

NEW JERSEY CORE CURRICULUM CONTENT STANDARDS

CROSS-CONTENT WORKPLACE READINESS STANDARDS AND PROGRESS INDICATORS		
1	All students will develop career planning and workplace readiness skills.	
1.1	Demonstrate employability skills and work habits, such as work ethic, dependability, promptness, and getting along with others, needed to get and keep a job.	All
1.2	Describe the importance of personal skills and attitudes to job success.	All
1.3	Identify career interests, abilities, and skills.	All
1.4	Develop an individual career plan.	All
1.5	Identify skills that are transferable from one occupation to another.	All
1.6	Select a career major and appropriate accompanying courses.	All
1.7	Describe the importance of academic and occupational skills to achievement in the work world.	All
1.8	Demonstrate occupational skills developed through structured learning experiences, such as volunteer, community service, and work-based experiences or part-time employment.	All
1.9	Identify job openings.	All
1.10	Prepare a resume and complete job applications.	All
1.11	Demonstrate skills and attitudes necessary for a successful job interview.	All
1.12	Demonstrate consumer and other financial skills.	All
2	All students will use information, technology, and other tools.	
2.1	Understand how technological systems function.	All
2.2	Select appropriate tools and technology for specific activities.	All
2.3	Demonstrate skills needed to effectively access and use technology-based materials through keyboarding, troubleshooting, and retrieving and managing information.	All
2.4	Develop, search, and manipulate databases.	All
2.5	Access technology-based communication and information systems.	All
2.6	Access and assess information on specific topics using both technological (e.g., computer, telephone, satellite) and print resources available in libraries or media centers.	All
2.7	Use technology and other tools to solve problems, collect data, and make decisions.	All
2.8	Use technology and other tools, including word-processing, spreadsheet and presentation programs, and print or graphic utilities, to produce products.	All
2.9	Use technology to present designs and results of investigations.	All
2.10	Discuss problems related to the increasing use of technologies.	All
3	All students will use critical thinking, decision-making, and problem-solving skills.	
3.1	Recognize and define a problem, or clarify decisions to be made.	All
3.2	Use models, relationships, and observations to clarify problems and potential solutions.	All
3.3	Formulate questions and hypotheses.	All
3.4	Identify and access resources, sources of information, and services in the school and the community.	All
3.5	Use the library media center as a critical resource for inquiry and assessment of print and nonprint materials.	All
3.6	Plan experiments.	All
3.7	Conduct systematic observations.	All
3.8	Organize, synthesize, and evaluate information for appropriateness and completeness.	All
3.9	Identify patterns and investigate relationships.	All

3.10	Monitor and validate their own thinking.	All
3.11	Identify and evaluate the validity of alternative solutions.	All
3.12	Interpret and analyze data to draw conclusions.	All
3.13	Select and apply appropriate solutions to problem-solving and decision-making situations.	All
3.14	Evaluate the effectiveness of various solutions.	All
3.15	Apply problem-solving skills to original and creative/design projects.	All
4	All students will demonstrate self-management skills.	
4.1	Set short and long term goals.	All
4.2	Work cooperatively with others to accomplish a task.	All
4.3	Evaluate their own actions and accomplishments.	All
4.4	Describe constructive responses to criticism.	All
4.5	Provide constructive criticism to others.	All
4.6	Describe actions which demonstrate respect for people of different races, ages, religions, ethnicity and gender.	All
4.7	Describe the roles people play in groups.	All
4.8	Demonstrate refusal skills.	All
4.9	Use time efficiently and effectively.	All
4.10	Apply study skills to expand their own knowledge and skills.	All
4.11	Describe how ability, effort, and achievement are interrelated.	All
5	All students will apply safety principles.	
5.1	Explain how common injuries can be prevented.	All
5.2	Develop and evaluate an injury prevention program.	All
5.3	Demonstrate principles of safe physical movement.	All
5.4	Demonstrate safe use of tools and equipment.	All
5.5	Identify and demonstrate the use of recommended safety and protective devices.	All
5.6	Identify common hazards and describe methods to correct them.	All
5.7	Identify and follow safety procedures for laboratory and other hands-on experiences.	All
5.8	Discuss rules and laws designed to promote safety and health, and their rationale.	All
5.9	Describe and demonstrate procedures for basic first aid and safety precautions.	All
VISUAL AND PERFORMING ARTS		
1.1	All students will acquire knowledge and skills that increase aesthetic awareness in dance, music, theater, and visual arts.	
1.1.1	Communicate their responses to dance, music, theater, and visual arts with supporting statements based on aesthetics.	4
1.1.2	Understand that arts elements, such as color, line, rhythm, space, form, may be combined selectively to elicit a specific aesthetic response.	8
1.1.3	Communicate about the aesthetic qualities of art works through oral and written analysis using appropriate technical and evaluative terms.	8
1.1.4	Demonstrate an understanding of different aesthetic philosophies through the evaluation and analysis of artistic styles, trends, and movements in an art form.	12
1.2	All students will refine perceptual, physical, and technical skills through creating dance, music, theater, and/or visual arts.	
1.2.1	Demonstrate performance and participation skills by working and creating individually and with others.	4
1.2.2	Demonstrate technical skills in dance, music, theater, or visual arts, appropriate to students' developmental level.	8
1.2.3	Create, produce, or perform works of dance, music, theater, or visual arts, individually and with others.	8

1.2.4	Demonstrate originality, technical skills, and artistic expression in the creation, production, and performance of dance, music, theater, or visual arts.	12
1.3	All students will utilize arts elements and arts media to produce artistic products and performances.	
1.3.1	Apply elements and media common to the arts to produce a work of art.	4
1.3.2	Demonstrate appropriate use of technology, tools, terminology, techniques, and media in the creation of dance, music, theater, or visual arts.	8
1.3.3	Demonstrate an understanding of technology, methods, materials, and creative processes commonly used in dance, music, theater, or visual arts.	12
1.4	All students will demonstrate knowledge of the process of critique.	
1.4.1	Explain the criteria by which they evaluate the quality of their work and the work of others.	All
1.4.2	Offer constructive critique in the evaluation of their own and others' work in dance, music, theater, or visual arts.	8
1.4.3	Evaluate and interpret works of art orally and in writing, using appropriate terminology.	12
1.5	All students will identify the various historical, social, and cultural influences and traditions which have generated artistic accomplishments throughout the ages, and which continue to shape contemporary arts.	
1.5.1	Investigate, experience and participate in dance, music, theater, and visual arts activities representing various historical periods and world cultures.	4
1.5.2	Investigate and experience the works of artists and community cultural resources through exhibitions and performances.	4
1.5.3	Apply knowledge of historical, social, and cultural influences to understanding a work of art.	4
1.5.4	Use their senses, imagination, and memory to express ideas and feelings in dance, music, theater and visual arts.	4
1.5.5	Identify significant artists and artistic works in dance, music, theater, and visual arts representing various historical periods, world cultures, and social and political influences.	8
1.5.6	Understand and demonstrate a knowledge of how various artists and cultural resources preserve our cultural heritage and influence contemporary arts.	8
1.5.7	Interpret the meaning(s) expressed in works of dance, music, theater, and visual arts.	8
1.5.8	Demonstrate knowledge of how artists and artistic works connect with political, social, cultural, and historical events.	12
1.5.9	Analyze and evaluate how various artists and cultural resources influence student work.	12
1.5.10	Create works of art that communicate personal opinions, thoughts, and ideas.	12
1.6	All students will develop design skills for planning the form and function of space, structures, objects, sound, and events.	
1.6.1	Identify and state needs and opportunities for design in the contexts of home, school, recreation, and play.	4
1.6.2	Plan and execute solutions to design problems.	4
1.6.3	Identify and solve design problems in space, structures, objects, sound, and/or events for home and workplace.	8
1.6.4	Identify, plan, and provide solutions to design problems of space, structures, objects, sound, and/or events in a public or private environment.	12
COMPREHENSIVE HEALTH AND PHYSICAL EDUCATION		
2.1	All students will learn health promotion and disease prevention concepts and health-enhancing behaviors.	
2.1.1	Describe a healthy child and identify factors that contribute to good health.	4
2.1.2	Describe the basic structure and function of human body systems.	4
2.1.3	Identify and demonstrate responsible health behaviors for children.	4
2.1.4	Explain how childhood injuries and illnesses can be prevented and treated.	4
2.1.5	Describe potentially dangerous or threatening situations related to childhood activities, develop personal protection strategies, and cite resources for help.	4
2.1.6	Identify common health products and foods found in the home and correctly interpret labels, information, directions, and warnings.	4
2.1.7	Describe a healthy adolescent, discuss injuries and illnesses common to this age group, and identify ways to prevent, reduce, or eliminate these health problems.	8
2.1.8	Explain how health is influenced by the interaction of body systems and nutritional intake.	8
2.1.9	Analyze how family, peers, culture, media, technology, and the environment affect wellness.	8

2.1.10	Identify and demonstrate health practices that support and enhance personal and family physical and mental health.	8
2.1.11	Analyze a health profile to determine strengths and potential health risks resulting from risk factors and health-enhancing behaviors.	8
2.1.12	Describe situations requiring health services and locate community health care providers, comparing their services, benefits, and costs.	8
2.1.13	Examine health product and food labels and advertisements, comparing accuracy, content, directions, and value.	8
2.1.14	Analyze the influence of peers and the media on risk behaviors, injuries, and violent behavior.	8
2.1.15	Describe a healthy adult, discuss adult physical and mental health problems, and use health assessment data to develop strategies for reducing health problems and related risk factors.	12
2.1.16	Analyze the impact of genetic, nutritional, behavioral, cultural, and environmental factors on the functioning of body systems and use this information to identify responsible health practices.	12
2.1.17	Analyze situations that require professional health services, analyze the costs and sources of payment, and discuss how these factors influence the accessibility and delivery of health care.	12
2.1.18	Discuss and compare the influence of public health policy, government regulations, research, medical advances, and the health care industry on current and emerging health problems.	12
2.1.19	Describe the principles of injury prevention and risk management, analyze factors that contribute to the incidence of injuries and violence, and develop strategies for prevention.	12
2.1.20	Analyze the influence of the media on risk behaviors, disease prevention, and the incidence of injuries and violent behavior.	12
2.2	All students will learn health-enhancing personal, interpersonal, and life skills.	
2.2.1	Describe and demonstrate a variety of ways to access and convey health information and ideas.	4
2.2.2	Demonstrate decision-making and refusal skills in situations affecting health and safety.	4
2.2.3	Define health goals, differentiate between long and short term goals, and set a personal health goal to track progress.	4
2.2.4	Define conflict and demonstrate appropriate nonviolent strategies to resolve it.	4
2.2.5	Describe how culture and the media affect the ways individuals communicate, show emotions, and cope with stress.	4
2.2.6	Describe and demonstrate ways to access and present health information and ideas, and analyze the information for accuracy and reliability.	8
2.2.7	Describe and demonstrate effective communication skills, decision-making skills, refusal skills, negotiation skills, and assertiveness in situations that influence adolescent health and safety.	8
2.2.8	Analyze how health decisions and behaviors are influenced by family, peers, culture, and the media, and develop strategies that support effective decision-making and safe behavior.	8
2.2.9	Describe how health goals are influenced by changes that occur throughout the life cycle.	8
2.2.10	Analyze the causes of conflict and violent behavior in youth and adults, and describe nonviolent strategies for individuals and groups to prevent and resolve conflict.	8
2.2.11	Describe the impact of crisis, stress, rejection, separation, and loss, and develop coping strategies for each.	8
2.2.12	Synthesize, interpret, and express information about health issues using valid resources, and adapt the information for different audiences.	12
2.2.13	Analyze social situations and conditions that affect health and safety, and select and evaluate the appropriate skills for each situation.	12
2.2.14	Analyze the causes of conflict in groups, families, and within the community, and demonstrate and evaluate nonviolent strategies to prevent, mediate, and resolve conflict.	12
2.2.15	Analyze the impact of crisis, stress, rejection, separation, and loss on physical and emotional health, and develop coping strategies that consider the influence of family, culture, and personal experiences.	12
2.2.16	Develop a plan for lifelong wellness using data from health assessments, family history, nutritional information, and current health practices, and evaluate progress towards meeting health goals in the plan.	12

2.2.17	Predict adult daily needs to maintain a healthy lifestyle, design a plan and budget based on those needs, and justify the plan.	12
2.3	All students will learn the physical, mental, emotions, and social effects of the use and abuse of alcohol, tobacco, and other drugs.	
2.3.1	Define drugs and medicines, describe the purposes and correct use of medicines, and describe the role they play in the maintenance or achievement of wellness.	4
2.3.2	Recognize the physical and behavioral effects of alcohol, marijuana, tobacco products, inhalants, anabolic steroids, and household substances that may be misused for mood-altering effects.	4
2.3.3	Recognize the signs and symptoms of chemical misuse, abuse and dependency, discuss their impact on personal and family health, and identify resources for help and information.	4
2.3.4	Identify laws related to the sale and use of alcohol, tobacco, and other drugs.	4
2.3.5	Describe how the use, misuse and abuse of alcohol, tobacco, and other drugs contribute to the incidence of illness and injury.	4
2.3.6	Classify chemical substances by their actions on the body, and describe the short and long term effects of their use.	8
2.3.7	Discuss the appropriate use of medicines and the dangers of drug interactions.	8
2.3.8	Analyze the impact of chemical substances on development, behavior, and activities.	8
2.3.9	Describe the signs and progression of chemical use, abuse, and dependency throughout the life cycle.	8
2.3.10	Identify and explain how to access resources for information, support, and treatment of problems related to the use and abuse of chemical substances.	8
2.3.11	Discuss laws pertaining to the use, sale, and possession of alcohol, tobacco, and other drugs.	8
2.3.12	Discuss chemical substances according to their uses, actions, and effects on the body.	12
2.3.13	Discuss the influence of the media on the choice, use, and misuse of medicines.	12
2.3.14	Discuss alternative actions for relief or treatment of common health problems.	12
2.3.15	Analyze the short and long term effects of chemical use, abuse, and dependency on the body, behavior, work, and school performance, and personal relationships.	12
2.3.16	Describe intervention and treatment strategies for chemically dependent individuals, and locate community resources for information, support, and treatment.	12
2.3.17	Interpret laws pertaining to the use, sale, and possession of chemical substances, with an emphasis on laws relating to driving under the influence.	12
2.3.18	Describe how chemical substances used during pregnancy can affect prenatal and early childhood growth and development.	12
2.4	All students will learn the biological, social, cultural, and psychological aspects of human sexuality and family life.	
2.4.1	Identify the stages of human development from conception to death.	4
2.4.2	Identify ways to show affection and caring that are appropriate for children.	4
2.4.3	Discuss how family and friends are important throughout life and that relationships require respect for others.	4
2.4.4	Explain different kinds of families and that all family members have rights, privileges, and responsibilities.	4
2.4.5	Discuss the influence of the media on the development of gender stereotypes.	4
2.4.6	Describe the significant developmental milestones of each stage of human development, with emphasis on physical, emotional, and social changes of adolescence.	8
2.4.7	Describe the functioning of the human reproductive system and the physical and emotional changes that occur at puberty.	8
2.4.8	Describe and discuss affection, love, commitment, and sexual attraction, and the difference between having sexual feeling and acting on them.	8
2.4.9	Discuss factors that support and sustain relationships such as friendships and marriage.	8
2.4.10	Describe the responsibilities of parenthood, with an emphasis on teen parenthood, and discuss the impact of parenthood on parents, family members, and the child.	8
2.4.11	Discuss the impact of early sexual activity on physical, emotional, and social health.	8
2.4.12	Develop strategies to support sexual abstinence, and compare and contrast methods of contraception used to reduce the risk of sexually transmitted diseases, HIV, and unintended pregnancy.	8
2.4.13	Analyze sexual messages, images, and stereotypes presented in the media and discuss their impact on sexual behavior.	8

2.4.14	Discuss theoretical models of human personality development.	12
2.4.15	Describe the physical, emotional, and social changes that occur at each stage of human development, and the role of human sexuality throughout the life cycle.	12
2.4.16	Describe how personal relationships evolve over time, focusing on changes in friendships, family, dating relationships, and marriage.	12
2.4.17	Analyze the responsibilities, joys, demands, and challenges of parenthood.	12
2.4.18	Describe safe and effective parenting skills, and identify resources for information and help with parenting.	12
2.4.19	Discuss issues regarding sexual orientation, sexual harassment, sexual assault, and domestic violence.	12
2.4.20	Compare and contrast risk reduction and prevent strategies, including sexual abstinence, monogamy, and methods of contraception.	12
2.4.21	Identify resources that provide information, assistance, and care in addressing sexual and reproductive health and legal issues.	12
2.5	All students will learn and apply movement concepts and skills that foster participation in physical activities throughout life.	
2.5.1	Perform locomotor (walk, run, jump), non-locomotor (bend, reach, turn), and manipulative (throw, strike, kick) movement skills.	4
2.5.2	Modify basic movement skills by applying movement concepts (direction, speed), biomechanical principles (force, projection), and rhythm (tempo, beat).	4
2.5.3	Adapt movement skills in relation to object, other participants, and boundaries.	4
2.5.4	Combine movement skills to participate in physical activities, such as games, sports, and lifetime recreational pursuits.	4
2.5.5	Describe when, where, and how to use and adapt specific movement skills and concepts in physical activities.	4
2.5.6	Observe physical activities and provide feedback to participants to improve performance.	4
2.5.7	Describe the characteristics of skilled performance in a variety of physical activities.	8
2.5.8	Modify and combine movement skills using movement concepts, biomechanical principles, and rhythm to improve performance in physical activities.	8
2.5.9	Describe and demonstrate the application of appropriate rules, strategies, and sportsmanship behaviors as a participant in and observer of physical activities.	8
2.5.10	Analyze and apply movement concepts, biomechanical principles, and rhythm to independently learn, assess, refine, and combine movement skills used in physical activities.	12
2.5.11	Apply the principles of physiology, kinesiology, and psychology to improve personal performance in physical activity.	12
2.6	All students will learn and apply health-related fitness concepts.	
2.6.1	Identify the components of health-related fitness and describe activities related to each component.	4
2.6.2	Demonstrate appropriate techniques used in fitness activities.	4
2.6.3	Describe how fitness activities enhance wellness.	4
2.6.4	Participate in health-related fitness activities.	4
2.6.5	Develop and attain a personal fitness goal to improve performance.	4
2.6.6	Describe the components of health-related fitness and how each contributes to wellness.	8
2.6.7	Discuss and apply basic principles of training to fitness activities.	8
2.6.8	Assess physiological indicators of exercise before, during, and after physical activity, and describe how these can be used to monitor and improve performance.	8
2.6.9	Develop a personal fitness plan, using data from health assessments and fitness testing.	8
2.6.10	Discuss the physical and psychological benefits derived from health-related fitness activities.	12
2.6.11	Describe how sports injuries can be prevented.	12
2.6.12	Design and evaluate a personal fitness plan, taking into consideration fitness, health and nutritional status, age, interests, and abilities, and discuss how the plan may be adapted to injury, illness, or aging.	12

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LANGUAGE ARTS LITERACY (3)		
1	READING: ALL STUDENTS WILL UNDERSTAND AND APPLY THE KNOWLEDGE OF SOUNDS, LETTERS, AND WORDS IN WRITTEN ENGLISH TO BECOME INDEPENDENT AND FLUENT READERS, AND WILL READ A VARIETY OF MATERIALS AND TEXTS WITH FLUENCY AND COMPREHENSION.	
A	Concepts About Print	
0.A.1	Realize that speech can be recorded in words (e.g., his/her own name; words and symbols in the environment).	0
0.A.2	Distinguish letters from words.	0
0.A.3	Recognize that words are separated by spaces.	0
0.A.4	Follow words left to right and from top to bottom.	0
0.A.5	Recognize that print represents spoken language.	0
0.A.6	Demonstrate understanding of the function of a book and its parts, including front and back and title page.	0
1.A.1	Match oral words to printed words (e.g., pointing to print as one reads).	1
1.A.2	Practice reading print in the environment at school and at home with assistance.	1
1.A.3	Locate and identify the title, author, and illustrator of a book or reading selection.	1
1.A.4	Interpret simple graphs, charts, and diagrams	1
2.A.1	Use titles, tables of contents, and chapter headings to locate information.	2
2.A.2	Recognize the purpose of a paragraph.	2
3.A.1	Recognize that printed materials provide specific information.	3
3.A.2	Recognize purposes for print conventions such as end-sentence punctuation, paragraphing, and bold print.	3
3.A.3	Use a glossary or index to locate information in a text.	3
4.A.1	Develop knowledge about various print formats, including newspapers, magazines, books, and reference resources.	4
4.A.2	Recognize purposes and uses for print conventions such as paragraphs, end-sentence punctuation, and bold print.	4
4.A.3	Identify and locate features that support text meaning (e.g., maps, charts, illustrations).	4
6.A.1	Use a text index and glossary appropriately.	6
6.A.2	Survey and explain text features that contribute to comprehension (e.g., headings, introductory and concluding paragraphs).	6
8.A.1	Identify and use common textual and graphic features and organizational structures to comprehend information. These include: textual features (e.g., paragraphs, topic sentence, index, table of contents); graphic features (e.g., charts, maps, diagrams) and organizational structure (e.g., logical order, comparison/contrast, cause/effect).	8
B	Phonological Awareness	
0.B.1	Demonstrate understanding that spoken words consist of sequences of phonemes.	0
0.B.2	Demonstrate phonemic awareness by rhyming, clapping syllables, and substituting sounds.	0
0.B.3	Understand that the sequence of letters in a written word represents the sequence of sounds (phonemes) in a spoken word (alphabetic principle).	0
0.B.4	Learn many, though not all, one-to-one letter sound correspondences.	0
0.B.5	Given a spoken word, produce another word that rhymes with it.	0
1.B.1	Demonstrate understanding of all sound- symbol relationships.	1
1.B.2	Blend or segment the phonemes of most one-syllable words.	1
1.B.3	Listen and identify the number of syllables in a word.	1
1.B.4	Merge spoken segments into a word.	1
1.B.5	Add, delete, or change sounds to change words (e.g., cow to how, cat to can).	1

2.B.1	Add, delete, or change middle sounds to change words (e.g., pat to put).	2
2.B.2	Use knowledge of letter-sound correspondences to sound out unknown words.	2
3.B.1	Demonstrate a sophisticated sense of sound-symbol relationship, including all phonemes (e.g., blends, digraphs, diphthongs).	3
C	Decoding and Word Recognition	
0.C.1	Recognize some words by sight.	0
0.C.2	Recognize and name most uppercase and lowercase letters of the alphabet.	0
0.C.3	Recognize and read one's name.	0
1.C.1	Identify all consonant sounds in spoken words (including blends such as bl, br; and digraphs such as th, wh).	1
1.C.2	Recognize and use rhyming words to reinforce decoding skills.	1
1.C.3	Decode regular one-syllable words and nonsense words (e.g., sit, zot).	1
1.C.4	Use sound-letter correspondence knowledge to sound out unknown words when reading text.	1
1.C.5	Recognize high frequency words in and out of context.	1
1.C.6	Decode unknown words using basic phonetic analysis.	1
1.C.7	Decode unknown words using context clues.	1
2.C.1	Look for known chunks or small words to attempt to decode an unknown word.	2
2.C.2	Reread inserting the beginning sound of the unknown word.	2
2.C.3	Decode regular multisyllable words and parts of words (e.g., capital, Kalamazoo).	2
2.C.4	Read many irregularly spelled words and such spelling patterns as diphthongs, special vowel spellings, and common endings.	2
3.C.1	Know sounds for a range of prefixes and suffixes (e.g., re-, ex-, -ment, -tion).	3
3.C.2	Use letter-sound knowledge and structural analysis to decode words.	3
3.C.3	Use context to accurately read words with more than one pronunciation.	3
4.C.1	Use letter-sound correspondence and structural analysis (e.g., roots, affixes) to decode words.	4
4.C.2	Know and use common word families to decode unfamiliar words.	4
4.C.3	Recognize compound words, contractions, and common abbreviations.	4
6.C.1	Use a dictionary, context clues, or knowledge of phonics, syllabication, prefixes, and suffixes to decode new words.	6
6.C.2	Interpret and use new words correctly (refer to word parts and word origin).	6
8.C.1	Distinguish among the spellings of homophones (e.g. cite, site, and sight).	8
8.C.2	Apply spelling rules that aid in correct spelling.	8
8.C.3	Continue to use structural analysis and context analysis to decode new words.	8
D	Fluency	
0.D.1	Practice reading behaviors such as retelling, reenacting, or dramatizing stories.	0
0.D.2	Recognize when a simple text fails to make sense when listening to a story read aloud.	0
0.D.3	Attempt to follow along in book while listening to a story read aloud.	0
0.D.4	Listen and respond attentively to literary texts (e.g., nursery rhymes) and functional texts (e.g., science books).	0
1.D.1	Answer questions correctly that are posed about stories read.	1
1.D.2	Begin to read simple text with fluency.	1
1.D.3	Read with fluency both fiction and nonfiction that is grade-level appropriate.	1
2.D.1	Pause at appropriate end points (e.g., comma, period).	2
2.D.2	Use appropriate pace; "not choppy" or word-by-word.	2
2.D.3	Use appropriate inflection for dialogue, exclamations, etc.	2
2.D.4	Read silently without finger or lip movement.	2

2.D.5	Self-monitor when text does not make sense.	2
2.D.6	Employ learned strategies to determine if text makes sense without being prompted.	2
3.D.1	Recognize grade-level words accurately and with ease so that a text sounds like spoken language when read aloud.	3
3.D.2	Read longer text and chapter books independently and silently.	3
3.D.3	Read aloud with proper phrasing, inflection, and intonation.	3
4.D.1	Use appropriate rhythm, flow, meter, and pronunciation in demonstrating understanding of punctuation marks.	4
4.D.2	Read at different speeds using scanning, skimming, or careful reading as appropriate.	4
6.D.1	Adjust reading speed appropriately for different purposes and audiences.	6
6.D.2	Apply knowledge of letter-sound associations, language structures, and context to recognize words.	6
6.D.3	Read aloud in ways that reflect understanding of proper phrasing and intonation.	6
6.D.4	Read silently for the purpose of increasing speed, accuracy, and reading fluency.	6
8.D.1	Read aloud in selected texts reflecting understanding of the text and engaging the listener.	8
8.D.2	Read increasingly difficult texts silently with comprehension and fluency.	8
8.D.3	Apply self-correcting strategies automatically to decode and gain meaning from print both orally and silently.	8
8.D.4	Reread informational text for clarity.	8
12.D.1	Read developmentally appropriate materials (at an independent level) with accuracy and speed.	12
12.D.2	Use appropriate rhythm, flow, meter, and pronunciation when reading.	12
12.D.3	Read a variety of genres and types of text with fluency and comprehension.	12
E	Reading Strategies (before, during, and after reading)	
0.E.1	Begin to track or follow print when listening to a familiar text being read.	0
0.E.2	Think ahead and make simple predictions about text.	0
0.E.3	Use picture clues to aid understanding of story content.	0
0.E.4	Relate personal experiences to story characters' experiences, language, customs, and cultures with assistance from teacher.	0
0.E.5	"Read" familiar texts from memory, not necessarily verbatim from the print alone.	0
1.E.1	Use prior knowledge to make sense of text.	1
1.E.2	Establish a purpose for reading and adjust reading rate.	1
1.E.3	Use pictures as cues to check for meaning.	1
1.E.4	Check to see if what is being read makes sense.	1
1.E.5	Monitor their reading by using fix-up strategies (e.g., searching for clues).	1
1.E.6	Use graphic organizers to build on experiences and extend learning.	1
1.E.7	Begin to apply study skills strategies (e.g., survey, question, read) to assist with retention and new learning.	1
2.E.1	Skip over difficult words in an effort to read on and determine meaning.	2
2.E.2	Return to the beginning of a sentence and try again.	2
3.E.1	Set purpose for reading and check to verify or change predictions during/after reading.	3
3.E.2	Monitor comprehension and accuracy while reading in context and self-correct errors.	3
3.E.3	Use pictures and context clues to assist with decoding of new words.	3
3.E.4	Develop and use graphic organizers to build on experiences and extend learning.	3
4.E.1	Use knowledge of word meaning, language structure, and sound-symbol relationships to check understanding when reading.	4
4.E.2	Identify specific words or passages causing comprehension difficulties and seek clarification.	4
4.E.3	Select useful visual organizers before, during, and after reading to organize information (e.g., Venn diagrams).	4
6.E.1	Activate prior knowledge and anticipate what will be read or heard.	6

6.E.2	Vary reading strategies according to their purpose for reading and the nature of the text.	6
6.E.3	Reread to make sense of difficult paragraphs or sections of text.	6
6.E.4	Make revisions to text predictions during and after reading.	6
6.E.5	Use reference aids for word meanings when reading.	6
6.E.6	Apply graphic organizers to illustrate key concepts and relationships in a text (cf. mathematics standard 4.4-A).	6
8.E.1	Monitor reading for understanding by automatically setting a purpose for reading, asking essential questions, and relating new learning to background experiences.	8
8.E.2	Use increasingly complex text guides, maps, charts, and graphs to assist with reading comprehension.	8
12.E.1	Identify, assess, and apply personal reading strategies that were most effective in previous learning from a variety of texts.	12
12.E.2	Practice visualizing techniques before, during, and after reading to aid in comprehension.	12
12.E.3	Judge the most effective graphic organizers to use with various text types for memory retention and monitoring comprehension.	12
F	Vocabulary and Concept Development	
0.F.1	Continue to develop a vocabulary through meaningful, concrete experiences.	0
0.F.2	Identify and sort words in basic categories.	0
0.F.3	Explain meanings of common signs and symbols.	0
0.F.4	Use new vocabulary and grammatical construction in own speech.	0
1.F.1	Develop a vocabulary of 300-500 high-frequency sight words and phonetically regular words.	1
1.F.2	Use and explain common antonyms and synonyms.	1
1.F.3	Comprehend common and/or specific vocabulary in informational texts and literature.	1
2.F.1	Develop a vocabulary of 500-800 regular and irregular sight words.	2
2.F.2	Know and relate meanings of simple prefixes and suffixes.	2
2.F.3	Demonstrate evidence of expanding language repertory.	2
2.F.4	Understand concept of antonyms and synonyms.	2
2.F.5	Begin to use a grade-appropriate dictionary with assistance from teacher.	2
3.F.1	Spell previously studied words and spelling patterns accurately.	3
3.F.2	Point to or clearly identify specific words or wording that are causing comprehension difficulties.	3
3.F.3	Infer word meanings from taught roots, prefixes, and suffixes.	3
3.F.4	Use a grade-appropriate dictionary with assistance from teacher.	3
3.F.5	Use pictures and context clues to assist with meaning of new words.	3
4.F.1	Infer word meanings from learned roots, prefixes, and suffixes.	4
4.F.2	Infer specific word meanings in the context of reading passages.	4
4.F.3	Identify and correctly use antonyms, synonyms, homophones, and homographs.	4
4.F.4	Use a grade-appropriate dictionary (independently) to define unknown words.	4
6.F.1	Use the dictionary for a variety of purposes (e.g., definition word origins, parts of speech).	6
6.F.2	Use a thesaurus to identify alternative word choices and meanings.	6
8.F.1	Develop an extended vocabulary through both listening and reading independently.	8
8.F.2	Clarify word meanings through the use of a word's definition, example, restatement, or contrast.	8
8.F.3	Clarify pronunciations, meanings, alternate word choice, parts of speech, and etymology of words using the dictionary, thesaurus, glossary, and technology resources.	8
8.F.4	Expand reading vocabulary by identifying and correctly using idioms and words with literal and figurative meanings in their speaking and writing experiences.	8
12.F.1	Use knowledge of word origins and word relationships, as well as historical and literary context clues, to determine the meanings of specialized vocabulary.	12

12.F.2	Use knowledge of root words to understand new words.	12
12.F.3	Apply reading vocabulary in different content areas.	12
G	Comprehension Skills and Response to Text	
0.G.1	Respond to a variety of poems and stories through movement, art, music, and drama.	0
0.G.2	Verbally identify the main character, setting, and important events in a story read aloud.	0
0.G.3	Identify favorite books and stories.	0
0.G.4	Retell a story read aloud using main characters and events.	0
0.G.5	Participate in shared reading experiences.	0
0.G.6	Make predictions based on illustrations or portions of stories.	0
1.G.1	Draw simple conclusions from information gathered from pictures, print, and people.	1
1.G.2	Demonstrate familiarity with genres of text, including storybooks, expository texts, poetry, and newspapers.	1
1.G.3	Sequence information learned from text into a logical order to retell facts.	1
1.G.4	Identify, describe, compare, and contrast the elements of plot, setting, and characters.	1
1.G.5	Make simple inferences.	1
1.G.6	Read regularly in independent-level materials.	1
1.G.7	Engage in silent independent reading for specific purposes.	1
2.G.1	Demonstrate ability to recall facts and details of text.	2
2.G.2	Recognize cause and effect in texts.	2
2.G.3	Make inferences and support them with textual information.	2
2.G.4	Continue to identify story elements in texts.	2
2.G.5	Respond to text by using how, why, and what-if questions.	2
3.G.1	Recognize purpose of the text.	3
3.G.2	Distinguish cause/effect, fact/opinion, main idea/supporting details in interpreting texts.	3
3.G.3	Interpret information in graphs, charts, and diagrams.	3
3.G.4	Ask how, why, and what-if questions in interpreting nonfiction texts.	3
3.G.5	Recognize how authors use humor, sarcasm, and imagery to extend meaning.	3
3.G.6	Discuss underlying theme or message in interpreting fiction.	3
3.G.7	Summarize major points from fiction and nonfiction texts.	3
3.G.8	Draw conclusions and inferences from texts.	3
3.G.9	Recognize first-person "I" point of view.	3
3.G.10	Compare and contrast story plots, characters, settings, and themes.	3
3.G.11	Participate in creative responses to texts (e.g., dramatizations, oral presentations).	3
3.G.12	Read regularly in materials appropriate for their independent reading level.	3
3.G.13	Read and comprehend both fiction and nonfiction that is appropriately designed for grade level.	3
3.G.14	Use information and reasoning to examine bases of hypotheses and opinions.	3
4.G.1	Discuss underlying themes across cultures in various texts.	4
4.G.2	Distinguish cause and effect, fact and opinion, main idea and supporting details in nonfiction texts (e.g., science, social studies).	4
4.G.3	Cite evidence from text to support conclusions.	4
4.G.4	Understand author's opinions and how they address culture, ethnicity, gender, and historical periods (cf. social studies standards).	4
4.G.5	Follow simple multiple-steps in written instructions (cf. mathematics standard 4.4).	4
4.G.6	Recognize an author's point of view.	4

4.G.7	Identify and summarize central ideas in informational texts.	4
4.G.8	Recognize differences among forms of literature (poetry, drama, fiction, nonfiction).	4
4.G.9	Recognize literary elements in stories, including setting, characters, plot, and mood.	4
4.G.10	Identify some literary devices in stories.	4
4.G.11	Identify the structures in poetry.	4
4.G.12	Identify the structures in drama (cf. visual and performing arts standards).	4
4.G.13	Read regularly in materials appropriate for their independent reading level.	4
6.G.1	Respond critically to an author's ideas, views, and beliefs.	6
6.G.2	Select texts for a particular purpose using the genre format of the text as a guide.	6
6.G.3	Distinguish between cause effect and persuasion across texts.	6
6.G.4	Anticipate and construct meaning from text by making conscious connections to self, an author, and others.	6
6.G.5	Recognize propaganda techniques used to influence readers.	6
6.G.6	Recognize historical and cultural biases and different points of view.	6
6.G.7	Distinguish between major and minor details.	6
6.G.8	Make inferences using textual information and provide supporting evidence.	6
6.G.9	Recognize common organizational patterns in text that support comprehension.	6
6.G.10	Identify and analyze text type, literary forms, elements, and devices in nonfiction.	6
6.G.11	Recognize characterization, setting, plot, theme, and point of view in fiction.	6
6.G.12	Identify and respond to the elements of sound and structure in poetry.	6
6.G.13	Analyze drama as a source of information, entertainment, persuasion, or transmitter of culture.	6
6.G.14	Identify and analyze elements of setting, plot, and characterization in plays that are read, written, or performed.	6
6.G.15	Explain ways that the setting contributes to the mood of a novel, play, poem, etc.	6
8.G.1	Speculate about text by generating literal and inferential questions.	8
8.G.2	Distinguish between essential and nonessential information.	8
8.G.3	Differentiate between fact/opinion and bias and propaganda in newspapers, periodicals, and electronic texts.	8
8.G.4	Articulate the purposes and characteristics of different genres.	8
8.G.5	Analyze ideas and themes found in texts.	8
8.G.6	Compare several authors' perspectives of a historical character, setting, or event.	8
8.G.7	Locate and analyze the elements of setting, characterization, and plot to construct understanding of how characters influence the progression and resolution of the plot.	8
8.G.8	Read critically by identifying, analyzing, and applying knowledge of the purpose, structure, and elements of nonfiction and provide textual evidence of understanding.	8
8.G.9	Read critically by identifying, analyzing, and applying knowledge of the theme, structure, style, and literary elements of fiction and provide textual evidence of understanding.	8
8.G.10	Respond critically to text ideas and craft by using textual evidence to support interpretations.	8
8.G.11	Locate and analyze literary techniques and elements (such as figurative language, meter, rhetorical and stylistic features, etc.) of text.	8
8.G.12	Identify and analyze recurring themes across literary works.	8
8.G.13	Read critically and analyze poetic forms (e.g., ballad, sonnet, couplet).	8
8.G.14	Identify and understand the author's use of idioms, analogies, metaphors, and similes in prose and poetry.	8
8.G.15	Understand perspectives of authors in a variety of interdisciplinary works.	8
8.G.16	Interpret text ideas through journal writing, discussion, and enactment.	8

8.G.17	Demonstrate familiarity with everyday texts (e.g., train schedules, directions, brochures) and make judgments about the importance of such documents.	8
12.G.1	Identify, describe, evaluate, and synthesize the central ideas in informational texts.	12
12.G.2	Understand the study of literature and theories of literary criticism.	12
12.G.3	Understand that our literary heritage is marked by distinct literary movements and is part of a global literary tradition.	12
12.G.4	Compare and evaluate the relationship between past literary traditions and contemporary writing.	12
12.G.5	Analyze how works of a given period reflect historical and social events and conditions.	12
12.G.6	Recognize literary concepts, such as rhetorical device, logical fallacy, and jargon, and their effect on meaning.	12
12.G.7	Interpret how literary devices affect reading emotions and understanding.	12
12.G.8	Analyze and evaluate the appropriateness of diction and figurative language (e.g., irony, paradox).	12
12.G.9	Distinguish between essential and nonessential information, identifying the use of proper references and propaganda techniques where present.	12
12.G.10	Differentiate between fact and opinion by using complete and accurate information, coherent arguments, and points of view.	12
12.G.11	Analyze how an author's use of words creates tone and mood, and how choice of words advances the theme or purpose of the work.	12
12.G.12	Demonstrate familiarity with everyday texts such as job and college applications, W-2 forms, contracts, etc.	12
12.G.13	Read, comprehend, and be able to follow information gained from technical and instructional manuals (e.g., how-to books, computer manuals, instructional manuals).	12
H	Inquiry and Research	
0.H.1	Locate and know the purposes for various literacy areas of the classroom and the library/media center.	0
0.H.2	Choose books related to topics of interest.	0
1.H.1	Ask and explore questions related to a topic of interest.	1
1.H.2	Draw conclusions from information and data gathered.	1
1.H.3	Be exposed to and read a variety of fiction and nonfiction, and produce evidence of reading.	1
2.H.1	Locate information using alphabetical order.	2
2.H.2	Read a variety of nonfiction and fiction books and produce evidence of reading.	2
3.H.1	Use library classification systems, print or electronic, to locate information.	3
3.H.2	Draw conclusions from information and data gathered.	3
3.H.3	Read a variety of nonfiction and fiction books and produce evidence of understanding.	3
4.H.1	Use library classification systems, print or electronic, to locate information.	4
4.H.2	Investigate a favorite author and produce evidence of research.	4
4.H.3	Read independently and research topics using a variety of materials to satisfy personal, academic, and social needs, and produce evidence of reading.	4
6.H.1	Develop and revise questions for investigations prior to, during, and after reading.	6
6.H.2	Use multiple sources to locate information relevant to research questions.	6
6.H.3	Draw conclusions from information gathered from multiple sources.	6
6.H.4	Interpret and use graphic sources of information such as maps, graphs, timelines, or tables to address research questions.	6
6.H.5	Summarize and organize information by taking notes, outlining ideas, and/or making charts.	6
6.H.6	Produce projects and reports, using visuals, media, and/or technology to show learning and support the learning of an audience.	6
6.H.7	Select books to fulfill one's purposes.	6
6.H.8	Compare themes, characters, settings and ideas across texts or works, and produce evidence of understanding.	6
8.H.1	Produce written and oral work that demonstrates comprehension of informational materials.	8
8.H.2	Analyze a work of literature, showing how it reflects the heritage, traditions, attitudes, and beliefs of its authors.	8
8.H.3	Begin to develop and collect materials for a portfolio that reflect possible career choices.	8
8.H.4	Self-select materials appropriately related to a research project.	8

8.H.5	Read and compare at least two works, including books, related to the same genre, topic, or subject and produce evidence of reading (e.g., compare central ideas, characters, themes, plots, settings).	8
12.H.1	Select appropriate electronic media for research and evaluate the quality of the information received.	12
12.H.2	Develop materials for a portfolio that reflect a specific career choice.	12
12.H.3	Develop increased ability to critically select works to support a research topic.	12
12.H.4	Read and critically analyze a variety of works, including books and other print materials (e.g., periodicals, journals, manuals), about one issue or topic, or books by a single author or in one genre, and produce evidence of reading.	12
12.H.5	Apply information gained from several sources or books on a single topic or by a single author to foster an argument, draw conclusions, or advance a position.	12
12.H.6	Critique the validity and logic of arguments advanced in public documents, their appeal to various audiences, and the extent to which they anticipate and address reader concerns.	12
2	WRITING: ALL STUDENTS WILL WRITE IN CLEAR, CONCISE, ORGANIZED LANGUAGE THAT VARIES IN CONTENT AND FORM FOR DIFFERENT AUDIENCES AND PURPOSES.	
A	Writing as a Process (prewriting, drafting, revising, editing, postwriting)	
0.A.1	Recognize that thoughts and talk can be written down in words.	0
0.A.2	Observe the teacher modeling writing.	0
0.A.3	Generate and share ideas and experiences for a story.	0
0.A.4	Attempt to put ideas into writing using pictures, developmental spelling, or conventional text.	0
0.A.5	Write (print) own first and last name.	0
0.A.6	Participate in group writing activities such as experience stories, interactive writing, and shared writing.	0
0.A.7	Begin to sequence story events for writing using pictures, developmental spelling, or conventional text.	0
1.A.1	Begin to generate ideas for writing through talking, sharing, and drawing.	1
1.A.2	Observe the modeling of writing.	1
1.A.3	Begin to use a basic writing process to develop writing.	1
1.A.4	Use simple sentences to convey ideas.	1
1.A.5	Increase fluency (ability to write ideas easily) to improve writing.	1
1.A.6	Continue to use pictures, developmental spelling or conventional text to create writing drafts.	1
1.A.7	Revisit pictures and writings to add detail.	1
1.A.8	Begin to mimic an author's voice and patterns.	1
1.A.9	Begin to use a simple checklist to improve writing with teacher support.	1
1.A.10	Begin to use simple computer writing applications during some parts of the writing process.	1
2.A.1	Generate ideas for writing: hearing stories, recalling experiences, brainstorming, and drawing.	2
2.A.2	Observe the modeling of writing.	2
2.A.3	Begin to develop an awareness of simple story structures and author's voice.	2
2.A.4	Use sentences to convey ideas in writing.	2
2.A.5	Maintain the use of a basic writing process to develop writing.	2
2.A.6	Use graphic organizers to assist with planning writing.	2
2.A.7	Compose readable first drafts.	2
2.A.8	Use everyday words in appropriate written context.	2
2.A.9	Reread drafts for meaning, to add details, and to improve correctness.	2

2.A.10	Focus on elaboration as a strategy for improving writing.	2
2.A.11	Participate with peers to comment on and react to each other's writing.	2
2.A.12	Use a simple checklist to improve elements of own writing.	2
2.A.13	Use computer writing applications during some parts of the writing process.	2
3.A.1	Generate possible ideas for writing through recalling experiences, listening to stories, reading, brainstorming, and discussion.	3
3.A.2	Examine real-world examples of writing in various genres to gain understanding of how authors communicate ideas through form, structure, and author's voice.	3
3.A.3	Use graphic organizers to assist with planning writing.	3
3.A.4	Compose first drafts from prewriting work.	3
3.A.5	Revise a draft by rereading for meaning, narrowing the focus, sequencing, elaborating with detail, improving openings, closings, and word choice to show voice.	3
3.A.6	Participate with peers to comment on and react to each other's writing.	3
3.A.7	Build awareness of ways authors use paragraphs to support meaning.	3
3.A.8	Begin to develop author's voice in own writing.	3
3.A.9	Use reference materials to revise work, such as a dictionary or internet/software resource.	3
3.A.10	Edit work for basic spelling and mechanics.	3
3.A.11	Use computer word-processing applications during parts of the writing process.	3
3.A.12	Understand and use a checklist and/or rubric to improve writing.	3
3.A.13	Reflect on own writing, noting strengths and areas needing improvement.	3
4.A.1	Generate possible ideas for writing through talking, recalling experiences, hearing stories, reading, discussing models of writing, asking questions, and brainstorming.	4
4.A.2	Develop an awareness of form, structure, and author's voice in various genres.	4
4.A.3	Use strategies such as reflecting on personal experiences, reading, doing interviews or research, and using graphic organizers to generate and organize ideas for writing.	4
4.A.4	Draft writing in a selected genre with supporting structure according to the intended message, audience, and purpose for writing.	4
4.A.5	Revise drafts by rereading for meaning, narrowing the focus, elaborating, reworking organization, openings, and closings, and improving word choice and consistency of voice.	4
4.A.6	Review own writing with others to understand the reader's perspective and to consider ideas for revision.	4
4.A.7	Review and edit work for spelling, mechanics, clarity, and fluency.	4
4.A.8	Use a variety of reference materials to revise work, such as a dictionary, thesaurus, or internet/software resources.	4
4.A.9	Use computer writing applications during most of the writing process.	4
4.A.10	Understand and apply elements of grade-appropriate rubrics to improve and evaluate writing.	4
4.A.11	Reflect on one's writing, noting strengths and areas needing improvement.	4
6.A.1	Generate ideas for writing through reading and making connections across the curriculum and with current events.	6
6.A.2	Expand knowledge about form, structure, and voice in a variety of genres.	6
6.A.3	Use strategies such as using graphic organizers and outlines to elaborate and organize ideas for writing.	6
6.A.4	Draft writing in a selected genre with supporting structure and appropriate voice according to the intended message, audience, and purpose for writing.	6
6.A.5	Make decisions about the use of precise language, including adjectives, adverbs, verbs, and specific details, and justify the choices made.	6
6.A.6	Revise drafts by rereading for meaning, narrowing focus, elaborating and deleting, as well as reworking organization, openings, closings, word choice, and consistency of voice.	6
6.A.7	Review own writing with others to understand the reader's perspective and to consider and incorporate ideas for revision.	6
6.A.8	Review and edit work for spelling, usage, clarity, organization, and fluency.	6
6.A.9	Use a variety of reference materials to revise work.	6

6.A.10	Use computer writing applications during the writing process.	6
6.A.11	Understand and apply the elements of a scoring rubric to improve and evaluate writing.	6
6.A.12	Reflect on own writing, noting strengths and setting goals for improvement.	6
8.A.1	Engage in the full writing process (from prewriting through post-writing) by writing daily and for sustained amounts of time.	8
8.A.2	Revise drafts by rereading for meaning, narrowing focus, elaborating, deleting, reorganizing, creating sentence variety as needed, maintaining consistency of voice, and reworking introductions, transitions, conclusions, and awkward passages.	8
8.A.3	Review and edit work for spelling, usage, clarity, organization, and fluency.	8
8.A.4	Demonstrate understanding of a scoring rubric to improve and evaluate writing.	8
8.A.5	Compose, revise, edit, and publish writing using appropriate word processing software.	8
12.A.1	Engage in the full writing process by writing daily and for sustained amounts of time.	12
12.A.2	Use strategies such as graphic organizers and outlines to plan and write drafts according to the intended message, audience, and purpose for writing.	12
12.A.3	Analyze and revise writing to improve style, focus and organization, coherence, clarity of thought, sophisticated word choice and sentence variety, and subtlety of meaning.	12
12.A.4	Review and edit work for spelling, usage, clarity, and fluency.	12
12.A.5	Use the computer and word-processing software to compose, revise, edit, and publish a piece.	12
12.A.6	Use a scoring rubric to evaluate and improve own writing and the writing of others.	12
12.A.7	Reflect on own writing and establish goals for growth and improvement.	12
B	Writing as a Product (resulting in work samples)	
0.B.1	Show and talk about work samples containing pictures, developmental spelling, or conventional text.	0
0.B.2	Begin to collect favorite work samples to place in personal writing folder.	0
1.B.1	Produce finished writings to share with class and/or for publication.	1
1.B.2	Produce stories from personal experiences.	1
1.B.3	Show and talk about own writing for classroom audience.	1
1.B.4	Collect favorite works to place in personal writing folder.	1
2.B.1	Produce finished writings to share with classmates and/or for publication.	2
2.B.2	Produce stories from personal experiences.	2
2.B.3	Produce a narrative with a beginning, middle, and end.	2
2.B.4	Write nonfiction pieces, such as letters, procedures, biographies, or simple reports.	2
2.B.5	Organize favorite work samples in a writing folder or portfolio.	2
3.B.1	Write a descriptive piece, such as a description of a person, place, or object.	3
3.B.2	Write a narrative piece based on personal experiences.	3
3.B.3	Write a nonfiction piece and/or simple informational report across the curriculum.	3
3.B.4	Present and discuss writing with other students.	3
3.B.5	Apply elements of grade-appropriate rubrics to improve writing.	3
3.B.6	Develop a collection of writings (e.g., a literacy folder or portfolio).	3
4.B.1	Create narrative pieces, such as memoir or personal narrative, that contain description and relate ideas, observations, or recollections of an event or experience.	4
4.B.2	Write informational reports across the curriculum that frame an issue or topic, include facts and details, and draw from more than one source of information.	4
4.B.3	Craft writing to elevate its quality by adding detail, changing the order of ideas, strengthening openings and closings, and using dialogue.	4
4.B.4	Build knowledge of the characteristics and structures of a variety of genres.	4
4.B.5	Sharpen focus and improve coherence by considering the relevancy of included details, and adding, deleting, and rearranging appropriately.	4
4.B.6	Write sentences of varying lengths and complexity, using specific nouns, verbs, and descriptive words.	4

4.B.7	Recognize the difference between complete sentences and sentence fragments and examine the uses of each in real-world writing.	4
4.B.8	Improve the clarity of writing by rearranging words, sentences, and paragraphs.	4
4.B.9	Examine real-world writing to expand knowledge of sentences, paragraphs, usage, and authors' writing styles.	4
4.B.10	Provide logical sequence and support the purpose of writing by refining organizational structure and developing transitions between ideas.	4
4.B.11	Engage the reader from beginning to end with an interesting opening, logical sequence, and satisfying conclusion.	4
6.B.1	Expand knowledge of characteristics, structures, and tone of selected genres.	6
6.B.2	Write a range of grade-appropriate essays across curricula (e.g., persuasive, personal, descriptive, or issue-based).	6
6.B.3	Write grade-appropriate, multi-paragraph expository pieces across curricula (e.g., problem/solution, cause/effect, hypothesis/results, feature articles, critiques, or research reports).	6
6.B.4	Write pieces that contain narrative elements, such as memoir, biography, or autobiography.	6
6.B.5	Support main idea, topic, or theme with facts, examples, or explanations, including information from multiple authoritative sources.	6
6.B.6	Prepare a works cited page for reports or research papers.	6
6.B.7	Provide logical sequence throughout multi-paragraph works by refining organizational structure and developing transitions between ideas.	6
8.B.1	Extend knowledge of specific characteristics, structures, and appropriate voice and tone of selected genres and use this knowledge in creating written work, considering the purpose, audience, and context of the writing.	8
8.B.2	Write pieces that contain narrative elements, such as short stories, biography, autobiography, or memoir.	8
8.B.3	Write reports and subject-appropriate nonfiction pieces across the curriculum based on research and including citations, quotations, and a bibliography or works cited page.	8
8.B.4	Write a range of essays, including persuasive, descriptive, personal, or issue-based.	8
12.B.1	Analyzing characteristics, structures, tone, and features of language of selected genres and apply this knowledge to own writing.	12
12.B.2	Critique published works for authenticity and credibility.	12
12.B.3	Draft a thesis statement and support/defend it through highly developed ideas and content, organization, and paragraph development.	12
12.B.4	Write multi-paragraph, complex pieces across the curriculum using a variety of strategies to develop a central idea (e.g., cause-effect, problem/solution, hypothesis/results, rhetorical questions, parallelism).	12
12.B.5	Write a range of essays and expository pieces across the curriculum, such as persuasive, analytic, critique, or position paper, etc.	12
12.B.6	Write a literary research paper that synthesizes and cites data using researched information and technology to support writing.	12
12.B.7	Use primary and secondary sources to provide evidence, justification, or to extend a position, and cite sources from books, periodicals, interviews, discourse, electronic sources, etc.	12
12.B.8	Foresee readers' needs and develop interest through strategies such as using precise language, specific details, definitions, descriptions, examples, anecdotes, analogies, and humor as well as anticipating and countering concerns and arguments and advancing a position.	12
12.B.9	Provide compelling openings and strong closure to written pieces.	12
12.B.10	Employ relevant graphics to support a central idea (e.g., charts, graphic organizers, pictures, computer-generated presentation).	12
12.B.11	Use the responses of others to review content, organization, and usage for publication.	12
12.B.12	Select pieces of writing from a literacy folder for a presentation portfolio that reflects performance in a variety of genres.	12
C	Mechanics, Spelling, and Handwriting	
0.C.1	Use letter/sound knowledge in attempting to write (print) some words.	0
0.C.2	Spell own name.	0
0.C.3	Recognize and begin to use left-to-right and top-to-bottom directionality and spacing between words when writing.	0
0.C.4	Gain increasing control of penmanship, including pencil grip, paper position, and beginning strokes.	0
0.C.5	Write all letters of the alphabet (uppercase and lowercase) from teacher copy.	0
1.C.1	Write all letters (upper and lowercase) of the alphabet from memory.	1

1.C.2	Begin to use basic punctuation and capitalization.	1
1.C.3	Apply sound/symbol relationships to writing words.	1
1.C.4	Use developmental spelling or phonics-based knowledge to spell independently, when necessary.	1
1.C.5	Develop awareness of conventional spelling.	1
1.C.6	Use left-to-right and top-to-bottom directionality and use appropriate spacing between words.	1
2.C.1	Use correct end point punctuation.	2
2.C.2	Apply basic rules of capitalization.	2
2.C.3	Use correct spelling of some high frequency words.	2
2.C.4	Apply sound/symbol relationships to writing words.	2
2.C.5	Recognize and apply basic spelling patterns.	2
2.C.6	Write legibly to meet district standards.	2
3.C.1	Use Standard English conventions that are developmentally appropriate to the grade level: sentences, punctuation, capitalization, and spelling.	3
3.C.2	Use grade-appropriate knowledge of English grammar and usage to craft writing: singular and plural nouns, subject/verb agreement, appropriate parts of speech.	3
3.C.3	Study examples of narrative and expository writing to develop understanding of paragraphs and indentation.	3
3.C.4	Develop knowledge of English spelling through the use of patterns, structural analysis, and high frequency words.	3
3.C.5	Write legibly in manuscript or cursive to meet district standards.	3
4.C.1	Use Standard English conventions that are appropriate to the grade level (sentence structure, grammar and usage, punctuation, capitalization, spelling, handwriting).	4
4.C.2	Use increasingly complex sentence structure and syntax to express ideas.	4
4.C.3	Use grade appropriate knowledge of English grammar and usage to craft writing: subject/verb agreement, pronoun usage and agreement, appropriate verb tenses.	4
4.C.4	Use punctuation correctly in sentences, such as ending punctuation, commas, and quotation marks in dialogue.	4
4.C.5	Use capital letters correctly in sentences, for proper nouns, and in titles.	4
4.C.6	Study examples of narrative and expository writing to develop understanding of the reasons for and use of paragraphs and indentation.	4
4.C.7	Indent in own writing to show the beginning of a paragraph.	4
4.C.8	Spell grade-appropriate words correctly with particular attention to frequently used words, contractions, and homophones.	4
4.C.9	Use knowledge of base words, structural analysis, and spelling patterns to expand spelling competency in writing.	4
4.C.10	Use a variety of reference materials, such as a dictionary, grammar reference, and internet/software resources to edit written work.	4
4.C.11	Write legibly in manuscript or cursive to meet district standards.	4
6.C.1	Use Standard English conventions in all writing (sentence structure, grammar and usage, punctuation, capitalization, spelling, handwriting).	6
6.C.2	Use a variety of sentence types and syntax, including independent and dependent clauses and prepositional and adverbial phrases, to connect ideas and craft writing in an interesting and grammatically correct way.	6
6.C.3	Use knowledge of English grammar and usage to express ideas effectively.	6
6.C.4	Use correct capitalization and punctuation, including commas and colons, throughout writing.	6
6.C.5	Use quotation marks and related punctuation correctly in passages of dialogue.	6
6.C.6	Use knowledge of roots, prefixes, suffixes, and English spelling patterns to spell words correctly in writing.	6
6.C.7	Demonstrate understanding of reasons for paragraphs in narrative and expository writing and indent appropriately in own writing.	6
6.C.8	Spell frequently misspelled words correctly in writing.	6
6.C.9	Use a variety of reference materials, such as a dictionary, grammar reference, and/or internet/software resources to edit written work.	6
6.C.10	Write legibly in manuscript or cursive to meet district standards.	6
8.C.1	Use Standard English conventions in all writing (sentence structure, grammar and usage, punctuation, capitalization, spelling).	8
8.C.2	Use a variety of sentence types correctly, including combinations of independent and dependent clauses, prepositional and adverbial phrases, and varied	8

	sentence openings to develop a lively and effective personal style.	
8.C.3	Understand and use parallelism, including similar grammatical forms, to present items in a series or to organize ideas for emphasis .	8
8.C.4	Experiment in using subordination, coordination, apposition, and other devices to indicate relationships between ideas.	8
8.C.5	Use transition words to reinforce a logical progression of ideas	8
8.C.6	Edit writing for correct grammar, usage, capitalization, punctuation, and spelling.	8
8.C.7	Use a variety of reference materials, such as a dictionary, grammar reference, and/or internet/software resources to edit written work.	8
8.C.8	Write legibly in manuscript or cursive to meet district standards.	8
12.C.1	Use Standard English conventions in all writing (sentence structure, grammar and usage, punctuation, capitalization, spelling).	12
12.C.2	Demonstrate a well-developed knowledge of English syntax to express ideas in a lively and effective personal style.	12
12.C.3	Use subordination, coordination, apposition, and other devices effectively to indicate relationships between ideas.	12
12.C.4	Use transition words to reinforce a logical progression of ideas.	12
12.C.5	Exclude extraneous details, repetitious ideas, and inconsistencies to improve writing.	12
12.C.6	Use knowledge of Standard English conventions to edit own writing and the writing of others for correctness.	12
12.C.7	Use a variety of reference materials, such as a dictionary, grammar reference, and/or internet/software resources to edit written work.	12
12.C.8	Write legibly in manuscript or cursive to meet district standards.	12
D	Writing Forms, Audiences, and Purposes (exploring a variety of writing)	
0.D.1	Communicate personal response to literature through drawing, telling, or writing.	0
0.D.2	Show and talk about favorite work samples (drawing or writing) with teacher and family.	0
1.D.1	Create written texts for others to read.	1
1.D.2	Produce a variety of writings, including stories, descriptions, and journal entries, showing relationships between illustrations and printed text.	1
2.D.1	Create written texts for others to read.	2
2.D.2	Generate ideas and write on topics in forms appropriate to science, social studies, or other subject areas.	2
2.D.3	Use writing as a tool for learning (self-discovery, reflection).	2
2.D.4	Use reading and technology to support writing.	2
2.D.5	Write in a variety of simple genres to satisfy personal, academic, and social needs, such as letters, plays, procedures, biographies, or simple reports.	2
3.D.1	Write for a variety of purposes (e.g., to inform, entertain, persuade) and audiences (e.g., self, peers, community).	3
3.D.2	Develop fluency by writing daily and for sustained amounts of time.	3
3.D.3	Generate ideas for writing in a variety of situations and across the curriculum.	3
3.D.4	Write to express thoughts and ideas, to share experiences, and to communicate socially.	3
3.D.5	Write the events of a story sequentially.	3
3.D.6	Produce writing that demonstrates the use of a variety of sentence types, such as declarative, interrogative, exclamatory, and imperative.	3
3.D.7	Respond to literature through writing to demonstrate an understanding of a text.	3
3.D.8	Write narrative text (e.g., realistic, humorous, etc.).	3
3.D.9	Write non-fiction text (e.g., reports, procedures, and letters).	3
4.D.1	Write for different purposes (e.g., to express ideas, to inform, to entertain, to respond to literature, to question, to share, etc.) and a variety of audiences (e.g., self, peers, community).	4
4.D.2	Study the characteristics of a variety of genres, including expository, narrative, poetry, and reflection.	4
4.D.3	Develop independence by setting self-selected purposes and generating topics for writing.	4
4.D.4	Write independently to satisfy personal, academic, and social needs (e.g., stories, summaries, letters, poetry).	4
4.D.5	Use writing to paraphrase, clarify, and reflect on new learning across the curriculum.	4
4.D.6	Respond to literature in writing to demonstrate an understanding of the text, to explore personal reactions, and to connect personal experiences with the text.	4

4.D.7	Write narratives that relate recollections of an event or experience and establish a setting, characters, point of view, and sequence of events.	4
4.D.8	Write informational reports that frame a topic, include facts and details, and draw information from several sources.	4
4.D.9	Write letters for a variety of audiences and purposes, formal and informal.	4
4.D.10	Use a variety of strategies to organize writing, including sequence, chronology, and cause/effect.	4
4.D.11	Demonstrate higher-order thinking skills through responses to open-ended and essay questions in content areas or as responses to literature.	4
4.D.12	Use relevant graphics in writing (e.g., maps, charts, illustrations).	4
4.D.13	Demonstrate the development of a personal style and voice in writing.	4
4.D.14	Review scoring criteria of a writing rubric.	4
4.D.15	Develop a collection of writings (e.g., a literacy folder, a literacy portfolio).	4
6.D.1	Write for different purposes (e.g., to express ideas, inform, entertain, respond to literature, persuade, question, reflect, clarify, share, etc.) and a variety of audiences (e.g., self, peers, community).	6
6.D.2	Gather, select, and organize information appropriate to a topic, task, and audience.	6
6.D.3	Develop and use knowledge of a variety of genres, including expository, narrative, persuasive, poetry, critiques, and everyday/ workplace writing.	6
6.D.4	Organize a response that develops insight into literature by exploring personal reactions, connecting to personal experience, and referring to the text through sustained use of examples.	6
6.D.5	Write narratives, establishing a plot or conflict, setting, characters, point of view, and resolution.	6
6.D.6	Use narrative techniques (e.g., dialogue, specific actions of characters, sensory description, and expression of thoughts and feelings of characters).	6
6.D.7	Write reports based on research with a scope narrow enough to be thoroughly covered, supporting the main ideas or topic with facts, examples, and explanations from authoritative sources, and including a works-cited page.	6
6.D.8	Write persuasive essays with clearly stated positions or opinions supported by organized and relevant evidence to validate arguments and conclusions, and sources cited when needed.	6
6.D.9	Demonstrate the ability to write business letters in correct format and coherent style.	6
6.D.10	Use a variety of strategies to organize writing, including sequence, chronology, cause/effect, problem/solution, and order of importance.	6
6.D.11	Demonstrate higher-order thinking skills and writing clarity when answering open-ended and essay questions in content areas or as responses to literature.	6
6.D.12	Use relevant graphics in writing (e.g., maps, charts, illustrations, graphs, and photographs).	6
6.D.13	Demonstrate the development of a personal style and voice in writing.	6
6.D.14	Review scoring criteria of relevant rubrics.	6
6.D.15	Develop a collection of writings (e.g., a literacy folder, a literacy portfolio).	6
8.D.1	Gather, select, and organize the most effective information appropriate to a topic, task, and audience.	8
8.D.2	Apply knowledge and strategies for composing pieces in a variety of genres (narrative, expository, persuasive, poetic, and everyday/ workplace or technical writing, etc.).	8
8.D.3	Write responses to literature and develop insights into interpretations by connecting to personal experiences and referring to textual information.	8
8.D.4	Write personal narratives, short stories, memoirs, poetry, and persuasive and expository text that relate clear, coherent events or situations through the use of specific details.	8
8.D.5	Use narrative and descriptive writing techniques (e.g., dialogue, sensory words and phrases, background information, thoughts and feelings of characters, and comparison and contrast of characters.)	8
8.D.6	Use a variety of primary and secondary sources to understand the value of each when writing a research report.	8
8.D.7	Write reports based on research and include citations, quotations, and a works cited page.	8
8.D.8	Explore the central idea or theme of an informational reading and support analysis with details from the article and personal experiences.	8
8.D.9	Demonstrate writing clarity and supportive evidence when answering open-ended and essay questions across the curriculum.	8
8.D.10	State a position clearly and convincingly in a persuasive essay by stating the issue, giving facts, examples, and details to support the position, and citing sources	8

	when appropriate.	
8.D.11	When writing persuasive essays, present evidence, examples, and justification to support arguments.	8
8.D.12	Choose an appropriate organizing strategy such as cause/effect, pro and con, parody, etc. to effectively present a topic, point of view, or argument.	8
8.D.13	Use personal style and voice effectively to support the purpose and engage the audience of a piece of writing.	8
8.D.14	Develop a collection of writing (e.g., a literacy folder, a literacy portfolio).	8
12.D.1	Employ the most effective writing formats and strategies for the purpose and audience.	12
12.D.2	Demonstrate command of a variety of writing genres, such as: · Persuasive essay · Personal narrative · Research report · Literary research paper · Descriptive essay · Critique · Response to literature · Parody of a particular narrative style (fable, myth, short story, etc.) · Poetry	12
12.D.3	Evaluate the impact of an author's decisions regarding tone, word choice, style, content, point of view, literary elements, and literary merit, and produce an interpretation of overall effectiveness.	12
12.D.4	Apply all copyright laws to information used in written work.	12
12.D.5	When writing, employ structures to support the reader, such as transition words, chronology, hierarchy or sequence, and forms, such as headings and subtitles.	12
12.D.6	Compile and synthesize information for everyday and workplace purposes, such as job applications, resumes, business letters and college applications.	12
12.D.7	Demonstrate personal style and voice effectively to support the purpose and engage the audience of a piece of writing.	12
12.D.8	Select pieces of writing from a literacy folder for a presentation portfolio that reflects performance in a variety of genres.	12
3	SPEAKING: ALL STUDENTS WILL SPEAK IN CLEAR, CONCISE, ORGANIZED LANGUAGE THAT VARIES IN CONTENT AND FORM FOR DIFFERENT AUDIENCES AND PURPOSES.	
A	Discussion (small group and whole class)	
0.A.1	Share experiences and express ideas.	0
0.A.2	Participate in conversations with peers and adults.	0
0.A.3	React to stories, poems, and songs.	0
1.A.1	Speak in complete sentences.	1
1.A.2	Offer personal opinions in discussion and retell personal experiences.	1
1.A.3	Role-play situations and dramatize story events.	1
2.A.1	Elaborate on experiences and ideas.	2
2.A.2	Begin to stay focused on a topic of discussion.	2
2.A.3	Offer personal opinion related to topics of discussion.	2
2.A.4	Wait their turn to speak.	2
3.A.1	Listen and follow a discussion in order to contribute appropriately.	3
3.A.2	Stay focused on topic.	3
3.A.3	Take turns.	3
3.A.4	Support an opinion with details.	3
4.A.1	Use details, examples and reasons to support central ideas or clarify a point of view.	4

4.A.2	Stay focused on a topic and ask relevant questions.	4
4.A.3	Take turns without dominating.	4
6.A.1	Support a position with organized, appropriate details.	6
6.A.2	Accept others' opinions and respond appropriately.	6
8.A.1	Support a position, acknowledging opposing views.	8
8.A.2	Present ideas and opinions spontaneously in response to a topic or other speakers.	8
8.A.3	Apply rules for cooperative or whole class (e.g., follow rules for formal debate on a controversial issue).	8
8.A.4	Define group roles using consensus to ensure task is understood and completed.	8
8.A.5	Participate in an informal debate (e.g., small group discussion).	8
12.A.1	Support a position integrating multiple perspectives.	12
12.A.2	Support, modify, or refute a position in small or large-group discussions.	12
12.A.3	Assume leadership roles in student-directed discussions, projects, and forums.	12
12.A.4	Summarize and evaluate tentative conclusions and take the initiative in moving discussions to the next stage.	12
B	Questioning (Inquiry) and Contributing	
0.B.1	Share in conversations with others.	0
0.B.2	Use oral language to extend learning.	0
1.B.1	Respond to ideas and questions posed by others.	1
1.B.2	Ask and answer various types of questions.	1
2.B.1	Ask for explanation to clarify meaning.	2
2.B.2	Respond to ideas posed by others.	2
2.B.3	Restate to demonstrate understanding.	2
2.B.4	Identify a problem and simple steps for solving the problem.	2
3.B.1	Develop appropriate questions to explore a topic.	3
3.B.2	Contribute information, ideas, and experiences to classroom inquiry.	3
4.B.1	Develop questioning techniques (e.g., "who, what, when, where, why, and how" questions).	4
4.B.2	Use interview techniques to develop inquiry skills.	4
4.B.3	Explore concepts by describing, narrating, or explaining how and why things happen.	4
4.B.4	Discuss information heard, offer personal opinions, and ask for restatement or general explanation to clarify meaning.	4
4.B.5	Reflect and evaluate information learned as a result of the inquiry.	4
4.B.6	Solve a problem or understand a task through group cooperation.	4
6.B.1	Use speech to construct meaning by listening to others, reflecting on thought processes, and integrating knowledge.	6
6.B.2	Demonstrate effective use of a variety of questions, including literal, inferential, and evaluative questions.	6
8.B.1	Paraphrase others' comments to clarify viewpoints.	8
8.B.2	Question to clarify others' opinions.	8
8.B.3	Talk with others to identify and explore issues and problems.	8
12.B.1	Ask prepared and follow-up questions in interviews and other discussions.	12
12.B.2	Extend peer contributions by elaboration and illustration.	12
12.B.3	Analyze, evaluate, and modify group processes.	12
12.B.4	Select and discuss literary passages that reveal character, develop theme, and illustrate literary elements.	12
12.B.5	Question critically the position or viewpoint of an author.	12
12.B.6	Respond to audience questions by providing clarification, illustration, definition, and elaboration.	12

12.B.7	Participate actively in panel discussions, symposiums, and/or business meeting formats (e.g., explore a question and consider perspectives).	12
C	Word Choice	
0.C.1	Use language to describe feelings, people, objects, and events.	0
0.C.2	Suggest rhyming words during word play, songs, or read-aloud.	0
1.C.1	Attempt to use new vocabulary learned from shared literature and classroom experiences.	1
1.C.2	Use descriptive words to clarify and extend ideas.	1
2.C.1	Use new vocabulary learned from literature and classroom experiences.	2
2.C.2	Recognize and discuss how authors use words to create vivid images.	2
3.C.1	Use vocabulary related to a particular topic.	3
3.C.2	Adapt language to persuade, explain, or seek information.	3
3.C.3	Use new vocabulary and figurative language learned from literature and classroom experiences.	3
4.C.1	Use convincing dialogue to role-play short scenes involving familiar situations or emotions.	4
4.C.2	Use figurative language purposefully in speaking situations.	4
4.C.3	Use appropriate vocabulary to support or clarify a message.	4
4.C.4	Adapt language to persuade, explain, or seek information.	4
6.C.1	Use varied word choice to clarify, illustrate, and elaborate.	6
6.C.2	Select and use suitable vocabulary to fit a range of audiences.	6
8.C.1	Paraphrase, illustrate, clarify, and/or expand on a topic or ideas when asked.	8
8.C.2	Develop and use advanced vocabulary related to a topic.	8
8.C.3	Use language that stimulates an audience's interest.	8
8.C.4	Use varied sentence structure for impact.	8
12.C.1	Modulate tone and clarify thoughts through word choice.	12
12.C.2	Improve word choice by focusing on rhetorical devices (e.g., puns, parallelism, allusion, alliteration).	12
D	Oral Presentation	
0.D.1	Sing familiar songs and rhymes to promote oral language development.	0
0.D.2	Begin to use social conventions of language.	0
1.D.1	Recite poems, stories, or rhymes orally (e.g., favorite nursery rhymes).	1
1.D.2	Participate in choral reading to develop phonemic awareness, oral language, and fluency.	1
1.D.3	Retell a story to check for understanding.	1
1.D.4	Read aloud from developmentally appropriate texts with attention to expression.	1
2.D.1	Participate in a dramatization or role play.	2
2.D.2	Begin to understand the importance of looking at a speaker.	2
2.D.3	Talk about an experience or work sample in front of a small group.	2
3.D.1	Use pictures to support an oral presentation.	3
3.D.2	Attempt to revise future presentations based on feedback from peers and teacher.	3
3.D.3	Use appropriate strategies to prepare, rehearse and deliver an oral presentation: word choice, expression, eye contact and volume.	3
4.D.1	Speak for a variety of audiences and purposes.	4
4.D.2	Prepare, rehearse, and deliver a formal presentation in logical or sequential order, including an opening, supportive details, and a closing statement.	4
4.D.3	Use notes or other memory aids to structure a presentation.	4
4.D.4	Maintain audience interest during formal presentations, incorporating adequate volume, proper pacing, and clear enunciation.	4
4.D.5	Participate in a dramatization or role-play across the curriculum.	4

4.D.6	Read aloud with fluency.	4
4.D.7	Understand and use criteria for a rubric to improve an oral presentation.	4
6.D.1	Develop and deliver a formal presentation based on a central theme, including logical sequence, introduction, main ideas, supporting details, and concluding remarks to an audience of peers, younger students, and/or parents.	6
6.D.2	Use clear, precise, organized language that reflects the conventions of spoken English.	6
6.D.3	Use visuals such as charts or graphs when presenting for clarification.	6
6.D.4	Use verbal and non verbal elements of delivery to maintain audience focus.	6
8.D.1	Use writing to prompt discussion and enhance planning of formal and informal presentations.	8
8.D.2	Use visual aids, media, and/or technology to support oral communication.	8
8.D.3	Give oral presentations to different audiences for various purposes, demonstrating appropriate modes in delivery (e.g., gestures, vocabulary, pace, visuals), and using language for dramatic effect.	8
8.D.4	Acknowledge a speaker through eye contact and use appropriate verbal responses and questions to clarify the speaker's message.	8
8.D.5	Incorporate peer feedback and teacher suggestions for revisions in content, organization, and delivery.	8
12.D.1	Speak for a variety of purposes (e.g., persuasion, information, entertainment, literary interpretation, dramatization, and personal expression).	12
12.D.2	Use a variety of organizational strategies (e.g., focusing idea, attention getters, clinchers, repetition, and transition words).	12
12.D.3	Demonstrate effective delivery strategies (e.g., eye contact, body language, volume, intonation, and articulation) when speaking.	12
12.D.4	Edit drafts of speeches independently and in peer discussions.	12
12.D.5	Modify oral communications through sensing audience confusion, and make impromptu revisions in oral presentation (e.g., summarizing, restating, adding illustrations/details).	12
12.D.6	Use a rubric to self-assess and improve oral presentations.	12
4	LISTENING: ALL STUDENTS WILL LISTEN ACTIVELY TO INFORMATION FROM A VARIETY OF SOURCES IN A VARIETY OF SITUATIONS.	
A	Active Listening	
0.A.1	Listen fully to understand instructions or hear daily messages.	0
0.A.2	Listen to identify main characters and events in stories.	0
0.A.3	Listen to rhymes and songs to begin developing an understanding of letter/sound relationships.	0
1.A.1	Listen and respond appropriately to directions.	1
1.A.2	Listen to hear initial, final, and eventually middle sounds in words.	1
1.A.3	Listen to a familiar text being read to begin tracking print.	1
1.A.4	Listen to a spoken word to produce another word that rhymes with it.	1
2.A.1	Listen critically to identify main ideas and supporting details.	2
2.A.2	Begin to distinguish between types of speech (e.g., a joke, a chat, a warning).	2
2.A.3	Listen and contribute to class discussions.	2
3.A.1	Connect messages heard to prior knowledge and experiences.	3
3.A.2	Exchange information through verbal and nonverbal messages.	3
4.A.1	Listen actively for a variety of purposes such as enjoyment and obtaining information.	4
4.A.2	Listen attentively and critically to a variety of speakers.	4
4.A.3	Interpret vocabulary gained through listening.	4
6.A.1	Evaluate the effect of a speaker's choice of language and speaking style on an audience.	6
6.A.2	Recognize and analyze persuasive techniques while listening.	6
6.A.3	Gain an appreciation of the rich and varied language of literature (e.g., listen to a recording of poetry or classic literature).	6
8.A.1	Demonstrate active listening behaviors in a variety of situations (e.g., one-on-one, small group).	8

8.A.2	Demonstrate active listening by analyzing information, ideas, and opinions to determine relevancy.	8
8.A.3	Give appropriate feedback to a variety of speakers.	8
8.A.4	Recognize persuasive techniques and credibility in oral communication.	8
8.A.5	Listen to determine a speaker's purpose, attitude, and perspective.	8
12.A.1	Explore and reflect on ideas while hearing and focusing attentively.	12
12.A.2	Listen skillfully to distinguish emotive and persuasive rhetoric.	12
12.A.3	Demonstrate appropriate listener response to ideas in a persuasive speech, oral interpretation of a literary selection, or scientific or educational presentation.	12
B	Listening Comprehension	
0.B.1	Listen attentively to books teacher reads to class.	0
0.B.2	Answer questions correctly about books read aloud.	0
1.B.1	Listen to make predictions about stories read aloud.	1
1.B.2	Follow simple oral directions.	1
1.B.3	Recall information from listening to stories, poems, television and film.	1
1.B.4	Retell, reenact, or dramatize stories or parts of stories heard.	1
1.B.5	Respond appropriately to questions about stories read aloud.	1
1.B.6	Begin to track print when listening to a familiar text being read or when rereading their own writing.	1
1.B.7	Ask questions for clarification and explanation of stories and ideas heard.	1
2.B.1	Follow one- and two- step oral directions.	2
2.B.2	Develop a strong listening vocabulary to aid comprehension and oral and written language growth.	2
3.B.1	Follow two- to three- step directions.	3
3.B.2	Listen to a story read aloud and/or information from television or film, and summarize main ideas.	3
3.B.3	Paraphrase information shared by others.	3
4.B.1	Demonstrate competence in active listening through comprehension of a story, interview, and oral report of an event or incident.	4
4.B.2	Develop listening strategies (e.g., asking questions, taking notes) to understand what is heard.	4
4.B.3	Demonstrate competence in active listening by interpreting and applying received information to new situations and solving problems.	4
4.B.4	Make inferences based on an oral report or presentation.	4
4.B.5	Describe how language reflects specific regions and/or cultures.	4
4.B.6	Follow three- and four-step oral directions.	4
6.B.1	Demonstrate competence in active listening by interpreting and applying received information to new situations and in solving problems.	6
6.B.2	Compare and contrast oral selections and determine the most valuable supporting data to use in group or individual projects.	6
6.B.3	Ask pertinent questions, take notes, and draw conclusions based on information presented.	6
8.B.1	Interpret a speaker's verbal and nonverbal messages, purposes, and perspectives.	8
8.B.2	Exhibit proficiency in integrating oral reading with listening, writing, and viewing.	8
8.B.3	Critique information heard or viewed.	8
8.B.4	Critique oral presentations using agreed-upon criteria for evaluation (e.g., rubric).	8
12.B.1	Listen to summarize, make judgments, and evaluate.	12
12.B.2	Evaluate the credibility of a speaker.	12
12.B.3	Determine when propaganda and argument are used in oral forms.	12
12.B.4	Listen and respond appropriately to a debate.	12
5	VIEWING AND MEDIA LITERACY: ALL STUDENTS WILL ACCESS, VIEW, EVALUATE, AND RESPOND TO PRINT, NONPRINT, AND ELECTRONIC TEXTS AND RESOURCES.	

A	Constructing Meaning	
0.A.1	Make predictions about visual information (e.g., pictures in books).	0
0.A.2	Discuss favorite characters from books, film, and television.	0
1.A.1	Retell the story from a favorite media program (e.g., television, movie).	1
1.A.2	Distinguish between "pretend" and "real" in the media.	1
1.A.3	Begin to recognize that media messages have different purposes.	1
1.A.4	Speculate about visual representations (e.g., pictures, artwork).	1
1.A.5	Use simple graphs and charts to report data (cf. mathematics standard 4.4-A).	1
1.A.6	Begin to recognize the work of a favorite illustrator.	1
1.A.7	Begin to compare and contrast media characters.	1
2.A.1	Speculate about characters, events and settings in books, film and television.	2
2.A.2	Recognize that media messages are created for a specific purpose (e.g., to inform, entertain, or persuade).	2
2.A.3	Use graphs and charts to report data.	2
2.A.4	Recognize the work of a favorite illustrator.	2
2.A.5	Compare and contrast media characters.	2
3.A.1	Begin to demonstrate an awareness of different media forms and how they contribute to communication.	3
3.A.2	Identify the central theme and main ideas in different media.	3
4.A.1	Interpret information found in pictorial graphs, map keys, and icons on a computer screen.	4
4.A.2	Respond to and evaluate the use of illustrations to support text.	4
4.A.3	Use graphs, charts, and diagrams to report data.	4
4.A.4	Distinguish between factual and fictional visual representations.	4
4.A.5	Identify the central theme in a movie, film, or illustration.	4
4.A.6	Identify the target audience for a particular program, story, or advertisement.	4
4.A.7	Demonstrate an awareness of different media forms and how they contribute to communication.	4
6.A.1	Understand uses of persuasive text related to advertising in society.	6
6.A.2	Classify television programs and other works according to genre (news, drama, comedy, science fiction, animation, etc.).	6
6.A.3	Research how the media covers different age groups in print, radio, and television.	6
6.A.4	Distinguish different points of view in media texts.	6
8.A.1	Identify aspects of print and electronic texts that support the author's point of view (e.g., opinion, attitudes).	8
8.A.2	Consider the use of setting in conjunction with other elements (e.g., theme, characters) to support media presentations.	8
8.A.3	Recognize and respond to visual and print messages of humor, irony, metaphor.	8
12.A.1	Understand that messages are representations of social reality and vary by historic time periods and parts of the world.	12
12.A.2	Identify and evaluate how a media product expresses the values of the culture that produced it.	12
12.A.3	Identify and select media forms appropriate for the viewer's purpose.	12
B	Visual and Verbal Messages	
0.B.1	Begin to sequence a series of pictures or images to tell a story.	0
0.B.2	Show understanding of purpose for pictures in books.	0
1.B.1	Begin to interpret messages in simple advertisements.	1
1.B.2	Sequence a series of pictures or images to tell a story.	1
2.B.1	Interpret messages in simple advertisements.	2
2.B.2	Use a simple rating scale to judge media products.	2

2.B.3	Begin to look at the effects of visual arts on one's mood and emotions.	2
3.B.1	Recognize the effects of visual arts on one's mood and emotions.	3
3.B.2	Begin to explore and interpret messages found in advertisements and other texts.	3
4.B.1	Understand that creators of both print media and electronic media have a purpose and target audience for their work.	4
4.B.2	Explore and interpret various messages found in advertisements and other texts.	4
4.B.3	Discuss the emotional impact of photos and how they aid understanding.	4
4.B.4	Compare and contrast media sources, such as film and book versions of a story.	4
6.B.1	Understand the uses of technology (e.g., the Internet for research).	6
6.B.2	Interpret verbal and nonverbal messages reflected in personal interactions with others.	6
8.B.1	Discuss and compare values in visual and verbal advertising.	8
8.B.2	Evaluate media messages for credibility.	8
8.B.3	Compare and contrast a news story across different news sources.	8
8.B.4	Develop criteria to judge the effectiveness of visual and verbal presentations.	8
12.B.1	Analyze media for stereotyping (e.g., gender, ethnicity).	12
12.B.2	Compare and contrast three or more media sources.	12
C	Living with Media	
4.C.1	Express preferences for media choices.	4
6.C.1	Express and justify preferences for media choices.	6
6.C.2	Examine and evaluate effects of media in the family, home, and school.	6
8.C.1	Understand television, video games, music, and motion picture ratings as measurements of content appropriateness.	8
8.C.2	Analyze media content for emotional effect on audience.	8
12.C.1	Use print and electronic media texts to explore human relationships, new ideas, and aspects of culture (e.g., racial prejudice, dating, marriage, family and social institutions, cf. health and physical education standards and visual and performing arts standards).	12
12.C.2	Determine influences on news media based on existing political, historical, economical, and social contexts (e.g., importance of audience feedback).	12
12.C.3	Recognize that creators of media and performances use a number of forms, techniques, and technologies to convey their messages.	12

MATHEMATICS (4)		
1	NUMBER AND NUMERICAL OPERATIONS: ALL STUDENTS WILL DEVELOP NUMBER SENSE AND WILL PERFORM STANDARD NUMERICAL OPERATIONS AND ESTIMATIONS ON ALL TYPES OF NUMBERS IN A VARIETY OF WAYS.	
A	Number Sense	
2.A.1	Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 2 pertain to these sets of numbers as well). <ul style="list-style-type: none"> • Whole numbers through hundreds • Ordinals • Proper fractions (denominators of 2, 3, 4, 8, 10) 	2
2.A.2	Demonstrate an understanding of whole number place value concepts.	2
2.A.3	Understand that numbers have a variety of uses.	2
2.A.4	Count and perform simple computations with coins. <ul style="list-style-type: none"> • Amounts up to \$1.00 (using cents notation) 	2
2.A.5	Compare and order whole numbers.	2
3.A.1	Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 3 pertain to these sets of numbers as well). <ul style="list-style-type: none"> • Whole numbers through hundred thousands • Commonly used fractions (denominators of 2, 3, 4, 5, 6, 8, 10) as part of a whole, as a subset of a set, and as a location on a number line 	3
3.A.2	Demonstrate an understanding of whole number place value concepts.	3
3.A.3	Identify whether any whole number is odd or even.	3
3.A.4	Explore the extension of the place value system to decimals through hundredths.	3
3.A.5	Understand the various uses of numbers. <ul style="list-style-type: none"> • Counting, measuring, labeling (e.g., numbers on baseball uniforms) 	3
3.A.6	Compare and order numbers.	3
4.A.1	Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 4 pertain to these sets of numbers as well). <ul style="list-style-type: none"> • Whole numbers through millions • Commonly used fractions (denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 16) as part of a whole, as a subset of a set, and as a location on a number line • Decimals through hundredths 	4
4.A.2	Demonstrate an understanding of place value concepts.	4
4.A.3	Demonstrate a sense of the relative magnitudes of numbers.	4
4.A.4	Understand the various uses of numbers. <ul style="list-style-type: none"> • Counting, measuring, labeling (e.g., numbers on baseball uniforms), locating (e.g., Room 235 is on the second floor) 	4
4.A.5	Use concrete and pictorial models to relate whole numbers, commonly used fractions, and decimals to each other, and to represent equivalent forms of the same number.	4
4.A.6	Compare and order numbers.	4
4.A.7	Explore settings that give rise to negative numbers. <ul style="list-style-type: none"> • Temperatures below 0 degrees, debts • Extension of the number line 	4
5.A.1	Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 5 pertain to these sets of numbers as well).	5

	<ul style="list-style-type: none"> All fractions as part of a whole, as subset of a set, as a location on a number line, and as divisions of whole numbers All decimals 	
5.A.2	Recognize the decimal nature of United States currency and compute with money.	5
5.A.3	Demonstrate a sense of the relative magnitudes of numbers.	5
5.A.4	Use whole numbers, fractions, and decimals to represent equivalent forms of the same number.	5
5.A.5	Develop and apply number theory concepts in problem solving situations. <ul style="list-style-type: none"> Primes, factors, multiples 	5
5.A.6	Compare and order numbers.	5
6.A.1	Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 6 pertain to these sets of numbers as well). <ul style="list-style-type: none"> All integers All fractions as part of a whole, as subset of a set, as a location on a number line, and as divisions of whole numbers All decimals 	6
6.A.2	Recognize the decimal nature of United States currency and compute with money.	6
6.A.3	Demonstrate a sense of the relative magnitudes of numbers.	6
6.A.4	Explore the use of ratios and proportions in a variety of situations.	6
6.A.5	Understand and use whole-number percents between 1 and 100 in a variety of situations.	6
6.A.6	Use whole numbers, fractions, and decimals to represent equivalent forms of the same number.	6
6.A.7	Develop and apply number theory concepts in problem solving situations. <ul style="list-style-type: none"> Primes, factors, multiples Common multiples, common factors 	6
6.A.8	Compare and order numbers.	6
7.A.1	Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 7 pertain to these sets of numbers as well): <ul style="list-style-type: none"> Rational numbers Percents Whole numbers with exponents 	7
7.A.2	Demonstrate a sense of the relative magnitudes of numbers.	7
7.A.3	Understand and use ratios, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations.	7
7.A.4	Compare and order numbers of all named types.	7
7.A.5	Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number.	7
7.A.6	Understand that all fractions can be represented as repeating or terminating decimals.	7
8.A.1	Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 8 pertain to these sets of numbers as well): <ul style="list-style-type: none"> Rational numbers Percents Exponents Roots Absolute values Numbers represented in scientific notation 	8
8.A.2	Demonstrate a sense of the relative magnitudes of numbers.	8
8.A.3	Understand and use ratios, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations.	8

8.A.4	Compare and order numbers of all named types.	8
8.A.5	Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number.	8
8.A.6	Recognize that repeating decimals correspond to fractions and determine their fractional equivalents. <ul style="list-style-type: none"> $5/7 = 0.714285714285... = 0.714285$ 	8
8.A.7	Construct meanings for common irrational numbers, such as π (pi) and the square root of 2.	8
12.A.1	Extend understanding of the number system to all real numbers.	12
12.A.2	Compare and order rational and irrational numbers.	12
12.A.3	Develop conjectures and informal proofs of properties of number systems and sets of numbers.	12
B	Numerical Operations	
2.B.1	Develop the meanings of addition and subtraction by concretely modeling and discussing a large variety of problems. <ul style="list-style-type: none"> Joining, separating, and comparing 	2
2.B.2	Explore the meanings of multiplication and division by modeling and discussing problems.	2
2.B.3	Develop proficiency with basic addition and subtraction number facts using a variety of fact strategies (such as "counting on" and "near doubles") and then commit them to memory.	2
2.B.4	Construct, use, and explain procedures for performing addition and subtraction calculations with: <ul style="list-style-type: none"> Pencil-and-paper Mental math Calculator 	2
2.B.5	Use efficient and accurate pencil-and-paper procedures for computation with whole numbers. <ul style="list-style-type: none"> Addition of 2-digit numbers Subtraction of 2-digit numbers 	2
2.B.6	Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.	2
2.B.7	Check the reasonableness of results of computations.	2
2.B.8	Understand and use the inverse relationship between addition and subtraction.	2
3.B.1	Develop the meanings of the four basic arithmetic operations by modeling and discussing a large variety of problems. <ul style="list-style-type: none"> Addition and subtraction: joining, separating, comparing Multiplication: repeated addition, area/array Division: repeated subtraction, sharing 	3
3.B.2	Develop proficiency with basic multiplication and division number facts using a variety of fact strategies (such as "skip counting" and "repeated subtraction").	3
3.B.3	Construct, use, and explain procedures for performing whole number calculations with: <ul style="list-style-type: none"> Pencil-and-paper Mental math Calculator 	3
3.B.4	Use efficient and accurate pencil-and-paper procedures for computation with whole numbers. <ul style="list-style-type: none"> Addition of 3-digit numbers Subtraction of 3-digit numbers Multiplication of 2-digit numbers by 1-digit numbers 	3
3.B.5	Count and perform simple computations with money. <ul style="list-style-type: none"> Cents notation (\textcent) 	3
3.B.6	Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.	3
3.B.7	Check the reasonableness of results of computations.	3
4.B.1	Develop the meanings of the four basic arithmetic operations by modeling and discussing a large variety of problems.	4

	<ul style="list-style-type: none"> • Addition and subtraction: joining, separating, comparing • Multiplication: repeated addition, area/array • Division: repeated subtraction, sharing 	
4.B.2	Develop proficiency with basic multiplication and division number facts using a variety of fact strategies (such as "skip counting" and "repeated subtraction") and then commit them to memory.	4
4.B.3	Construct, use, and explain procedures for performing whole number calculations and with: <ul style="list-style-type: none"> • Pencil-and-paper • Mental math • Calculator 	4
4.B.4	Use efficient and accurate pencil-and-paper procedures for computation with whole numbers. <ul style="list-style-type: none"> • Addition of 3-digit numbers • Subtraction of 3-digit numbers • Multiplication of 2-digit numbers • Division of 3-digit numbers by 1-digit numbers 	4
4.B.5	Construct and use procedures for performing decimal addition and subtraction.	4
4.B.6	Count and perform simple computations with money. <ul style="list-style-type: none"> • Standard dollars and cents notation 	4
4.B.7	Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.	4
4.B.8	Check the reasonableness of results of computations.	4
4.B.9	Use concrete models to explore addition and subtraction with fractions.	4
4.B.10	Understand and use the inverse relationships between addition and subtraction and between multiplication and division.	4
5.B.1	Recognize the appropriate use of each arithmetic operation in problem situations.	5
5.B.2	Construct, use, and explain procedures for performing addition and subtraction with fractions and decimals with: <ul style="list-style-type: none"> • Pencil-and-paper • Mental math • Calculator 	5
5.B.3	Use an efficient and accurate pencil-and-paper procedure for division of a 3-digit number by a 2-digit number.	5
5.B.4	Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.	5
5.B.5	Check the reasonableness of results of computations.	5
5.B.6	Understand and use the various relationships among operations and properties of operations.	5
6.B.1	Recognize the appropriate use of each arithmetic operation in problem situations.	6
6.B.2	Construct, use, and explain procedures for performing calculations with fractions and decimals with: <ul style="list-style-type: none"> • Pencil-and-paper • Mental math • Calculator 	6
6.B.3	Use an efficient and accurate pencil-and-paper procedure for division of a 3-digit number by a 2-digit number.	6
6.B.4	Select pencil-and-paper, mental math, or a calculator as the appropriate computational method in a given situation depending on the context and numbers.	6
6.B.5	Find squares and cubes of whole numbers.	6
6.B.6	Check the reasonableness of results of computations.	6
6.B.7	Understand and use the various relationships among operations and properties of operations.	6
6.B.8	Understand and apply the standard algebraic order of operations for the four basic operations, including appropriate use of parentheses.	6
7.B.1	Use and explain procedures for performing calculations with integers and all number types named above with:	7

	<ul style="list-style-type: none"> • Pencil-and-paper • Mental math • Calculator 	
7.B.2	Use exponentiation to find whole number powers of numbers.	7
7.B.3	Understand and apply the standard algebraic order of operations, including appropriate use of parentheses.	7
8.B.1	Use and explain procedures for performing calculations involving addition, subtraction, multiplication, division, and exponentiation with integers and all number types named above with: <ul style="list-style-type: none"> • Pencil-and-paper • Mental math • Calculator 	8
8.B.2	Use exponentiation to find whole number powers of numbers.	8
8.B.3	Find square and cube roots of numbers and understand the inverse nature of powers and roots.	8
8.B.4	Solve problems involving proportions and percents.	8
8.B.5	Understand and apply the standard algebraic order of operations, including appropriate use of parentheses.	8
12.B.1	Extend understanding and use of operations to real numbers and algebraic procedures.	12
12.B.2	Develop, apply, and explain methods for solving problems involving rational and negative exponents.	12
12.B.3	Perform operations on matrices. <ul style="list-style-type: none"> • Addition and subtraction • Scalar multiplication 	12
12.B.4	Understand and apply the laws of exponents to simplify expressions involving numbers raised to powers.	12
C	Estimation	
2.C.1	Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set.	2
2.C.2	Determine the reasonableness of an answer by estimating the result of computations (e.g., $15 + 16$ is not 211).	2
2.C.3	Explore a variety of strategies for estimating both quantities (e.g., the number of marbles in a jar) and results of computation.	2
3.C.1	Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set.	3
3.C.2	Construct and use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the result of computations.	3
3.C.3	Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.	3
3.C.4	Use estimation to determine whether the result of a computation (either by calculator or by hand) is reasonable.	3
4.C.1	Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set.	4
4.C.2	Construct and use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the results of computations.	4
4.C.3	Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.	4
4.C.4	Use estimation to determine whether the result of a computation (either by calculator or by hand) is reasonable.	4
5.C.1	Use a variety of estimation strategies for both number and computation.	5
5.C.2	Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.	5
5.C.3	Determine the reasonableness of an answer by estimating the result of operations.	5
5.C.4	Determine whether a given estimate is an overestimate or an underestimate.	5
6.C.1	Use a variety of strategies for estimating both quantities and the results of computations.	6
6.C.2	Recognize when an estimate is appropriate, and understand the usefulness of an estimate as distinct from an exact answer.	6
6.C.3	Determine the reasonableness of an answer by estimating the result of operations.	6
6.C.4	Determine whether a given estimate is an overestimate or an underestimate.	6
7.C.1	Use equivalent representations of numbers such as fractions, decimals, and percents to facilitate estimation.	7

8.C.1	Estimate square and cube roots of numbers.	8
8.C.2	Use equivalent representations of numbers such as fractions, decimals, and percents to facilitate estimation.	8
8.C.3	Recognize the limitations of estimation and assess the amount of error resulting from estimation.	8
12.C.1	Recognize the limitations of estimation, assess the amount of error resulting from estimation, and determine whether the error is within acceptable tolerance limits.	12
2	GEOMETRY AND MEASUREMENT: ALL STUDENTS WILL DEVELOP SPATIAL SENSE AND THE ABILITY TO USE GEOMETRIC PROPERTIES, RELATIONSHIPS, AND MEASUREMENT TO MODEL, DESCRIBE AND ANALYZE PHENOMENA.	
A	Geometric Properties	
2.A.1	Identify and describe spatial relationships among objects in space and their relative shapes and sizes. <ul style="list-style-type: none"> • Inside/outside, left/right, above/below, between • Smaller/larger/same size, wider/ narrower, longer/shorter • Congruence (i.e., same size and shape) 	2
2.A.2	Use concrete objects, drawings, and computer graphics to identify, classify, and describe standard three-dimensional and two-dimensional shapes. <ul style="list-style-type: none"> • Vertex, edge, face, side • 3D figures - cube, rectangular prism, sphere, cone, cylinder, and pyramid • 2D figures - square, rectangle, circle, triangle • Relationships between three- and two-dimensional shapes (i.e., the face of a 3D shape is a 2D shape) 	2
2.A.3	Describe, identify and create instances of line symmetry.	2
2.A.4	Recognize, describe, extend and create designs and patterns with geometric objects of different shapes and colors.	2
3.A.1	Identify and describe spatial relationships of two or more objects in space. <ul style="list-style-type: none"> • Direction, orientation, and perspectives (e.g., which object is on your left when you are standing here?) • Relative shapes and sizes 	3
3.A.2	Use properties of standard three-dimensional and two-dimensional shapes to identify, classify, and describe them. <ul style="list-style-type: none"> • Vertex, edge, face, side, angle • 3D figures - cube, rectangular prism, sphere, cone, cylinder, and pyramid • 2D figures - square, rectangle, circle, triangle, pentagon, hexagon, octagon 	3
3.A.3	Identify and describe relationships among two-dimensional shapes. <ul style="list-style-type: none"> • Same size, same shape • Lines of symmetry 	3
3.A.4	Understand and apply concepts involving lines, angles, and circles. <ul style="list-style-type: none"> • Line, line segment, endpoint 	3
3.A.5	Recognize, describe, extend, and create space-filling patterns.	3
4.A.1	Identify and describe spatial relationships of two or more objects in space. <ul style="list-style-type: none"> • Direction, orientation, and perspectives (e.g., which object is on your left when you are standing here?) • Relative shapes and sizes • Shadows (projections) of everyday objects 	4
4.A.2	Use properties of standard three-dimensional and two-dimensional shapes to identify, classify, and describe them. <ul style="list-style-type: none"> • Vertex, edge, face, side, angle • 3D figures - cube, rectangular prism, sphere, cone, cylinder, and pyramid • 2D figures - square, rectangle, circle, triangle, quadrilateral, pentagon, hexagon, octagon • Inclusive relationships - squares are rectangles, cubes are rectangular prisms 	4
4.A.3	Identify and describe relationships among two-dimensional shapes. <ul style="list-style-type: none"> • Congruence 	4

	<ul style="list-style-type: none"> • Lines of symmetry 	
4.A.4	<p>Understand and apply concepts involving lines, angles, and circles.</p> <ul style="list-style-type: none"> • Point, line, line segment, endpoint • Parallel, perpendicular • Angles - acute, right, obtuse • Circles - diameter, radius, center 	4
4.A.5	<p>Recognize, describe, extend, and create space-filling patterns.</p>	4
5.A.1	<p>Understand and apply concepts involving lines and angles.</p> <ul style="list-style-type: none"> • Notation for line, ray, angle, line segment • Properties of parallel, perpendicular, and intersecting lines • Sum of the measures of the interior angles of a triangle is 180° 	5
5.A.2	<p>Identify, describe, compare, and classify polygons.</p> <ul style="list-style-type: none"> • Triangles by angles and sides • Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi • Polygons by number of sides. • Equilateral, equiangular, regular • All points equidistant from a given point form a circle 	5
5.A.3	<p>Identify similar figures.</p>	5
5.A.4	<p>Understand and apply the concepts of congruence and symmetry (line and rotational).</p>	5
6.A.1	<p>Understand and apply concepts involving lines and angles.</p> <ul style="list-style-type: none"> • Notation for line, ray, angle, line segment • Properties of parallel, perpendicular, and intersecting lines • Sum of the measures of the interior angles of a triangle is 180° 	6
6.A.2	<p>Identify, describe, compare, and classify polygons and circles.</p> <ul style="list-style-type: none"> • Triangles by angles and sides • Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi • Polygons by number of sides. • Equilateral, equiangular, regular • All points equidistant from a given point form a circle 	6
6.A.3	<p>Identify similar figures.</p>	6
6.A.4	<p>Understand and apply the concepts of congruence and symmetry (line and rotational).</p>	6
6.A.5	<p>Compare properties of cylinders, prisms, cones, pyramids, and spheres.</p>	6
6.A.6	<p>Identify, describe, and draw the faces or shadows (projections) of three-dimensional geometric objects from different perspectives.</p>	6
6.A.7	<p>Identify a three-dimensional shape with given projections (top, front and side views).</p>	6
6.A.8	<p>Identify a three-dimensional shape with a given net (i.e., a flat pattern that folds into a 3D shape).</p>	6
7.A.1	<p>Understand and apply properties of polygons.</p> <ul style="list-style-type: none"> • Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi • Regular polygons 	7
7.A.2	<p>Understand and apply the concept of similarity.</p> <ul style="list-style-type: none"> • Using proportions to find missing measures • Scale drawings • Models of 3D objects 	7

7.A.3	Use logic and reasoning to make and support conjectures about geometric objects.	7
8.A.1	Understand and apply concepts involving lines, angles, and planes. <ul style="list-style-type: none"> • Complementary and supplementary angles • Vertical angles • Bisectors and perpendicular bisectors • Parallel, perpendicular, and intersecting planes • Intersection of plane with cube, cylinder, cone, and sphere 	8
8.A.2	Understand and apply the Pythagorean theorem.	8
8.A.3	Understand and apply properties of polygons. <ul style="list-style-type: none"> • Quadrilaterals, including squares, rectangles, parallelograms, trapezoids, rhombi • Regular polygons • Sum of measures of interior angles of a polygon • Which polygons can be used alone to generate a tessellation and why 	8
8.A.4	Understand and apply the concept of similarity. <ul style="list-style-type: none"> • Using proportions to find missing measures • Scale drawings • Models of 3D objects 	8
8.A.5	Use logic and reasoning to make and support conjectures about geometric objects.	8
12.A.1	Use geometric models to represent real-world situations and objects and to solve problems using those models (e.g., use Pythagorean Theorem to decide whether an object can fit through a doorway).	12
12.A.2	Draw perspective views of 3D objects on isometric dot paper, given 2D representations (e.g., nets or projective views).	12
12.A.3	Apply the properties of geometric shapes. <ul style="list-style-type: none"> • Parallel lines - transversal, alternate interior angles, corresponding angles • Triangles • Conditions for congruence <ul style="list-style-type: none"> ▪ Segment joining midpoints of two sides is parallel to and half the length of the third side ▪ Triangle Inequality • Minimal conditions for a shape to be a special quadrilateral • Circles - arcs, central and inscribed angles, chords, tangents • Self-similarity 	12
12.A.4	Use reasoning and some form of proof to verify or refute conjectures and theorems. <ul style="list-style-type: none"> • Verification or refutation of proposed proofs • Simple proofs involving congruent triangles • Counterexamples to incorrect conjectures 	12
B	Transforming Shapes	
2.B.1	Use simple shapes to make designs, patterns, and pictures.	2
2.B.2	Combine and subdivide simple shapes to make other shapes.	2
3.B.1	Describe and use geometric transformations (slide, flip, turn).	3
3.B.2	Investigate the occurrence of geometry in nature and art.	3
4.B.1	Use simple shapes to cover an area (tessellations).	4
4.B.2	Describe and use geometric transformations (slide, flip, turn).	4
4.B.3	Investigate the occurrence of geometry in nature and art.	4

5.B.1	Use a translation, a reflection, or a rotation to map one figure onto another congruent figure.	5
5.B.2	Recognize, identify, and describe geometric relationships and properties as they exist in nature, art, and other real-world settings.	5
6.B.1	Use a translation, a reflection, or a rotation to map one figure onto another congruent figure.	6
6.B.2	Recognize, identify, and describe geometric relationships and properties as they exist in nature, art, and other real-world settings.	6
7.B.1	Understand and apply transformations. <ul style="list-style-type: none"> Finding the image, given the pre-image, and vice-versa Sequence of transformations needed to map one figure onto another Reflections, rotations, and translations result in images congruent to the pre-image Dilations (stretching/shrinking) result in images similar to the pre-image 	7
8.B.1	Understand and apply transformations. <ul style="list-style-type: none"> Finding the image, given the pre-image, and vice-versa Sequence of transformations needed to map one figure onto another Reflections, rotations, and translations result in images congruent to the pre-image Dilations (stretching/shrinking) result in images similar to the pre-image 	8
8.B.2	Use iterative procedures to generate geometric patterns. <ul style="list-style-type: none"> Fractals (e.g., the Koch Snowflake) Self-similarity Construction of initial stages Patterns in successive stages (e.g., number of triangles in each stage of Sierpinski's Triangle) 	8
12.B.1	Determine, describe, and draw the effect of a transformation, or a sequence of transformations, on a geometric or algebraic object, and, conversely, determine whether and how one object can be transformed to another by a transformation or a sequence of transformations.	12
12.B.2	Recognize three-dimensional figures obtained through transformations of two-dimensional figures (e.g., cone as rotating an isosceles triangle about an altitude), using software as an aid to visualization.	12
12.B.3	Determine whether two or more given shapes can be used to generate a tessellation.	12
12.B.4	Generate and analyze iterative geometric patterns. <ul style="list-style-type: none"> Fractals (e.g., Sierpinski's Triangle) Patterns in areas and perimeters of self-similar figures Outcome of extending iterative process indefinitely 	12
C	Coordinate Geometry	
2.C.1	Give and follow directions for getting from one point to another on a map or grid.	2
3.C.1	Locate and name points in the first quadrant on a coordinate grid.	3
4.C.1	Locate and name points in the first quadrant on a coordinate grid.	4
4.C.2	Use coordinates to give or follow directions from one point to another on a map or grid.	4
5.C.1	Create geometric shapes with specified properties in the first quadrant on a coordinate grid.	5
6.C.1	Create geometric shapes with specified properties in the first quadrant on a coordinate grid.	6
7.C.1	Use coordinates in four quadrants to represent geometric concepts.	7
7.C.2	Use a coordinate grid to model and quantify transformations (e.g., translate right 4 units).	7
8.C.1	Use coordinates in four quadrants to represent geometric concepts.	8
8.C.2	Use a coordinate grid to model and quantify transformations (e.g., translate right 4 units).	8
12.C.1	Use coordinate geometry to represent and verify properties of lines. <ul style="list-style-type: none"> Distance between two points Midpoint and slope of a line segment 	12

	<ul style="list-style-type: none"> Finding the intersection of two lines Lines with the same slope are parallel Lines that are perpendicular have slopes whose product is -1 	
12.C.2	Show position and represent motion in the coordinate plane using vectors. <ul style="list-style-type: none"> Addition and subtraction of vectors 	12
D	Units of Measurement	
2.D.1	Directly compare and order objects according to measurable attributes. <ul style="list-style-type: none"> Attributes - length, weight, capacity, time, temperature 	2
2.D.2	Recognize the need for a uniform unit of measure.	2
2.D.3	Select and use appropriate standard and non-standard units of measure and standard measurement tools to solve real-life problems. <ul style="list-style-type: none"> Length - inch, foot, yard, centimeter, meter Weight - pound, gram, kilogram Capacity - pint, quart, liter Time - second, minute, hour, day, week, month, year Temperature - degrees Celsius, degrees Fahrenheit 	2
2.D.4	Estimate measures.	2
3.D.1	Understand that everyday objects have a variety of attributes, each of which can be measured in many ways.	3
3.D.2	Select and use appropriate standard units of measure and measurement tools to solve real-life problems. <ul style="list-style-type: none"> Length - fractions of an inch (1/4, 1/2), mile, decimeter, kilometer Area - square inch, square centimeter Weight - ounce Capacity - fluid ounce, cup, gallon, milliliter 	3
3.D.3	Incorporate estimation in measurement activities (e.g., estimate before measuring).	3
4.D.1	Understand that everyday objects have a variety of attributes, each of which can be measured in many ways.	4
4.D.2	Select and use appropriate standard units of measure and measurement tools to solve real-life problems <ul style="list-style-type: none"> Length - fractions of an inch (1/8, 1/4, 1/2), mile, decimeter, kilometer Area - square inch, square centimeter Volume - cubic inch, cubic centimeter Weight - ounce Capacity - fluid ounce, cup, gallon, milliliter 	4
4.D.3	Develop and use personal referents to approximate standard units of measure (e.g., a common paper clip is about an inch long).	4
4.D.4	Incorporate estimation in measurement activities (e.g., estimate before measuring).	4
4.D.5	Solve problems involving elapsed time.	4
5.D.1	Select and use appropriate units to measure angles and area.	5
5.D.2	Convert measurement units within a system (e.g., 3 feet = ___ inches).	5
5.D.3	Know approximate equivalents between the standard and metric systems (e.g., one kilometer is approximately 6/10 of a mile).	5
5.D.4	Use measurements and estimates to describe and compare phenomena.	5
6.D.1	Select and use appropriate units to measure angles, area, surface area, and volume.	6
6.D.2	Use a scale to find a distance on a map or a length on a scale drawing.	6
6.D.3	Convert measurement units within a system (e.g., 3 feet = ___ inches).	6
6.D.4	Know approximate equivalents between the standard and metric systems (e.g., one kilometer is approximately 6/10 of a mile).	6
6.D.5	Use measurements and estimates to describe and compare phenomena.	6

7.D.1	Solve problems requiring calculations that involve different units of measurement within a measurement system (e.g., 4'3" plus 7'10" equals 12'1").	7
7.D.2	Select and use appropriate units and tools to measure quantities to the degree of precision needed in a particular problem-solving situation.	7
7.D.3	Recognize that all measurements of continuous quantities are approximations.	7
8.D.1	Solve problems requiring calculations that involve different units of measurement within a measurement system (e.g., 4'3" plus 7'10" equals 12'1").	8
8.D.2	Use approximate equivalents between standard and metric systems to estimate measurements (e.g., 5 kilometers is about 3 miles).	8
8.D.3	Recognize that the degree of precision needed in calculations depends on how the results will be used and the instruments used to generate the measurements.	8
8.D.4	Select and use appropriate units and tools to measure quantities to the degree of precision needed in a particular problem-solving situation.	8
8.D.5	Recognize that all measurements of continuous quantities are approximations.	8
8.D.6	Solve problems that involve compound measurement units, such as speed (miles per hour), air pressure (pounds per square inch), and population density (persons per square mile).	8
12.D.1	Understand and use the concept of significant digits.	12
12.D.2	Choose appropriate tools and techniques to achieve the specified degree of precision and error needed in a situation. <ul style="list-style-type: none"> • Degree of accuracy of a given measurement tool • Finding the interval in which a computed measure (e.g., area or volume) lies, given the degree of precision of linear measurements 	12
E	Measuring Geometric Objects	
2.E.1	Directly measure the perimeter of simple two-dimensional shapes.	2
2.E.2	Directly measure the area of simple two-dimensional shapes by covering them with squares.	2
3.E.1	Determine the area of simple two-dimensional shapes on a square grid.	3
3.E.2	Determine the perimeter of simple shapes by measuring all of the sides.	3
3.E.3	Measure and compare the volume of three-dimensional objects using materials such as rice or cubes.	3
4.E.1	Determine the area of simple two-dimensional shapes on a square grid.	4
4.E.2	Distinguish between perimeter and area and use each appropriately in problem-solving situations.	4
4.E.3	Measure and compare the volume of three-dimensional objects using materials such as rice or cubes.	4
5.E.1	Use a protractor to measure angles.	5
5.E.2	Develop and apply strategies and formulas for finding perimeter and area. <ul style="list-style-type: none"> • Square • Rectangle 	5
5.E.3	Recognize that rectangles with the same perimeter do not necessarily have the same area and vice versa.	5
5.E.4	Develop informal ways of approximating the measures of familiar objects (e.g., use a grid to approximate the area of the bottom of one's foot).	5
6.E.1	Use a protractor to measure angles.	6
6.E.2	Develop and apply strategies and formulas for finding perimeter and area. <ul style="list-style-type: none"> • Triangle, square, rectangle, parallelogram, and trapezoid • Circumference and area of a circle 	6
6.E.3	Develop and apply strategies and formulas for finding the surface area and volume of rectangular prisms and cylinders.	6
6.E.4	Recognize that shapes with the same perimeter do not necessarily have the same area and vice versa.	6
6.E.5	Develop informal ways of approximating the measures of familiar objects (e.g., use a grid to approximate the area of the bottom of one's foot).	6
7.E.1	Develop and apply strategies for finding perimeter and area. <ul style="list-style-type: none"> • Geometric figures made by combining triangles, rectangles and circles or parts of circles • Estimation of area using grids of various sizes 	7
7.E.2	Recognize that the volume of a pyramid or cone is one-third of the volume of the prism or cylinder with the same base and height (e.g., use rice to compare volumes of figures with same base and height).	7

8.E.1	Develop and apply strategies for finding perimeter and area. <ul style="list-style-type: none"> • Geometric figures made by combining triangles, rectangles and circles or parts of circles • Estimation of area using grids of various sizes • Impact of a dilation on the perimeter and area of a 2-dimensional figure 	8
8.E.2	Recognize that the volume of a pyramid or cone is one-third of the volume of the prism or cylinder with the same base and height (e.g., use rice to compare volumes of figures with same base and height).	8
8.E.3	Develop and apply strategies and formulas for finding the surface area and volume of a three-dimensional figure. <ul style="list-style-type: none"> • Volume - prism, cone, pyramid • Surface area - prism (triangular or rectangular base), pyramid (triangular or rectangular base) • Impact of a dilation on the surface area and volume of a three-dimensional figure 	8
8.E.4	Use formulas to find the volume and surface area of a sphere.	8
12.E.1	Use techniques of indirect measurement to represent and solve problems. <ul style="list-style-type: none"> • Similar triangles • Pythagorean theorem • Right triangle trigonometry (sine, cosine, tangent) 	12
12.E.2	Use a variety of strategies to determine perimeter and area of plane figures and surface area and volume of 3D figures. <ul style="list-style-type: none"> • Approximation of area using grids of different sizes • Finding which shape has minimal (or maximal) area, perimeter, volume, or surface area under given conditions using graphing calculators, dynamic geometric software, and/or spreadsheets • Estimation of area, perimeter, volume, and surface area 	12
3	PATTERNS AND ALGEBRA: ALL STUDENTS WILL REPRESENT AND ANALYZE RELATIONSHIPS AMONG VARIABLE QUANTITIES AND SOLVE PROBLEMS INVOLVING PATTERNS, FUNCTIONS, AND ALGEBRAIC CONCEPTS AND PROCESSES.	
A	Patterns	
2.A.1	Recognize, describe, extend, and create patterns. <ul style="list-style-type: none"> • Using concrete materials (manipulatives), pictures, rhythms, & whole numbers • Descriptions using words and symbols (e.g., "add two" or "+2") • Repeating patterns • Whole number patterns that grow or shrink as a result of repeatedly adding or subtracting a fixed number (e.g., skip counting forward or backward) 	2
3.A.1	Recognize, describe, extend, and create patterns. <ul style="list-style-type: none"> • Descriptions using words and number sentences/expressions • Whole number patterns that grow or shrink as a result of repeatedly adding, subtracting, multiplying by, or dividing by a fixed number (e.g., 5, 8, 11, . . . or 800, 400, 200, . . .) 	3
4.A.1	Recognize, describe, extend, and create patterns. <ul style="list-style-type: none"> • Descriptions using words, number sentences/expressions, graphs, tables, variables (e.g., shape, blank, or letter) • Sequences that stop or that continue infinitely • Whole number patterns that grow or shrink as a result of repeatedly adding, subtracting, multiplying by, or dividing by a fixed number (e.g., 5, 8, 11, . . . or 800, 400, 200, . . .) • Sequences can often be extended in more than one way (e.g., the next term after 1, 2, 4, . . . could be 8, or 7, or . . .) 	4
5.A.1	Recognize, describe, extend, and create patterns involving whole numbers. <ul style="list-style-type: none"> • Descriptions using tables, verbal rules, simple equations, and graphs 	5
6.A.1	Recognize, describe, extend, and create patterns involving whole numbers and rational numbers. <ul style="list-style-type: none"> • Descriptions using tables, verbal rules, simple equations, and graphs 	6

	<ul style="list-style-type: none"> Formal iterative formulas (e.g., $\text{NEXT} = \text{NOW} * 3$) Recursive patterns, including Pascal's Triangle (where each entry is the sum of the entries above it) and the Fibonacci Sequence: 1, 1, 2, 3, 5, 8, . . . (where $\text{NEXT} = \text{NOW} + \text{PREVIOUS}$) 	
7.A.1	<p>Recognize, describe, extend, and create patterns involving whole numbers, rational numbers, and integers.</p> <ul style="list-style-type: none"> Descriptions using tables, verbal and symbolic rules, graphs, simple equations or expressions Finite and infinite sequences Generating sequences by using calculators to repeatedly apply a formula 	7
8.A.1	<p>Recognize, describe, extend, and create patterns involving whole numbers, rational numbers, and integers.</p> <ul style="list-style-type: none"> Descriptions using tables, verbal and symbolic rules, graphs, simple equations or expressions Finite and infinite sequences Arithmetic sequences (i.e., sequences generated by repeated addition of a fixed number, positive or negative) Geometric sequences (i.e., sequences generated by repeated multiplication by a fixed positive ratio, greater than 1 or less than 1) Generating sequences by using calculators to repeatedly apply a formula 	8
12.A.1	<p>Use models and algebraic formulas to represent and analyze sequences and series.</p> <ul style="list-style-type: none"> Explicit formulas for nth terms Sums of finite arithmetic series Sums of finite and infinite geometric series 	12
12.A.2	Develop an informal notion of limit.	12
12.A.3	Use inductive reasoning to form generalizations.	12
B	Functions and Relationships	
2.B.1	Use concrete and pictorial models of function machines to explore the basic concept of a function.	2
3.B.1	<p>Use concrete and pictorial models to explore the basic concept of a function.</p> <ul style="list-style-type: none"> Input/output tables, T-charts 	3
4.B.1	<p>Use concrete and pictorial models to explore the basic concept of a function.</p> <ul style="list-style-type: none"> Input/output tables, T-charts Combining two function machines Reversing a function machine 	4
5.B.1	Describe arithmetic operations as functions, including combining operations and reversing them.	5
5.B.2	Graph points satisfying a function from T-charts, from verbal rules, and from simple equations.	5
6.B.1	Describe the general behavior of functions given by formulas or verbal rules (e.g., graph to determine whether increasing or decreasing, linear or not).	6
7.B.1	<p>Graph functions, and understand and describe their general behavior.</p> <ul style="list-style-type: none"> Equations involving two variables 	7
8.B.1	<p>Graph functions, and understand and describe their general behavior.</p> <ul style="list-style-type: none"> Equations involving two variables Rates of change (informal notion of slope) 	8
8.B.2	Recognize and describe the difference between linear and exponential growth, using tables, graphs, and equations.	8
12.B.1	Understand relations and functions and select, convert flexibly among, and use various representations for them, including equations or inequalities, tables, and graphs.	12
12.B.2	<p>Analyze and explain the general properties and behavior of functions of one variable, using appropriate graphing technologies.</p> <ul style="list-style-type: none"> Slope of a line or curve Domain and range Intercepts 	12

	<ul style="list-style-type: none"> • Continuity • Maximum/minimum • Estimating roots of equations • Intersecting points as solutions of systems of equations • Rates of change 	
12.B.3	<p>Understand and perform transformations on commonly-used functions.</p> <ul style="list-style-type: none"> • Translations, reflections, dilations • Effects on linear and quadratic graphs of parameter changes in equations • Using graphing calculators or computers for more complex functions 	12
12.B.4	<p>Understand and compare the properties of classes of functions, including exponential, polynomial, rational, and trigonometric functions.</p> <ul style="list-style-type: none"> • Linear vs. non-linear • Symmetry • Increasing/decreasing on an interval 	12
C	Modeling	
2.C.1	Recognize and describe changes over time (e.g., temperature, height).	2
2.C.2	<p>Construct and solve simple open sentences involving addition or subtraction.</p> <ul style="list-style-type: none"> • Result unknown (e.g., $6 - 2 = \underline{\quad}$ or $n = 3 + 5$) • Part unknown (e.g., $3 + \square = 8$) 	2
3.C.1	<p>Recognize and describe change in quantities.</p> <ul style="list-style-type: none"> • Graphs representing change over time (e.g., temperature, height) 	3
3.C.2	Construct and solve simple open sentences involving addition or subtraction (e.g., $3 + 6 = \underline{\quad}$, $n = 15 - 3$, $3 + \underline{\quad} = 3$, $16 - c = 7$).	3
4.C.1	<p>Recognize and describe change in quantities.</p> <ul style="list-style-type: none"> • Graphs representing change over time (e.g., temperature, height) • How change in one physical quantity can produce a corresponding change in another (e.g., pitch of a sound depends on the rate of vibration) 	4
4.C.2	Construct and solve simple open sentences involving any one operation (e.g., $3 \times 6 = \underline{\quad}$, $n = 15 \div 3$, $3 \times \underline{\quad} = 0$, $16 - c = 7$).	4
5.C.1	<p>Use number sentences to model situations.</p> <ul style="list-style-type: none"> • Using variables to represent unknown quantities • Using concrete materials, tables, graphs, verbal rules, algebraic expressions/equations 	5
5.C.2	<p>Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events.</p> <ul style="list-style-type: none"> • Changes over time • Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly) 	5
6.C.1	<p>Use patterns, relations, and linear functions to model situations.</p> <ul style="list-style-type: none"> • Using variables to represent unknown quantities • Using concrete materials, tables, graphs, verbal rules, algebraic expressions/equations/inequalities 	6
6.C.2	<p>Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events.</p> <ul style="list-style-type: none"> • Changes over time • Relations between quantities • Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly) 	6
7.C.1	Analyze functional relationships to explain how a change in one quantity can result in a change in another, using pictures, graphs, charts, and equations.	7
7.C.2	<p>Use patterns, relations, symbolic algebra, and linear functions to model situations.</p> <ul style="list-style-type: none"> • Using manipulatives, tables, graphs, verbal rules, algebraic expressions/equations/inequalities • Growth situations, such as population growth and compound interest, using recursive (e.g., NOW-NEXT) formulas (cf. science standard 5.5 and social 	7

	studies standard 6.6)	
8.C.1	Analyze functional relationships to explain how a change in one quantity can result in a change in another, using pictures, graphs, charts, and equations.	8
8.C.2	Use patterns, relations, symbolic algebra, and linear functions to model situations. <ul style="list-style-type: none"> Using concrete materials (manipulatives), tables, graphs, verbal rules, algebraic expressions/equations/inequalities Growth situations, such as population growth and compound interest, using recursive (e.g., NOW-NEXT) formulas (cf. science standard 5.5 and social studies standard 6.6) 	8
12.C.1	Use functions to model real-world phenomena and solve problems that involve varying quantities. <ul style="list-style-type: none"> Linear, quadratic, exponential, periodic (sine and cosine), and step functions (e.g., price of mailing a first-class letter over the past 200 years) Direct and inverse variation Absolute value Expressions, equations and inequalities Same function can model variety of phenomena Growth/decay and change in the natural world Applications in mathematics, biology, and economics (including compound interest) 	12
12.C.2	Analyze and describe how a change in an independent variable leads to change in a dependent one.	12
12.C.3	Convert recursive formulas to linear or exponential functions (e.g., Tower of Hanoi and doubling).	12
D	Procedures	
2.D.1	Understand and apply (but don't name) the following properties of addition: <ul style="list-style-type: none"> Commutative (e.g., $5 + 3 = 3 + 5$) Zero as the identity element (e.g., $7 + 0 = 7$) Associative (e.g., $7 + 3 + 2$ can be found by first adding either $7 + 3$ or $3 + 2$) 	2
3.D.1	Understand and apply the properties of operations and numbers. <ul style="list-style-type: none"> Commutative (e.g., $3 \times 7 = 7 \times 3$) Identity element for multiplication is 1 (e.g., $1 \times 8 = 8$) Any number multiplied by zero is zero 	3
3.D.2	Understand and use the concepts of equals, less than, and greater than to describe relations between numbers. <ul style="list-style-type: none"> Symbols ($=$, $<$, $>$) 	3
4.D.1	Understand, name, and apply the properties of operations and numbers. <ul style="list-style-type: none"> Commutative (e.g., $3 \times 7 = 7 \times 3$) Identity element for multiplication is 1 (e.g., $1 \times 8 = 8$) Associative (e.g., $2 \times 4 \times 25$ can be found by first multiplying either 2×4 or 4×25) Division by zero is undefined Any number multiplied by zero is zero. 	4
4.D.2	Understand and use the concepts of equals, less than, and greater than in simple number sentences. <ul style="list-style-type: none"> Symbols ($=$, $<$, $>$) 	4
5.D.1	Solve simple linear equations with manipulatives and informally. <ul style="list-style-type: none"> Whole-number coefficients only, answers also whole numbers Variables on one side of equation 	5
6.D.1	Solve simple linear equations with manipulatives and informally. <ul style="list-style-type: none"> Whole-number coefficients only, answers also whole numbers Variables on one or both sides of equation 	6
6.D.2	Understand and apply the properties of operations and numbers.	6

	<ul style="list-style-type: none"> • Distributive property • The product of a number and its reciprocal is 1 	
6.D.3	Evaluate numerical expressions.	6
6.D.4	Extend understanding and use of inequality. <ul style="list-style-type: none"> • Symbols (3, 1, \pounds) 	6
7.D.1	Use graphing techniques on a number line. <ul style="list-style-type: none"> • Absolute value • Arithmetic operations represented by vectors (arrows) (e.g., "-3 + 6" is "left 3, right 6") 	7
7.D.2	Solve simple linear equations informally and graphically. <ul style="list-style-type: none"> • Multi-step, integer coefficients only (although answers may not be integers) • Using paper-and-pencil, calculators, graphing calculators, spreadsheets, and other technology 	7
7.D.3	Create, evaluate, and simplify algebraic expressions involving variables. <ul style="list-style-type: none"> • Order of operations, including appropriate use of parentheses • Substitution of a number for a variable 	7
7.D.4	Understand and apply the properties of operations, numbers, equations, and inequalities. <ul style="list-style-type: none"> • Additive inverse • Multiplicative inverse 	7
8.D.1	Use graphing techniques on a number line. <ul style="list-style-type: none"> • Absolute value • Arithmetic operations represented by vectors (arrows) (e.g., "-3 + 6" is "left 3, right 6") 	8
8.D.2	Solve simple linear equations informally, graphically, and using formal algebraic methods. <ul style="list-style-type: none"> • Multi-step, integer coefficients only (although answers may not be integers) • Using paper-and-pencil, calculators, graphing calculators, spreadsheets, and other technology 	8
8.D.3	Solve simple linear inequalities.	8
8.D.4	Create, evaluate, and simplify algebraic expressions involving variables. <ul style="list-style-type: none"> • Order of operations, including appropriate use of parentheses • Distributive property • Substitution of a number for a variable • Translation of a verbal phrase or sentence into an algebraic expression, equation, or inequality, and vice versa 	8
8.D.5	Understand and apply the properties of operations, numbers, equations, and inequalities. <ul style="list-style-type: none"> • Additive inverse • Multiplicative inverse • Addition and multiplication properties of equality • Addition and multiplication properties of inequalities 	8
12.D.1	Evaluate and simplify expressions. <ul style="list-style-type: none"> • Add and subtract polynomials • Multiply a polynomial by a monomial or binomial • Divide a polynomial by a monomial 	12
12.D.2	Select and use appropriate methods to solve equations and inequalities. <ul style="list-style-type: none"> • Linear equations - algebraically • Quadratic equations - factoring (when the coefficient of x^2 is 1) and using the quadratic formula • All types of equations using graphing, computer, and graphing calculator techniques 	12

12.D.3	Judge the meaning, utility, and reasonableness of the results of symbol manipulations, including those carried out by technology.	12
4	DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS: ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE CONCEPTS AND TECHNIQUES OF DATA ANALYSIS, PROBABILITY, AND DISCRETE MATHEMATICS, AND WILL USE THEM TO MODEL SITUATIONS, SOLVE PROBLEMS, AND ANALYZE AND DRAW APPROPRIATE INFERENCES FROM DATA.	
A	Data Analysis	
2.A.1	Collect, generate, record, and organize data in response to questions, claims, or curiosity. <ul style="list-style-type: none"> Data collected from students' everyday experiences Data generated from chance devices, such as spinners and dice 	2
2.A.2	Read, interpret, construct, and analyze displays of data. <ul style="list-style-type: none"> Pictures, tally chart, pictograph, bar graph, Venn diagram Smallest to largest, most frequent (mode) 	2
3.A.1	Collect, generate, organize, and display data in response to questions, claims, or curiosity. <ul style="list-style-type: none"> Data collected from the classroom environment 	3
3.A.2	Read, interpret, construct, analyze, generate questions about, and draw inferences from displays of data. <ul style="list-style-type: none"> Pictograph, bar graph, table 	3
4.A.1	Collect, generate, organize, and display data in response to questions, claims, or curiosity. <ul style="list-style-type: none"> Data collected from the school environment 	4
4.A.2	Read, interpret, construct, analyze, generate questions about, and draw inferences from displays of data. <ul style="list-style-type: none"> Pictograph, bar graph, line plot, line graph, table Average (mean), most frequent (mode), middle term (median) 	4
5.A.1	Collect, generate, organize, and display data. <ul style="list-style-type: none"> Data generated from surveys 	5
5.A.2	Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data. <ul style="list-style-type: none"> Bar graph, line graph, circle graph, table Range, median, and mean 	5
5.A.3	Respond to questions about data and generate their own questions and hypotheses.	5
6.A.1	Collect, generate, organize, and display data. <ul style="list-style-type: none"> Data generated from surveys 	6
6.A.2	Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data. <ul style="list-style-type: none"> Bar graph, line graph, circle graph, table, histogram Range, median, and mean Calculators and computers used to record and process information 	6
6.A.3	Respond to questions about data, generate their own questions and hypotheses, and formulate strategies for answering their questions and testing their hypotheses.	6
7.A.1	Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode). <ul style="list-style-type: none"> Type of display most appropriate for given data Box-and-whisker plot, upper quartile, lower quartile Scatter plot Calculators and computer used to record and process information 	7
7.A.2	Make inferences and formulate and evaluate arguments based on displays and analysis of data.	7
8.A.1	Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode). <ul style="list-style-type: none"> Type of display most appropriate for given data 	8

	<ul style="list-style-type: none"> • Box-and-whisker plot, upper quartile, lower quartile • Scatter plot • Calculators and computer used to record and process information • Finding the median and mean (weighted average) using frequency data. • Effect of additional data on measures of central tendency 	
8.A.2	Make inferences and formulate and evaluate arguments based on displays and analysis of data.	8
8.A.3	Estimate lines of best fit and use them to interpolate within the range of the data.	8
8.A.4	Use surveys and sampling techniques to generate data and draw conclusions about large groups.	8
12.A.1	Use surveys and sampling techniques to generate data and draw conclusions about large groups. <ul style="list-style-type: none"> • Advantages/disadvantages of sample selection methods (e.g., convenience sampling, responses to survey, random sampling) 	12
12.A.2	Evaluate the use of data in real-world contexts. <ul style="list-style-type: none"> • Accuracy and reasonableness of conclusions drawn • Bias in conclusions drawn (e.g., influence of how data is displayed) • Statistical claims based on sampling 	12
12.A.3	Design a statistical experiment, conduct the experiment, and interpret and communicate the outcome.	12
12.A.4	Estimate or determine lines of best fit (or curves of best fit if appropriate) with technology, and use them to interpolate within the range of the data.	12
12.A.5	Analyze data using technology, and use statistical terminology to describe conclusions. <ul style="list-style-type: none"> • Measures of dispersion: variance, standard deviation, outliers • Correlation coefficient • Normal distribution (e.g., approximately 95% of the sample lies between two standard deviations on either side of the mean) 	12
B	Probability	
2.B.1	Use chance devices like spinners and dice to explore concepts of probability. <ul style="list-style-type: none"> • Certain, impossible • More likely, less likely, equally likely 	2
2.B.2	Provide probability of specific outcomes. <ul style="list-style-type: none"> • Probability of getting specific outcome when coin is tossed, when die is rolled, when spinner is spun (e.g., if spinner has five equal sectors, then probability of getting a particular sector is one out of five) • When picking a marble from a bag with three red marbles and four blue marbles, the probability of getting a red marble is three out of seven 	2
3.B.1	Use everyday events and chance devices, such as dice, coins, and unevenly divided spinners, to explore concepts of probability. <ul style="list-style-type: none"> • Likely, unlikely, certain, impossible • More likely, less likely, equally likely 	3
3.B.2	Predict probabilities in a variety of situations (e.g., given the number of items of each color in a bag, what is the probability that an item picked will have a particular color). <ul style="list-style-type: none"> • What students think will happen (intuitive) • Collect data and use that data to predict the probability (experimental) 	3
4.B.1	Use everyday events and chance devices, such as dice, coins, and unevenly divided spinners, to explore concepts of probability. <ul style="list-style-type: none"> • Likely, unlikely, certain, impossible, improbable, fair, unfair • More likely, less likely, equally likely • Probability of tossing "heads" does not depend on outcomes of previous tosses 	4
4.B.2	Determine probabilities of simple events based on equally likely outcomes and express them as fractions.	4
4.B.3	Predict probabilities in a variety of situations (e.g., given the number of items of each color in a bag, what is the probability that an item picked will have a particular color).	4

	<ul style="list-style-type: none"> • What students think will happen (intuitive) • Collect data and use that data to predict the probability (experimental) • Analyze all possible outcomes to find the probability (theoretical) 	
5.B.1	Determine probabilities of events. <ul style="list-style-type: none"> • Event, probability of an event • Probability of certain event is 1 and of impossible event is 0 	5
5.B.2	Determine probability using intuitive, experimental, and theoretical methods (e.g., using model of picking items of different colors from a bag). <ul style="list-style-type: none"> • Given numbers of various types of items in a bag, what is the probability that an item of one type will be picked • Given data obtained experimentally, what is the likely distribution of items in the bag 	5
5.B.3	Model situations involving probability using simulations (with spinners, dice) and theoretical models.	5
6.B.1	Determine probabilities of events. <ul style="list-style-type: none"> • Event, complementary event, probability of an event • Multiplication rule for probabilities • Probability of certain event is 1 and of impossible event is 0 • Probabilities of event and complementary event add up to 1 	6
6.B.2	Determine probability using intuitive, experimental, and theoretical methods (e.g., using model of picking items of different colors from a bag). <ul style="list-style-type: none"> • Given numbers of various types of items in a bag, what is the probability that an item of one type will be picked • Given data obtained experimentally, what is the likely distribution of items in the bag 	6
6.B.3	Explore compound events.	6
6.B.4	Model situations involving probability using simulations (with spinners, dice) and theoretical models.	6
6.B.5	Recognize and understand the connections among the concepts of independent outcomes, picking at random, and fairness.	6
7.B.1	Interpret probabilities as ratios, percents, and decimals.	7
7.B.2	Model situations involving probability with simulations (using spinners, dice, calculators and computers) and theoretical models. <ul style="list-style-type: none"> • Frequency, relative frequency 	7
7.B.3	Estimate probabilities and make predictions based on experimental and theoretical probabilities.	7
7.B.4	Play and analyze probability-based games, and discuss the concepts of fairness and expected value.	7
8.B.1	Interpret probabilities as ratios, percents, and decimals.	8
8.B.2	Determine probabilities of compound events.	8
8.B.3	Explore the probabilities of conditional events (e.g., if there are seven marbles in a bag, three red and four green, what is the probability that two marbles picked from the bag, without replacement, are both red).	8
8.B.4	Model situations involving probability with simulations (using spinners, dice, calculators and computers) and theoretical models. <ul style="list-style-type: none"> • Frequency, relative frequency 	8
8.B.5	Estimate probabilities and make predictions based on experimental and theoretical probabilities.	8
8.B.6	Play and analyze probability-based games, and discuss the concepts of fairness and expected value.	8
12.B.1	Calculate the expected value of a probability-based game, given the probabilities and payoffs of the various outcomes, and determine whether the game is fair.	12
12.B.2	Use concepts and formulas of area to calculate geometric probabilities.	12
12.B.3	Model situations involving probability with simulations (using spinners, dice, calculators and computers) and theoretical models, and solve problems using these models.	12
12.B.4	Determine probabilities in complex situations. <ul style="list-style-type: none"> • Conditional events • Complementary events • Dependent and independent events 	12

12.B.5	Estimate probabilities and make predictions based on experimental and theoretical probabilities.	12
12.B.6	Understand and use the "law of large numbers" (that experimental results tend to approach theoretical probabilities after a large number of trials).	12
C	Discrete Mathematics—Systematic Listing and Counting	
2.C.1	Sort and classify objects according to attributes. <ul style="list-style-type: none"> Venn diagrams 	2
2.C.2	Generate all possibilities in simple counting situations (e.g., all outfits involving two shirts and three pants).	2
3.C.1	Represent and classify data according to attributes, such as shape or color, and relationships. <ul style="list-style-type: none"> Venn diagrams Numerical and alphabetical order 	3
3.C.2	Represent all possibilities for a simple counting situation in an organized way and draw conclusions from this representation. <ul style="list-style-type: none"> Organized lists, charts 	3
4.C.1	Represent and classify data according to attributes, such as shape or color, and relationships. <ul style="list-style-type: none"> Venn diagrams Numerical and alphabetical order 	4
4.C.2	Represent all possibilities for a simple counting situation in an organized way and draw conclusions from this representation. <ul style="list-style-type: none"> Organized lists, charts, tree diagrams Dividing into categories (e.g., to find the total number of rectangles in a grid, find the number of rectangles of each size and add the results) 	4
5.C.1	Solve counting problems and justify that all possibilities have been enumerated without duplication. <ul style="list-style-type: none"> Organized lists, charts, tree diagrams, tables 	5
5.C.2	Explore the multiplication principle of counting in simple situations by representing all possibilities in an organized way (e.g., you can make $3 \times 4 = 12$ outfits using 3 shirts and 4 skirts).	5
6.C.1	Solve counting problems and justify that all possibilities have been enumerated without duplication. <ul style="list-style-type: none"> Organized lists, charts, tree diagrams, tables Venn diagrams 	6
6.C.2	Apply the multiplication principle of counting. <ul style="list-style-type: none"> Simple situations (e.g., you can make $3 \times 4 = 12$ outfits using 3 shirts and 4 skirts). Number of ways a specified number of items can be arranged in order (concept of permutation) Number of ways of selecting a slate of officers from a class (e.g., if there are 23 students and 3 officers, the number is $23 \times 22 \times 21$) 	6
6.C.3	List the possible combinations of two elements chosen from a given set (e.g., forming a committee of two from a group of 12 students, finding how many handshakes there will be among ten people if everyone shakes each other person's hand once).	6
7.C.1	Apply the multiplication principle of counting. <ul style="list-style-type: none"> Permutations: ordered situations with replacement (e.g., number of possible license plates) vs. ordered situations without replacement (e.g., number of possible slates of 3 class officers from a 23 student class) 	7
7.C.2	Explore counting problems involving Venn diagrams with three attributes (e.g., there are 15, 20, and 25 students respectively in the chess club, the debating team, and the engineering society; how many different students belong to the three clubs if there are 6 students in chess and debating, 7 students in chess and engineering, 8 students in debating and engineering, and 2 students in all three?).	7
7.C.3	Apply techniques of systematic listing, counting, and reasoning in a variety of different contexts.	7
8.C.1	Apply the multiplication principle of counting. <ul style="list-style-type: none"> Permutations: ordered situations with replacement (e.g., number of possible license plates) vs. ordered situations without replacement (e.g., number of possible slates of 3 class officers from a 23 student class) Factorial notation Concept of combinations (e.g., number of possible delegations of 3 out of 23 students) 	8

8.C.2	Explore counting problems involving Venn diagrams with three attributes (e.g., there are 15, 20, and 25 students respectively in the chess club, the debating team, and the engineering society; how many different students belong to the three clubs if there are 6 students in chess and debating, 7 students in chess and engineering, 8 students in debating and engineering, and 2 students in all three?).	8
8.C.3	Apply techniques of systematic listing, counting, and reasoning in a variety of different contexts.	8
12.C.1	Calculate combinations with replacement (e.g., the number of possible ways of tossing a coin 5 times and getting 3 heads) and without replacement (e.g., number of possible delegations of 3 out of 23 students).	12
12.C.2	Apply the multiplication rule of counting in complex situations, recognize the difference between situations with replacement and without replacement, and recognize the difference between ordered and unordered counting situations.	12
12.C.3	Justify solutions to counting problems.	12
12.C.4	Recognize and explain relationships involving combinations and Pascal's Triangle, and apply those methods to situations involving probability.	12
D	Discrete Mathematics—Vertex-Edge Graphs and Algorithms	
2.D.1	Follow simple sets of directions (e.g., from one location to another, or from a recipe).	2
2.D.2	Color simple maps with a small number of colors.	2
2.D.3	Play simple two-person games (e.g., tic-tac-toe) and informally explore the idea of what the outcome should be.	2
2.D.4	Explore concrete models of vertex-edge graphs (e.g. vertices as "islands" and edges as "bridges"). <ul style="list-style-type: none"> • Paths from one vertex to another 	2
3.D.1	Follow, devise, and describe practical sets of directions (e.g., to add two 2-digit numbers).	3
3.D.2	Explore vertex-edge graphs <ul style="list-style-type: none"> • Vertex, edge • Path 	3
3.D.3	Find the smallest number of colors needed to color a map.	3
4.D.1	Follow, devise, and describe practical sets of directions (e.g., to add two 2-digit numbers).	4
4.D.2	Play two-person games and devise strategies for winning the games (e.g., "make 5" where players alternately add 1 or 2 and the person who reaches 5, or another designated number, is the winner).	4
4.D.3	Explore vertex-edge graphs and tree diagrams. <ul style="list-style-type: none"> • Vertex, edge, neighboring/adjacent, number of neighbors • Path, circuit (i.e., path that ends at its starting point) 	4
4.D.4	Find the smallest number of colors needed to color a map or a graph.	4
5.D.1	Devise strategies for winning simple games (e.g., start with two piles of objects, each of two players in turn removes any number of objects from a single pile, and the person to take the last group of objects wins) and express those strategies as sets of directions.	5
6.D.1	Devise strategies for winning simple games (e.g., start with two piles of objects, each of two players in turn removes any number of objects from a single pile, and the person to take the last group of objects wins) and express those strategies as sets of directions.	6
6.D.2	Analyze vertex-edge graphs and tree diagrams. <ul style="list-style-type: none"> • Can a picture or a vertex-edge graph be drawn with a single line? (degree of vertex) • Can you get from any vertex to any other vertex? (connectedness) 	6
6.D.3	Use vertex-edge graphs to find solutions to practical problems. <ul style="list-style-type: none"> • Delivery route that stops at specified sites but involves least travel • Shortest route from one site on a map to another 	6
7.D.1	Use vertex-edge graphs to represent and find solutions to practical problems. <ul style="list-style-type: none"> • Finding the shortest network connecting specified sites • Finding the shortest route on a map from one site to another • Finding the shortest circuit on a map that makes a tour of specified sites 	7

8.D.1	Use vertex-edge graphs and algorithmic thinking to represent and find solutions to practical problems. <ul style="list-style-type: none"> Finding the shortest network connecting specified sites Finding a minimal route that includes every street (e.g., for trash pick-up) Finding the shortest route on a map from one site to another Finding the shortest circuit on a map that makes a tour of specified sites Limitations of computers (e.g., the number of routes for a delivery truck visiting n sites is $n!$, so finding the shortest circuit by examining all circuits would overwhelm the capacity of any computer, now or in the future, even if n is less than 100) 	8
12.D.1	Use vertex-edge graphs and algorithmic thinking to represent and solve practical problems. <ul style="list-style-type: none"> Circuits that include every edge in a graph Circuits that include every vertex in a graph Scheduling problems (e.g., when project meetings should be scheduled to avoid conflicts) using graph coloring Applications to science (e.g., who-eats-whom graphs, genetic trees, molecular structures) 	12
12.D.2	Explore strategies for making fair decisions. <ul style="list-style-type: none"> Combining individual preferences into a group decision (e.g., determining winner of an election or selection process) Determining how many Student Council representatives each class (9th, 10th, 11th, and 12th grade) gets when the classes have unequal sizes (apportionment). 	12
5	MATHEMATICAL PROCESSES: ALL STUDENTS WILL USE MATHEMATICAL PROCESSES OF PROBLEM SOLVING, COMMUNICATION, CONNECTIONS, REASONING, REPRESENTATIONS, AND TECHNOLOGY TO SOLVE PROBLEMS AND COMMUNICATE MATHEMATICAL IDEAS.	
A	Problem Solving	
2.A.1	Learn mathematics through problem solving, inquiry, and discovery.	2
2.A.2	Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> Open-ended problems Non-routine problems Problems with multiple solutions Problems that can be solved in several ways 	2
2.A.3	Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.	2
2.A.4	Pose problems of various types and levels of difficulty.	2
2.A.5	Monitor their progress and reflect on the process of their problem solving activity.	2
3.A.1	Learn mathematics through problem solving, inquiry, and discovery.	3
3.A.2	Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> Open-ended problems Non-routine problems Problems with multiple solutions Problems that can be solved in several ways 	3
3.A.3	Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.	3
3.A.4	Pose problems of various types and levels of difficulty.	3
3.A.5	Monitor their progress and reflect on the process of their problem solving activity.	3
4.A.1	Learn mathematics through problem solving, inquiry, and discovery.	4
4.A.2	Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> Open-ended problems Non-routine problems 	4

	<ul style="list-style-type: none"> • Problems with multiple solutions • Problems that can be solved in several ways 	
4.A.3	Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.	4
4.A.4	Pose problems of various types and levels of difficulty.	4
4.A.5	Monitor their progress and reflect on the process of their problem solving activity.	4
5.A.1	Learn mathematics through problem solving, inquiry, and discovery.	5
5.A.2	Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> • Open-ended problems • Non-routine problems • Problems with multiple solutions • Problems that can be solved in several ways 	5
5.A.3	Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.	5
5.A.4	Pose problems of various types and levels of difficulty.	5
5.A.5	Monitor their progress and reflect on the process of their problem solving activity.	5
6.A.1	Learn mathematics through problem solving, inquiry, and discovery.	6
6.A.2	Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> • Open-ended problems • Non-routine problems • Problems with multiple solutions • Problems that can be solved in several ways 	6
6.A.3	Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.	6
6.A.4	Pose problems of various types and levels of difficulty.	6
6.A.5	Monitor their progress and reflect on the process of their problem solving activity.	6
7.A.1	Learn mathematics through problem solving, inquiry, and discovery.	7
7.A.2	Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> • Open-ended problems • Non-routine problems • Problems with multiple solutions • Problems that can be solved in several ways 	7
7.A.3	Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.	7
7.A.4	Pose problems of various types and levels of difficulty.	7
7.A.5	Monitor their progress and reflect on the process of their problem solving activity.	7
8.A.1	Learn mathematics through problem solving, inquiry, and discovery.	8
8.A.2	Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> • Open-ended problems • Non-routine problems • Problems with multiple solutions • Problems that can be solved in several ways 	8
8.A.3	Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.	8
8.A.4	Pose problems of various types and levels of difficulty.	8
8.A.5	Monitor their progress and reflect on the process of their problem solving activity.	8
12.A.1	Learn mathematics through problem solving, inquiry, and discovery.	12

12.A.2	Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3). <ul style="list-style-type: none"> • Open-ended problems • Non-routine problems • Problems with multiple solutions • Problems that can be solved in several ways 	12
12.A.3	Select and apply a variety of appropriate problem-solving strategies (e.g., "try a simpler problem" or "make a diagram") to solve problems.	12
12.A.4	Pose problems of various types and levels of difficulty.	12
12.A.5	Monitor their progress and reflect on the process of their problem solving activity.	12
B	Communication	
2.B.1	Use communication to organize and clarify their mathematical thinking. <ul style="list-style-type: none"> • Reading and writing • Discussion, listening, and questioning 	2
2.B.2	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	2
2.B.3	Analyze and evaluate the mathematical thinking and strategies of others.	2
2.B.4	Use the language of mathematics to express mathematical ideas precisely.	2
3.B.1	Use communication to organize and clarify their mathematical thinking. <ul style="list-style-type: none"> • Reading and writing • Discussion, listening, and questioning 	3
3.B.2	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	3
3.B.3	Analyze and evaluate the mathematical thinking and strategies of others.	3
3.B.4	Use the language of mathematics to express mathematical ideas precisely.	3
4.B.1	Use communication to organize and clarify their mathematical thinking. <ul style="list-style-type: none"> • Reading and writing • Discussion, listening, and questioning 	4
4.B.2	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	4
4.B.3	Analyze and evaluate the mathematical thinking and strategies of others.	4
4.B.4	Use the language of mathematics to express mathematical ideas precisely.	4
5.B.1	Use communication to organize and clarify their mathematical thinking. <ul style="list-style-type: none"> • Reading and writing • Discussion, listening, and questioning 	5
5.B.2	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	5
5.B.3	Analyze and evaluate the mathematical thinking and strategies of others.	5
5.B.4	Use the language of mathematics to express mathematical ideas precisely.	5
6.B.1	Use communication to organize and clarify their mathematical thinking. <ul style="list-style-type: none"> • Reading and writing • Discussion, listening, and questioning 	6
6.B.2	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	6
6.B.3	Analyze and evaluate the mathematical thinking and strategies of others.	6
6.B.4	Use the language of mathematics to express mathematical ideas precisely.	6
7.B.1	Use communication to organize and clarify their mathematical thinking. <ul style="list-style-type: none"> • Reading and writing • Discussion, listening, and questioning 	7

7.B.2	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	7
7.B.3	Analyze and evaluate the mathematical thinking and strategies of others.	7
7.B.4	Use the language of mathematics to express mathematical ideas precisely.	7
8.B.1	Use communication to organize and clarify their mathematical thinking. <ul style="list-style-type: none"> • Reading and writing • Discussion, listening, and questioning 	8
8.B.2	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	8
8.B.3	Analyze and evaluate the mathematical thinking and strategies of others.	8
8.B.4	Use the language of mathematics to express mathematical ideas precisely.	8
12.B.1	Use communication to organize and clarify their mathematical thinking. <ul style="list-style-type: none"> • Reading and writing • Discussion, listening, and questioning 	12
12.B.2	Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.	12
12.B.3	Analyze and evaluate the mathematical thinking and strategies of others.	12
12.B.4	Use the language of mathematics to express mathematical ideas precisely.	12
C	Connections	
2.C.1	Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	2
2.C.2	Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).	2
2.C.3	Recognize that mathematics is used in a variety of contexts outside of mathematics.	2
2.C.4	Apply mathematics in practical situations and in other disciplines.	2
2.C.5	Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).	2
2.C.6	Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	2
3.C.1	Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	3
3.C.2	Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).	3
3.C.3	Recognize that mathematics is used in a variety of contexts outside of mathematics.	3
3.C.4	Apply mathematics in practical situations and in other disciplines.	3
3.C.5	Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).	3
3.C.6	Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	3
4.C.1	Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	4
4.C.2	Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).	4
4.C.3	Recognize that mathematics is used in a variety of contexts outside of mathematics.	4
4.C.4	Apply mathematics in practical situations and in other disciplines.	4
4.C.5	Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).	4
4.C.6	Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	4
5.C.1	Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	5
5.C.2	Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).	5
5.C.3	Recognize that mathematics is used in a variety of contexts outside of mathematics.	5

5.C.4	Apply mathematics in practical situations and in other disciplines.	5
5.C.5	Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).	5
5.C.6	Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	5
6.C.1	Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	6
6.C.2	Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).	6
6.C.3	Recognize that mathematics is used in a variety of contexts outside of mathematics.	6
6.C.4	Apply mathematics in practical situations and in other disciplines.	6
6.C.5	Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).	6
6.C.6	Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	6
7.C.1	Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	7
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12.C.1	Recognize recurring themes across mathematical domains (e.g., patterns in number, algebra, and geometry).	12
12.C.2	Use connections among mathematical ideas to explain concepts (e.g., two linear equations have a unique solution because the lines they represent intersect at a single point).	12
12.C.3	Recognize that mathematics is used in a variety of contexts outside of mathematics.	12
12.C.4	Apply mathematics in practical situations and in other disciplines.	12
12.C.5	Trace the development of mathematical concepts over time and across cultures (cf. world languages and social studies standards).	12
12.C.6	Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	12
D	Reasoning	
2.D.1	Recognize that mathematical facts, procedures, and claims must be justified.	2
2.D.2	Use reasoning to support their mathematical conclusions and problem solutions.	2
2.D.3	Select and use various types of reasoning and methods of proof.	2
2.D.4	Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions.	2
2.D.5	Make and investigate mathematical conjectures. <ul style="list-style-type: none"> • Counterexamples as a means of disproving conjectures • Verifying conjectures using informal reasoning or proofs. 	2
2.D.6	Evaluate examples of mathematical reasoning and determine whether they are valid.	2
3.D.1	Recognize that mathematical facts, procedures, and claims must be justified.	3

3.D.2	Use reasoning to support their mathematical conclusions and problem solutions.	3
3.D.3	Select and use various types of reasoning and methods of proof.	3
3.D.4	Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions.	3
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7.D.1	Recognize that mathematical facts, procedures, and claims must be justified.	7
7.D.2	Use reasoning to support their mathematical conclusions and problem solutions.	7
7.D.3	Select and use various types of reasoning and methods of proof.	7
7.D.4	Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions.	7
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12.D.1	Recognize that mathematical facts, procedures, and claims must be justified.	12
12.D.2	Use reasoning to support their mathematical conclusions and problem solutions.	12
12.D.3	Select and use various types of reasoning and methods of proof.	12
12.D.4	Rely on reasoning, rather than answer keys, teachers, or peers, to check the correctness of their problem solutions.	12
12.D.5	Make and investigate mathematical conjectures. <ul style="list-style-type: none"> • Counterexamples as a means of disproving conjectures • Verifying conjectures using informal reasoning or proofs. 	12
12.D.6	Evaluate examples of mathematical reasoning and determine whether they are valid.	12
E	Representations	
2.E.1	Create and use representations to organize, record, and communicate mathematical ideas. <ul style="list-style-type: none"> • Concrete representations (e.g., base-ten blocks or algebra tiles) • Pictorial representations (e.g., diagrams, charts, or tables) • Symbolic representations (e.g., a formula) • Graphical representations (e.g., a line graph) 	2
2.E.2	Select, apply, and translate among mathematical representations to solve problems.	2
2.E.3	Use representations to model and interpret physical, social, and mathematical phenomena.	2
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12.E.2	Select, apply, and translate among mathematical representations to solve problems.	12
12.E.3	Use representations to model and interpret physical, social, and mathematical phenomena.	12
F	Technology	
2.F.1	Use technology to gather, analyze, and communicate mathematical information.	2
2.F.2	Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information (cf. workplace readiness standard 8.4-D).	2
2.F.3	Use graphing calculators and computer software to investigate properties of functions and their graphs.	2
2.F.4	Use calculators as problem-solving tools (e.g., to explore patterns, to validate solutions).	2
2.F.5	Use computer software to make and verify conjectures about geometric objects.	2
2.F.6	Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards).	2
3.F.1	Use technology to gather, analyze, and communicate mathematical information.	3
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7.F.2	Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information (cf. workplace readiness standard 8.4-D).	7
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8.F.1	Use technology to gather, analyze, and communicate mathematical information.	8
8.F.2	Use computer spreadsheets, software, and graphing utilities to organize and display quantitative information (cf. workplace readiness standard 8.4-D).	8
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12.F.6	Use computer-based laboratory technology for mathematical applications in the sciences (cf. science standards).	12

SCIENCE (5)		
1	SCIENTIFIC PROCESSES: ALL STUDENTS WILL DEVELOP PROBLEM-SOLVING, DECISION-MAKING AND INQUIRY SKILLS, REFLECTED BY FORMULATING USABLE QUESTIONS AND HYPOTHESES, PLANNING EXPERIMENTS, CONDUCTING SYSTEMATIC OBSERVATIONS, INTERPRETING AND ANALYZING DATA, DRAWING CONCLUSIONS, AND COMMUNICATING RESULTS.	
A	Habits of Mind	
4.A.1	Raise questions about the world around them and be willing to seek answers through making careful observations and experimentation.	4
4.A.2	Keep records that describe observations, carefully distinguish actual observations from ideas and speculations, and are understandable weeks and months later.	4
4.A.3	Recognize that when a science investigation is replicated, very similar results are expected.	4
4.A.4	Know that when solving a problem it is important to plan and get ideas and help from other people.	4
8.A.1	Evaluate the strengths and weaknesses of data, claims, and arguments.	8
8.A.2	Communicate experimental findings to others.	8
8.A.3	Recognize that the results of scientific investigations are seldom exactly the same and that replication is often necessary.	8
8.A.4	Recognize that curiosity, skepticism, open-mindedness, and honesty are attributes of scientists.	8
12.A.1	When making decisions, evaluate conclusions, weigh evidence, and recognize that arguments may not have equal merit.	12
12.A.2	Assess the risks and benefits associated with alternative solutions.	12
12.A.3	Engage in collaboration, peer review, and accurate reporting of findings.	12
12.A.4	Explore cases that demonstrate the interdisciplinary nature of the scientific enterprise.	12
B	Inquiry and Problem Solving	
4.B.1	Develop strategies and skills for information-gathering and problem-solving, using appropriate tools and technologies.	4
4.B.2	Identify the evidence used in an explanation.	4
8.B.1	Identify questions and make predictions that can be addressed by conducting investigations.	8
8.B.2	Design and conduct investigations incorporating the use of a control.	8
8.B.3	Collect, organize, and interpret the data that result from experiments.	8
12.B.1	Select and use appropriate instrumentation to design and conduct investigations.	12
12.B.2	Show that experimental results can lead to new questions and further investigations.	12
C	Safety	
4.C.1	Recognize that conducting science activities requires an awareness of potential hazards and the need for safe practices.	4
4.C.2	Understand and practice safety procedures for conducting science investigations	4
8.C.1	Know when and how to use appropriate safety equipment with all classroom materials.	8
8.C.2	Understand and practice safety procedures for conducting science investigations.	8
12.C.1	Understand, evaluate and practice safe procedures for conducting science investigations.	12
2	SCIENCE AND SOCIETY: ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF HOW PEOPLE OF VARIOUS CULTURES HAVE CONTRIBUTED TO THE ADVANCEMENT OF SCIENCE AND TECHNOLOGY, AND HOW MAJOR DISCOVERIES AND EVENTS HAVE ADVANCED SCIENCE AND TECHNOLOGY.	
A	Cultural Contributions	
4.A.1	Describe how people in different cultures have made and continue to make contributions to science and technology.	4
8.A.1	Recognize that scientific theories: <ul style="list-style-type: none"> • develop over time, • depend on the contributions of many people, and • reflect the social and political climate of their time. 	8
8.A.2	Know that scientists are men and women of many cultures who often work together to solve scientific and technological problems.	8

8.A.3	Describe how different people in different cultures have made and continue to make contributions to science and technology.	8
12.A.1	Recognize the role of the scientific community in responding to changing social and political conditions and how scientific and technological achievement effect historical events.	12
B	Historical Perspectives	
4.B.1	Hear, read, write, and talk about scientists and inventors in historical context.	4
8.B.1	Describe the impact of major events and people in the history of science and technology, in conjunction with other world events.	8
8.B.2	Describe the development and exponential growth of scientific knowledge and technological innovations.	8
12.B.1	Examine the lives and contributions of important scientists who effected major breakthroughs in our understanding of the natural and designed world.	12
12.B.2	Discuss significant technological achievements in which science has played an important part as well as technological advances that have contributed directly to the advancement of scientific knowledge.	12
12.B.3	Describe the historical origin of important scientific developments such as atomic theory, genetics, plate tectonics, etc., showing how scientific theories develop, are tested, and can be replaced or modified in light of new information and improved investigative techniques.	12
3	MATHEMATICAL APPLICATIONS: ALL STUDENTS WILL INTEGRATE MATHEMATICS AS A TOOL FOR PROBLEM-SOLVING IN SCIENCE, AND AS A MEANS OF EXPRESSING AND/OR MODELING SCIENTIFIC THEORIES.	
A	Numerical Operations	
4.A.1	Determine the reasonableness of estimates, measurements, and computations of quantities when doing science.	4
4.A.2	Recognize and comprehend the orders of magnitude associated with large and small physical quantities.	4
4.A.3	Express quantities using appropriate number formats, such as: <ul style="list-style-type: none"> • integers. • fractions. 	4
8.A.1	Express quantities using appropriate number formats, such as: <ul style="list-style-type: none"> • decimals. • percents. • scientific notation. 	8
12.A.1	Reinforce indicators from previous grade level.	12
B	Geometry and Measurement	
4.B.1	Select appropriate measuring instruments based on the degree of precision required.	4
4.B.2	Use a variety of measuring instruments and record measured quantities using the appropriate units.	4
8.B.1	Perform mathematical computations using labeled quantities and express answers in correctly derived units.	8
12.B.1	When performing mathematical operations with measured quantities, express answers to reflect the degree of precision and accuracy of the input data.	12
C	Patterns and Algebra	
4.C.1	Identify patterns when observing the natural and constructed world.	4
8.C.1	Express physical relationships in terms of mathematical equations derived from collected data.	8
12.C.1	Apply mathematical models that describe physical phenomena to predict real world events.	12
D	Data Analysis and Probability	
4.D.1	Use tables and graphs to represent and interpret data.	4
8.D.1	Represent and describe mathematical relationships among variables using: <ul style="list-style-type: none"> • graphs. • tables. • charts. 	8
8.D.2	Analyze experimental data sets using measures of central tendency:	8

	<ul style="list-style-type: none"> • mean. • mode. • median. 	
8.D.3	Construct and use a graph of experimental data to draw a line of best fit and identify a linear relationship between variables.	8
8.D.4	Use computer spreadsheets, graphing and database applications to assist in quantitative analysis of data (see mathematics standard 4.5-F).	8
12.D.1	Construct and interpret graphs of data to represent inverse and non-linear relationships, and statistical distributions.	12
4	NATURE AND PROCESS OF TECHNOLOGY: ALL STUDENTS WILL UNDERSTAND THE INTERRELATIONSHIPS BETWEEN SCIENCE AND TECHNOLOGY AND DEVELOP A CONCEPTUAL UNDERSTANDING OF THE NATURE AND PROCESS OF TECHNOLOGY.	
A	Science and Technology	
4.A.1	Distinguish between things that occur in nature and those that have been designed to solve human problems.	4
6.A.1	Reinforce indicators from previous grade level.	6
8.A.1	Compare and contrast science with technology, illustrating similarities and differences between these two human endeavors.	8
12.A.1	Know that scientific inquiry is driven by the desire to understand the natural world and seeks to answer questions that may or may not directly influence humans, while technology is driven by the need to meet human needs and solve human problems.	12
B	Nature of Technology	
2.B.1	Select and use simple tools and materials to complete a task.	2
4.B.1	Demonstrate how measuring instruments are used to gather information in order to design things that work properly.	4
6.B.1	Reinforce indicators from previous grade level.	6
8.B.1	Analyze a product or system to determine the problem it was designed to solve, the design constraints, trade-offs and risks involved in using the product or system, how the product or system might fail, and how the product or system might be improved.	8
12.B.1	Assess the impacts of introducing a new technology in terms of alternative solutions, costs, tradeoffs, risks, benefits and environmental impact.	12
C	Technological Design	
2.C.1	Make a plan in order to design a solution to a problem.	2
2.C.2	Describe a toy or other familiar object as a system with parts that work together.	2
4.C.1	Describe a product or device in terms of the problem it solves or the need it meets.	4
4.C.2	Choose materials most suitable to make simple mechanical constructions.	4
4.C.3	Use the design process to identify a problem, look for ideas, and develop and share solutions with others.	4
6.C.1	Select a technological problem and describe the criteria and constraints and criteria that are addressed in solving the problem.	6
6.C.2	Identify the basic components of a technological system: <ul style="list-style-type: none"> • input. • process. • output. • feedback. 	6
8.C.1	Recognize how feedback loops are used to control systems.	8
12.C.1	Plan, develop, and implement a proposal to solve an authentic, technological problem.	12
5	CHARACTERISTICS OF LIFE: ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, CHARACTERISTICS, AND BASIC NEEDS OF ORGANISMS AND WILL INVESTIGATE THE DIVERSITY OF LIFE.	
A	Matter, Energy and Organization in Living Systems	
2.A.1	Investigate the basic needs of humans and other organisms.	2
2.A.2	Compare and contrast essential characteristics that distinguish living things from nonliving things.	2
4.A.1	Identify the roles that organisms may serve in a food chain.	4

4.A.2	Differentiate between the needs of plants and those of animals.	4
4.A.3	Recognize that plants and animals are composed of different parts performing different functions and working together for the well being of the organism.	4
4.A.4	Describe the basic functions of the major systems of the human body including, but not limited to: <ul style="list-style-type: none"> • digestive system. • circulatory system. • respiratory system. • nervous system. • skeletal system. • muscular system. • reproductive system. 	4
6.A.1	Explain how systems of the human body are interrelated and regulate the body's internal environment.	6
6.A.2	Identify and describe the structure and function of cells and cell parts.	6
8.A.1	Explain how the products respiration and photosynthesis are recycled.	8
8.A.2	Recognize that complex multicellular organisms, including humans, are composed of and defined by interactions of the following: <ul style="list-style-type: none"> • cells. • tissues. • organs. • systems. 	8
12.A.1	Relate the structure of molecules to their function in cellular structure and metabolism.	12
12.A.2	Explain how plants convert light energy to chemical energy.	12
12.A.3	Describe how plants produce substances high in energy content that become the primary source of energy for life.	12
12.A.4	Relate disease in humans and other organisms to infections or intrinsic failures of system.	12
B	Diversity and Biological Evolution	
2.B.1	Recognize that different types of plants and animals live in different parts of the world.	2
2.B.2	Recognize that some kinds of organisms that once lived on earth have completely disappeared.	2
6.B.1	Describe and give examples of the major categories of organisms and of the characteristics shared by organisms.	6
6.B.2	Compare and contrast acquired and inherited characteristics in human and other species.	6
8.B.1	Compare and contrast kinds of organisms using their internal and external characteristics.	8
8.B.2	Discuss how changing environmental conditions can result in evolution or extinction of a species.	8
8.B.3	Recognize that individual organisms with certain traits are more likely to survive and have offspring.	8
12.B.1	Explain that through evolution the Earth's present species developed from earlier distinctly different species.	12
12.B.2	Explain how the theory of natural selection accounts for extinction as well as an increase in the proportion of individuals with advantageous characteristics within a species.	12
C	Reproduction and Heredity	
2.C.1	Recognize that humans and other organisms resemble their parents.	2
6.C.1	Describe life cycles of humans and other organisms.	6
8.C.1	Describe how the sorting and recombining of genetic material results in the potential for variation among offspring of humans and other species.	8
12.C.1	Describe how information is encoded and transmitted in genetic material.	12
12.C.2	Explain how genetic material can be altered by natural and/or artificial means; mutations and new gene combinations may have positive, negative, or no effect on organisms or species.	12
12.C.3	Assess the impact of current and emerging technologies on our understanding of inherited human characteristics.	12

6	CHEMISTRY: ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE AND BEHAVIOR OF MATTER.	
A	Structure and Properties of Matter	
2.A.1	Sort objects according to the materials from which they are made or their physical properties, and give a rationale for sorting.	2
2.A.2	Use magnifiers to observe materials, then draw and describe what more can be seen using the tools.	2
2.A.3	Observe that water can be a liquid or a solid and can change from one form to the other.	2
4.A.1	Sort materials based on physical characteristics that can be seen by using magnification.	4
4.A.2	Observe that water can be a liquid or a solid and can change from one form to the other and the mass remains the same.	4
4.A.3	Recognize that water, as an example of matter, can exist as a solid, liquid or gas and can be transformed from one state to another by heating or cooling.	4
4.A.4	Show that not all materials respond the same way to what is done to them.	4
6.A.1	Recognize that about 100 different elements have been identified and most materials on Earth are made of a few of them.	6
6.A.2	Show that equal volumes of different substances usually have different masses.	6
6.A.3	Describe the properties of mixtures and solutions, including concentration and saturation.	6
6.A.4	Measure characteristic physical properties such as boiling point, melting point, and solubility, and recognize that the property is independent of the amount of sample.	6
8.A.1	Know that all matter is composed of atoms that may join together to form molecules.	8
8.A.2	Recognize that the phase of matter is determined by the arrangement and motion of atoms and molecules and that the motion of these particles is related to the energy of the system.	8
8.A.3	Know that there are groups of elements that have similar properties, including highly reactive metals, less reactive metals, highly reactive non-metals, and some almost completely non-reactive gases.	8
8.A.4	Recognize that a mixture often can be separated into the original substances using one of more of their characteristic physical properties.	8
12.A.1	Know that atoms are made of a positive nucleus surrounded by negative electrons and that the nucleus, a tiny fraction of the volume of an atom, is composed of protons and neutrons, each almost 2,000 times more massive than an electron.	12
12.A.2	Know that the number of protons in the nucleus defines the element.	12
12.A.3	Know that an atom's electron arrangement, particularly the outermost electrons, determines how the atom can interact with other atoms.	12
12.A.4	Explain that atoms form bonds (ionic and covalent) with other atoms by transferring or sharing electrons.	12
12.A.5	Explain how the Periodic Table of Elements reflects the relationship between the properties of elements and their atomic structure.	12
12.A.6	Know that many biological, chemical and physical phenomena can be explained by changes in the arrangement and motion of atoms and molecules.	12
12.A.7	Recognize that the properties of matter are related to the structure and arrangement of their molecules and atoms, such as in metallic and nonmetallic crystals and carbon compounds.	12
12.A.8	Know that different levels of energy are associated with different arrangements of electrons.	12
B	Chemical Reactions	
4.B.1	Combine two or more materials and show that the new material may have properties that are different from the original material.	4
6.B.1	Recognize evidence of a chemical change.	6
8.B.1	Show how substances can chemically react with each other to form new substances having properties different from those of the original substances.	8
8.B.2	Show that in most chemical reactions energy is transferred into or out of a system.	8
8.B.3	Demonstrate that regardless how substances within a simple closed system interact, the total mass of the system remains the same.	8
8.B.4	Illustrate how atoms are rearranged when substances react, but that the total number of atoms and the total mass of the products remain the same as the original substances.	8
12.B.1	Explain that the rate of reactions among atoms and molecules depends on how often they encounter one another and that the rate is affected by nature of reactants, concentration, pressure, temperature, and the presence of a catalyst.	12

12.B.2	Show that some changes in chemical bonds require a net input or net release of energy.	12
7	PHYSICS: ALL STUDENTS WILL GAIN AN UNDERSTANDING OF NATURAL LAWS AS THEY APPLY TO MOTION, FORCES, AND ENERGY TRANSFORMATIONS.	
A	Motion and Forces	
2.A.1	Distinguish among the different ways objects can move such as: <ul style="list-style-type: none"> • fast and slow. • in a straight line. • in a circular path. • back and forth. 	2
2.A.2	Show that the position and motion of an object can be changed by pushing or pulling the object.	2
4.A.1	Recognize that changes in the speed or direction of a moving object are caused by force and that the greater the force, the greater the change in motion will be.	4
4.A.2	Recognize that some forces can act at a distance. <ul style="list-style-type: none"> • gravity • magnetism • static electricity 	4
6.A.1	Recognize that an object at rest will remain at rest and an object moving in a straight line at a steady speed will continue to move in a straight line at a steady speed unless a net (unbalanced) force acts on it.	6
6.A.2	Recognize that motion can be retarded by forces such as friction and air resistance.	6
6.A.3	Recognize that everything on or near the earth is pulled toward the earth's center by gravitational force.	6
8.A.1	Use quantitative data to show that when more than one force acts on an object at the same time, the forces can reinforce or cancel each other producing a net (unbalanced) force that will change speed and/or direction of the object.	8
8.A.2	Recognize that every object exerts a gravitational force on every other object, and that the force depends on how much mass the objects have and how far apart they are.	8
12.A.1	Apply the mathematical relationship between the mass of an object, the net force exerted on it, and the resulting acceleration.	12
12.A.2	Explain that whenever one object exerts a force on another, an equal and opposite force is exerted on the first object (cf. health and physical education standard 2.5-A).	12
12.A.3	Recognize gravity as a universal force of attraction between masses and that the force is proportional to the masses and inversely proportional to the square of the distance between them.	12
12.A.4	Recognize that electrically charged bodies can attract or repel each other with a force that depends upon the size and nature of the charges and the distance between them and know that electric forces play an important role in explaining the structure and properties of matter.	12
12.A.5	Know that there are strong forces that hold the nucleus of an atom together and that significant amounts of energy can be released in nuclear reactions (fission, fusion, and nuclear decay) when these binding forces are disrupted.	12
12.A.6	Explain how electromagnetic, gravitational, and nuclear forces can be used to produce energy by causing chemical, physical, or nuclear changes and relate the amount of energy produced to the nature and relative strength of the force.	12
12.A.7	Demonstrate that moving electric charges can produce magnetic forces and moving magnets can produce electric forces.	12
12.A.8	Recognize that magnetic and electrical forces are different aspects of a single electromagnetic force.	12
B	Energy Transformations	
2.B.1	Demonstrate that sound can be produced by vibrating objects.	2
4.B.1	Identify sources of heat and demonstrate that heat can be transferred from one object to another.	4
4.B.2	Identify sources of light and demonstrate that light can be reflected from some surfaces and pass through others	4
4.B.3	Use devices that show electricity producing heat, light, sound, and magnetic effects.	4
4.B.4	Show that differences in sound (loud or soft, high or low) can be produced by varying the way objects vibrate.	4

6.B.1	Recognize that heat flows through materials or across space from warmer objects to cooler ones.	6
6.B.2	Show that vibrations in materials can generate waves that can transfer energy from one place to another.	6
6.B.3	Design an electric circuit to investigate the behavior of a system.	6
8.B.1	Recognize that the sun is a major source of the Earth's energy and that solar energy includes visible, infrared and, ultraviolet radiation.	8
8.B.2	Describe the nature of various forms of energy, including heat, light, sound, chemical, mechanical, and electrical and trace energy transformations from one form to another.	8
8.B.3	Describe how heat can be conducted through materials or transferred across space by radiation and know that if the material is a fluid, convection currents may aid the transfer of heat.	8
8.B.4	Show that light is reflected, refracted, or absorbed when it interacts with matter and that colors may appear as a result of this interaction.	8
12.B.1	Explain how the various forms of energy (heat, electricity, sound, light) move through materials and identify the factors that affect that movement.	12
12.B.2	Explain that while energy can be transformed from one form to another, the total energy of a closed system is constant.	12
12.B.3	Recognize that whenever mechanical energy is transformed, some heat is dissipated and is therefore unavailable for use.	12
12.B.4	Explain the nature of electromagnetic radiation and compare the components of the electromagnetic spectrum from radio waves to gamma rays.	12
8	EARTH SCIENCE: ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE STRUCTURE, DYNAMICS, AND GEOPHYSICAL SYSTEMS OF THE EARTH.	
A	Earth's Properties and Materials	
2.A.1	Observe and describe rocks and soil.	2
4.A.1	Observe that most rocks and soils are made of several substances or minerals.	4
4.A.2	Observe that the properties of soil vary from place to place and will affect the soil's ability to support life.	4
4.A.3	Recognize that fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time.	4
6.A.1	Reinforce indicators from previous grade level	6
8.A.1	Reinforce indicators from previous grade level.	8
12.A.1	Explain the interrelationship of the geosphere, hydrosphere, and the atmosphere.	12
B	Atmosphere and Water	
2.B.1	Identify the sources and uses of water.	2
2.B.2	Recognize that water can disappear (evaporate) and collect on cold surfaces (condense).	2
2.B.3	Describe current weather conditions and recognize how those conditions affect our daily lives.	2
2.B.4	Describe daily and seasonal changes and patterns in the weather.	2
4.B.1	Recognize that air is a substance that surrounds us, takes up space, and moves around us as wind.	4
4.B.2	Recognize that most of Earth's surface is covered by water and be able to identify the characteristics of those sources of water. <ul style="list-style-type: none"> • oceans • rivers • lakes • underground sources • glaciers 	4
4.B.3	Observe weather changes and patterns by measurable quantities such as temperature, wind direction and speed, and amounts of precipitation.	4
4.B.4	Observe that when liquid water disappears, it turns into a gas (vapor) in the air and can reappear as a liquid when cooled, or as a solid if cooled below its freezing point.	4
4.B.5	Observe that rain, snow, and other forms of precipitation come from clouds, but that not all clouds produce precipitation.	4
4.B.6	Recognize that clouds and fog are made of tiny droplets of water and possibly tiny particles of ice.	4
6.B.1	Describe the composition, circulation, and distribution of the world's oceans, estuaries, and marine environments.	6
6.B.2	Describe and illustrate the water cycle.	6

8.B.1	Describe conditions in the atmosphere that lead to weather systems and how these systems are represented on weather maps.	8
12.B.1	Describe how weather (in the short term) and climate (in the long term) involve the transfer of energy in and out of the atmosphere.	12
C	Processes that Shape the Earth	
2.C.1	Indicators for this strand are introduced at a higher grade level.	2
4.C.1	Recognize that some changes of the Earth's surface are due to slow processes such as erosion and weathering, and some changes are due to rapid changes such as landslides, volcanic eruptions, and earthquakes.	4
4.C.2	Recognize that moving water, wind, and ice continually shape the Earth's surface by eroding rock and soil in some areas and depositing them in other areas.	4
6.C.1	Summarize the process involved in the rock cycle and describe the characteristics of the rocks involved.	6
8.C.1	Explain how Earth's landforms and materials are created through constructive and destructive processes.	8
8.C.2	Show how successive layers of sedimentary rock and the fossils contained in them can be used to confirm the age, history, changing life forms, and geology of Earth.	8
12.C.1	Use the theory of plate tectonics to explain the relationship among earthquakes, volcanoes, mid-ocean ridges, and deep-sea trenches.	12
12.C.2	Know that Earth is a system in which chemical elements exist in fixed amounts and move through the solid Earth, oceans, atmosphere, and living things as part of geochemical cycles.	12
12.C.3	Recognize that the evolution of life on Earth has changed the composition of Earth's atmosphere through time.	12
D	How We Study the Earth	
2.D.1	Record observations that describe the features of the natural world in their local environment.	2
4.D.1	Use maps to locate and identify physical features on the Earth.	4
6.D.1	Utilize various tools such as map projections and topographical maps to interpret features of Earth's surface.	6
8.D.1	Utilize data gathered from emerging technologies (i.e. geographic information systems (GIS) and global positioning systems (GPS)) to create representations and describe processes of change on the Earth's surface.	8
8.D.2	Explain how technology designed to investigate features of the Earth's surface impacts how scientists study the Earth.	8
12.D.1	Analyze the evidence produced by a variety of techniques that is used to understand changes in the Earth that have occurred over time. <ul style="list-style-type: none"> • topography • fossils • rock stratification • ice cores • radiometric data 	12
9	ASTRONOMY & SPACE SCIENCE: ALL STUDENTS WILL GAIN AN UNDERSTANDING OF THE ORIGIN, EVOLUTION, AND STRUCTURE OF THE UNIVERSE.	
A	Earth, Moon, Sun System	
2.A.1	Recognize that the sun supplies light and heat to the Earth.	2
2.A.2	Observe the patterns of day and night and the movements of the shadows of an objects on the Earth during the course of a day.	2
4.A.1	Observe patterns that result from the Earth's position relative to the sun and rotation of the Earth on its axis.	4
4.A.2	Recognize and describe the phases of the moon.	4
6.A.1	Explain how the motions of the Earth, sun, and moon, define units of time including: <ul style="list-style-type: none"> • days • months • years 	6
6.A.2	Recognize that changes in the Earth's position relative to the sun produces differing amounts of daylight seasonally.	6
8.A.1	Investigate the Earth, moon, and sun as a system and explain how the motion of these bodies results in the phases of the moon and eclipses.	8
8.A.2	Explain how the regular and predictable motions of the Earth and moon produce tides.	8

8.A.3	Explain how the tilt, rotation, and orbital pattern of the Earth relative to the sun produce seasons and weather patterns.	8
12.A.1	Reinforce indicators from previous grade level.	12
B	Solar System	
2.B.1	Recognize that the sun can only be seen during the day, but the moon can be seen sometimes at night and sometimes during the day.	2
4.B.1	Describe Earth as one of several planets that orbit the sun and the moon as a satellite of the Earth.	4
6.B.1	Using models, demonstrate an understanding of the scale of the solar system that shows distance and size relationships among the sun and planets.	6
6.B.2	Recognize that the sun's gravitational pull holds the planets in their orbits and that the planets' gravitational pull holds their moons in their orbits.	6
8.B.1	Describe the physical characteristics of the planets and other objects within the solar system and compare Earth to the rest of the planets.	8
12.B.1	Explain that our solar system coalesced from a nebular cloud of gas and dust left from exploding stars.	12
C	Stars	
2.C.1	Observe that stars are many, scattered, and different in brightness.	2
2.C.2	Observe that the position of the stars, with respect to each other (constellations) is unchanging.	2
4.C.1	Observe that stars are not all the same in brightness, size, and color.	4
6.C.1	Observe and record short-term and long-term changes in the positions of the constellations in the night sky.	6
6.C.2	Observe that the planets appear to change their position against the background of stars.	6
8.C.1	Understand that the sun is a star and that it shares characteristics with other stars.	8
12.C.1	Describe the physical characteristics, stages of development, and the apparent motions of stars.	12
D	Galaxies and Universe	
4.D.1	Recognized that images of celestial objects can be magnified and seen in greater detail when observed using binoculars and light telescopes.	4
4.D.2	Observe and record short-term and long-term changes in the night sky.	4
6.D.1	Reinforce indicators from previous grade level.	6
8.D.1	Know that the universe consists of many billions of galaxies, each including billions of stars.	8
12.D.1	Describe data gathering and observation technologies and explain how they are used to explore the solar system and beyond.	12
12.D.2	Cite evidence to describe the scientific theory of the origin of the universe and the current explanations of its evolution.	12
10	ENVIRONMENTAL STUDIES: ALL STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE ENVIRONMENT AS A SYSTEM OF INTERDEPENDENT COMPONENTS AFFECTED BY HUMAN ACTIVITY AND NATURAL PHENOMENA.	
A	Natural Systems and Interactions	
2.A.1	Associate organisms' basic needs with how they meet those needs within their surroundings.	2
4.A.1	Differentiate between natural resources that are renewable and those that are not.	4
6.A.1	Explain how organisms interact with other components of an ecosystem.	6
6.A.2	Describe the natural processes that occur over time in places where direct human impact is minimal.	6
8.A.1	Investigate the impact of catastrophic events such as forest fires, floods, and hurricanes on the environment of New Jersey.	8
12.A.1	Distinguish naturally occurring process from those believed to have been modified by human interaction or activity. <ul style="list-style-type: none"> • Climate change • Ozone production • Erosion and deposition • Threatened and endangered species 	12
B	Human Interactions and Impact	
2.B.1	Identify various needs of humans that are supplied by the natural or constructed environment.	2
4.B.1	Explain how meeting human requirements affects the environment.	4
6.B.1	Describe the effect of human activities on various ecosystems.	6

6.B.2	Evaluate the impact of personal activities on the local environment.	6
8.B.1	Compare and contrast practices that affect the use and management of natural resources.	8
12.B.1	Assess the impact of human activities on the cycling of matter and the flow of energy through ecosystems.	12
12.B.2	Use scientific, economic, and other data to assess environmental risks and benefits associated with societal activity.	12

SOCIAL STUDIES		
6.1	All students will learn democratic citizenship and how to participate in the constitutional system of government of the United States.	
6.1.1	Identify key principles embodied in the United States Constitution, and discuss their application in specific situations.	4
6.1.2	Identify examples of the rights and responsibilities of citizens.	4
6.1.3	Assess information about public issue.	4
6.1.4	Give examples of the impact of government policy on their lives.	4
6.1.5	Identify key documents which represent democratic principles and beliefs, such as the Declaration of Independence, the United States Constitution, the Bill of Rights, the New Jersey Constitution, and the Pledge of Allegiance.	4
6.1.6	Identify symbols of American principles and beliefs, such as the flag and the blindfolded Statue of Justice.	4
6.1.7	Examine the origins and continuing application of key principles embodied in the United States Constitution.	8
6.1.8	Identify and interpret the balance between the rights and the responsibilities of citizens.	8
6.1.9	Locate, access, analyze, organize, and apply information about public issues, recognizing and explaining multiple points of view.	8
6.1.10	Analyze the functions of the executive, judicial, and legislative branches of government.	8
6.1.11	Apply knowledge of governmental structure and process to school, town, and community life.	8
6.1.12	Explain the origins and interpret the continuing influence of key principles embodied in the United States Constitution.	12
6.1.13	Analyze the balance between the rights and responsibilities of citizens, and apply the analysis to understanding issues facing society in New Jersey and the United States.	12
6.1.14	Locate, access, analyze, organize, and apply information about public issues in order to evaluate the validity of different points of view.	12
6.1.15	Analyze the roles of the individual and the government in promoting the general welfare of the community under our Constitution.	12
6.1.16	Analyze the functioning of government processes, such as elections, in school, town, or community projects.	12
6.2	All students will learn democratic citizenship through the humanities, by studying literature, art, history and philosophy, and related fields.	
6.2.1	Recognize human experiences through time, as depicted in works of history, and literature and in the fine arts.	4
6.2.2	Identify social history represented in works of literature and the fine arts.	4
6.2.3	Understand how works of aesthetic expression serve as cultural representations.	4
6.2.4	Evaluate works, such as personal creations, which communicate a human condition or question.	4
6.2.5	Compare and contrast examples of artistic and literary expression from different historical and social settings.	8
6.2.6	Analyze examples of art, literature, philosophy, and architecture that have influenced, and been influenced by, their societies and cultures.	8
6.2.7	Analyze and explain different artistic, literary and historical depictions of the same subject.	8
6.2.8	Identify the mutual impact of technology and aesthetic expression.	8
6.2.9	Give examples of historical, literary and artistic works which have influenced society in the past and present, and identify their effect on our understanding of basic human rights.	12
6.2.10	Examine the relationship between the beliefs and life circumstances of a writer, artist, and philosopher, and that person's creative work.	12
6.2.11	Compare artistic and literary interpretations of historical events with accounts of the same events that aim at objectivity.	12
6.3	All students will acquire historical understanding of political and diplomatic ideas, forces, and institutions throughout the history of New Jersey, the United States, and the world.	
6.3.1	Apply the concepts of cause, effect, and consequences to historical events.	4
6.3.2	Analyze varying viewpoints of individuals and groups at turning points throughout history.	4
6.3.3	Identify and explain how events and changes occurred in significant historical periods.	4

6.3.4	Explain issues, standards, and conflicts related to universal human rights.	4
6.3.5	Explain relationships between cause, effect, and consequences, in order to understand significant historical events.	8
6.3.6	Assess positions of proponents and opponents at turning points throughout history.	8
6.3.7	Analyze how events and changes occurred in significant historical periods.	8
6.3.8	Understand issues, standards, and conflicts related to universal human rights.	8
6.3.9	Understand the complexity of historical causation.	12
6.3.10	Analyze how and why different historians may weigh causal factors differently, and why historical interpretations change over time.	12
6.3.11	Compare and contrast divergent interpretations of historical turning points, using available evidence.	12
6.3.12	Understand the views of people of other times and places regarding the issues they have faced.	12
6.3.13	Synthesize historical facts and interpretations to reach personal conclusions about significant historical events.	12
6.3.14	Analyze and formulate policy statements demonstrating an understanding of issues, standards, and conflicts related to universal human rights.	12
6.4	All students will acquire historical understanding of societal ideas and forces throughout the history of New Jersey the United States, and the world.	
6.4.1	Compare and contrast similarities and differences in daily life over time.	4
6.4.2	Identify social institutions, such as family, religion, and government, that function to meet individual and group needs.	4
6.4.3	Identify instances when the needs of an individual or group are not met by their social institutions.	4
6.4.4	Identify events when people have engaged in cruel and inhumane behavior.	4
6.4.5	Compare and contrast developments in societies separated by time and/or distance.	8
6.4.6	Compare and contrast fixed customs of societies in the past and the present, and explain how these customs represent the society's beliefs.	8
6.4.7	Understand how family, community, and social institutions function to meet individual and group needs.	8
6.4.8	Understand how historical and contemporary ideas, perceptions, and occurrences have led to prejudice, discrimination, expulsion, genocide, slavery, and the Holocaust.	8
6.4.9	Evaluate the views, beliefs, and impact of different social groups on a given historical event or issue.	12
6.4.10	Evaluate how individuals, groups, and institutions influence solutions to society's problems.	12
6.4.11	Analyze historical and contemporary circumstances in which institutions function either to maintain continuity or to promote change.	12
6.4.12	Argue an ethical position regarding a dilemma from the study of key turning points in history.	12
6.4.13	Evaluate actions an individual, group, or institution might take to counteract incidents of prejudice, discrimination, expulsion, genocide, slavery, and the Holocaust.	12
6.5	All students will acquire historical understanding of varying cultures throughout the history of New Jersey, the United States, and the world.	
6.5.1	Identify common elements found in different cultures.	4
6.5.2	Describe ways that family members, teachers, and community groups influence students' daily lives.	4
6.5.3	Describe the customs of people from different geographic, cultural, racial, religious, and ethnic backgrounds.	4
6.5.4	Describe the influence of technology in daily life.	4
6.5.5	Understand material artifacts of a culture.	4
6.5.6	Examine particular events, and identify reasons why individuals from different cultures might respond to them in different ways.	4
6.5.7	Analyze differences and similarities among cultures.	8
6.5.8	Analyze the influence of various cultural institutions, such as family, religion, education, economic and political systems, on individual decision-making.	8
6.5.9	Understand the customs of people from different geographic, cultural, racial, religious, and ethnic backgrounds.	8
6.5.10	Analyze the political, social, economic, and technological factors which cause cultural change.	8
6.5.11	Analyze how different cultures deal with conflict.	8

6.5.12	Analyze how customs are transmitted in cultures.	8
6.5.13	Analyze the mutual influences among different cultures throughout time.	12
6.5.14	Understand views held by people in other times and places regarding issues they have faced.	12
6.5.15	Interpret how various cultures have adapted to their environments.	12
6.5.16	Analyze how beliefs and principles are transmitted in a culture.	12
6.5.17	Understand the multiple influences of gender, family background, religion, ethnicity, socioeconomic position, and nationality as the bases for analysis of individual identity.	12
6.5.18	Evaluate the mutual influence of technology and culture.	12
6.6	All students will acquire historical understanding of economic forces, ideas, and institutions throughout the history of New Jersey, The United States, and the world.	
6.6.1	Explain and demonstrate the role of money in everyday life.	4
6.6.2	Describe the relationship of price to supply and demand.	4
6.6.3	Describe work that people perform in our economic system.	4
6.6.4	Distinguish between wants and needs.	4
6.6.5	Illustrate the balance between economic growth and environmental preservation.	4
6.6.6	Identify and differentiate among various forms of exchange.	8
6.6.7	Explain the roles of markets and government policy in meeting the needs and wants of individuals and society.	8
6.6.8	Describe the interaction of various institutions that comprise economic systems, such as households, businesses, banks, government agencies, labor unions, and corporation.	8
6.6.9	Explain and illustrate how attitudes and beliefs influence economic decisions.	8
6.6.10	Evaluate a decision about the balance between economic growth and environmental preservation.	8
6.6.11	Apply economic concepts and reasoning when evaluating historical and contemporary developments and issues.	12
6.6.12	Evaluate principles and policies associated with international trade.	12
6.6.13	Evaluate how the economic system meets wants and needs.	12
6.6.14	Analyze the successes and failures of various economic systems in meeting the needs and wants of their people.	12
6.6.15	Evaluate an economic decision.	12
6.6.16	Analyze and evaluate economic growth in the context of environmental conditions and sustainable development.	12
6.7	All students will acquire geographical understanding by studying the world in spatial terms.	
6.7.1	Use maps, globes, graphs, diagrams, and computer-based references and information systems to generate and interpret information.	4
6.7.2	Use mental maps to identify the locations of places within the local community and in nearby communities.	4
6.7.3	Use mental maps to identify the locations of the earth's continents and oceans in relation to each other and in relation to principal parallels and meridians.	4
6.7.4	Use mental maps to identify the locations of major physical and human characteristics in the United States and on earth.	4
6.7.5	Demonstrate understanding of the spatial concepts of location, distance, direction, scale, region, and movement.	4
6.7.6	Recognize the distinct characteristics of maps, globes, graphs, charts, diagrams, and other geographical representations, and evaluate the utility of each in solving geographical problems.	8
6.7.7	Translate maps into appropriate graphics to display geographical information.	8
6.7.8	Answer geographical questions regarding major physical and human characteristics.	8
6.7.9	Solve location problems using information from multiple sources.	8
6.7.10	Compare information presented at different scales.	8
6.7.11	Use and interpret maps and other graphical representations to analyze, explain, and solve geographical problems.	12
6.7.12	Use maps of physical and human characteristics of the world to answer complex geographical questions.	12

6.8	All students will acquire geographical understanding by studying human systems in geography.	
6.8.1	Identify the distributions and characteristics of populations at different scales, and understand the causes and effects of human migration.	4
6.8.2	Discuss the similarities, differences, and interdependencies among rural, suburban, and urban communities.	4
6.8.3	Compare the effects of geography on economic activities locally and in New Jersey, the United States, and different parts of the world.	4
6.8.4	Explain how improvements in transportation and communication have resulted in global interdependence.	4
6.8.5	Compare the physical characteristics of places and regions.	4
6.8.6	Compare and analyze demographic characteristics of populations, and determine the reasons for variations.	8
6.8.7	Identify the spatial patterns of settlement in different regions of the world.	8
6.8.8	Explain the causes and effects of urbanization.	8
6.8.9	Give reasons for the changes in spatial patterns of human activities.	8
6.8.10	Describe how changes in technology affect the location of human activities.	8
6.8.11	Give reasons for global interdependence.	8
6.8.12	Predict trends in world population numbers and patterns.	12
6.8.13	Analyze the impact of human migration on physical and human systems.	12
6.8.14	Analyze and compare the functions and spatial arrangement of cities locally and globally.	12
6.8.15	Analyze the processes that change urban structure, and the impact of changes in urban areas.	12
6.8.16	Explain the historical movement pattern of people and goods.	12
6.8.17	Explain how physical, social, cultural, and economic processes shape the features of places and regions.	12
6.9	All students will acquire geographical understanding by studying the environment and society.	
6.9.1	Explain the characteristics of renewable and nonrenewable resources and their distribution, and the role of resources in daily life.	4
6.9.2	Explain how people depend on the physical environment and how they modify the environment.	4
6.9.3	Identify the consequences of natural environmental changes and crises and human modifications of the environment, and explain how an event in one location can have an impact upon another location.	4
6.9.4	Describe world patterns of resource distribution and utilization, and discuss the management and use of renewable and nonrenewable resources.	8
6.9.5	Explain and predict how the physical environment can accommodate, and be affected by human activity.	8
6.9.6	Evaluate policies and programs related to the use of resources locally and globally.	12
6.9.7	Draw conclusions regarding the global impact of human modification of the environment.	12
6.9.8	Evaluate the environmental consequences of technological change in human history.	12
WORLD LANGUAGES		
7.1	All students will be able to communicate at a basic literacy level in at least one language other than English.	
7.1.1	Respond to and initiate simple statements and commands such as greetings, introductions, and leave-taking.	4
7.1.2	Express attitudes, reactions, and courtesy using short phrases and simple sentences.	4
7.1.3	Express likes, dislikes, and preferences.	4
7.1.4	Describe people, places, things, and events using short phrases and simple sentences.	4
7.1.5	Provide and obtain information on familiar topics.	4
7.1.6	Express basic personal needs.	4
7.1.7	Identify some common and distinct features, such as parts of speech and vocabulary, among languages.	4
7.1.8	Create and respond to simple phrases, questions and sentences.	8
7.1.9	Describe people, places, things, and events with some details.	8
7.1.10	Generate and respond to short messages such as invitations, directions, announcements, and appointments.	8
7.1.11	Interact with appropriate responses in limited social settings and basic situations.	8

7.1.12	Express details of their everyday lives and of past experiences.	8
7.1.13	Engage in original and spontaneous conversation in the language studied.	8
7.1.14	Organize thoughts into coherent oral speech.	8
7.1.15	Explore employment opportunities where languages are advantageous.	8
7.1.16	Identify common and distinct features, such as prepositional phrases and clauses, among languages.	12
7.1.17	Communicate and interact in a limited range of task-oriented and social situations.	12
7.1.18	Respond to statements and initiate and sustain conversations with increasing linguistic accuracy.	12
7.1.19	Understand a sustained conversation on a number of topics.	12
7.1.20	Comprehend fluent speakers in everyday situations.	12
7.1.21	Communicate orally with increasing logic and accuracy.	12
7.1.22	Research language-related employment opportunities.	12
7.1.23	Identify common and distinct features, such as grammatical structures, among languages.	12
7.2	All students will be able to demonstrate an understanding of the interrelationship between language and culture for at least one world language in addition to English.	
7.2.1	Demonstrate an awareness of culture.	4
7.2.2	Demonstrate knowledge of the cultures of speakers of the language studied.	4
7.2.3	Recognize interrelationships between the language and the culture of a given group of people.	4
7.2.4	Recognize and explore the process of stereotyping.	4
7.2.5	Compare the customs of their own culture and the studied culture.	8
7.2.6	Understand the role of stereotyping in forming and sustaining prejudice.	8
7.2.7	Demonstrate an awareness of contributions made in many fields by men and women of diverse cultures.	8
7.2.8	Examine interrelationships between the language and the culture of a given group of people as evidenced in literary works.	8
7.2.9	Recognize and understand verbal and nonverbal cues within a culture.	12
7.2.10	Explore and discuss similarities and differences among various cultures.	12
7.2.11	Explore and discuss representative works of diverse cultures in many fields of endeavor.	12
7.2.12	Analyze interrelationships between the language and the culture of a given group of people, as evidenced in their literary works and communications, as well as in their political, economic, and religious structures.	12
7.2.13	Use technology to enhance language acquisition and to acquire current cultural information in order to develop more accurate impressions of the culture studied.	12