

**ART
GRADES K-12**

1. Understands the characteristics and merits of one's own artwork and the artwork of others.

Level I (K-2)

_____ • Knows various purposes for creating works of visual art

Level II (3-5)

_____ • Understands that specific artwork can elicit different responses

Level III (6-8)

_____ • Understands how one's own artwork as well as artwork from others may elicit a variety of responses

Level IV (9-12)

_____ • Understands how various interpretations can be used to understand and evaluate works of visual art

2. Performs as a visual communicator.

Level I (K-2)

_____ • Selects prospective ideas for works of art

Level II (3-5)

_____ • Recognizes how subject matter, symbols, and ideas are used to communicate meaning

Level III (6-8)

_____ • Understands how subject matter, symbols, and ideas are used to communicate meaning in one's artwork

Level IV (9-12)

_____ • Applies various subjects, symbols and ideas in one's artwork

3. Recognizes connections between visual arts and the real world.

Level I (K-2)

_____ • Knows that the visual arts have a history

Level II (3-5)

_____ • Knows that the visual arts are as integral a part of various cultures

Level III (6-8)

- _____ • Recognizes the similarities and differences in artwork from various era and cultures

Level IV (9-12)

- _____ • Identifies works of art belonging to particular cultures, times, and places

4. Understands and applies media, techniques and processes related to the visual arts.

Level I (K-2)

- _____ • Uses art materials in safe and responsible manner

Level II (3-5)

- _____ • Knows the difference between art materials, techniques, and processes

Level III (6-8)

- _____ • Understands what makes different art media, techniques, and process effective in communicating various ideas

Level IV (9-12)

- _____ • Applies media, techniques and processes with sufficient skill that one's intentions are carried out in their artwork

**GUIDANCE STANDARDS
GRADES K-12**

- 1. Understands the development of positive intrapersonal skills**

Level I & II (K-5)

- Demonstrates positive attitude towards self
- Identify individual differences, interests, values, strengths, and weaknesses
- Demonstrates positive ways of dealing with emotions caused by internal and external conflicts
- Utilizes appropriate problem-solving and decision-making skills in their daily lives
- Identify people and places who can assist in coping with problem situations

LEVEL III (6-8)

- Develop recognition of decision making processes
- Identifies alternative courses of action and predicts likely consequences of each
- Practice and apply critical thinking skills to information about alcohol, drugs, and tobacco
- Learn a process of effectively setting personal goals
- Identifies alternatives for coping with stress/conflicts/emotions
- Identifies study skills that will foster academic success

LEVEL IV (9-12)

- Effectively uses positive self-talk to develop a healthy attitude
- Understand the impact of positive self-image on one's life
- Understand what you can and cannot change about yourself
- See himself/herself as having a significant role, no matter what it might be
- Identifies alternatives for coping with stress/conflicts/emotions
- Practice and apply critical thinking skills to information about alcohol, drugs, and tobacco

2. Understands the development of positive interpersonal skills

Level I & II (K-5)

- Recognizes the diversity of all people

- Exhibits effective communications skills
- Demonstrates ways of dealing with reactions of others
- Recognizes a potential conflict, identifies, and understands steps in the conflict resolution process

Level III (6-8)

- _____ • Understands conflict, cooperation, and interdependence among individuals, groups, and institutions
- Develop key elements of attending skills (i.e., focusing, accepting, drawing out)
- Understands that each culture has distinctive patterns of behavior that are usually practiced by most of the people who grow up in it
- Understands that affiliation with a group can increase the power of members through pooled resources and concerted action
- Develop strategies to resist negative peer pressure
- Practice conflict management
- Develop and maintain positive, healthy friendships
- Demonstrate ways of dealing with reactions of others
- Develop cooperation within a group using validation skills

Level IV (9-12)

- _____ • Clarify the qualities a person looks for in positive relationships
- Apply the concepts of conflict resolution
- Understands the impact of harassment on school environment and society
- Understands the school policy in regard to harassment
- Identify and utilize consultative/support services within the school
- Contribute to the overall effort of a group
- Work with diverse individuals and in diverse situations
- Displays effective communication skills
- Demonstrate positive leadership skills
- Set and manage goals

3. Demonstrates application of career and educational planning

Level I & II (K-5)

- _____ • Identify and discuss different types of occupations
- Understands the importance of jobs in the community
- Demonstrates understanding of important personal characteristics and academic skills to job stress
- Understands the relationship between learnings and effort for developing one's potential

Level III (6-8)

- _____ • Learn a process for effectively setting career/educational goals
- Identify a career pathway/cluster that matches current interests
- Complete and analyze results of an aptitude test
- Develop a grades 9-12 education plan
- Explore how their interests relate to career pathways

Level IV (9-12)

- _____ • Utilize self-assessment measures in education/career planning
- Annually review/revise their educational plan
- Apply a structures decision-making process to educational/career planning
- Apply personal data to educational/career planning
- Exposure to various forms of post-secondary educational options
- Students will be exposed to various career clusters
- Demonstrate the use of structured goal-setting processes in conjunction to educational planning
- Utilize technology to explore career and educational opportunities

**LANGUAGE ARTS
GRADES K-12**

Revised 2/99

WRITING

- 1. Demonstrates competence in the general skills and strategies of the writing process**

Level I (K-2)

- Uses simple organizational structures (complete sentences)
- Understands and uses the steps of the writing process (prewriting, writing, revising, editing, publishing)
- Writes in a variety of formats (class books, journals, individual stories)

Level II (3-5)

- _____ • Identifies specific ways in which language varies across situations (grammar)
- Uses the writing process - writing, revising, editing
- Understands that different purposes and audiences require different forms of writing
- Effectively attends to standard conventions of grammar, punctuation and spelling when writing

Level III (6-8)

- _____ • Uses a variety of strategies to develop the writing process
- Evaluates own and others writing
- Uses grammatical and mechanical skills in the writing process
- Writes for an intended audience and purpose

Level IV (9-12)

- _____ • Uses a variety of strategies to develop the writing process (e.g., jot lists, mind maps, outline of discussion, sample essays, interest inventory, webbing, brainstorming, drafting, conferencing)
- Writes compositions that are clearly focused for different audiences and purposes (e.g., expository, persuasive, creative, research based, narrative)

INFORMATION AND TECHNOLOGY

2. Demonstrates competence in accessing and using various sources of information and technology

Level I (K-2)

- _____ • Uses simple reference tools (picture dictionary, globes, maps, magazines, etc.)

Level II (3-5)

- _____ • Uses basic reference materials
- Accurately interprets information from graphs, charts, and tables (dictionary, thesaurus, almanac, encyclopedia, atlas, etc.)

Level III (6-8)

- _____ • Accesses, views, and gathers information to demonstrate knowledge of research skills
- Interprets information gathered for a research topic

Level IV (9-12)

- _____ • Uses a variety of sources to gather, comprehend, and construct information for research topics (e.g., interviewing, audio visual, print, electronic)
- Determines the validity, motives, credibility, and perspectives of primary and secondary sources and appropriately credits them (e.g., check bias, publication data, documentation)

READING

3. Demonstrates competence in general skills and strategies of the reading process

Level I (K-2)

- Uses phonetic skills to decode language
- Recognizes characteristic sounds and rhythms of language
- Understands the characteristics of various simple genres (fiction/non-fiction)
- Understands that print conveys meaning
- Understands how print is organized and read (holds materials in correct position, identifies front and back covers, title page and author; follows words from left to right and from top to bottom; recognizes the significance of spaces between words)
- Reads for information and pleasure
- Understands main idea, details, inference, context clues, sequence and cause and effect

Level II (3-5)

- _____ • Uses phonetic skills to decode language
- Understands simple figurative language (similes, metaphors, idioms, and exaggerations)

- Understands the characteristics of various simple genres (fiction/non-fiction)
- Makes connections between personal experience and specific incidents in the text
- Makes connections among works of literature
- Provides an accurate summary of basic plot/main theme of story/information the student has read
- Determines meaning of words from context
- Makes and confirms predictions about what will be found in a text

Level III (6-8)

- _____ • Reflects on what has been learned after reading
- Comprehends and constructs meaning
- Selects a variety of reading materials

Level IV (9-12)

- Understands the purpose of literature in society and in one's own life (e.g., essays, discussion, journals)
- Understands reaction to a text may change throughout the text (e.g., journals, short answer, discussion)
- Draws inferences from a variety of literary texts (e.g., compare/contrast, objective tests, discussion, essays, journals)
- Relates personal responses from a variety of literary texts (e.g., student-teacher conferences, group discussion, journals)
- Interacts with and questions a variety of literature

LISTENING AND SPEAKING

4. Demonstrates competence in speaking and listening as tools for learning

Level I (K-2)

- _____ • Uses language for a variety of purposes
- Provides an accurate retelling of simple fiction and non-fiction selections read, heard or viewed

Level II (3-5)

- Actively contributes to group discussions
- Asks questions in class
- Uses a variety of explicit techniques for effective presentations (e.g., modulation of voice, inflection, tempo, enunciation, physical gestures) and demonstrates poise and self-control while presenting

Level III (6-8)

- _____ • Develop discussion techniques
- Listens attentively to understand a variety of speakers
- Asks questions to clarify ideas
- Performs a variety of techniques in oral presentations

Level IV (9-12)

- _____ • Adjusts message, wording, and delivery to particular audiences and for particular purposes
- Uses a variety of techniques for effective presentations
- Listens in order to understand a speaker's topic, purpose, and perspective

MATHEMATICS GRADES K-12

1. Uses a variety of strategies in the problem-solving process

Level I (K-2)

- _____ • Brainstorms possible approaches to take before starting a problem
- Draws pictures to represent problems
- Represents problems using physical objects
- Clarifies problems using discussions with teacher or knowledgeable others

- Makes rough estimates of answers to problems before doing them
- Explains to others how she or he went about solving a numerical problem
- Makes organized lists or tables of information necessary for solving a problem

Level II (3-5)

- States problems in his or her own words to better understand them
- Checks the reasonableness of results through estimation
- Articulates similarities and differences between basic problem-solving strategies
- Constructs physical representations for complex problems
- Uses pictographs and graphic representations to model problems
- Clarifies problems using discussions with peers
- Distinguishes between pertinent and irrelevant information when solving problems
- Determines appropriate computation method in problem-solving situation (e.g., pencil and paper, mental arithmetic, calculator)

Level III (6-8)

- _____ • Uses a variety of strategies to understand problem-solving situations and process (e.g., considers different strategies and approaches to a problem, restates problem from various perspectives)
- Understands that there is no one right way to solve mathematical problems but that different methods (e.g., working backward from a solution; using similar problem type; identifying a pattern) have different advantages and disadvantages
- Formulates a problem, determines information required to solve the problem, chooses methods for obtaining this information, and sets limits for acceptable solutions
- Represents problem situations in and translates among oral, written, concrete, pictorial and graphical forms

Level IV (9-12)

- _____ • Classifies problem-solving strategies or problem types by underlying general characteristics
- Uses inductive and deductive reasoning when problem solving
- Writes an equation to represent a problem situation

2. Understands and applies basic and advanced properties of the concepts of numbers

Level I (K-2)

- _____ • Understands concrete, pictorial, and symbolic representations of numbers (e.g., written numerals, objects in sets, number lines)
- Uses counting to represent numbers
- Orders relatively small sets of numbers

Level II (3-5)

- _____ • Uses concrete, pictorial, and symbolic representations to identify, order, and rename numbers
- Understands the basic relationship of decimals to whole numbers
- Understands the basic relationship of fractions to decimals and fractions to whole numbers
- Understands the basic difference between odd and even numbers
- Understands the basic characteristics of mixed numbers
- Understands the basic meaning of place value

Level III (6-8)

- _____ • Understand the relationships among equivalent number representations (e.g., whole numbers, positive and negative integers, fractions, ratios, decimals, percents, scientific notation, exponential) and the advantages and disadvantages of each type of representation
- Understands the role of positive and negative integers in the number system
- Understands basic number theory concepts (e.g., prime and composite numbers, factors, multiples, odd and even numbers, square numbers, roots, divisibility)
- Understands the characteristics and uses of exponents and scientific notation
- Understands the concepts of ratio, proportion, and percent and the relationships among them

Level IV (9-12)

- _____ • Understands the properties of the real-number system and its subsystems
- Understand the basic characteristics of roots and exponents

- Demonstrates an understanding of scientific notation
- Has a basic understanding of the concept of inequalities

3. Uses basic and advanced procedures while performing the process of computation

Level I (K-2)

- _____ • Adds and subtracts whole numbers
- Uses common, everyday objects to count, order, and measure things encountered in everyday experiences
- Understands that it is useful to estimate quantities without knowing them exactly
- Solves real-world problems when provided with interesting situations
- Understands common terms used with estimation (e.g., about, near, closer to, between, a little less than)

Level II (3-5)

- _____ • Adds, subtracts, multiplies, and divides whole numbers and decimals
- Rounds whole numbers
- Mentally adds and subtracts basic combinations of whole numbers
- Determines the effects of addition, subtraction, multiplication, and division on size and order of numbers

- Understands that choices must be made when determining which operations to use
- Carries out arithmetic computations involving dollars and cents
- Knows the language of basic operations (e.g., “factors,” “products,” “multiplication”)

Level III (6-8)

- Adds, subtracts, multiplies, and divides whole numbers, fractions, decimals, integers, and rational numbers
- Rounds decimals and estimates fractions
- Selects and uses appropriate computational methods (e.g., mental, paper and pencil, calculator, computer) for a given situation

- Understands the correct order of operations for performing arithmetic computations
- Uses proportional reasoning to solve mathematical and real-world problems (e.g., involving equivalent fractions, equal ratios, constant rate of change, proportions, percents)
- Understands the properties of operations with rational numbers (e.g., distributive property, commutative and associative properties of addition and multiplication, inverse properties, identity properties)
- Knows when an estimate is more appropriate than an exact answer for a variety of problem situations
- Rounds and makes conversions between fractions, decimals and percents

Level IV (9-12)

- _____ • Uses the basic operations on algebraic expressions
- Identifies discrepancies in calculated answers
- Solves real-world problems involving advanced operations

4. Understands and applies basic and advanced properties of the concept of measurement

Level I (K-2)

- _____ • Understands the relationships between length, width, and height
- Understands the basic characteristics of weight and how it is measured
- Understands the concept of time and money and how they are measured
- Understands the concept of temperature and how it is measured

Level II (3-5)

- _____ • Understands the basic measures perimeter, area, volume, capacity, mass, angle, and circumference
- Selects and uses appropriate tools for given measurement situations (e.g., rulers for length, measuring cups for capacity, protractors for angle)
- Knows approximate size of basic standard units (e.g., centimeters, feet, grams) and relationships between them (e.g., between inches and feet)
- Understands relationships between measures (e.g., between length, perimeter, and area)
- Understands that measurement is not exact (i.e., measurements may give

slightly different numbers when measured multiple times)

- Uses specific strategies to estimate quantities and measurements (e.g., estimating the whole by estimating the parts)
- Selects and uses appropriate units of measurement, according to type and size of unit

Level III (6-8)

- _____ • Solves problems involving perimeter (circumference) and area of various shapes (e.g., parallelograms, triangles, circles)
- Solves problems involving units of measurement and converts answers to a larger or smaller unit within the same system (i.e., standard or metric)
- Estimates distances and travel times from maps and the actual size of objects from scale drawings
- Selects and uses appropriate units and tools, depending on degree of accuracy required, to find measurements for real-world problems
- Understands formulas for finding measures (e.g., area, volume, surface area) and labels appropriately

Level IV (9-12)

- _____ • Understands the basic characteristics of the concept of area and volume and how it is measured
- Solves problems involving Rate as a measurement (e.g., velocity, acceleration)
- Understands that a small error in making a measurement can lead to a large error in the result
- Uses an appropriate direct or indirect method of measurement

5. Understands and applies basic and advanced properties of the concept of geometry

Level I (K-2)

- _____ • Understands the basic properties of and similarities and differences between circles, squares, and triangles
- Understands the meaning of the concepts inside, outside, between, etc.
- Understands that patterns can be made by putting different shapes together or taking them apart

Level II (3-5)

- _____ • Knows basic geometric language for describing and naming shapes (e.g., trapezoid, parallelogram, cube, sphere)
- Understands basic properties of figures (e.g., two- or three-dimensionality, symmetry, number of faces, type of angle)
- Understands that shapes can be congruent or similar
- Uses motion geometry (e.g., turns, flips, slides) to understand geometric relationships
- Understands characteristics of lines (e.g., parallel, perpendicular, intersecting) and angles (e.g., right, acute)

Level III (6-8)

- _____ • Understands the defining properties of three-dimensional figures (e.g., a cube has edges with equal lengths, faces with equal areas and congruent shapes, right angle corners)
- Understands geometric symmetry and transformations of figures (e.g., rotations, translations, reflection)
- Understands the mathematical concepts of similarity (e.g., scale, proportion, growth rates) and congruency
- Solves real-world problems involving area of geometric figures
- Understands the basic concept of the Pythagorean Theorem
- Understands the basic properties of and the similarities and difference between a two-dimensional polygons

Level IV (9-12)

- _____ • Understands and describes spatial relationships in geometric terms
- Understands the use of the Pythagorean theorem
- Understands transformations of basic shapes
- Classifies figures based on congruence and similarity
- Uses properties of lines to describe figures algebraically
- Understands the characteristics and properties of three dimensional shapes
- Uses geometric constructions, models, diagrams, vectors, and graphs to solve real-world problems

6. Understands and applies basic and advanced concepts of probability, statistics, and data analysis

Level I (K-2)

- Classifies objects by size, color and other significant characteristics
- Understands that observations about objects or events can be organized and displayed in simple graphs
- Understands that some events are more likely to happen than others
- Understands that some events can be predicted fairly well but others cannot because we do not always know everything that may affect an event

Level II (3-5)

- Understands that data represents specific pieces of information about real-world objects or activities
- Collects and organizes simple data sets to answer questions
- Constructs and interprets simple bar graphs, pie charts, and line graphs
- Understands that data comes in many different forms and that collecting, organizing, and displaying data can be done in many ways
- Understands that the word “chance” refers to the likelihood of an event

Level III (6-8)

- Understands basic characteristics of and calculates measures of central tendency (e.g., mean, median, mode)
- Understands basic characteristics of frequency and distribution
- Reads and interprets data in charts, tables, plots (e.g., stem-and-leaf, box-and-whiskers, scatter), and graphs (e.g., bar, circle, line)
- Uses data and statistical measures for a variety of purposes (e.g., formulating hypotheses, making predictions, testing conjectures)
- Organizes and displays data using tables, graphs (e.g., line, circle, bar), frequency distributions, and plots (e.g., stem-and-leaf, box-and-whiskers, scatter)
- Understands that the same set of data can be represented using a variety of tables, graphs, and symbols and that different modes of representation often convey different messages (e.g., variation in scale can alter a visual message)
- Understands basic concepts about how samplers are chosen (e.g., random samples, bias in sampling procedures, limited samples, sampling error)
- Determines probability using mathematical/theoretical models (e.g., table or tree diagram, area model, list, counting procedures, sample space)

- Determines probability using simulations or experiments
- Understands how predictions are based on data and probabilities (e.g., the difference between predictions based on theoretical probability and experimental probability)
- Understands that the measure of certainty in a given situation depends on a number of factors (e.g., amount of data collected, what is known about the situation, how current data are)
- Understands the relationship between the numerical expression of a probability (e.g., fraction, percentage, odds) and the events that produce these numbers

Level IV (9-12)

- _____ • Understands the basic features of data sets (matrices)
- Understands the measures of dispersion and central tendency
- Understands and determines both joint and conditional probability
- Understands the concept of independent and dependent events
- Understands how to collect, organize, and display data samples

7. Understands and applies basic and advanced properties of function and algebra

Level I (K-2)

- _____ • Extends simple patterns (e.g., of numbers, physical objects, geometric shapes)

Level II (3-5)

- _____ • Recognizes a wide variety of patterns (e.g., basic linear patterns such as [2,4,6,8...]; simple repeating and growing patterns) and the rules that explain them
- Understands that the same pattern can be represented in different ways (e.g., geometrically or numerically; the pattern of numbers [7, 14, 21, 28...] is equivalent to the mathematical relationships $7 \times n$)
- Knows that a variable is a letter or symbol that stands for one or more numbers
- Understands the basic concept of an equality relationship (i.e., an equation is a number sentence that shows two quantities that are equal)

- Solves simple open sentences involving operations on whole numbers (e.g., $[+ 17 = 23)$)
- Knows basic characteristics and features of the rectangular coordinate system (e.g., the horizontal axis is the X axis and the vertical axis is the y axis)

Level III (6-8)

- Knows that an expression is a mathematical statement using numbers and symbols to represent relationships and real-world situations (e.g., equations and inequalities with or without variables)
- Understands that a variable can be used as a place holder for a specific unknown (e.g., $x+8=13$), and as a representative of a range of values (e.g., $4t+7$)
- Understands the basic concept of a function (i.e., functions describe how changes in one quantity or variable result in changes in another)
- Solves linear equations using concrete, informal, and formal methods (e.g., graphing ordered pairs, using slope-intercept form)
- Solves simple inequalities and non-linear equations with rational number solutions
- Solves real-world problems involving formulas
- Understands basic operations (e.g., combining like terms, expanding, substituting for unknowns) on algebraic expressions
- Uses the rectangular coordinate system to model and to solve problems

Level IV (9-12)

- Uses appropriate terminology and notation to define functions and their properties
- Understands the characteristics and uses of basic trigonometric functions
- Solves systems of equations and inequalities graphically, algebraically, and using matrices for both real and complex roots
- Understands the basic concepts and applications of polynomial equations
- Understands the use of rectangular and polar coordinates
- Fits a line or curve to a set of data and uses this line or curve to make predictions

**MUSIC
GRADES K-12**

7/1/98

1. Understands the role of music in society

Level I (K-2)

- _____ • Identifies ways in which the principles and subject matter of other disciplines taught in the schools are interrelated with those of music (e.g., foreign languages: singing songs in various languages; language arts: using the expressive elements of music in interpretive readings; mathematics: mathematical basis of values of notes, rests, and time signatures; science: vibration of strings, drum heads, or air columns generating sounds used in music; geography: songs associated with various countries or regions)

Level II (3-5)

- _____ • Further identifies ways in which the principles and subject matter of other disciplines taught in the schools are interrelated with those of music (e.g., foreign languages: singing songs in various languages; language arts: using the expressive elements of music in interpretive readings; mathematics: mathematical basis of values of notes, rests, and time signatures; science: vibration of strings, drum heads, or air columns generating sounds used in music; geography: songs associated with

various countries or regions)

Level III (6-8)

- _____ • Describes ways in which the principals and subject matter of other disciplines taught in the school are interrelated with those of music (e.g., language arts: issues to be considered in setting texts to music; mathematics: frequency ratios of intervals; sciences: the human hearing process and hazards to hearing; social studies: historical and social events and movements chronicled in or influenced by musical works)

Level IV (9-12)

- _____ • Compares characteristics of two or more composers within a particular historical period or style and site examples of works
- Explains ways in which the principles and subject matter of various disciplines outside the arts are interrelated with those of music
- Explains how the roles of creators or composers, performers, and others involved in the production and presentation of a musical event are similar to or different from one another

2. Understands the power of individual expression

Level I (K-2)

- _____ • Performs expressively, with appropriate dynamics
- Performs a varied repertoire of songs representing genres and styles from diverse cultures
- Created and arranges music to accompany readings or dramatizations
- Uses a variety of sound sources when composing

Level II (3-5)

- _____ • Performs expressively with appropriate dynamics, phrasing, and interpretation
- Continues to perform a varied repertoire of songs representing genres and styles from diverse cultures
- Continues to create and arrange music to accompany readings or dramatizations
- Creates and arranges short songs and instrumental pieces within specific guidelines (e.g., a particular style, form, instrumentation, compositional

as assigned by instructor)

- Continues to use a variety of sound sources when composing

Level III (6-8)

- _____ • Increases understanding of performing expressively with appropriate dynamics, phrasing, and interpretation
- Performs music representing diverse genres and cultures, with expression appropriate for the work being performed
- Continues to compose short pieces within specific guidelines
- Arranges simple pieces for voices for instruments other than those for which the pieces were written

Level IV (9-12)

- _____ • Performs with expression a wider variety of literature
- Demonstrates well-developed ensemble skills (e.g., knowing when to lead and when to follow within an ensemble situation carrying individual responsibilities
- _____ • Composes music in several distinct styles, demonstrating creativity in using the elements of music for expressive effect (e.g., rhythm, form, timbre, harmony, and melody)
- Arranges pieces for voices or instruments other than those for which the pieces were written in ways that preserve or enhance the expressive effect of the music
- Composes music, demonstrating imagination and technical skill in applying the principles of composition

3. Understands the historical and cultural components of the music

Level I (K-2)

- _____ • Identifies by genre or style aural examples of music from various cultures
- Identifies various uses of music in their daily experiences and describes characteristics that make certain music suitable for each use
- Identifies and describes roles of musicians (e.g., orchestra conductor, folk singer, church organist) in various music settings and cultures
- Demonstrates audience behavior appropriate for the context and style of music performed

Level II (3-5)

- _____ • Identifies by genre or style aural examples of music from various historical periods and cultures
- Describes in simple terms how elements of music are used in music examples from various cultures of the world
- Further identifies and describes roles of musicians in various music settings and cultures
- Demonstrates audience behavior appropriate for the context and style of music performed

Level III (6-8)

- _____ • Demonstrates audience behavior appropriate for the context and style of music performed
- Performs music of representative genres and styles from a variety of cultures
- Classifies by historical period, composer, and title a varied body of musical works and explains the characteristics of each work
- Describes distinguishing characteristics of representative music genres and styles from a variety of cultures
- Compares in several cultures of the world, functions music serves, roles of musicians (e.g., lead guitarist in a rock band, composer of jingles for commercials, singer in Peking opera), and conditions under which music is typically performed

Level IV (9-12)

- _____ • Classifies by style, historical period, or cultural characteristics aural examples of music and explains the unique characteristics of each work
- Identifies sources of American music genres (e.g., swing, Broadway musical, blues), traces the evolution of those genres, and cites well-known musicians associated with them
- Identifies various roles that musicians perform summarized by activities and achievements
- Demonstrates audience behavior appropriate for the context and style of music performed

4. Analyzes and makes informed judgments of personal works and the works of others

Level I (K-2)

- _____ • Identifies simple music forms (e.g., AB forms) when presented aurally

- Demonstrates perceptual skills by moving and by answering questions
- Identifies sounds of a variety of instruments, including many orchestra and band instruments, and instruments from various cultures, as well as children's voices and male and female adult voices
- Evaluates performances and compositions (e.g., unique characteristics of the performance)
- Explains their personal preferences for specific musical works and styles

Level II (3-5)

- _____ • Further identifies simple music forms (e.g., ABA, coda, through composed) when presented aurally
- Demonstrates perceptual skills by moving, by answering questions about, and by describing aural examples of music of various styles representing diverse cultures
- Uses appropriate terminology in explaining music, music notation, music instruments and voices, and music performances
- Further identifies sounds of a variety of instruments, including many orchestra and band instruments, and instruments from various cultures, as well as children's voices and male and female adult voices
- Devises criteria (e.g., balance of sound, quality of performance, difficulty of performance, unique characteristics of performance) for evaluating performances and compositions
- Explains, using appropriate music terminology, their personal preferences for specific musical works and styles
- Identifies similarities and differences in the meanings of common terms (e.g., form, line, contrast) used in the various arts

Level III (6-8)

- _____ • Describes specific music events (e.g., entry of oboe, change of meter, return of refrain) in a given aural example, using appropriate terminology
- Understands the uses of elements of music (e.g., rhythm, form, timbre, harmony, and melody) in aural examples representing diverse genres and cultures
- Demonstrates knowledge of the basic principles of meter, rhythm, tonality, intervals, chords, and harmonic progressions in their analyses of music
- Evaluates the quality and effectiveness of their own and others' performances,

compositions, arrangements, and improvisations by applying specific criteria (e.g., State Solo and Ensemble ballot) appropriate for the style of the music and offer constructive suggestions for improvement

- Develops criteria (e.g., balance of sound, quality of performance, difficulty of performance, unique characteristics of a performance) for evaluating the quality and effectiveness of music performances and compositions and apply the criteria in their personal listening and performing
- Analyzes in general music the uses of elements of music (e.g., state solo and ensemble ballot) in aural examples representing diverse genres and cultures

Level IV (9-12)

- _____ • Analyzes aural examples of a varied repertoire of music, representing diverse genres and cultures, by describing the use of elements of music (e.g., rhythm, form, timbre, harmony, and melody) and expressive devices (e.g., dynamic and tempo changes; staccato, legato, etc.)
- Demonstrates knowledge of the technical vocabulary of music
- Identifies and explains compositional devices and techniques (e.g., appogituras, suspensions, portamentos, fermates, and cadence varieties) used to provide unity/variety and tension/release in a musical work
- Demonstrates the ability to perceive and remember music events by describing in detail significant events (e.g., fugal entrances, chromatic modulations, developmental devices) occurring in a given aural example
- Compares ways in which musical materials (e.g., form, cadence varieties, motivic material) are used in a given example relative to ways in which they are used in other works of the same genre or style
- Evolves specific criteria (e.g., previous criteria as well as instrumentation, voicing, and accompaniment) for making informed, critical evaluations of the quality and effectiveness of performances, compositions, arrangements, and improvisations and applies the criteria in their personal participation in music
- Evaluates a performance, composition, arrangement, or improvisation by comparing it to similar or exemplary models

5. Demonstrates skills, knowledge, and confidence to express themselves

Level I (K-2)

- _____ • Performs independently, on pitch and in rhythm, with appropriate timbre, diction, and posture, and maintain a steady tempo
- Performs from memory
- Performs ostinatos (e.g., repeated patterns) partner songs, and rounds

- Performs easy rhythmic, melodic, and chordal patterns accurately and independently on rhythmic, melodic, and harmonic classroom instruments
- Echos short rhythms and melodic patterns
- Introduced to half, quarter, and eighth notes and rests in 2/4, 3/4, and 4/4 meter signatures
- Starts to use a system (e.g., syllables, numbers, or letters) to read simple pitch notation in the treble clef in major keys
- Identifies simple terms referring to dynamics (e.g., piano [soft] to forte [loud]) and tempo (e.g., adagio [slow] to allegro [fast])
- Understands symbols to notate meter, rhythm, pitch, and dynamics in simple patterns presented by the teacher

Level II (3-5)

- Improvises “answers” in the same style to given rhythmic and melodic phrases
- Improvises simple rhythmic and melodic ostinato accompaniments
- Improvises short songs and instrumental pieces, using a variety of sound sources, including traditional sounds, nontraditional sounds available in the classroom, body sounds, and sounds produced by electronic means (e.g., traditional sounds: voices, instruments; nontraditional sounds: paper tearing, pencil tapping; body sounds: hands clapping, fingers snapping; sounds produced by electronic means: personal computers and basic MIDI devices, including keyboards, sequencers, synthesizers, and drum machines)
- Reads whole, half, dotted half, quarter, and eighth notes and rests in 2/4, 3/4, and 4/4 meter signatures
- Further uses a system (e.g., syllables, numbers, or letters) to read simple pitch notation in the treble clef in major keys
- Further identifies simple terms referring to dynamics, tempo, and articulation and interpret them correctly when performing
- Further uses standard symbols to notate meter, rhythm, pitch, and dynamics in simple patterns presented by the teacher

Level III (6-8)

- Performs in groups, blending timbres dynamic levels, and responding to the cues of a conductor
- Performs independent parts (e.g., simple rhythmic or melodic ostinatos,

contrasting rhythmic lines, harmonic progressions and chords) while other students sing or play contrasting parts

- Sings accurately and with good breath control throughout their singing ranges in large ensembles
- Sings music written in two and three parts
- Performs on at least one instrument (e.g., band instrument, keyboard instrument, fretted instrument, electronic instrument) accurately and independently, alone and in small and large ensembles, with good posture, good playing position, and good breath or stick control
- Performs with expression and technical accuracy a repertoire of literature including some songs performed from memory
- Reads whole, half, quarter, eighth, sixteenth, and dotted notes and rests in 2/4, 3/4, 4/4, 6/8, 3/8, and alla breve meter signatures
- Identifies and defines standard notation symbols for pitch, rhythm, dynamics, tempo, articulation, and expression (e.g., dynamics: forte (f); tempo: allegro (fast); articulation: staccato (.); expression: dolce (sweetly))
- Reads at sight simple melodies in treble or bass clef
- Sight reads, expressively, music of different styles (e.g., renaissance, baroque, classical, romantic, 20th century, jazz, Broadway)
- Improvises simple rhythmic variations and simple melodic embellishments on familiar melodies
- Plays by ear simple melodies on a melodic instrument and simple accompaniments on a harmonic instrument
- Improvises simple harmonic accompaniments
- Continues to compose short pieces within specified guidelines (e.g., a particular style, form, instrumentation, compositional technique)
- Arranges simple pieces for voices or instruments other than those for which the pieces were written
- Reads at sight simple melodies in both the treble and bass clefs
- Uses standard notation to record their musical ideas and the musical ideas of others

Level IV (9-12)

-
- Improvises melodic embellishments (e.g., trills, turns, mordents, appoggiaturas) and simple rhythmic and melodic variations on given pentatonic melodies and melodies in major keys

- Improvises short melodies, unaccompanied and over given rhythmic accompaniments, each in a consistent style, meter, and tonality (e.g., style: baroque; meter: 4/4; tonality: Major)
- Performs with expression and technical accuracy a large and varied repertoire of literature including some songs performed from memory
- Sings music written in a minimum of four-parts, with and without accompaniment
- Improvises original melodies over given chord progressions, each in a consistent style, meter, and tonality (e.g., style: jazz; meter: 4/4; tonality: blues)
- Demonstrates the ability to read an instrumental or vocal score of up to four staves
- Sight reads, expressively, varieties of musical styles
- Interprets nonstandard notation symbols used by some 20th-century composers (e.g., when deemed necessary by a work being performed)
- Improvises stylistically appropriate harmonizing parts
- Improvises rhythmic and melodic variations on given pentatonic melodies in major and minor keys

6. Utilizes technologies as a method of expressing music

Level I (K-2)

- _____ • Uses a variety of sound sources when composing (e.g., traditional sounds: voices, instruments; nontraditional sounds: paper tearing, pencil tapping; body sounds: hands clapping, fingers snapping; sounds produced by electronic means: personal computers and basic MIDI devices, including keyboards, sequencers, synthesizers, and drum machines)

Level II (3-5)

- _____ • Improvises short songs and instrumental pieces, using a variety of sound sources, including traditional sounds, nontraditional sounds available in the classroom, body sounds, and sounds produced by electronic means (e.g., traditional sounds: voices, instruments; nontraditional sounds: paper tearing, pencil tapping; body sounds: hands clapping fingers snapping; sounds produced by electronic means: personal computers and basic MIDI devices, including keyboards, sequencers, synthesizers, and drum machines)

Level III (6-8)

- _____ • Uses aural and visual sources to enhance the study of music
- Uses a variety of traditional and nontraditional sounds sources and electronic media when composing and arranging (e.g., traditional sounds:

voices, instruments; nontraditional sounds: paper tearing, pencil tapping; body sounds: hands clapping, fingers snapping; sounds produced by electronic means: personal computers and basic MIDI devices, including keyboards, sequencers, synthesizers, and drum machines

Level IV (9-12)

- _____ • Uses aural and visual sources to enhance the study of music
- Composes and arranges music for voices and various acoustic and electronic instruments, demonstrating knowledge of the ranges and traditional usages of the sound sources (e.g., traditional sound: voices, instruments; nontraditional sounds: paper tearing, pencil tapping; body sounds: hands clapping, fingers snapping; sounds produced by electronic means: personal computers and basic MIDI devices, including keyboards, sequencers, synthesizers, and drum machines)

7. Understands emotional connections increases one's appreciation of the fine arts

Level I (K-2)

- _____ • Responds through purposeful movement to selected prominent music characteristics or to specific music events (e.g., meter changes, dynamic changes, same/different sections) while listening to music

Level II (3-5)

- _____ • Further responds through purposeful movement to selected prominent music characteristics or to specific music events (e.g., meter changes, dynamic changes, same/different sections) while listening to music

Level III (6-8)

- _____ • Analyzes and describes uses of the elements of music (e.g., rhythm, form, timbre, harmony, and melody) in a given work that makes it unique, interesting, and expressive
- Evaluates a given musical work in terms of its aesthetic qualities and explains the musical means it uses to evoke feelings and emotions
- Compares in two or more arts how the characteristic materials of each art (e.g., sound in music, visual stimuli in visual arts, movement in dance, human interrelationships in theater) can be used to transform similar events, scenes, emotions, or ideas into works of art

Level IV (9-12)

- _____ • Analyzes and describes uses of the elements of music (e.g., rhythm, form, timbre, harmony, and melody) in a given work that makes it unique, interesting, and expressive

- Evaluates a given musical work in terms of its aesthetic qualities and explains the musical means it uses to evoke feelings and emotions
- Compares the use of characteristic elements, artistic processes, and organizational principles among the arts in different historical periods and different cultures

**PHYSICAL EDUCATION
GRADES K-12**

1. Develops and maintains a variety of basic and advanced movement forms

Level I (K-2)

- Uses a variety of basic locomotor and non-locomotor movement skills
- Uses a variety of manipulative control skills
- Uses control in balance activities on various body parts
- Uses control in travel activities on a variety of body parts

Level II (3-5)

- _____ • Uses mature form in object control skills
- Uses basic sport specific skills for a variety of physical activities
- Uses mature form and appropriate sequence in combinations of fundamental locomotor, object control, and rhythmical skills that are components of selected modified games, sports, and dances

Level III (6-8)

- _____ • Uses intermediate sport-specific skills for individual, dual and team sports
- Uses intermediate strategies for net and invasion games
- Uses intermediate sport-specific skills for outdoor activities

Level IV (9-12)

- _____ • Engages in activities that develop eye-hand coordination

- Uses advanced sports-specific skills

2. Develops movement concepts and principles toward the advancement of motor skills

Level I (K-2)

- _____ • Understands a vocabulary of basic movement concepts
- Uses concepts of space awareness and movement control with a variety of basic skills
- Understands the critical elements of a variety of basic movement patterns

Level II (3-5)

- _____ • Understands principles of practice and conditioning that improve performance
- Understands proper warm-up and cool down techniques and reasons for using them
- Uses basic offensive and defensive strategies in game environments

Level III (6-8)

- _____ • Understands principles of practice and conditioning that improve performance
- Understands proper warm-up and cool-down techniques and reasons for using them
- Uses basic offensive and defensive strategies in a modified version and a team or individual sport
- Understands movement forms associated with highly skilled physical activities

Level IV (9-12)

- _____ • Demonstrate basic competence in physical activities selected from the following categories; condition and nutrition, life and leisure activities, social activities, innovation games, racket activities, personal strength and development, and team activities
- Develop an understanding and appreciation of the strategies and techniques used in the various activities
- Compare and contrast offensive and defensive patterns in sports along with appropriate rules
- Develop an awareness of safety for one's self and others

3. Develops a positive lifetime attitude toward physical activity in order that each individual student might seek and enjoy recreation during his/her leisure time

Level I (K-2)

- _____ • Understands the health benefits of physical activity

Level II (3-5)

- _____ • Knows about opportunities for participation in physical activities both in and out of school
- Chooses physical activities based on a variety of factors

Level III (6-8)

- _____ • Engages in activities that develop and maintain cardio respiratory endurance
- Participates in vigorous physical activity in a variety of settings
- Engages in activities that can be used in leisure time

Level IV (9-12)

- _____ • Appreciate and respect the natural environment while participating in physical activities
- Demonstrate the proper use of equipment
- Explain the surrounding habitats to enjoy nature and all it has to offer an individual

4. Develops an understanding of the concepts of physical fitness/nutrition and how it relates to each student's health

Level I (K-2)

- _____ • Engaged in basic activities that cause cardio respiratory exertion
- Knows the physiological indicators that accompany moderate to vigorous physical activity
- Engages in activities that develop muscular strength and endurance
- Engages in activities that require flexibility

Level II (3-5)

- _____ • Engages in activities that develop and maintain cardio respiratory endurance, muscular strength, and flexibility
- Knows how to monitor intensity or exercise
- Works towards the health-related fitness standards for the appropriate level of the standardized physical fitness test

Level III (6-8)

- _____ • Understands long-term physiological benefits of regular participation in physical activity
- Understands long-term psychological benefits of regular participation in physical activity

Level IV (9-12)

- ** • Maintains personal level of health, related to fitness standards, motivating individually; bench press, vertical eight minute run, 600 meter run, 50 meter dash, height, weight, shuttle run, pull-ups, sit-ups, shinfold, and standing long jump
- Analyze and compare health and fitness benefits derived from various physical activities
- Link the physical conditioning (aerobic/cardiovascular, non-aerobic/muscle specific) to the proper nutrition for one's body
- Design a personal fitness program that is based on the basic principles of training and encompasses all components of fitness (e.g., cardiovascular and respiratory efficiency, muscular strength and endurance, flexibility, and body composition)

5. Develops and demonstrates self-discipline and positive self-esteem; physically, socially, and emotionally

Level I (K-2)

- _____ • Follows rules and procedures with little reinforcement
- Uses equipment and space safely and properly
- Understands the importance of playing, cooperating, and respecting others regardless of personal differences

Level II (3-5)

- _____ • Knows how to develop rules, procedures, and etiquette that are safe and effective for specific activity situations

- Works in a group to accomplish a set goal in both cooperative and competitive activities
- Understands the role of physical activities in learning more about others of like and different backgrounds

Level III (6-8)

- Understands the role of exercise and other factors in weight control and good self-image
- Understands principles of practice and conditioning to improve performance

Level IV (9-12)

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-
- Understands how various factors including age, gender, race and culture, affect physical activity preference and participation
 - Enjoy the satisfaction of meeting and cooperating with others during physical activity
 - Know and demonstrate basic competence in life saving techniques for their personal benefit as well as others
 - Desire the enjoyment, satisfaction and benefits of physical activity

6. Develops and displays the concepts of good sportsmanship and cooperation with others

Level I (K-2)

- NOT APPLICABLE

Level II (3-5)

-
- NOT APPLICABLE

Level III (6-8)

-
- Understands the importance of rules, procedures, and safe practice in physical activity settings
 - Understands proper attitudes toward both winning and losing
 - Works in a group to accomplish a set goal in both cooperative and competitive activities

Level IV (9-12)

**SCIENCE
GRADES K-12**

Revised 7/2/98

1. Understands the essential ideas about the composition and structure of the Earth and Universe

Level I (K-2)

- _____ • Knows the major differences between fresh and ocean waters 2
- Knows that weather can change from day to day, but things like temperature and rain (or snow) tend to be high, low, or medium in the same months every year 1
- Knows that animals and plants sometimes cause changes in their surroundings 1

Level II (3-5)

- _____ • Knows that rock is composed of different combinations of minerals 3
- Knows that soil is made up of weathered rock and products of plants and animals, and also contains many living organisms 3
- Knows that the surface of the Earth changes, some changes are due to slow processes (e.g., erosion, weathering), and some changes are due to rapid processes (e.g., landslides, volcanoes, earthquakes) 3-5
- Knows that the Earth is one of several planets that orbit the Sun, and the Moon orbits around the Earth 4-5
- Knows that the rotation of a planet on its axis produces day and night, and revolution and the tilt of the planet causes seasons 4-5
- Knows that the patterns of stars in the sky stay the same, although they appear to move across the sky nightly, and different stars can be seen in different positions in different seasons 4-5
- Knows the relationship between the water cycle and weather patterns 4-5

Level III (6-8)

- _____ • Knows the composition and structure of the Earth's atmosphere

- Knows that the cycling of water in and out of the atmosphere plays an important role in determining climatic patterns; water evaporates from the surface of the Earth, rises and cools, condenses into rain or snow and falls to the surface, where it forms rivers and lakes and collects in porous layers of rock.
- Knows that the solid Earth is layered with a thin brittle crust, hot convecting mantle, and dense metallic core; three-fourths of Earth's surface is covered by a thin layer of water; and the entire planet is surrounded by a blanket of air
- Knows that clouds, which are formed by the condensation of water vapor, affect weather and climate; some do so by reflecting much of the sunlight that reaches Earth from the Sun; others hold heat energy emitted from the Earth's surface
- Knows that nine planets of different sizes and surface features and with differing compositions move around the Sun in nearly circular orbits; some planets have a variety of moons and rings of particles orbiting around them (e.g., the Earth is orbited by one moon, many artificial satellites, and debris)

Level IV (9-12)

- _____ • Knows that Earth systems have both internal and external sources of energy, both of which create heat; although the Sun is the major external source of energy, the decay of radioactive isotopes and gravitational energy from the Earth's original formation are primary sources of internal heat. (Physics)
- Knows that the Earth is a system containing a fixed amount of each stable chemical atom or element; each element moves among reservoirs in the solid Earth, oceans, atmosphere, and living things, as part of geochemical cycles (e.g., carbon cycle, nitrogen cycle) (Chemical and Biology)
- Knows that geologic time can be estimated by observing rock sequences and using fossils to correlate the sequences at various locations; recent methods use the predictability of decay rates of radioactive isotopes in rock formation to determine geologic time (Biology)
- Knows that current theory states that about ten billion years ago, the entire contents of the universe expanded explosively into existence from a single, hot, dense chaotic mass; our solar system formed from a nebular cloud of dust and gas about 4.6 billion years ago
- Knows that life is adapted to conditions on Earth, including the strength of gravity to hold an adequate atmosphere and an intensity of radiation from the Sun that allows water to cycle between liquid and vapor (Biology)

2. Knows the general structure and function of living matter.

Level I (K-2)

- _____ • Knows that plants and animals have external features that help them thrive in different environments 1-2

- Knows that plants and animals have basic needs for survival K-1
- Knows that fossils provide evidence that some organisms living long ago are now extinct 1

Level II (3-5)

- _____ • Knows that living things can be sorted into groups in many ways according to its structure and function 4-5
- Knows that plants and animals have life cycles 4-5
- Knows that each plant or animal has different structures which serve different functions
- Knows that living things are made mostly of cells; that can vary greatly in appearance and perform very different roles in the organism 4-5

Level III (6-8)

- _____ • Knows that all organisms are composed of cells, which are the fundamental units of life; most organisms are single cells, but other organisms (including humans) are multicellular
- Knows that major categories of living organisms are plants, which get their energy from sunlight, and animals, which consume energy-rich foods; some kinds of organisms cannot be neatly classified as either plants or animals

Level IV (9-12)

- _____ • Understands the role organisms play in the Food chain/Food web and their significance
- Understands the structure and function of cells, tissues, organs and systems of living organisms
- Knows that most cell functions involve chemical reactions involved in determining its metabolism
- Understands how cells regulate movement in and out of the cell through the cell membrane by diffusion, osmosis, passive and active transport and phagocytosis
- Knows that cells store and use information to guide their functions, and how the genetic information stored in DNA is used to direct the synthesis of thousands of proteins

3. Understands the genetic basis for life

Level I (K-2)

- _____ • NOT DEVELOPMENTALLY APPROPRIATE

Level II (3-5)

- _____ • SEE HEALTH

Level III (6-8)

- Knows that reproduction is a characteristic of all living systems; since no individual organism lives forever, reproduction is essential to the continuation of species with typically half of the genes coming from each parent

Level IV (9-12)

- _____ • Understands the importance of a species in sexually reproducing organisms
- Knows that science classifies living things based on structure and evolutionary relationships
- _____ • Understands the ideas and theories on the origins of Life and that science offers the Theory of evolution as the best explanation while debating the evidence and lack of evidence surrounding the fossil record
- Knows that in all organisms, the instructions for specifying the characteristics of the organism are carried in DNA. The chemical properties of DNA explains how heredity (genetic information is passed on).
- Knows that most cells in a human contain 2 copies of each of 22 chromosomes and there is a pair of chromosomes that determine sex
 - a female contains 2 X chromosomes
 - a male contains one X and one Y
- Knows that the human body is formed from cells containing 2 copies of each chromosome explaining the many features of human heredity
- Knows the latest techniques and procedures used in Biotechnology such as DNA Fingerprinting and cloning

4. Understands how organisms depend on one another and the environment for survival

Level I (K-2)

- _____ • Knows that living things are found almost everywhere in the world; different types of plants and animals live in different places 1-2
- Knows that animals eat plants or other animals for food and may also use plants or other animals for shelter and nesting 1

Level II (3-5)

- _____ • Knows that when an environment changes, some plants and animals survive and reproduce and others die or move to new locations 4-5
- Knows that all organisms (including humans) cause changes in the

environment where they live; some of these changes are detrimental to themselves or other organisms, and other are beneficial 3

- Knows that the sun is the source of “energy” that begins the cycle needed for organisms to live and grow 3-5
- Knows that all animals depend on plants; some animals eat plants for food while others eat animals that eat the plants 3-5

Level III (6-8)

- _____ • Knows that all species ultimately depend on one another; interactions between two types of organisms include producer/consumer, predator/prey, parasite/host, and relationships that can be mutually beneficial or competitive
- Knows that almost all food energy ultimately comes from the Sun as plants convert light into stored chemical energy; energy can change from one form to another in living things; and animals get energy from oxidizing their food, releasing some of its energy as heat
- Knows that biological evolution accounts for diversity of species developed through gradual processes over many generations; species acquire many of their unique characteristics through biological adaptation (e.g., changes in structure, behavior, or physiology that enhance reproductive success), which involves the selection of naturally occurring variations in populations
- Knows how the fossil record, through geologic evidence, documents the appearance, diversification, and extinction of many life forms; millions of species of animals, plants, and micro-organisms living today differ from those that lived in the remote past, and each species lives in a specific and fairly uniform environment

Level IV (9-12)

- Knows that organisms both cooperate and compete in ecosystems; the interrelationships and interdependencies of these organisms may generate ecosystems that are stable for a long time
- Knows the impact and effect that humans have on the environment as a result of population growth, technology, and consumption. Human destruction of habitats through direct harvesting, pollution, atmospheric changes, and other factors is threatening global stability, and if not addressed ecosystems could be irreversibly damaged

5. Understands basic concepts about the structure and properties of matter

Level I (K-2)

- _____ • NOT DEVELOPMENTALLY APPROPRIATE

Level II (3-5)

- _____ • Knows that matter has different properties that can be measured by magnetism, conductivity, density, solubility using tools such as rulers, balances, and

thermometers 4-5

- Knows that materials may be composed of parts that are too small to be seen without magnification 4-5
- Knows that materials have different states such as solid, liquid, and gas 4-5

Level III (6-8)

- Knows that there are more than 100 known elements that combine in numerous ways to produce compounds, which account for the living and nonliving substances that we encounter; chemical elements do not break down by normal laboratory reactions such as heating, electric current, or reaction with acids
- Knows that different arrangements of atoms into groups compose all substances; atoms are far too small to see directly through a microscope
- Knows that atoms often combine to form a molecule (or crystal), the smallest particle of a substance that retains its properties
- Knows that atoms in solids are close together and do not move about easily; in liquids, atoms are close together and stick to each other, but move about easily; atoms in gas are quite far apart and move about freely

Level IV (9-12)

- Knows that an element is composed of a single type of atom; when elements are listed in order according to the number of protons (called the atomic number), repeating patterns of physical and chemical properties identify families of elements with similar properties (as seen in the periodic table)
- Knows that atoms interact with one another by transferring or sharing electrons that are furthest from the nucleus; these outer electrons govern the chemical properties of the element. This is how compounds are formed
- Knows that atoms consist of negative electrons, which occupy most of the space in the atom and very tiny nuclei consisting of neutrons and positive proton, each almost two thousand times heavier than an electron; the electric force between the nucleus and electrons holds the atom together
- Knows that the number of electrons usually will equal the number of protons, and the neutron has no electric charge, so the atom, overall, is electrically neutral; but an atom may acquire an unbalanced charge by gaining or losing electrons
- Knows that when an element has atoms that have the same number of protons but differ in the number of neutrons, these atoms are called different isotopes of the element
- Knows that scientists continue to investigate atoms and have discovered even smaller constituents of which electrons, neutrons, and protons are made

- Knows that radioactive isotopes are unstable and undergo spontaneous nuclear reactions, emitting particles and/or wavelike radiation; the decay of any one nucleus cannot be predicted, but a large group of identical nuclei decay at a predictable rate, and this predictability can be used to estimate the age of materials that contain radioactive isotopes
- Knows that chemical reactions can take place in time periods ranging from the few femoseconds required for an atom to move a fraction of a chemical bond distance to geologic time scales; reaction rates depend on how often the reacting atoms and molecules encounter one another, the temperature, and the properties (including shape) of the reacting species
- Knows that the complete mole concept and ways in which it can be used (e.g., actual mass vs. relative mass; relationship between the mole and the volume of a mole of molecules; relevance of molar volume and Avogadro's hypothesis)
- Knows that catalysts, such as metal surfaces, accelerate chemical reactions; chemical reaction in living systems are often catalyzed by protein molecules called enzymes
- Knows that carbon atoms can bond to one another in chains, rings, and branching networks, to form a variety of structures, including synthetic polymers, oils, and the large molecules essential to life; complex chemical reactions involving carbon-based molecules take place constantly in every cell of our bodies
- Knows that a large number of important reaction; involve the transfer of either electrons (oxidation/reduction reactions) or hydrogen ions (acid/base reactions) between reacting ions, molecules or atoms; in other reactions, chemical bonds are broken by heat or light to form very reactive radicals with electrons ready to form new bonds
- Knows that different kinds of materials respond differently to electric forces; in some materials such as metals, electrons flow easily, whereas in insulating materials, such as glass, they hardly flow at all; semi conducting materials have intermediate behavior, and at low temperatures some materials become superconductors and offer no resistance to the flow of electrons
- Knows that magnetic forces are very closely related to electric forces and can be thought of as different aspects of a single electromagnetic force moving electric charges produce magnetic forces and moving magnets produce electric forces; the interplay of these forces is the basis for electric motors, generators, radio, television, and many other modern technologies
- Knows that electromagnetic forces acting within and between atoms are vastly stronger than the gravitational forces acting between them, and the forces that hold the nucleus of atoms together are much stronger than the electromagnetic force; this explains why great amounts of energy are released from the nuclear reactions in atomic or hydrogen bombs, and in the Sun and other stars

- Knows that gravity is a universal force that each mass exerts on any other mass; the strength of the gravitational attractive force between two masses is proportional to the masses and inversely proportional to the square of the distance between them

6. Understands force, energy, motion and the principles that explain them

Level I (K-2)

- _____ • Knows that vibrating objects produce sound 2
- Knows that light travels in a straight line unless it strikes an object 2

Level II (3-5)

- _____ • Knows that electricity in circuits can produce light, heat, sound, and magnetic effects 4-5
- Knows that the Sun and things that give off light often also give off heat 3-5
- Knows that electrical circuits require a complete loop through which the electrical current can pass 4-5
- Knows that when a force is applied to an object, the object either speeds up, slows down, or goes in a different direction depending on the amount of force and the mass of the object 4-5
- Knows that magnets and electrically charged materials attract and repel each other 4-5
- Knows that gravity pulls any object towards itself 4-5

Level III (6-8)

- _____ • Knows that only a narrow range of wavelengths of electromagnetic radiation can be seen by the human eye; differences of wavelength within that range of visible light are perceived as differences in color
- Knows that the Sun is a major source of energy for changes on the Earth's surface; the Sun's energy arrives as light with a range of wavelengths consisting mainly of visible light with significant amounts of infrared and ultraviolet radiation
- Knows that vibrations (e.g., sounds, earthquakes) move at different speeds in materials, have different wavelengths, and set up wave-like disturbances that spread away from the source
- Knows that whenever an object is seen to speed up, slow down, or change direction, we know that an unbalanced force (e.g. friction) act on it
- Knows that an object that is not being subjected to a force will continue to move at constant speed and in a straight line

- Knows that energy comes in different forms, such as light, heat, chemical, nuclear, mechanical, and electrical
- Understands that energy cannot be created or destroyed but only changed from one form to another
- Knows that heat energy moves in predictable ways, flowing from warmer objects to cooler ones until both objects are at the same temperature and that heat can be transferred radiation, conduction, convection
- Knows that electrical circuits provide a means of converting electrical energy into heat, light, sound, chemical, or other forms of energy
- Knows that just as electric currents can produce magnetic forces, magnets can cause electric currents

Level IV (9-12)

- Knows that although energy can be transferred by collisions or waves and converted from one form to another, it can never be created or destroyed, so the total energy of the universe is constant
- Knows that all energy can be considered to be either kinetic energy (energy of motion), potential energy (depends on relative position), or energy contained by a field (electromagnetic waves)
- Knows that heat energy consists of random motion and the vibrations of atoms, molecules, and ions; the higher the temperature, the greater the atomic or molecular motion
- Knows that energy tends to move spontaneously from hotter to cooler object by conduction, convection, or radiation; similarly, any ordered state tends to spontaneous
- Knows that energy of waves (electromagnetic and material) can be changed into other forms of energy (e.g., chemical and electrical), just as other forms of energy (chemical and nuclear) can be transformed into wave energy
- Knows that each kind of atom or molecule can gain or lose energy only in particular discrete amounts and thus can absorb and emit light only a wavelengths corresponding to these amounts; these wavelengths can be used to identify the substance
- Knows that fission is the splitting of a large nucleus into smaller pieces, and fusion is the joining of two nuclei at extremely high temperature and pressure; nuclear reactions convert a fraction of the mass of interacting particles into energy
- Knows that waves (e.g., sound, seismic, light, water) carry energy and can interact with matter
- Knows that electromagnetic waves include radio waves (the longest

wavelength, microwaves, infrared radiation (radiant heat), visible light, ultraviolet radiation, x-rays, and gamma rays; electromagnetic waves result when a charged object is accelerated or decelerated; and each wavelength of light delivers energy in packets whose sizes are inversely proportional to the wavelength

- Knows that apparent changes in wavelength can provide information about changes in motion because the observed wavelength of a wave depends upon the relative motion of the source and the observer; if either the source or observer is moving toward the other, the observed wavelength is shorter; if either is moving away, the wavelength is longer
- Knows that the theory of special relativity suggests that in contrast to other moving things, the speed of light is the same for all observers, no matter how they or the light source happen to be moving, and that nothing can travel faster than the speed of light
- Knows that objects change their motion only when a net force is applied whenever one object exerts force on another, an equal amount of force is exerted back on the first object
- Knows that laws of motion are used to calculate precisely the effects of forces on the motion of objects; the magnitude of the change in motion can be calculated using the relationships $F=ma$

7. Understands the nature of scientific knowledge, inquiry and processes

Level I (K-2)

- _____ • Knows that learning can come from careful observations and simple experiments K-2

Level II (3-5)

- _____ • Knows that the same scientific investigation often gives slightly different results when it is carried out by different persons, or at different times or places; however, if the results of repeated experiments are very different, something must be wrong with the design of the investigation 4-5
- Knows that scientific investigations involve asking and answering a question and comparing the answer to what scientists already know about the world 4-5
- Plans and conducts a simple investigation (e.g., systematic observations, simple experiments to answer questions) 4-5
- Uses simple equipment and tools to gather scientific data (e.g., rulers, thermometers, magnifiers, microscopes, calculators) 4-5

Level III (6-8)

- _____ • Designs and conducts a scientific investigation (e.g., formulates questions, designs and executes investigations, interprets data, synthesizes evidence into explanations, proposes alternative explanations, critiques explanations and procedures)

Level IV (9-12)

- _____ • Knows that scientific explanations must be consistent with experimental and observational evidence
- Knows that all scientific knowledge is subject to change as new evidence becomes available
- Knows that hypothesis are widely used in science for choosing data and for guiding the interpretation of the data
- Formulates a testable hypothesis
- Knows that scientists conduct investigations for a variety of reasons, such as exploration, confirmation, prediction, and comparison of models and theories

8. Understands the interactions of science, technology, and society

Level I (K-2)

- _____ • Knows that tools like thermometers, magnifiers, rulers, and balances add to information from our senses K-2

Level II (3-5)

- _____ • Knows that people continue inventing new ways of doing things, solving problems, and getting work done; these new ideas and inventions often affect other people and nature 3

Level III (6-8)

- _____ • Know that solutions can be presented in a way that can beneficially impact society

Level IV (9-12)

- _____ • Knows that progress in science and technology can relate to social issues and ethics
- Knows that scientists have ethical tradition, including commitment to peer review, truthful reporting of the methods and outcomes of investigations, and publication of the results of work
- Knows that scientists in different disciplines ask different questions, use different methods if investigation, and many scientific investigations require the contributions of individuals from different disciplines

- Knows that creativity, imagination, and a good knowledge base are all required in the work of science and engineering
- Proposes designs and chooses between alternative, implements a proposed solution and knows that a solution and its consequences must be tested
- Knows that science often advances with the introduction of new technologies; new technologies and knows that individuals and society must decide on new research and technologies and decisions involving assessment of alternatives, risks, costs, and benefits

**SOCIAL STUDIES
GRADES K-12**

Revised 5/17/2000

1. Understands culture and cultural diversity

Level I (K-2)

- _____ • Understands the cultural similarities and differences in clothes, home, food, communication, and cultural traditions between families now and in the past

Level II (3-5)

- _____ • Understands similarities and differences in societies and cultures
- Understands ways in which people from different cultures deal with their physical environment
- Understand the importance of cultural unity and diversity within and across groups.

Level III (6-8)

- _____ • Understand the similarities and differences in the way groups, societies, and cultures meet human needs and concerns
- Understand how history, geography, language, literature, the arts, architecture, other artifacts, traditions, beliefs, values, and behaviors contribute to the development and transmission of cultures

Level IV (9-12)

- _____ • Understands the ways groups, societies, and cultures address human needs and concerns
- Understands cultural diversity, as well as cohesion, within and across groups

2. Understands time, continuity, and change; the ways human beings view the past, the present, and the future

Level I (K-2)

- Understands different stories or accounts about past events, people, places, or situations, identifying how they contribute to our understanding of the past

Level II (3-5)

- _____ • Understands examples of change over time, recognize cause and effect relationships, and create and use simple time lines
- Understand and use various sources for reconstructing the past, such as documents, letters, diaries, maps, textbooks, photos, and others
- Understand that people in different times and places view the world differently

Level III (6-8)

- _____ • Understand the concepts such as chronology, causality, change, conflict and complexity among patterns of historical change and continuity

- Understand the selected historical periods and patterns of change within and across cultures, such as the rise of civilizations, the development of transportation systems, the growth and breakdown of colonial systems, and others

Level IV (9-12)

- _____ • Understands how to apply key concepts such as time, chronology, causality, change of conflict, and complexity to show connections among patterns of historical change and continuity
- Understands significant historical periods and patterns of change within and across cultures, such as the development of cultures and civilizations, the rise of nation-states, and social, economic, and political revolutions
- Knows how to investigate, interpret, and analyze multiple historical and contemporary viewpoints within and across cultures related to important events, recurring dilemmas, and persistent issues, while employing empathy, skepticism, and critical judgment

3. Understands people, places, and environments

Level I (K-2)

- _____ • Understands various representations of the earth, such as maps and globes

Level II (3-5)

- _____ • Understand various representations of the earth, such as maps, globes, and photographs
- Understand varying land forms and geographic features
- Use appropriate resources, data sources, and geographic tools such as atlases, data bases, grid systems, charts, graphs and maps to generate, manipulate, and interpret information
- Estimate distance and calculate scale
- Understand interaction of human beings and their physical environment and consider uses and alternative uses of resources and land

Level III (6-8)

- _____ • Understand relative location, direction, size and shape of regions of the world
- Understand various representations of the earth, such as maps and globes
- Understand distance, scale, and other geographic relationships such as population density and spatial distribution patterns
- Understand varying land forms and geographic features, such as

mountains, plateaus, islands, rain forest, deserts, oceans and their relationship within the ecosystem

- Understand physical and cultural patterns and their interactions, such as land use, settlement patterns, cultural transmission of customs and ideas change
- Understand ways that historical events have been influenced by, and have influenced, physical and human geographic factors in local, regional, national, and global settings

Level IV (9-12)

- _____ • Understands the concepts of relative location, direction, size, and shape
- Understand and use information from various representations of the earth, such as maps, globes, and photographs
- Knows how to calculate distance, scale, area, and density, and distinguish spatial distribution patterns
- Understands physical and cultural patterns and their interaction, such as land use, settlement patterns, cultural transmission of customs and ideas, and ecosystem changes
- Understands how historical events have been influenced by, and have influenced, physical and human geographic factors in local, regional, national, and global settings

4. Understands individual development and identity

Level I (K-2)

- _____ • Understands the way family, groups, and community influence an individual's daily life and personal choices

Level II (3-5)

- _____ • Understands ways family, groups, and community influence the individual's daily life and personal choices
- Understand the reasons individuals might respond to a particular event in different ways
- Work independently and cooperatively to accomplish goals

Level III (6-8)

- _____ • Understand how regional, ethnic, and national cultures, influence individual's daily lives
- Understand the influence of perception, attitudes, values, and beliefs on personal identity

Level IV (9-12)

- _____ • Understands the influences of various historical and contemporary cultures on an individual's daily lives
- Understands the ways family, religion, gender, ethnicity, nationality, socioeconomic status, and other group and cultural influences contribute to the development of a sense of self
- Understands concepts, methods, and theories about the study of human growth and development, such as physical endowment, learning, motivation, behavior, perception, and personality
- Understands the interactions of ethnic, national, or cultural influences in specific situations or events
- Understands the role of perceptions, attitudes, values, and beliefs in the development of personal identity
- Knows how to work independently and cooperatively within groups and institutions to accomplish goals
- Understands factors that contribute to and damage one's mental health and analyze issues related to mental health and behavioral disorders in contemporary society

5. Understands interactions among individuals, groups, and institutions

Level I (K-2)

- Understands roles and learned behavior patterns in group situations such as student, family member, and friend

Level II (3-5)

- _____ • Understands how religious beliefs, laws, and peer pressure influence people, events and elements of culture
- Understands how groups, families, and institutions work to meet individual needs

Level III (6-8)

- _____ • Understand concepts such as role, status, and social class in the interactions of individuals and social groups
- Understand group and institutional influences on people, events, and elements of culture
- Understand the role of institutions in furthering both continuity and change

Level IV (9-12)

- Understands concepts such as role, status, and social class in describing the connections and interactions of individuals, groups, and institutions in society
- Understands group and institutional influences on people, events, and elements of culture in both historical and contemporary settings
- Understands the belief systems basic to specific traditions and laws in contemporary and historical movements

6. Understands how people create and change structures of power, authority, and governance

Level I (K-2)

- _____ • Understands the rights and responsibilities of the individual in relation to his or her social group, such as family, peer group, and school class

Level II (3-5)

- _____ • Understand the rights and responsibilities of the individual in relation to his or her social group, such as family, peer group, a and school class
- Understand the purpose of government
- Distinguish among local, state and national government and identify representative leaders at these levels such as mayor, governor and president
- Understand the tensions between the wants and needs of individuals and groups, and concepts such as fairness, equity, and justice

Level III (6-8)

- _____ • Understand issues involving the rights, roles, and status of the individual in relation to the general welfare
- Understand the purposes of government and how its powers are acquired, used and justified
- Understand ideas and governmental mechanisms to meet the needs and wants of citizens, regulate territory, manage conflict, and establish order and security
- Understands the basic features of the political system in the United States
- Understand the role of technology in communications, transportation, information-processing, weapons development, or other areas as it contributes to or helps resolve conflicts
- Understand concepts such as power, role, status, justice, and influence to the examination of persistent issues and social problems

Level IV (9-12)

- _____ • Understands persistent issues involving the rights, roles, and status of the

individual in relation to the general welfare

- Understands the purpose of government and analyze how its powers are acquired, used, and justified
- Understands ideas and mechanisms to meet needs and wants of citizens manage conflict, establish order and security, and balance competing conceptions of a just society
- Understands different political systems (their ideologies, structure, institutions, processes, and political cultures)
- Understands conditions, actions, and motivations that contribute to conflict and cooperation within and among nations
- Knows how to apply ideas, theories, and modes of inquiry drawn from political science to the examination of persistent issues and social problems
- Knows how to evaluate the extent to which governments achieve their stated ideals and policies at home and abroad

7. Understands how people organize for the production, distribution, and consumption of goods and services

Level I (K-2)

- _____ • Understands the difference between needs and wants
- Understands the role of money in everyday life

Level II (3-5)

- _____ • Understands how needs, wants, scarcity, and choice govern our economic decisions
- Understands how we depend upon workers with specialized jobs and the ways in which they contribute to the production and exchange of goods and services
- Understands how various institutions make up the economic system of a community

Level III (6-8)

- _____ • Understand how goods and services are to be produced and distributed
- Understand the role that supply and demand, prices, incentives, and profits play in determining what is produced and distributed in a competitive market system
- Understand the difference between private and public goods and services

- Use economic concepts to understand historical and current developments and issues in local, national or global contexts

Level IV (9-12)

- _____ • Understands how the scarcity of productive resources (human, capital, technological, and natural) requires the development of economic systems to make decisions about how goods and services are to be produced and distributed
- Understands the role that supply and demand, prices, incentives, and profits play in determining what is produced and distributed in a competitive market system
- Understands relationships among the various economic institutions that comprise economic systems such as households, business firms, banks, government agencies, labor unions, and corporations
- Knows how to distinguish between the domestic and global economic systems, and explain how the two interact
- Knows how to apply knowledge of production, distribution, and consumption in the analysis of a public issue such as the allocation of health care or the consumption of energy, and devise an economic plan for accomplishing a socially desirable outcome related to that issue

8. Understands relationships among science, technology, and society

Level I (K-2)

- _____ • Understands ways in which science and technology have changed the lives of people, such as in homemaking, child care, work, transportation, and communication

Level II (3-5)

- _____ • Understands how science and technology have changed the lives of people
- Understands how science and technology have led to changes in the physical environment
- Understands changes in values, beliefs, and attitudes that have resulted from new scientific and technological knowledge

Level III (6-8)

- _____ • Understand the influence of culture on scientific and technological choices and advancement, such as in transportation, medicine, and warfare
- Understand how values, beliefs, and attitudes have been influenced by new scientific and technological knowledge

Level IV (9-12)

- _____ • Understands both current and historical examples of the interaction and interdependence of science, technology, and society in a variety of cultural settings
- Knows how to recognize and interpret varied perspectives about human societies and the physical world using scientific knowledge, ethnical standards, and technologies from diverse world cultures

9. Understands global connections and interdependence

Level I (K-2)

- _____ • Understands differences of our daily life with people of other cultures

Level II (3-5)

- Understands conflict, cooperation, responsibilities, and interdependence among individuals, groups, and nations

Level III (6-8)

- _____ • Understand how language, art, music, belief systems, and other cultural elements can facilitate global understanding or cause misunderstanding
- Understand conflict, cooperation, and interdependence among groups, societies, and nations
- Understand the effects of changing technologies on the global community

Level IV (9-12)

- _____ • Understands how language, art, music, belief systems, and other cultural elements can facilitate global understanding or cause misunderstandings
- Understands conditions and motivations that contribute to conflict, cooperation, and interdependence among groups, societies and nations
- Understands the relationships and tensions between national sovereignty and global interests, in such matters as territory, economic development, nuclear and other weapons, use of natural resources, and human rights concerns

10. Understands the ideals, principles, and practices of citizenship in a democratic republic

Level I (K-2)

- _____ • Understands rights and responsibilities of citizens

Level II (3-5)

- Understands key ideals of the United States democratic republican form of government, such as individual human dignity, liberty, justice, equality, and the rule of law
- Understands rights and responsibilities of citizens

Level III (6-8)

- _____ • Understand the origins and continuing influence of key ideals of the democratic republican form of government
- Understand information about selected public issues in a democratic republic

Level IV (9-12)

- _____ • Understands the continuing influence of key ideals of the democratic republican form of government, such as individual human dignity, liberty, justice, equality, and the rule of law
- Knows how to evaluate citizens' rights and responsibilities
- Knows how to identify, describe, and evaluate multiple points of view
- Knows how to evaluate the effectiveness of public opinion in influencing and shaping public policy development and decision-making
- Understands how public policies and citizen behaviors reflect or foster the stated ideals of a democratic republican form of government