and know that electric forces play an important role in explaining the structure and properties of matter.
5. Know that there are strong forces that hold the nucleus of an atom together and that significant amounts of energy can be released in nuclear reactions (fission, fusion, and nuclear decay) when these binding forces are disrupted.
6. Explain how electromagnetic, gravitational, and nuclear forces can be used to produce energy by causing chemical, physical, or nuclear changes and relate the amount of energy produced to the nature and relative strength of the force.
7. Demonstrate that moving electric charges can produce magnetic forces and moving magnets can produce electric forces.
8. Recognize that magnetic and electrical forces are different aspects of a single electromagnetic force.

B. Energy Transformations

1. Explain how the various forms of energy (heat, electricity, sound, light) move through materials and identify the factors that affect that movement.
2. Explain that while energy can be transformed from one form to another, the total energy of a closed system is constant.
3. Recognize that whenever mechanical energy is transformed, some heat is dissipated and is therefore unavailable for use.
4. Explain the nature of electromagnetic radiation and compare the components of the electromagnetic spectrum from radio waves to gamma rays.

STANDARD 5.8 (EARTH SCIENCE) ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, DYNAMICS, AND GEOPHYSICAL SYSTEMS OF THE EARTH.

Descriptive Statement: The study of science should include a study of the planet Earth and its relationship to the rest of the universe. This standard describes what students should know about the composition of the Earth and the forces that shape it.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students:

A. Earth's Properties and Materials

1. Observe and describe rocks and soil.

B. Atmosphere and Water

1. Identify the sources and uses of water.
2. Recognize that water can disappear (evaporate) and collect on cold surfaces (condense).
3. Describe current weather conditions and recognize how those conditions affect our daily lives.
4. Describe daily and seasonal changes and patterns in the weather.

C. Processes that Shape the Earth

Indicators for this strand are introduced at a higher grade level.

D. How We Study the Earth

1. Record observations that describe the features of the natural world in their local environment.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Earth's Properties and Materials

1. Observe that most rocks and soils are made of several substances or minerals.
2. Observe that the properties of soil vary from place to place and will affect the soil's ability to support life.
3. Recognize that fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time.

B. Atmosphere and Water

1. Recognize that air is a substance that surrounds us, takes up space, and moves around us as wind.
2. Recognize that most of Earth's surface is covered by water and be able to identify the characteristics of those sources of water.

- oceans
- rivers
- lakes
- underground sources
- glaciers

3. Observe weather changes and patterns by measurable quantities such as temperature, wind direction and speed, and amounts of precipitation.
4. Observe that when liquid water disappears, it turns into a gas (vapor) in the air and can reappear as a liquid when cooled, or as a solid if cooled below its freezing point.
5. Observe that rain, snow, and other forms of precipitation come from clouds, but that not all clouds produce precipitation.
6. Recognize that clouds and fog are made of tiny droplets of water and possibly tiny particles of ice.

C. Processes that Shape the Earth

1. Recognize that some changes of the Earth's surface are due to slow processes such as erosion and weathering, and some changes are due to rapid changes such as landslides, volcanic eruptions, and earthquakes.
2. Recognize that moving water, wind, and ice continually shape the Earth's surface by eroding rock and soil in some areas and depositing them in other areas.

D. How We Study the Earth

1. Use maps to locate and identify physical features on the Earth.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Earth's Properties and Materials

Reinforce indicators from previous grade level

B. Atmosphere and Water

1. Describe the composition, circulation, and distribution of the world's oceans, estuaries, and marine environments.
2. Describe and illustrate the water cycle .

C. Processes that Shape the Earth

1. Summarize the process involved in the rock cycle and describe the characteristics of the rocks involved.

D. How We Study the Earth

1. Utilize various tools such as map projections and topographical maps to interpret features of Earth's surface.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Earth's Properties and Materials

Reinforce indicators from previous grade level.

B. Atmosphere and Water

1. Describe conditions in the atmosphere that lead to weather systems and how these systems are represented on weather maps.

C. Processes that Shape the Earth

1. Explain how Earth's landforms and materials are created through constructive and destructive processes.
2. Show how successive layers of sedimentary rock and the fossils contained in them can be used to confirm the age, history, changing life forms, and geology of Earth.

D. How We Study the Earth

1. Utilize data gathered from emerging technologies (e.g., geographic information systems (GIS) and global positioning systems (GPS)) to create representations and describe processes of change on the Earth's surface.
2. Explain how technology designed to investigate features of the Earth's surface impacts how scientists study the Earth.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Earth's Properties and Materials

1. Explain the interrelationship of the geosphere, hydrosphere, and the atmosphere.

B. Atmosphere and Water

1. Describe how weather (in the short term) and climate (in the long term) involve the transfer of energy in and out of the atmosphere.

C. Processes that Shape the Earth

1. Use the theory of plate tectonics to explain the relationship among earthquakes, volcanoes, mid-ocean ridges, and deep-sea trenches.
2. Know that Earth is a system in which chemical elements exist in fixed amounts and move through the solid Earth, oceans, atmosphere, and living things as part of geochemical cycles.
3. Recognize that the evolution of life on Earth has changed the composition of Earth's atmosphere through time.

D. How We Study the Earth

1. Analyze the evidence produced by a variety of techniques that is used to understand changes in the Earth that have occurred over time.
   - topography
   - fossils
   - rock stratification
   - ice cores
   - radiometric data

STANDARD 5.9 (ASTRONOMY and SPACE SCIENCE) ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE ORIGIN, EVOLUTION, AND STRUCTURE OF THE UNIVERSE

Descriptive Statement: The study of science should include a study of the planet Earth and its relationship to the rest of the universe. This standard describes what students should know about astronomy and space science.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Earth, Moon, Sun System

1. Recognize that the sun supplies light and heat to the Earth.
2. Observe the patterns of day and night and the movements of the shadows of an objects on the Earth during the course of a day.

B. Solar System

1. Recognize that the sun can only be seen during the day, but the moon can be seen sometimes at night and sometimes during the day.

C. Stars

1. Observe that stars are many, scattered, and different in brightness.
2. Observe that the position of the stars, with respect to each other (constellations) is unchanging.

D. Galaxies and Universe

Indicators for this strand are introduced at a higher grade level.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Earth, Moon, Sun System

1. Observe patterns that result from the Earth's position relative to the sun and rotation of the Earth on its axis.
2. Recognize and describe the phases of the moon.

B. Solar System

1. Describe Earth as one of several planets that orbit the sun and the moon as a satellite of the Earth.

C. Stars

1. Observe that stars are not all the same in brightness, size, and color.

D. Galaxies and Universe

1. Recognized that images of celestial objects can be magnified and seen in greater detail when observed using binoculars and light telescopes.
2. Observe and record short-term and long-term changes in the night sky.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Earth, Moon, Sun System

1. Explain how the motions of the Earth, sun, and moon, define units of time including:
   - days
   - months
   - years
2. Recognize that changes in the Earth's position relative to the sun produces differing amounts of daylight seasonally.

B. Solar System

1. Using models, demonstrate an understanding of the scale of the solar system that shows distance and size relationships among the sun and planets.
2. Recognize that the sun's gravitational pull holds the planets in their orbits and that the planets' gravitational pull holds their moons in their orbits.

C. Stars

1. Observe and record short-term and long-term changes in the positions of the constellations in the night sky.
2. Observe that the planets appear to change their position against the background of stars.

D. Galaxies and Universe

Reinforce indicators from previous grade level.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Earth, Moon, Sun System

1. Investigate the Earth, moon, and sun as a system and explain how the motion of these bodies results in the phases of the moon and eclipses.
2. Explain how the regular and predictable motions of the Earth and moon produce tides.
3. Explain how the tilt, rotation, and orbital pattern of the Earth relative to the sun produce seasons and weather patterns.

B. Solar System

1. Describe the physical characteristics of the planets and other objects within the solar system and compare Earth to the rest of the planets.

C. Stars

1. Understand that the sun is a star and that it shares characteristics with other stars.

D. Galaxies and Universe

1. Know that the universe consists of many billions of galaxies, each including billions of stars.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Earth, Moon, Sun System

Reinforce indicators from previous grade level.

B. Solar System

1. Explain that our solar system coalesced from a nebular cloud of gas and dust left from exploding stars.

C. Stars

1. Describe the physical characteristics, stages of development, and the apparent motions of stars.

D. Galaxies and Universe

1. Describe data gathering and observation technologies and explain how they are used to explore the solar system and beyond.
2. Cite evidence to describe the scientific theory of the origin of the universe and the current explanations of its evolution.

STANDARD 5.10 (ENVIRONMENTAL STUDIES) ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE ENVIRONMENT AS A SYSTEM OF INTERDEPENDENT COMPONENTS AFFECTED BY HUMAN ACTIVITY AND NATURAL PHENOMENA.

Descriptive Statement: Creating an awareness of the need to protect, conserve, and preserve natural resources is a goal of science education. This standard calls for students to develop knowledge of environmental issues, including management of natural resources, production and use of energy, waste management, and the interdependence of ecosystems.

Strands and Cumulative Progress Indicators

By the end of Grade 2, students will:

A. Natural Systems and Interactions

1. Associate organisms' basic needs with how they meet those needs within their surroundings.

B. Human Interactions and Impact

1. Identify various needs of humans that are supplied by the natural or constructed environment.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 4, students will:

A. Natural Systems and Interactions

1. Differentiate between natural resources that are renewable and those that are not.

B. Human Interactions and Impact

1. Explain how meeting human requirements affects the environment.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 6, students will:

A. Natural Systems and Interactions

1. Explain how organisms interact with other components of an ecosystem.
2. Describe the natural processes that occur over time in places where direct human impact is minimal.

B. Human Interactions and Impact

1. Describe the effect of human activities on various ecosystems.
2. Evaluate the impact of personal activities on the local environment.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Natural Systems and Interactions

1. Investigate the impact of catastrophic events such as forest fires, floods, and hurricanes on the environment of New Jersey.

B. Human Interactions and Impact

1. Compare and contrast practices that affect the use and management of natural resources.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Natural Systems and Interactions

1. Distinguish naturally occurring process from those believed to have been modified by human interaction or activity.
   - climate change
   - ozone production
   - erosion and deposition
   - threatened and endangered species

B. Human Interactions and Impact

1. Assess the impact of human activities on the cycling of matter and the flow of energy through ecosystems.
2. Use scientific, economic, and other data to assess environmental risks and benefits associated with societal activity.

The Social Studies Standards are still being reviewed. Watch for their release in September 2004!

New Jersey Core Curriculum Content Standards for World Languages

INTRODUCTION

The Vision for World Languages Education

New Jersey hosts a growing economy that is oriented toward agriculture, industry, finance, education, and research—an economy that demands contact and interaction with the global marketplace. For New Jersey students, the need to function competently in more than one language has therefore become increasingly important in order to participate fully in the economic, political, and social life of a state with over 100 ethnic groups, and where more than 150 different languages are spoken. In the twenty-first century, students must be able to participate in culturally appropriate ways in face-to-face interaction with members of other cultures in order to be productive members of the diverse communities in which we all live. Only by preparing students with an education comparable to the best that schools around the world offer—one that includes the study of world languages—can the goal of leaving no child behind be achieved.

The New Jersey Core Curriculum Content Standards for World Languages envision all of New Jersey's students prepared for the demands of an interdependent world by:

- Teaching world languages for communication;
- Heightening students' linguistic and cultural awareness of their local, state, and world community;
- Encouraging interdisciplinary and workplace readiness connections that may involve business and community members as mentors and models; and
- Preparing students for using a world language(s) in whatever career choices they make.

The spirit and intent for second language education in New Jersey revolves around what takes place in the learning environment. If the goal of communicative-based language instruction is to prepare students for authentic language use in the real world, then the organization of curriculum and instruction should reflect those purposes. As more New Jersey teachers incorporate the goals of the standards and the knowledge of how children best learn languages into their teaching, educators and parents should be able to see:

Students enthusiastically engaged in meaningful, motivating, and cognitively challenging activities. Children are excited about their ability to understand and be understood in a second language and are encouraged to use language in activities embedded in authentic, real-life contexts and connected to content learned in other core areas.

Students actively using language rather than memorizing vocabulary lists and analyzing grammatical concepts. Students are interacting with one another and their teacher, and

communicating about things that interest them. Rote exercises have been replaced by tasks that require learners to find ways to communicate meaning beyond classroom walls.

Students being assessed by a variety of assessment strategies. Because effective language learning is meaningful, enjoyable, and interactive, assessment reflects a similar focus. Classroom instructional activities mirror assessment tasks and track student progress through portfolios, journals, performances or multimedia presentations that focus on authentic performance tasks, not just traditional pencil-and-paper tests. This allows students to revisit their work and critique their own progress, and most importantly, to become more involved in their own learning.

The Necessity of the Vision

Despite progress in the last decade toward communicative-based instruction in world languages, grammar continues to be the key organizing principle in most language classrooms in the state. This emphasis on the learning of the language system to the exclusion of meaningful, interactive activities in the classroom has led to frustration and dissatisfaction of students. As a result, many students perceive that they do not have the ability to learn to speak a second language and feel that world languages will never be useful in their lives. Many adults acknowledge that although they took two or more years of a world language and obtained high grades on grammar examinations, they are unable to speak the language at all. In this country, world language study to date has resulted in few people who can engage in meaningful interactions in a variety of settings in the language studied.

The focal point of standards-driven language instruction is communication, and grammar plays a supporting role to communication needs. However, a language curriculum that focuses on grammatical mastery as the primary basis for instructional activities will not serve the needs of students. It merely proliferates the false assumption that only college-bound students can be successful language learners. Most significantly, it promotes disparities of equity and access to language learning for the great majority of our students. All New Jersey students should be given the opportunity to achieve a high level of proficiency in a world language and be able to converse in a language(s) other than English by the time they complete high school.

Time to Meet the Vision

While numerous factors contribute to the acquisition of a second language, two key factors are *time and intensity* or length and quality of instruction**.** Because providing a *thorough and efficient education* remains a priority in New Jersey schools, all students should be given the opportunity to learn a world language in a program that offers appropriate time allocations and quality instruction. A program that does not offer a sufficient amount of contact time and frequency of instruction assumes less student proficiency from the outset and denies district students access to excellence and equity in achieving the standards. Success for all students in world languages depends not only on specifying the appropriate content, but also on establishing learning environments that facilitate student learning of a world language (i.e., classes meet consistently for multiple times per week throughout the school year).

The number of years spent studying a language will impact the degree of proficiency that we can expect learners to attain. In 1998, the American Council on the Teaching of Foreign Languages (ACTFL) released performance guidelines for K-12 learners. This project outlined what levels of performance can be realistically achieved after certain sequences of study. Levels of performance are defined in terms of novice, intermediate and advanced (terminology originally developed for the *ACTFL Proficiency Guidelines*, 1982) with ranges specified within each level. The standards and indicators developed here are based upon and reflect an understanding of the stages of novice, intermediate, and pre-advanced language proficiency.

While the department does not prescribe the number of minutes of instruction per week to achieve these standards, it recognizes that students will not have sufficient opportunities to learn without scheduled instruction.

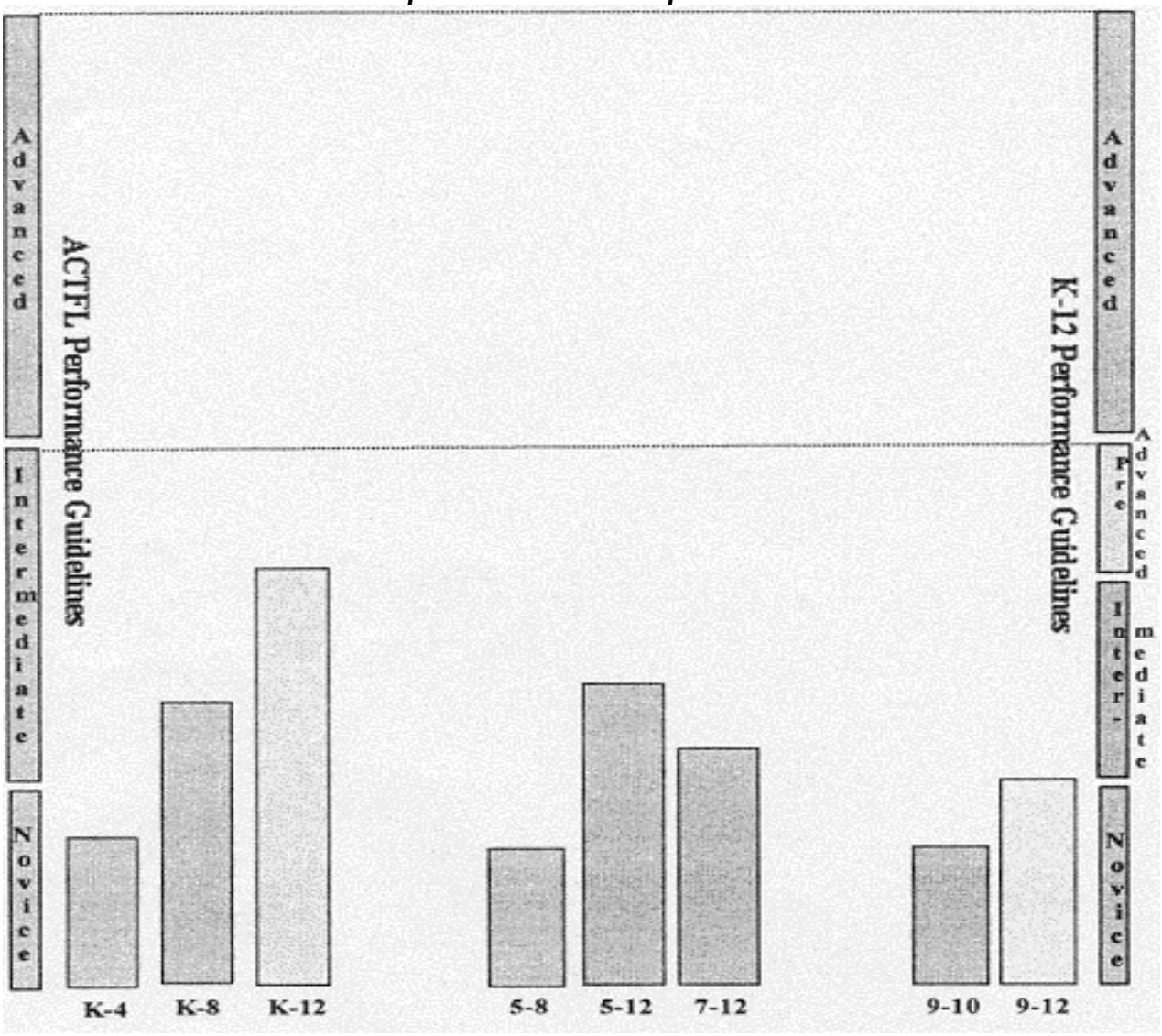
AMERICAN COUNCIL ON THE TEACHING OF FOREIGN LANGUAGES LEARNER RANGE DESCRIPTIONS

Level	Student Performance Outcomes At this level it is expected that students can:	Content Content at this level often includes some combination of the following topics:
Novice-Mid	• Use short sentences, learned words and phrases, and simple questions and commands when speaking and writing • Understand some ideas and familiar details presented in clear, uncomplicated speech when listening • Understand short text enhanced by visual clues when reading • Communicate effectively with some hesitation and errors which do not hinder comprehension • Imitate culturally acceptable behavior used in the content examples	• The self: family, friends, home, rooms, health, school, schedules, leisure activities, likes and dislikes, clothes, and pets and animals • Beyond self: geography, directions, buildings and monuments, weather and seasons, symbols, cultural and historical figures, colors, numbers, days, dates, months, time, food and customs, transportation.
Novice-High	• Use and understand learned expressions, sentences, and strings of sentences, questions and polite commands when speaking and listening • Create simple paragraphs when writing • Understand important ideas and some details in highly contextualized authentic texts when reading • Demonstrate increasing fluency and control of vocabulary • Show no significant pattern of error when performing functions at the novice-low (K-2) level • Communicate effectively with some pattern of error, which may interfere slightly with comprehension of functions performed at this level • Understand oral and written discourse, with few errors in comprehension when reading • Imitate culturally appropriate behavior when working with the functions at this level	• The self: family, friends, home, rooms, health, school, schedules, leisure activities, likes and dislikes, shopping, clothes, prices, sizes and quantity, and pets and animals. • Beyond self: geography, topography, directions, buildings and monuments, weather and seasons, symbols, cultural and historical figures, places and events, numbers, time, food and customs, transportation, travel, and professions and work.
Intermediate-Low	• Use strings of sentences when speaking • Understand most spoken language when the message is deliberately and carefully conveyed by a speaker accustomed to dealing with learners when learners • Create simple paragraphs when writing • Acquire knowledge and new information from comprehensive, authentic texts when reading • Tend to become less accurate as the task or message becomes more complex, and some patterns of error may interfere with meaning • Generally choose appropriate vocabulary for familiar topics, but as the complexity of the message increases, there is evidence of hesitation and grouping of words, as well as patterns of mispronunciation and intonation • Generally use culturally appropriate behavior in social situations • Are able to understand and retain most key ideas and some supporting detail when reading and listening.	• History, art, literature, music, current affairs, and civilization, with an emphasis on significant people and events in these fields • Career choices, the environment, and social issues
Pre-Advanced	• Use simple discourse in a series of coherent paragraphs when speaking • Understand most authentic spoken language • Create a series of coherent paragraphs when writing • Engage in conversations with few significant patterns of error and use a wide range of appropriate vocabulary • Use culturally appropriate behavior, although, as the task or message becomes more complex, they tend to become less accurate • Are able to understand and report most key ideas and some supporting detail when reading and listening	• Concepts of broader cultural significance, including institutions such as the education system, the government, and the political and social issues in the target culture • Topics of social and personal interest such as music, literature, the arts, and the sciences

Adapted from *Articulation & Achievement Project*, 1996.

The following chart provides a visual representation of anticipated student performance outcomes (ACTFL, 1998).

Visual Representation of Anticipated Performance Outcomes as described in the *ACTFL Performance Guidelines for K-12 Learners*



Descriptors of student language use found in the *ACTFL Performance Guidelines for K-12 Learners* are based on information gathered from foreign language professionals representing a variety of programs and articulation sequences. They are appropriate for languages most commonly taught in the U.S. and assume a sustained sequence of standards-based and performance-based language instruction. To attain the level indicated above for grades K-8 requires students to be enrolled in elementary programs that meet from 3-5 days per week for no less than 30 minutes per class, and in middle school programs that meet daily for no less than 40 minutes per class (ACTFL, 1998).

There are many variables for student learning. A student who begins second language study in the early elementary grades and continues an uninterrupted sequence of study will advance further than a student who begins in high school. However, the expectations for performance at any stage may be attained over different periods of time depending on such factors as:

- Age of the learner;
- Varying learning speeds and learning styles of learners;
- Methodology employed;
- Abilities and interests of the instructor;
- Scheduling patterns of the language program;
- Scope and sequence of the language program; and
- Authenticity of the cultural environment and materials.

The cumulative progress indicators found in this document reflect an **uninterrupted** sequence of language study. Teachers will consequently need to modify the content and related language activities in the world language program to effectively address the cumulative progress indicators dependent upon the student's age and when he/she begins the study of a particular language. For example, the novice stage applies to all students beginning to learn a second language. This may occur at any age. The novice stage may encompass a four- to five-year sequence that begins in elementary or middle school, or a three-year high school program depending upon the factors listed above. This has important implications for curriculum design and development. Language learning activities should consistently be cognitively engaging, intrinsically interesting, and age-appropriate for the learner.

Multiple Entry Points

It is important to emphasize that the goal of having students experience the study of a world language at an early age is not intended to limit the choice of language or the opportunity to begin study at predetermined points. In the early grades, districts are often only able to offer a limited number of languages due to staffing constraints and/or the size of the schools, but in the middle and high school years provisions for other languages can be made. It would not serve learners if the effort to have extended sequences resulted in districts offering only one language K-12.

Multiple entry points accommodate students who develop interests in specific languages during their middle or high school years because of career choices or personal motivation. Learner choice becomes an increasingly important factor as students mature and their eventual competency is linked with interests and motivation. Students who choose to start a new language in the high school will reach levels of competency commensurate with the sequence available; and their previous experience with language study in general often contributes to more rapid acquisition of a second language.

Another reason for multiple entry points is that New Jersey has a highly mobile population and students will enter schools coming from other districts or states where they have had no previous study of a world language or studied a language not offered in their current district. Schools will

need to have options for these students to begin the study of a language later in the sequence. Chapter five of *The New Jersey World Languages Curriculum Framework* provides additional information on this concept of multiple entry points and also on the concept of language layering (the study of a second world language while continuing to study the first world language).

Meeting the Needs of All Students

The term "all students" includes students who are college-bound, academically talented, those whose native language is not English, those with disabilities, students with learning deficits, and students from diverse socioeconomic backgrounds.

It is time to dispel the myth that students who tend to encounter difficulties with learning in general will not be successful language learners. Research on how children learn languages justifies the inclusion of all students in the world language classroom. Findings indicate that all students can benefit from learning another language and culture when instruction is based on second language acquisition theories and appropriate methodology and materials are used.

As with all learners, teachers of students with special needs should accommodate for differences in learning styles, rates of learning, and areas of relative strength or weakness. Consequently, teachers should assess individual progress, emphasizing the student's ability to understand and convey a message, rather than focusing on the disability. If a student's disability entitles him/her to receive special education services, the study of world languages should be included in the student's Individualized Educational Plan (IEP), wherein appropriate modifications are delineated.

High expectations for all students form a critical part of the learning environment. The belief of teachers, administrators, and parents that a student can and will succeed in learning a world language often makes it possible for that student to succeed. Non-college bound students and special needs students will have as many opportunities to use their knowledge of a world language in their community, and within the workplace, regardless of their chosen career paths.

Revised Standards

In May 1996, the New Jersey State Board of Education adopted two world languages standards. This represented a key moment in the "evolution" of the study of world languages in New Jersey. World languages was then recognized as an essential component of the core curriculum for all students.

The goals of the new world languages standards are essentially the same as the 1996 version. However, the standards are different in that:

- The standards and cumulative progress indicators reflect more clarity and specificity.
- The standards are organized according to the modes of communication (interpretive, interpersonal, and presentational) that place emphasis on the context and purpose of communication.

- The standards and cumulative progress indicators emphasize connections with other core content areas to facilitate contextualized and purposeful language learning and to prepare students for the workplace.
- The cumulative progress indicators reflect student expectations at the Novice, Intermediate, and Pre-Advanced learner ranges as outlined by the *American Council on the Teaching of Foreign Languages Performance Guidelines for K-12 Learners.*
- The standards include expectations at grade 2 as well as at grades 4, 8, and 12.
- The standards are intended to serve as clear guides for the development of local and state assessments.

The New Jersey standards reflect the philosophy and goals found in the national standards, *Standards for Foreign Language Learning in the 21st Century* (ACTFL, 1999), and were developed by consulting the best work that has been done throughout the United States and internationally. These standards were developed to reflect the latest research on second language acquisition and best practice for instructional methodologies and assessment. The standards are generic in nature, are designed for a core subject, and are meant to be inclusive for all languages taught in New Jersey schools.

Standards and Strands

There are two standards, each of which has three lettered strands followed by cumulative progress indicators for each strand at benchmark levels 2, 4, 8, and 12. These standards and their associated strands are:

7.1 Communication
- A. Interpretive Mode
- B. Interpersonal Mode
- C. Presentational Mode

7.2 Culture
- A. Interpretive Mode
- B. Interpersonal Mode
- C. Presentational Mode

Bulleted items below cumulative progress indicators delineate content material or concepts addressed in a particular indicator. Examples that follow content bullets are suggested topics that may be incorporated into thematic teaching. The focal point for a thematic center may be a topic from the grade level curriculum or it may be drawn from the literature or culture of the language taught.

The standards set forth here presume that the **sequential study of a language for an extended period of time** is the ideal for achieving the highest levels of performance in the two content standards and related cumulative progress indicators.

To summarize, the standards:

- Envision New Jersey students who are fully prepared for the demands of an interdependent world.
- Present a departure from the traditional grammar-based approach to instruction.
- Acknowledge that in each world language classroom, there is a diverse pool of talent and potential.

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STANDARD 7.1 (COMMUNICATION) ALL STUDENTS WILL BE ABLE TO COMMUNICATE IN AT LEAST ONE WORLD LANGUAGE IN ADDITION TO ENGLISH. THEY WILL USE LANGUAGE TO ENGAGE IN CONVERSATION, UNDERSTAND AND INTERPRET SPOKEN AND WRITTEN LANGUAGE, PRESENT INFORMATION, CONCEPTS, AND IDEAS WHILE MAKING CONNECTIONS WITH OTHER DISCIPLINES, AND COMPARE THE LANGUAGE/CULTURE STUDIED WITH THEIR OWN.

Descriptive Statement: The ability to communicate is at the heart of knowing another language. Communication can be characterized in many different ways. The approach used within the New Jersey and national standards is to recognize three communicative modes that place primary emphasis on the context and purpose of the communication. The three modes are:

- ***The Interpretive Mode.*** Students understand and interpret within the appropriate cultural context spoken and written communication. Examples of "one-way" reading or listening include the cultural interpretation of texts, movies, radio and television broadcasts, and speeches. Interpretation differs from comprehension because it implies the ability to read or listen "between the lines."

- ***The Interpersonal Mode.*** Students engage in direct oral and/or written communication. Examples involving "two-way", interactive communication are conversing face-to-face, or exchanging personal letters or e-mail messages.

- ***The Presentational Mode.*** Students present, through oral and/or written communications, information, concepts and ideas to an audience of listeners or readers with whom there is no immediate personal contact. Examples of this "one-to-many" mode of communication are making a presentation to a group or writing an article for the school newspaper.

The Communicative Modes and the Study of Classical Languages. Students and teachers of classical languages, such as Latin and ancient Greek, are primarily concerned with the interpretation of texts and historical/cultural understanding and therefore concentrate their study in the *interpretive* mode. They may occasionally give some attention to the oral dimensions of the classical languages, or may ask students to make presentations in the language they study as a way of strengthening language knowledge and use.

The Communicative Modes and the Study of Non-European Languages. Students engaging in conversations and negotiations (interpersonal mode), interpreting speeches, texts or films (interpretive mode), or making oral and written presentations (presentational mode) in non-European languages must incorporate a high degree of cultural knowledge to achieve the modes of communication in the communication standard. The amount of cultural knowledge required thus presents a stronger challenge for these students than for English speakers who study European languages.

The Communicative Modes and Heritage Language Speakers. Heritage language students may be newly-arrived immigrants to the United States, first-generation students whose

home language is not English and who have been schooled primarily in the United States, or second- or third- generation students who have learned some aspects of the heritage language at home. These students have varying abilities and proficiencies in their heritage language; often they can carry on fluent and idiomatic conversation (interpersonal mode), but require instruction that will allow them to develop strengths in reading (interpretive mode) and formal speaking and writing (presentational mode). These students are held to the same standards for world languages as their English speaking peers and should be provided with opportunities for developing skills in their native language that are both developmentally supportive and rigorous. Designing curriculum to maintain and further develop native-language skills ensures that such skills will not erode over time as English becomes the dominant language for these students.

Novice-Mid Learner Range

According to ACTFL, students beginning the study of a second language in kindergarten, in a program that meets a minimum of 3 times a week for thirty minutes, should meet the following cumulative progress indicators by the end of Grade 2.

A. Interpretive Mode (understanding and interpretation of spoken or written communication)

1. Demonstrate comprehension of simple, oral directions, commands, and requests through appropriate physical response.
2. Recognize common gestures, intonation, and other visual or auditory cues of the target culture.
3. Identify familiar people, places, and objects based on oral and/or simple written descriptions.
4. Comprehend brief oral exchanges on familiar topics.
   - Grade level appropriate health topics (e.g., wellness, feelings and emotions)
   - Grade level appropriate science topics (e.g., weather and seasons)
5. Connect the learning of the target language to information studied in other core content areas.
   - Grade level appropriate mathematics concepts (e.g., use of numbers to count, measure, label, or locate)
   - Grade level appropriate health topics (e.g., nutrition and food groups)
6. Listen to simple passages from age-appropriate, culturally authentic selections for enjoyment and information.
   - Recognition of key words
   - Main idea

B. Interpersonal Mode (direct oral or written communication)

1. Give and follow simple oral directions, commands, and requests for participating in age-appropriate classroom and cultural activities.
2. Imitate appropriate gestures and intonation of the target culture during greetings, leave-takings, and daily interactions.
3. Ask and respond to simple questions, make requests, and express preferences using memorized words and phrases.

4. Exchange information using words, phrases, and short sentences practiced in class on familiar topics or topics studied in other core content areas.
   - Grade level appropriate social studies topics (e.g., symbols of American and target culture: flags, famous places, regions, and monuments)
   - Grade level appropriate mathematics concepts (e.g., numerical operations: addition/subtraction of 2-digit numbers; counting and performing simple computations with coins)
   - Grade level appropriate science topics (e.g., plant and animal characteristics)
5. Exchange basic information about the main characters, main idea, and setting from age-appropriate, culturally authentic selections.

C. Presentational Mode (spoken or written communication for an audience)

1. Imitate, recite, and/or dramatize simple poetry, rhymes, songs, and skits.
2. Copy/write words, phrases, or simple guided texts on familiar topics.
   - Grade level appropriate mathematics concepts (e.g., calendar/time; color/shape/size of objects)
   - Grade level appropriate science concepts (e.g., comparing and contrasting living and nonliving things)
3. Present orally or in writing information from age-appropriate, culturally authentic selections.
   - Grade level appropriate language arts literacy activities (e.g., contributing to teacher-directed shared writing activities; illustrating stories, or drawing and labeling pictures, charts, or diagrams)
4. Name and label tangible products and imitate practices from the target culture.
   - Grade level appropriate visual and performing arts activities (e.g., song, dance, and drama of the target culture)
   - Grade level appropriate social studies activities (e.g., participation in culturally authentic experiences such as preparing and eating meals and snacks, playing authentic games, holiday celebrations)

Novice-High Learner Range

According to ACTFL, students who have begun the study of a second language in kindergarten in a program that meets a minimum of 3 times a week for thirty minutes, and continue the study of that language in subsequent grades in a program that meets for the same time allocations, should meet the following cumulative progress indicators by the end of Grade 4.

A. Interpretive Mode (understanding and interpretation of spoken or written communication)

1. Demonstrate comprehension of a series of oral directions, commands, and requests through appropriate physical response.
2. Recognize common gestures, intonation, and other visual or auditory cues of the target-culture.
3. Identify people, places, objects, and activities in daily life based on oral or written descriptions.

4. Comprehend short conversations and brief written messages on familiar topics.
   - Messages contained in media (e.g., illustrated texts, posters or advertisements)
5. Connect the learning of the target language to information studied in other core content areas.
   - Grade level appropriate visual and performing arts topics (e.g., famous artists and works of art)
   - Grade level appropriate mathematics concepts (e.g., symbols for currency and appropriate place value as used in the target culture)
   - Grade level appropriate science topics (e.g., life cycle of plants and animals)
6. Demonstrate comprehension of the main idea, and identify the principal characters in readings from age-appropriate, culturally authentic selections.

B. Interpersonal Mode (direct oral or written communication)

1. Give and follow a series of oral directions, commands, and requests for participating in age-appropriate classroom and cultural activities.
2. Imitate appropriate gestures, intonation, and common idiomatic expressions of the target culture during daily interactions.
3. Ask and respond to questions, make requests, and express preferences in various social situations using learned expressions and strings of sentences.
4. Participate in guided conversations on a variety of familiar topics and/or topics studied in other core content areas.
   - Grade level appropriate math concepts (e.g., buying/selling transactions)
   - Grade level appropriate health topics (e.g., basic human needs such as food, shelter, and clothing)
   - Grade level appropriate social studies topics (e.g., geographical landmarks in home and target culture)
   - Grade level science topics (e.g., scientists/inventors from the target culture(s) and their contributions)
5. Identify the main characters, main idea, setting, and important events found in age-appropriate, culturally authentic texts.

C. Presentational Mode (spoken or written communication for an audience)

1. Create and present orally or in writing brief messages, poems, rhymes, songs, short plays, or role-plays using familiar vocabulary in a guided format.
2. Describe in writing using a guided format people and things from the home/school environment.
3. Tell or retell stories using a guided format from age-appropriate, culturally authentic selections orally or in writing.
4. Tell or write about products of the target culture and simulate common cultural practices.
   - Grade level appropriate social studies topics (e.g., culinary contributions, crafts, or artifacts from the target cultures)

Intermediate-Low Learner Range

According to ACTFL, students who have begun the study of a second language in kindergarten through grade 4 in a program that meets a minimum of 3 times a week for thirty minutes, and continue the study of that language through middle school in a program that meets 5 times a week for forty minutes, should meet the following cumulative progress indicators by the end of grade 8.

A. Interpretive Mode (understanding and interpretation of spoken or written communication)

1. Demonstrate comprehension of oral and written instructions connected to daily activities through appropriate responses.
2. Compare and contrast the use of verbal and non-verbal etiquette in the target culture with their own culture in the use of gestures, intonation, and other visual and auditory clues.
   - Eye contact and interpersonal social distance
   - Table manners and telephone practices
3. Discuss people, places, objects, and daily activities based on oral or written descriptions.
   - Grade level appropriate social studies topics (e.g., famous historical and contemporary personalities from the target culture; regions, cities, historical and cultural sites in the target country; events from U.S. history and target culture history from a specific era)
4. Comprehend conversations and written information on a variety of topics.
   - Academic and social interests
   - Current or past issues and events at home or in the target country
5. Apply knowledge and skills gained in other core content areas to the learning of the target language.
   - Grade level appropriate social studies topics (e.g., converting maps into appropriate graphics to display geographical information about the target culture country)
   - Grade level appropriate health topics (e.g., comparing and contrasting health concerns that occur during adolescence in the target culture with their own culture)
   - Grade level appropriate mathematics concepts (e.g., selecting and using appropriate units of metric measurement to solve real-life problems)
   - Grade level appropriate science concepts (e.g., evaluating authentic weather reports from different regions of the target country to predict weather conditions)
6. Identify the main idea and theme, and describe the main characters and setting in readings from age-appropriate, culturally authentic selections.
7. Compare and contrast unique linguistic elements in English and the target language.
   - Grade level appropriate language arts literacy topics/concepts (e.g., time and tense relationships; commonly used words and phrases; idiomatic expressions)

B. Interpersonal Mode (direct spoken or written communication)

1. Give and follow a series of oral and written directions, commands, and requests for participating in age-appropriate classroom and cultural activities.

2. Use appropriate gestures, intonation and common idiomatic expressions of the target culture in familiar situations.
3. Ask and respond to factual and interpretive questions of a personal nature or on school-related topics.
   - Reactions to an incident occurring in school or an event taking place in the school, community, or world
   - Grade level appropriate science topics (e.g., characteristics and shared characteristics of major categories of organisms)
   - Grade level appropriate social studies concepts (e.g., the role of the target culture country in colonization and exploration of the Americas or in the American Revolution)
4. Engage in short conversations about personal experiences or events, and/or topics studied in other core content areas.
   - Grade level social studies topics (e.g., family celebrations and coming of age customs)
5. Describe the main characters, setting, and important events from age-appropriate, culturally authentic selections both orally and in writing.
6. Identify professions and careers that require proficiency in a language other than English
   - Career preparation skills needed to engage in these professions

C. Presentational Mode (spoken or written communication for an audience)

1. Present student-created and/or authentic short plays, skits, poems, songs, stories or reports.
   - Grade level appropriate visual and performing arts, language arts and career education (e.g., staging a dramatic presentation of a significant aspect of the life of an important person in the target culture; doing an oral presentation on a famous person, place, or event from target culture supported by research obtained in the target language; creating a visual representation of region or country supported by technological resources and other media)
2. Use language creatively in writing to response to a variety of oral or visual prompts.
   - Grade level appropriate language arts literacy topics and career education skills (e.g., writing short, well-organized essays on personal and school-related topics; writing letters in response to ads in local or target language newspapers**)**
3. Engage in a variety of oral and written tasks using age-appropriate culturally authentic selections.
   - Grade level appropriate language arts literacy topics (e.g., summary of the plot and characters; dramatization of principal scenes in the text; role-playing a film critic to express opinions about the text)
4. Describe orally, in writing, or through simulation, similarities and differences among products and practices found in the target culture with their own.
   - Grade level appropriate language arts literacy and social studies topics (e.g., origin and development of a product or practice; physical characteristics of the product; use of the product within the culture; role-playing cultural practices)

Pre-Advanced Learner Range

According to ACTFL, students who have begun the study of a second language in kindergarten in a program that meets a minimum of 3 times a week for thirty minutes in the elementary school and 5 times a week for forty minutes in the middle school and high school should meet the following cumulative progress indicators by the end of Grade 12.

A. Interpretive Mode (understanding and interpretation of spoken or written communication)

1. Demonstrate an understanding of spoken and written language, as expressed by speakers of the target language in formal and informal settings through appropriate responses.
2. Compare and contrast the use of verbal and non-verbal etiquette in the target culture with their own culture to perform a variety of functions.
   - Persuading, negotiating, offering advice
3. Analyze the historical and political contexts that connect/have connected famous people, places and events from the target culture with the U.S.
4. Synthesize information from oral and written discourse dealing with a variety of topics.
   - Television and cinema presentations
   - Teen and adult social interactions
   - Trends in education and business
5. Apply knowledge and skills gained in other core content areas to interpret information on topics related to the study of the target language and culture.
   - Grade level appropriate social studies topics and career education and consumer, family and life skills (e.g., drawing conclusions about political, economic and societal patterns in the target culture country through the use of technological data obtained using authentic sources in the target language)
6. Analyze and critique readings from authentic texts and/or from a variety of art genres.
   - Main ideas, theme and supportive details
   - Roles and significance of main characters
   - Use of figurative language (e.g., symbolism, connotation and denotation)
7. Analyze elements of the target language and comparable linguistic elements in English.
   - Influence of languages on each other
   - Syntax and morphology

B. Interpersonal Mode (direct spoken and written communication)

1. Give, respond, and ask for clarification on detailed oral and written directions, commands, and requests.
2. Interact in a variety of situations using culturally appropriate verbal and non-verbal communication strategies.
3. Ask and respond to questions as part of group discussion on topics of personal, academic or social nature.

- Grade level appropriate health topics (e.g., explaining and supporting an opinion on a societal issue such as violence or driving under the influence of controlled substances; participating in a panel or debate on a school-wide problem such as harassment due to gender or sexual orientation)

4. Engage in oral and/or written discourse in a variety of time frames on topics of personal or social interest, or on topics studied in other core content areas.
   - Grade level appropriate career education and consumer, family and life skills activities (e.g., college and job interviews; transactions and negotiations: filling out a business form in the target culture, asking for telephone service to be connected, demonstrating the ability to seek and apply for a job, compromising with a parent over a weekend curfew)
   - Grade level appropriate health topics (e.g., social issues: dating, behavior at school and non-school events)
   - Grade level appropriate social studies topics (e.g., analysis of the economic, scientific and political factors that led to the age of European exploration and the commercial revolution)
5. Analyze and critique a variety of culturally authentic selections**.**
   - Reflection of target culture in text
   - Purpose, message and style of the author
   - Use of figurative language
   - Political or social impact and relevance to self
6. Use language in a variety of settings to further personal and/or career goals.
   - Grade level appropriate career education and consumer, family, and life skills activities (e.g., participation in career exploration, competitive events in the target language, community service, or school-to-work projects that use the target language and knowledge of its culture)

C. Presentational Mode (spoken and written communication for an audience)

1. Create and perform stories, poems, short plays, or oral reports based on personal experiences and/or exposure to perspectives from the target culture.
   - Grade level appropriate health topics (e.g., problems and issues encountered in late adolescence)
   - Grade level appropriate language arts literacy topics (e.g., themes found in fiction and nonfiction such as hope, death, love, loyalty, honor, courage)
   - Grade level appropriate career education and consumer, family, and life skills activities (e.g., media presentation to "teach a class" about a specific topic related to other core content areas and/or the target culture)
2. Use language creatively in writing for a variety of purposes.
   - Grade level appropriate language arts literacy activities (e.g., writing a letter to the editor, an editorial or an op-ed piece in the target language for a newspaper or magazine; writing a research paper using target language sources)
3. Explain the structural elements and/or cultural perspectives of authentic selections.
   - Grade level appropriate language arts literacy activities (e.g., summary or retelling the selection with substantive description and detail; analysis of character, theme and setting and how it reflects the target culture)

4. Explain the perspectives of the target culture(s) as evidenced by their products and practices and compare those with home cultural perspectives.
   - Grade level appropriate social studies topics (e.g., attitudes and beliefs of the culture that influenced the development of its products or practices: esthetics, concept of time, sex roles, rights and duties, etc.; how a particular product or practice of the target culture compares with a similar product or practice in the U.S.)
   - Grade level appropriate science topics (e.g., impact of the environment and natural resources on the development of the products and practices of the target culture)

STANDARD 7.2 (CULTURE) ALL STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE PERSPECTIVES OF A CULTURE(S) THROUGH EXPERIENCES WITH ITS PRODUCTS AND PRACTICES.

Descriptive Statement: With the adoption of national and state standards, a new way of conceptualizing the study of culture has been introduced into the world languages classroom. In addition to the traditional ways of learning about culture (i.e., studying the facts, events, famous people, and monuments), standards-based language instruction encompasses a fuller, more comprehensive view of culture. The anthropological concept of cultural products, practices, and perspectives provides a relatively new framework for the studying and experiencing of culture for most teachers and students, and forms the foundation for student achievement of the culture standard in this document.

Cultural Products. The products of a culture may be tangible (e.g., a painting, wedding veils, boiled peanuts, a pair of chopsticks) or intangible (e.g., street raps, a system of education, graveside eulogies). The culture standard focuses on how these cultural products reflect the perspectives (attitudes, values and beliefs) of the culture studied.

Cultural Practices. The practices of a culture refer to patterns of acceptable behaviors for interacting with members of other cultures. Two examples from the American culture of the practice of expressing congratulations would be slapping a teammate on the back after a winning touchdown, but shaking the presenter's hand after an excellent speech. The culture standard focuses on practices derived from the perspectives (traditional ideas, attitudes, and values) of the culture studied.

Cultural Perspectives. As defined by the standards, the perspectives of a culture would include the popular beliefs, the commonly held values, the folk ideas, the shared values, and the assumptions widely held by members of a culture. The perspectives of a culture sanction the cultural practices and create a need for the products. The perspectives provide the reason for "why they do it *that* way" and the explanation for "how can they possibly think *that*?" Since practices and products not only derive from perspectives, but sometimes interact to change perspectives, this fundamental component of culture must be incorporated to meet the culture standard.

Language, as a key to culture, can tell us what is important to a group of people, what they do for work and play, what their social values are, what level of technology they enjoy, where they come from, and much more. Language and culture as such, are inseparable.

The following cumulative progress indicators for the culture standard are organized according to the three modes of communication: interpretive, interpersonal, and presentational.

Novice-Mid Learner Range

According to ACTFL, students beginning the study of a second language in kindergarten, in a program that meets a minimum of 3 times a week for thirty minutes, should meet the following cumulative progress indicators by the end of Grade 2.

A. Interpretive Mode (understanding and interpretation of spoken or written communication)

1. Identify daily practices of people in the target culture(s).
2. Identify basic geographical features and some common landmarks in countries where the target language is spoken.
3. Identify aspects of the target culture(s) presented in photographs, children's books, and plays.
4. Identify distinctive cultural products of the target culture(s).

B. Interpersonal Mode (direct spoken and written communication)

1. Imitate culturally appropriate etiquette in verbal and nonverbal communication during greetings, leave-takings, and daily classroom interactions.
2. Participate in a variety of oral and/or written activities after listening to age-appropriate, culturally authentic selections.

C. Presentational Mode (spoken and written communication for an audience)

1. Reproduce a variety of tangible products typical of the target culture(s).
2. Identify and reproduce expressive products typical of the target culture(s).
3. Participate in age-appropriate activities related to special events celebrated in the target culture(s).

Novice-High Learner Range

According to ACTFL, students who have begun the study of a second language in kindergarten in a program that meets a minimum of 3 times a week for thirty minutes, and continue the study of that language in subsequent grades in a program that meets for the same time allocations, should meet the following cumulative progress indicators by the end of Grade 4.

A. Interpretive Mode (understanding and interpretation of spoken or written communication)

1. Compare daily practices of people in the target culture(s) with their own.
2. Describe the geographical features, types and effects of climate in countries where the target language is spoken.
3. Identify aspects of culture presented in photographs, plays, or films.
4. Identify common tangible and intangible cultural products of the target culture(s).

B. Interpersonal Mode (direct spoken and written communication)

1. Imitate culturally appropriate etiquette in verbal and non-verbal communication during greetings, leave-takings, and common social situations.
2. Participate in a variety of oral and/or written activities after listening to and/or reading age-appropriate, culturally authentic selections.

C. Presentational Mode (spoken and written communication for an audience)

1. Compare and contrast similarities and differences between tangible products of the target culture(s) and their own.
2. Describe and reproduce expressive products of the target culture(s).
3. Participate in activities related to special events celebrated in the target culture(s) and make comparisons with the U.S.

Intermediate-Low Learner Range

According to ACTFL, students who have begun the study of a second language in kindergarten through grade 4 in a program that meets a minimum of 3 times a week for thirty minutes, and continue the study of that language through middle school in a program that meets 5 times a week for forty minutes, should meet the following cumulative progress indicators by the end of grade 8.

A. Interpretive Mode (understanding and interpretation of spoken or written communication)

1. Explain how the attitudes and beliefs (perspectives) of the target culture(s) are reflected in cultural practices.
2. Investigate how geography and climate influence the lives of people in the target culture(s) country (ies).
3. Show the relationship between the cultural characteristics found in films or videos to the cultural perspectives of the target culture(s).
4. Examine tangible products of the target culture(s) and begin to infer why people produce and use them.

B. Interpersonal Mode (direct spoken and written communication)

1. Use culturally appropriate etiquette in verbal and non-verbal communication in a variety of social situations.
2. Discuss various elements of age-appropriate, culturally authentic selections and identify how they reflect certain aspects of the target culture.
3. Demonstrate and discuss in some detail observable patterns of behavior and social conventions of the peer group in the target culture(s) and make comparisons with the U.S.
4. Discuss the characteristics of the school community in the target culture and compare with those in the U.S.
5. Describe past and present issues, events, and/or trends from the target culture perspective and the U.S. perspective.

C. Presentational Mode (spoken and written communication for an audience)

1. Present the results of research showing the extent of diversity in products and practices that exist within the target language/culture(s).
2. Prepare an analysis showing how expressive products or innovations of the target culture(s) influence the global community.

Pre-Advanced Learner Range

According to ACTFL, students who have begun the study of a second language in kindergarten in a program that meets a minimum of 3 times a week for thirty minutes in the elementary school and 5 times a week for forty minutes in the middle school and high school should meet the following cumulative progress indicators by the end of Grade 12.

A. Interpretive Mode (understanding and interpretation of spoken or written communication)

1. Analyze how the changing economic and political environment influences the development of new products and contemporary practices in the target culture.
2. Compare and contrast how the target country(ies) and the U.S. deal with current environmental issues.
3. Compare and contrast varying perspectives that exist in different target cultures as seen in television, film and other forms of the media.
4. Compare and contrast tangible products of the target culture(s) to their own culture and formulate a rationale about why people produce and use them.

B. Interpersonal Mode (direct spoken and written communication)

1. Interact in a wide range of social and professional contexts that reflect both peer-group and adult activities within the culture studied, using appropriate etiquette in verbal or non-verbal communication.
2. Discuss culturally authentic selections listened to, read, or viewed to demonstrate insights gained into the products, practices and perspectives of the target culture(s).
3. Compare and contrast for discussion common social practices in the U.S. and target culture(s) related to universal life events, such as birth, marriage, and death.
4. Analyze for discussion observable patterns of behavior and social conventions of various age groups in the target culture(s) and compare them with the U.S.
5. Analyze for discussion relationships among past and current economic and political structures and their impact on the perspectives of the culture(s) studied.

C. Presentational Mode (spoken and written communication for an audience)

1. Develop a persuasive rationale showing how the study of the target language and its culture(s) influences attitudes and views on diversity.
2. Simulate activities characteristic of the transition between high school and the workplace/university in the target culture.

New Jersey Core Curriculum Content Standards for Technological Literacy

INTRODUCTION

The Vision

Technology, any modification of the natural world designed by human beings to solve human problems, enhance human life, or extend human capability, was identified by the United States Department of Labor as an essential workplace competency in a 1992 report called the Secretary's Commission on Achieving Necessary Skills (SCANS). SCANS stated that students should be able to select equipment and tools, apply technology to specific tasks, and maintain and troubleshoot equipment. The Department of Education recognized its importance by including technology in the original cross-content workplace readiness standards. In keeping with today's technological society, technological literacy has been further emphasized by its inclusion as a separate standards area which focuses on both computer and information literacy and technology education.

Technology is evolving at an amazing rate, with both frequent advancements of existing technology and the creation of new technologies. All students must understand and be comfortable with the concepts and application of technology, not only in order to function in today's complex society, but also to become informed and productive adults of tomorrow.

Computer and Information Literacy

Computer and information literacy, which supports skills in information-gathering, information-organizing, and problem solving, has become critical for every student whether college- or workplace-bound. Colleges and employers are now demanding that students and employees possess a broad range of computer and information literacy proficiencies. More and more retail purchasing is being done on-line every year, and all but the most menial of positions now require a significant understanding of computer and information literacy. To ensure that students are computer literate, a separate standard that defines rigorous, in-depth learning has been included. The computer and information literacy standard is designed to be integrated and applied in all of the content areas of the Core Curriculum Content Standards.

Technology Education

The technology education standard was developed to ensure the literacy needed by all students to succeed in a highly technological world. Business and industry has clearly stated the need for technological skills in the workplace of the 21st Century.

This standard is based on the *Standards for Technological Literacy (STL): Content for the Study of Technology (ITEA, 2000),* developed as part of the National Science Foundation (NSF)/National Aeronautics and Space Administration (NASA) funded by the *Technology for All Americans* (TfAA) project.

A study by DeKlerk has found that students form negative attitudes about the technological world if there are no formal technological experiences during the early school years. This finding

is a great concern to New Jersey business and industry. Other cognitive research suggests that "design-based learning" is important. Early studies with design and technology curriculum indicate that students who learn important technological concepts develop positive attitudes about technology, math, science and learning in general. For these reasons, an introduction to technology education, including engineering and technological design, is an essential component of a thorough and efficient K-12 education.

Standards and Strands

There are two technological literacy standards, each of which has a number of lettered strands. The standards and strands include:

8.1 Computer and Information Literacy

A. Basic Computer Tools and Skills

- Keyboarding
- Word processing
- Internet usage
- Spreadsheets
- Database concepts and usage
- Publications and presentations

B. Application of Productivity Tools

- Social Aspects
- Information Access and Research
- Problem Solving

8.2 Technology Education

A. Nature and Impact of Technology

B. Design Process and Impact Assessment

C. Systems in the Designed World

References

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STANDARD 8.1 (COMPUTER AND INFORMATION LITERACY) ALL STUDENTS WILL USE COMPUTER APPLICATIONS TO GATHER AND ORGANIZE INFORMATION AND TO SOLVE PROBLEMS.

Descriptive Statement: Using computer applications and technology tools students will conduct research, solve problems, improve learning, achieve goals, and produce products and presentations in conjunction with standards in all content areas, including career education and consumer family, and life skills. They will also develop, locate, summarize, organize, synthesize, and evaluate information for lifelong learning.

Strands and Cumulative Progress Indicators

By the end of Grade 4, students will:

A. Basic Computer Skills and Tools

1. Use basic technology vocabulary.
2. Use basic features of an operating system (e.g., accessing programs, identifying and selecting a printer, finding help).
3. Input and access text and data, using appropriate keyboarding techniques or other input devices.
4. Produce a simple finished document using word processing software.
5. Produce and interpret a simple graph or chart by entering and editing data on a prepared spreadsheet template.
6. Create and present a multimedia presentation using appropriate software.
7. Create and maintain files and folders.
8. Use a graphic organizer.
9. Use basic computer icons.

B. Application of Productivity Tools

Social Aspects

1. Discuss the common uses of computer applications and identify their advantages and disadvantages.
2. Recognize and practice responsible social and ethical behaviors when using technology, and understand the consequences of inappropriate use including:
   - Internet access
   - Copyrighted materials
   - On-line library resources
   - Personal security and safety issues
3. Practice appropriate Internet etiquette.
4. Recognize the ethical and legal implications of plagiarism of copyrighted materials.

Information Access and Research

5. Recognize the need for accessing and using information.
6. Identify and use web browsers, search engines, and directories to obtain information to solve real world problems.
7. Locate specific information by searching a database.
8. Recognize accuracy and/or bias of information.

Problem Solving and Decision Making

9. Solve problems individually and/or collaboratively using computer applications.
10. Identify basic hardware problems and solve simple problems.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Basic Computer Skills and Tools

1. Use appropriate technology vocabulary.
2. Use common features of an operating system (e.g., creating and organizing files and folders).
3. Demonstrate effective input of text and data, using touch keyboarding with proper technique.
4. Input and access data and text efficiently and accurately through proficient use of other input devices, such as the mouse.
5. Create documents with advanced text-formatting and graphics using word processing.
6. Create a file containing customized information by merging documents.
7. Construct a simple spreadsheet, enter data, and interpret the information.
8. Design and produce a basic multimedia project.
9. Plan and create a simple database, define fields, input data, and produce a report using sort and query.
10. Use network resources for storing and retrieving data.
11. Choose appropriate electronic graphic organizers to create, construct, or design a document.
12. Create, organize and manipulate shortcuts.

B. Application of Productivity Tools

Social Aspects

1. Demonstrate an understanding of how changes in technology impact the workplace and society.
2. Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse.
3. Explain the purpose of an Acceptable Use Policy and the consequences of inappropriate use of technology.
4. Describe and practice safe Internet usage.
5. Describe and practice “etiquette” when using the Internet and electronic mail.

Information Access and Research

6. Choose appropriate tools and information resources to support research and solve real world problems, including but not limited to:
   - On-line resources and databases
   - Search engines and subject directories
7. Evaluate the accuracy, relevance, and appropriateness of print and non-print electronic information sources.

Problem Solving and Decision Making

8. Use computer applications to modify information independently and/or collaboratively to solve problems.
9. Identify basic hardware problems and demonstrate the ability to solve common problems.
10. Determine when technology tools are appropriate to solve a problem and make a decision.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Basic Computer Skills and Tools

1. Create a multi-page document with citations using word processing software in conjunction with other tools that demonstrates the ability to format, edit, and print.
2. Create documents including a resume and a business letter using professional format.
3. Construct a spreadsheet, enter data, use mathematical or logical functions to manipulate and process data, generate charts and graphs, and interpret the results.
4. Given a database, define fields, input data from multiple records, produce a report using sort and query, and interpret the data.
5. Produce a multimedia project using text, graphics, moving images, and sound.
6. Produce and edit page layouts in different formats using desktop publishing and graphics software.
7. Develop a document or file for inclusion into a website or web page.
8. Discuss and/or demonstrate the capability of emerging technologies and software in the creation of documents or files.
9. Merge information from one document to another.

B. Application of Productivity Tools

Social Aspects

1. Describe the potential and implications of contemporary and emerging computer applications for personal, social, lifelong learning, and workplace needs.
2. Exhibit legal and ethical behaviors when using information and technology, and discuss consequences of misuse.
3. Make informed choices among technology systems, resources, and services in a variety of contexts.

4. Use appropriate language when communicating with diverse audiences using computer and information literacy.

Information Access and Research

5. Select and use specialized databases for advanced research to solve real world problems.
6. Identify new technologies and other organizational tools to use in personal, home, and/or work environments for information retrieval, entry, and presentation.
7. Evaluate information sources for accuracy, relevance, and appropriateness.
8. Compose, send, and organize e-mail messages with and without attachments.

Problem-Solving and Decision Making

9. Create and manipulate information, independently and/or collaboratively, to solve problems and design and develop products.
10. Identify, diagnose, and suggest solutions for non-functioning technology systems.
11. Identify a problem in a content area and formulate a strategy to solve the problem using brainstorming, flowcharting, and appropriate resources.
12. Integrate new information into an existing knowledge base and communicate the results in a project or presentation.

STANDARD 8.2 (TECHNOLOGY EDUCATION) ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE NATURE AND IMPACT OF TECHNOLOGY, ENGINEERING, TECHNOLOGICAL DESIGN, AND THE DESIGNED WORLD AS THEY RELATE TO THE INDIVIDUAL, SOCIETY, AND THE ENVIRONMENT.

Descriptive Statement: The following indicators are based on the Standards for Technological Literacy (STL, 2000) and support the National Academy of Engineering's (2002) call for students to gain technological literacy. Students will be expected to understand the various facets of technology and the design process. They will analyze and evaluate design options and then apply the design process to solve problems. A systems perspective is employed to emphasize the interconnectedness of all knowledge and the impact of technology and technological change. Students will be expected to use technology as it applies to physical systems, biological systems, and information and communication systems. The intent at the elementary and middle school levels is that all students develop technological literacy and are prepared for the option of further study in the field of technology education. At the elementary level, the foundation for technology education is found in the science standards, particularly standards 5.2 and 5.4.

Strands and Cumulative Progress Indicators

By the end of Grade 4, students will:

A. Nature and Impact of Technology
Refer to Science Standards 5.2 and 5.4.

B. Design Process and Impact Assessment
Refer to Science Standards 5.2 and 5.4.

C. Systems in the Designed World
Refer to Science Standards 5.2 and 5.4.

Building upon knowledge and skills gained in the preceding grades, by the end of Grade 8, students will:

A. Nature and Impact of Technology

1. Describe the nature of technology and the consequences of technological activity.
2. Describe how components of a technological product, system, or environment interact.
3. Describe how one technological innovation can be applied to solve another human problem that enhances human life or extends human capability.
4. Describe how technological activity has an affect on economic development, political actions, and cultural change.
5. Explain the cultural and societal effects resulting from the dramatic increases of knowledge and information available today.

B. Design Process and Impact Assessment

1. Demonstrate and explain how the design process is not linear.

2. Use hands on activities to analyze products and systems to determine how the design process was applied to create the solution.
3. Identify a technological problem and use the design process to create an appropriate solution.
4. Describe how variations in resources can affect solutions to a technological problem.
5. Select and safely use appropriate tools and materials in analyzing, designing, modeling or making a technological product, system or environment.

C. Systems in the Designed World

1. Explain technological advances in medical, agricultural, energy and power, information and communication, transportation, manufacturing, and construction technologies.
2. Explain reasons why human-designed systems, products, and environments need to be monitored, maintained, and improved to ensure safety, quality, cost efficiency, and sustainability.
3. Explain the functions and interdependence of subsystems such as waste disposal, water purification, electrical, structural, safety, climatic control, and communication.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students electing courses in technology education will:

A. Nature and Impact of Technology

1. Use appropriate data to discuss the full costs, benefits and trade-offs, and risks related to the use of technologies.
2. Explain how technological development is affected by competition through a variety of management activities associated with planning, organizing, and controlling the enterprise.
3. Provide various examples of how technological developments have shaped human history.

B. Design Process and Impact Assessment

1. Analyze a given technological product, system, or environment to understand how the engineering design process and design specification limitations influenced the final solution.
2. Evaluate the function, value, and appearance of technological products, systems, and environments from the perspective of the user and the producer.
3. Develop methods for creating possible solutions, modeling and testing solutions, and modifying proposed design in the solution of a technological problem using hands-on activities.
4. Use a computer assisted design (CAD) system in the development of an appropriate design solution.
5. Diagnose a malfunctioning product and system using appropriate critical thinking methods.
6. Create a technological product, system, or environment using given design specifications and constraints by applying design and engineering principles.

C. Systems in the Designed World

1. Explain the life cycle of a product from initial design to reuse, recycling, remanufacture, or final disposal, and its relationship to people, society, and the environment, including conservation and sustainability principles.
2. Analyze the factors that influence design of products, systems, and environments.
3. Compare and contrast the effectiveness of various products, systems, and environments associated with technological activities in energy, transportation, manufacturing, and information and communication.

New Jersey Core Curriculum Content Standards for Career Education and Consumer, Family, and Life Skills

INTRODUCTION

The Vision

Rapid societal changes, including innovations in technology, information exchange, and communications, have increased the demand for internationally competitive workers and for an educational system designed to meet that demand. Today's students will be employed through much of the twenty-first century and will, therefore, need increasingly advanced levels of knowledge and skills. To obtain and retain high-wage employment that provides job satisfaction, they will also need to continue to learn throughout their lives. The career education and consumer, family, and life skills standards identify key career development and life skills that students must accomplish in order to achieve continuing success in various life roles related to continuing education, career development, and personal growth.

Members of the business and industry communities have identified vital career and technical education skills. In 1992, the Secretary's Commission on Achieving Necessary Skills (SCANS) identified productive use of resources, interpersonal skills, information, systems, and technology as essential workplace competencies. The SCANS foundation skills include basic skills, personal qualities, and the ability to identify and solve real problems, reason effectively, and apply critical thinking skills.

To compete in this global, information-based economy, students must be able to identify and solve real problems, use appropriate tools, reason effectively, and apply critical thinking skills. The career and technical education and consumer, family, and life skills standards identify key career education and consumer, family, and life skills which can also enhance personal behavior and professional conduct in life and careers. In addition to the SCANS report, the National Career Development Guidelines and National Standards for School Counseling Programs were used as resources. Educators may find these national standards as well as the national standards documents in other areas very useful resources.

Career and Technical Education

The career and technical arts standards at the elementary and middle school levels are designed to prepare students for further study at the high school level in career and technical education, formerly known as practical arts. These courses typically include business education, family and consumer sciences, and other courses related to career education and consumer, family, and life skills. In early elementary grades, career and technical education is designed to be integrated with other core content. At the middle and junior high school levels, the standard may be integrated or taught through rotational programs as students work on interdisciplinary projects that develop employability and academic skills. At the high school level, career and technical

education programs establish necessary pathways for entering the world of work as well as continuing education, such as college, post-secondary vocational-technical education, specialized certification and/or registered apprenticeships. They also support lifelong learning. These essential elements include preparation for post-secondary pursuits as well as providing an essential foundation in everyday living skills. In essence, career and technical education is the application of life, academic, and occupational skills demonstrated by student-centered experiences in courses related to the sixteen States' Career Clusters supported by state vocational technical directors from across the country. Career and technical education provides a variety of learning experiences to meet the needs of students having multiple learning styles.

Students interested in more intensive study at the high school level in one of the career clusters may participate in a vocational-technical education program as defined in N.J.A.C. 6A:19, Vocational Technical Education Programs and Standards. The career clusters include: agriculture, food, and natural resources; architecture and construction; arts, audio/video technology and communications; business, management, and administration; education and training; finance; government and public administration; health science; hospitality and tourism; human services; information technology; law, public safety and security; manufacturing; marketing, sales and service; science, technology, engineering, and mathematics; and transportation, distribution, and logistics. A number of vocational student organizations have been created to enhance and support career development. They include:

- DECA/DEX/Distributive Education Clubs of America/Delta Epsilon Chi (marketing education);
- FBLA-PLB/Future Business Leaders of America-Hi Beta Lambda (business/technology education);
- FCCLA/ Family, Career, and Community Leaders of American (family and consumer sciences);
- FFA (agri-business education);
- HOSA /Health Occupations Students of America (trade and industrial education);
- TSA/Technology Student Association(technology education); and
- SKILLSUSA/VICA Vocational Trade and Industrial Student Organization.

Career and technical education programs enable students to:

- Describe and integrate basic skills, thinking skills, and personal qualities, as defined by the SCANS Report;
- Address self-knowledge, career planning, and employability skills utilizing technology, information, and other resources;
- Enhance academic achievement and motivation for learning;
- Explore career education and planning;
- Acquire necessary employability and interpersonal workplace skills; and
- Pursue specific courses and programs designed to lead to employment or post-secondary options in occupations included within the sixteen States' Career Clusters.

Consumer, Family, and Life Skills

All students need to develop consumer, family, and life skills necessary to be a functioning member of society. All students will develop original thoughts and ideas, think creatively, develop habits of inquiry, and take intellectual and performance risks. They will recognize problems, devise a variety of ways to solve these problems, analyze the potential advantages and disadvantages of each alternative, and evaluate the effectiveness of the method ultimately selected. Students will work collaboratively with a variety of groups and demonstrate trustworthiness, responsibility, respect, fairness, caring, and citizenship. Students will apply the principles of resource management and skills that promote personal and professional well-being. They will also be expected to understand the components of financial education and make economic choices.

Standards and Strands

There are two career education and consumer, family, and life skills standards, each of which has a number of lettered strands. The standards and strands include:

9.1 Career and Technical Education
- A. Career Awareness and Planning
- B. Employability Skills

9.2 Consumer, Family, and Life Skills
- A. Critical Thinking
- B. Self-Management
- C. Interpersonal Communication
- D. Character Development and Ethics
- E. Consumer and Personal Finance
- F. Safety

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STANDARD 9.1: (CAREER AND TECHNICAL EDUCATION) ALL STUDENTS WILL DEVELOP CAREER AWARENESS AND PLANNING, EMPLOYABILITY SKILLS, AND FOUNDATIONAL KNOWLEDGE NECESSARY FOR SUCCESS IN THE WORKPLACE.

Descriptive Statement: All students will explore career opportunities and make informed choices based on aptitudes and interests. Students will identify and pursue career goals, apply communications skills in work-relevant situations, demonstrate the ability to combine ideas or information in new ways, make connections between unrelated ideas, organize and present information, and allocate financial and other resources efficiently and effectively. Students will identify and use various print and non-print resources in the home, school, and community to seek and plan for employment. They will be able to use the job application process, including resumes, forms, and interviews.

Career and technical education, formerly called practical arts, is the application of life, academic, and occupational skills demonstrated by student-centered experiences in courses related to the sixteen States' Career Clusters. The intent at the elementary and middle school levels is to prepare all students for the option of further study in career and technical education at the high school level. These courses typically include business education, family and consumer sciences, and other courses related to careers and life skills. Career and technical education programs establish necessary pathways for secondary vocational-technical education programs, entering the world of work, continuing education (such as college, post secondary vocational-technical education, specialized certification and/or registered apprenticeships), and lifelong learning.

Those students electing courses in career and technical education should demonstrate both teamwork and problem-solving skills through a structured learning experience. This could consist of an experiential, supervised educational activity designed to provide students with exposure to the requirements and responsibilities of specific job titles or job groupings, and to assist them in gaining employment skills and making career and educational choices. The experience may be either paid or unpaid, depending on the type of activities in which the student is involved. Examples include, but are not limited to: apprenticeships, community service, cooperative education, internships, job shadowing, school-based experiences, vocational student organizations, paid employment, and volunteer activities. Structured learning experiences must meet all state and federal child labor laws and regulations.

Strands and Cumulative Progress Indicators

By the end of Grade 4, students will:

A. Career Awareness and Planning

1. Describe various life roles and work-related activities in the home, community, and school.
2. Identify abilities and skills associated with various careers.
3. Identify reasons people work and how work habits impact the quality of one's work.

B. Employability Skills

1. Describe and demonstrate the importance of personal and interpersonal skills.
2. Identify positive work habits and attitudes necessary for home, community, and school.
3. Identify reasons for working as part of a team.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Career Awareness and Planning

1. Demonstrate the ability to distinguish between job, occupation, and career.
2. Outline the steps in the career planning process.
3. Apply research skills to career exploration.
4. Analyze personal interests, abilities, and skills through various measures including self assessments.
5. Explore careers using hands-on real life experiences within the sixteen States' Career Clusters.
6. Develop an individual career plan and include in a portfolio.
7. Plan and conduct a cooperative project that addresses one of the problems faced by the school and/or community.

B. Employability Skills

1. Research local and state employment opportunities.
2. Develop an employment package that includes a job application, letter of interest, and resume.
3. Demonstrate job-seeking skills.
4. Describe and demonstrate appropriate work habits and interpersonal skills needed to obtain and retain employment.
5. Compare and contrast possible choices based on identified/perceived strengths, goals, and interests.
6. Identify and develop skills that are transferable from one occupation to another.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Career Awareness/Preparation

1. Re-evaluate personal interests, abilities, and skills through various measures including self assessments.
2. Evaluate academic and career skills needed in various career clusters.
3. Analyze factors that can impact an individual's career.
4. Review and update their career plan and include the plan in a portfolio.
5. Research current advances in technology that apply to a selected occupational career cluster.

B. Employability Skills

1. Assess personal qualities that are needed to obtain and retain a job related to career clusters.

2. Communicate and comprehend written and verbal thoughts, ideas, directions, and information relative to educational and occupational settings.
3. Select and utilize appropriate technology in the design and implementation of teacher-approved projects relevant to occupations and/or higher educational settings.
4. Evaluate the following academic and career skills as they relate to home, school, community, and employment:
   - Communication
   - Punctuality
   - Time management
   - Organization
   - Decision making
   - Goal setting
   - Resources allocation
   - Fair and equitable competition
   - Safety
   - Employment application skills
   - Teamwork
5. Demonstrate teamwork and leadership skills that include student participation in real world applications of career and technical education skills.

All students <u>electing further study</u> in career and technical education will also:

1. Participate in a structured learning experience that demonstrates interpersonal communication, teamwork, and leadership skills.
2. Participate in simulated industry assessments, when and where appropriate.
3. Prepare industry-specific technical reports/projects that incorporate graphic aids, when and where appropriate.
4. Demonstrate occupational health and safety skills related to industry-specific activities.

STANDARD 9.2 (CONSUMER, FAMILY, AND LIFE SKILLS) ALL STUDENTS WILL DEMONSTRATE CRITICAL LIFE SKILLS IN ORDER TO BE FUNCTIONAL MEMBERS OF SOCIETY.

Descriptive Statement: All students need to develop consumer, family, and life skills necessary to be functioning members of society. All students will develop original thoughts and ideas, think creatively, develop habits of inquiry, and take intellectual and performance risks. They will recognize problems, devise a variety of ways to solve these problems, analyze the potential advantages and disadvantages of each alternative, and evaluate the effectiveness of the method ultimately selected. Students will understand the components of financial education and make economic choices. Students will demonstrate self-awareness and the ability to respond constructively to criticism and potential conflict. In addition, students will work collaboratively with a variety of groups and demonstrate the essential components of character development and ethics, including trustworthiness, responsibility, respect, fairness, caring, and citizenship. Students apply principles of resource management and skills that promote personal and professional well-being. Wellness, nutrition, child development, and human relationships are an important part of consumer, family, and life skills. However, wellness, nutrition, and human relationship cumulative progress indicators are not listed here as it would duplicate those in Comprehensive Health and Physical Education Standards.

Strands and Cumulative Progress Indicators

By the end of Grade 4, students will:

A. Critical Thinking

1. Recognize and define a problem.
2. Plan and follow steps to make choices and decisions.
3. Identify and access print and non-print resources that can be used to help solve problems.
4. Demonstrate brainstorming skills.

B. Self-Management

1. Demonstrate an understanding of the relationship between personal behavior and self-image.
2. Recognize and build upon personal strengths.
3. Accept criticism and respond constructively.
4. Recognize personal likes and dislikes.
5. Demonstrate steps to deal with stress and conflict.

C. Interpersonal Communication

1. Develop positive social skills to interact with others.
2. Select and use language appropriate to the situation.
3. Develop skills for accepting self and others through awareness of different cultures, lifestyles, and attitudes.
4. Practice steps for effective conflict resolution.

5. Work cooperatively with others to accomplish a task.

D. Character Development and Ethics

1. Demonstrate character traits that are important in day-to-day activities in the home, school, and community such as trust, responsibility, respect, fairness, caring, and citizenship.
2. Conduct a cooperative activity or project that addresses a character trait.
3. Identify ethical behaviors in the home, school, and community.
4. Explain a person's responsibility to obey the laws and rules.

E. Consumer and Personal Finance

1. Demonstrate a basic understanding of the value of money.
2. Identify various sources of money for personal spending.
3. Explore the relationship among wants, needs, and resources.
4. Understand that prices of goods and services can be compared to make decisions about purchases.
5. Explain how people can improve their ability to earn income by gaining new knowledge, skills, and experiences.
6. Describe how to earn and save money in order to purchase a desired item.

F. Safety

1. Identify common hazards associated with home, school, and community.
2. Explain how common hazards can be eliminated in the home, school, and community.
3. Describe and demonstrate the safe use of tools and equipment used at home and at school.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 8, students will:

A. Critical Thinking

1. Communicate, analyze data, apply technology, and problem solve.
2. Describe how personal beliefs and attitudes affect decision-making.
3. Identify and assess problems that interfere with attaining goals.
4. Recognize bias, vested interest, stereotyping, and the manipulation and misuse of information.
5. Practice goal setting and decision-making in areas relative to life skills.

B. Self-Management

1. Develop and implement a personal growth plan that includes short- and long-term goals to enhance development.
2. Demonstrate responsibility for personal actions and contributions to group activities.
3. Explain the need for, and advantages of, lifelong learning.

C. Interpersonal Communication

1. Demonstrate respect and flexibility in interpersonal and group situations.
2. Organize thoughts to reflect logical thinking and speaking.

3. Work cooperatively with others to solve a problem.
4. Demonstrate appropriate social skills within group activities.
5. Practice the skills necessary to avoid physical and verbal confrontation in individual and group settings.
6. Participate as a member of a team and contribute to group effort.

D. Character Development and Ethics

1. Explain and demonstrate how character and behavior affects and influences the actions of others in the home, school, and community.
2. Describe and demonstrate appropriate character traits, social skills, and positive attitudes needed for the home, school, community, and workplace.
3. List problems and their causes, effects, and solutions that are faced in the home, school, and/or community.
4. Describe how personal ethics influence decision making.

E. Consumer and Personal Finance Skills

1. Identify and demonstrate personal finance skills in checkbook maintenance and investing.
2. Construct a simple personal savings/spending plan.
3. Understand that people make financial choices that have costs, benefits, and consequences.
4. Explain the difference in cost between cash and credit purchases.
5. Compare prices of similar items from different sellers.

F. Safety

1. Demonstrate appropriate safety procedures for hands-on experiences.
2. Demonstrate the use of recommended safety and protective devices.
3. Describe appropriate response procedures for emergency situations.

Building upon knowledge and skills gained in preceding grades, by the end of Grade 12, students will:

A. Critical Thinking

1. Apply communications and data analysis to the problem-solving and decision making processes in a variety of life situations.
2. Describe and apply constructive responses to criticism.
3. Apply the use of symbols, pictures, graphs, objects, and other visual information to a selected project in academic and/or occupational settings.
4. Recognize bias, vested interest, stereotyping, and the manipulation and misuse of information while formulating solutions to problems that interfere with attaining goals.
5. Apply knowledge and skills needed to use various means of transportation within a community.

B. Self-Management

1. Revise and update the personal growth plan to address multiple life roles.

2. Apply project planning and management skills in academic and/or occupational settings.
3. Compare and contrast methods for maximizing personal productivity.

C. Interpersonal Communication

1. Model interpersonal and effective conflict resolution skills.
2. Communicate effectively in a variety of settings with a diverse group of people.

D. Character Development and Ethics

1. Analyze how character influences work performance.
2. Identify and research privileges and duties of citizens in a democratic society.
3. Discuss consequences and sanctions when on-the-job rules and laws are not followed.
4. Compare and contrast a professional code of ethics or code of conduct from various work fields and discuss similarities and differences.
5. Apply a professional code of ethics to a workplace problem or issue.

E. Consumer and Personal Finance

1. Analyze factors that influence gross and net income.
2. Design, implement, and critique a personal financial plan.
3. Discuss how to obtain and maintain credit.
4. Prepare and use skills for budget preparation, making predictions about income and expenditures, income tax preparation, and adjusting spending or expectations based on analysis.
5. Use comparative shopping techniques for the acquisition of goods and services.
6. Analyze the impact of advertising, peer pressure, and living arrangements on personal purchasing decisions.
7. Evaluate the actions a consumer might take in response to excess debt and personal financial status.
8. Analyze the interrelationships between the economic system and consumer actions in a chosen career cluster.

F. Safety

1. Engage in an informed discussion about rules and laws designed to promote safety and health.
2. Describe and demonstrate basic first aid and safety procedures.
3. Analyze the occurrence of workplace hazards.
4. Practice the safe use of tools and equipment.
5. Implement safety procedures in the classroom and workplace, where appropriate.
6. Discuss motor vehicle safety, including but not limited to, New Jersey motor vehicle laws and regulations, methods of defensive driving, and the importance of personal responsibility on public roads/streets.