

SIXTH GRADE

MATH

NUMBER CONCEPTS AND OPERATIONS

- 6.1 Apply number concepts and operations to solve a variety of real-world problems.
 - 6.1.1 Use place value to compare and order whole numbers, mixed numbers, fractions, decimals, and integers.
 - 6.1.2 Use addition, subtraction, multiplication, and division to solve problems involving whole numbers, mixed numbers, fractions, decimals and integers.
 - 6.1.3 Choose and apply appropriate strategies for solving computational problems accurately and consistently (mental math, inverse operations, and estimation, paper and pencil, calculator, and computer methods).
 - 6.1.4 Factor a whole number into a product of its primes (prime factorization).
 - 6.1.5 Identify greatest common factor and least common multiples for a set of whole numbers.
 - 6.1.6 Convert standard notation to scientific notation.
 - 6.1.7 Demonstrate the relationship and equivalency among decimals, fractions, ratios, and percents.
 - 6.1.8 Factor numbers into prime form and express in exponential form.
 - 6.1.9 Choose and apply the appropriate strategy (e.g. estimation, approximation, rounding or exact numbers) when calculating to solve problems involving whole numbers, mixed numbers, fractions, decimals, and integers.
 - 6.1.10 Interpret and use ratios and proportions in a variety of contexts.

PROBABILITY AND STATISTICS

- 6.2 Use data analysis, statistics, and probability to solve real-world problems.
 - 6.2.1 Select and construct an appropriate graphical format to organize and represent data.
 - 6.2.2 Interpret and analyze data from graphical representations to form conclusions. (frequency tables, histograms, stem-and-leaf plots, scattergrams, circle graphs, flow charts, bar graphs, line graphs).
 - 6.2.3 Compare a given prediction with the results of an investigation.
 - 6.2.4 Analyze the conclusions and recommendations of others' statistics.
 - 6.2.5 Find all possible combinations involving two sets of objects such as the number of outfits which can be made from two shirts and three pair of pants.
 - 6.2.6 Find all possible arrangements (permutations) of a given number of items in which the order of the objects makes a difference, such as the number of different arrangements of 5 ice cream flavors on an ice cream cone.
 - 6.2.7 Find the mean, median, mode, and range of a data set.

PATTERNS, FUNCTIONS, ALGEBRAIC THINKING

- 6.3 Apply algebraic methods, patterns, relationships, and functions to solve real-world problems.
 - 6.3.1 Describe and use variables, expressions, equalities, and inequalities in problem-solving situations.
 - 6.3.2 Evaluate an expression using substitution with four basic operations on whole numbers.
 - 6.3.3 Define the rule (function) that explains the relationship (pattern) between the numbers when a change in the first variable affects the second variable.

- 6.3.4 Graph given data points to represent a linear equation on a coordinate grid with whole numbers.

GEOMETRY

- 6.4 Apply geometric properties and relationships to draw, connect, and analyze shapes and representations of the physical world.
 - 6.4.1 Visualize and draw two and three-dimensional geometric figures that demonstrate basic geometric properties such as parallelism, perpendicularity, similarity, proportionality, and congruency.
 - 6.4.2 Measure and label specified angles such as alternate interior, obtuse, acute, right, and corresponding angles.
 - 6.4.3 Represent flip, slide, and turn using concrete geometric figures or pictorial models.
 - 6.4.4 Demonstrate tessellations, reflections, and rotations using concrete or pictorial models.
 - 6.4.5 Solve problems using given formulas for area, perimeter, radius, volume, and circumference of various geometric figures.

MEASUREMENT

- 6.5 Apply measurement concepts to describe and make comparisons in real-world situations.
 - 6.5.1 Select and use appropriate tools to measure to the needed degree of accuracy within a problem-solving situation using both U.S. customary and metric systems.
 - 6.5.2 Compare estimated measurements between U.S. customary and metric systems.
 - 6.5.3 Record estimates and measurements for perimeter, circumference, area, volume, weight, mass, degrees of angles, and capacity.
 - 6.5.4 Convert measurement units to equivalent units within a given system (customary and metric).
 - 6.5.5 Apply formulas and procedures to solve problems involving measurement.

READING/LANGUAGE ARTS

READING

- 6.1 Use strategies to comprehend a wide range of texts, including fiction, nonfiction, classic, and contemporary works.
 - 6.1.1 Confirm the meaning of figurative, idiomatic, and technical language using context clues.
 - 6.1.2 Use structural analysis skills such as identifying root words, prefixes, suffixes and word origins to decode words unfamiliar in print.
 - 6.1.3 Identify the elements of a story (plot — rising action, climax, falling action and resolution; setting; characters; point of view; and conflict).
 - 6.1.4 Analyze selections of fiction, nonfiction and poetry by identifying the plot line; discriminating between major and minor characters; describing the relationships between and motivations of characters; and making inferences about the events, setting, style, tone, mood and meaning of the selection.
 - 6.1.5 Identify the author's purpose, position, and strategies in a persuasive selection.
 - 6.1.6 Compare and contrast the historical and cultural perspectives of literary

- selections.
- 6.1.7 Demonstrate a familiarity with a variety of literary genre including biographies, myths, poetry, science fiction, fiction, non-fiction including technical reading, and mysteries.
 - 6.1.8 Recognize and identify literary techniques: flashback, foreshadowing, moral.
 - 6.1.9 Recognize and identify poetry techniques alliteration, personification, simile, metaphor, symbolism, onomatopoeia.
 - 6.1.10 Apply SQ3R (Survey, question, read, recite, review), graphic organizers, and note-taking to enhance comprehension of content area texts.

WRITING

- 6.2 Use written language for a variety of purposes and with a variety of audiences.
 - 6.2.1 Apply the writing process to create various forms of written expression (pre-write, draft, write, edit, publish).
 - 6.2.2 Demonstrate ability to write a multi-paragraph essay using a thesis statement or paragraph, supporting details, and concluding sentence or paragraph.
 - 6.2.3 Demonstrate ability to produce the following compositions: expository, descriptive, narrative, and persuasive.
 - 6.2.4 Summarize in writing a section of a textbook.
 - 6.2.5 Summarize an article clearly and accurately; include the most significant information, and preserve the position and voice of the author.
 - 6.2.6 Demonstrate ability to paraphrase and quote sources.
 - 6.2.7 Cite sources using MLA form when writing reports or technical documents.
 - 6.2.8 Create a formal outline of a written selection.
 - 6.2.9 Demonstrate competence in using the following in daily writing: correct grammar and punctuation; spelling; sentence structure, including simple, compound, and complex sentences; appropriate vocabulary; and organization.
 - 6.2.10 Demonstrate research skills with a dictionary, encyclopedia, and thesaurus to effectively complete a variety of writing tasks.
 - 6.2.11 Evaluate the appropriateness of a variety of resource materials for a specific task.
 - 6.2.12 Take notes that summarize and paraphrase information relevant to a topic.
 - 6.2.13 Write poetry using alliteration, personification, similes, metaphors, and onomatopoeia.
 - 6.2.14 Write fiction using alliteration, personification, similes, metaphors, and onomatopoeia.

SPEAKING

- 6.3 Deliver a presentation with an introduction, a body, and a conclusion.
 - 6.3.1 Use appropriate introduction to draw attention and set purpose.
 - 6.3.2 Speak extemporaneously about a selected topic.
 - 6.3.3 Demonstrate ability to give narrative and informative speeches using outline notes and visual aids.
 - 6.3.4 Demonstrate effective presentation skills (poise, eye contact, volume, rate, tone, facial and vocal expression).

LISTENING

- 6.4 Interpret orally presented information representing various points of view.
 - 6.4.1 Actively listen to student presentations using a feedback sheet.

- 6.4.2 Compare and contrast the appeals of two orally presented well-known speeches.
- 6.4.3 Predict, clarify, analyze, and critique a speaker's information and point of view.

SCIENCE

LIFE SCIENCE

- 6.1 Understand the characteristics and structure of living things, the diversity of life, and how living things interact with the environment.
 - 6.1.1 Create and use classification systems based on the structure and function of organisms, including protists and fungi, bacteria and viruses.
 - 6.1.2 Explain the interactions of various cycles that produce energy within an ecosystem.
 - 6.1.3 Give examples of how human actions directly and indirectly affect ecosystems.
 - 6.1.4 Construct models of plant and animal cells.
 - 6.1.5 Describe the observable components and functions of a cell.
 - 6.1.6 Distinguish between cells, tissues, and organs, and their roles within the organism.
 - 6.1.7 Distinguish between asexual and sexual reproduction.
 - 6.1.8 Give examples of fossils that can be compared with one another and with living organisms.
 - 6.1.9 Describe how mutation, natural selection and reproductive isolation can lead to change in a species or to a new species.

EARTH SCIENCE

- 6.2 Understand the composition of the earth, its history, the processes that shape it, and its place in the universe.
 - 6.2.1 Identify and investigate earth's resources.
 - 6.2.2 Investigate atmospheric conditions, composition, and interactions.
 - 6.2.3 Describe the forces and results of plate tectonics.
 - 6.2.4 Identify factors involved in causing catastrophic climatic and geological events.
 - 6.2.5 Describe the composition and physical characteristics of oceans.
 - 6.2.6 Discuss resources from the ocean and the effects of ocean pollution.

PHYSICAL SCIENCE

- 6.3 Understand common properties, forms, interactions and changes in matter and energy.
 - 6.3.1 Classify materials according to physical and chemical properties.
 - 6.3.2 Identify processes as physical or chemical changes.
 - 6.3.3 Explain the classification of elements and compounds.
 - 6.3.4 Investigate formation of simple mixtures and changes.
 - 6.3.5 Using indicators, identify substances as acidic, basic or neutral.
 - 6.3.6 Identify symbols of elements.
 - 6.3.7 Using periodic table identify elements as metals or non-metals.
 - 6.3.8 Describe and explain the structure of an atom.
 - 6.3.9 Describe properties of matter (inertia, gravitational interaction, specific heat, malleability, melting point, density).

- 6.3.10 Interpret the relationship of mass to gravitational force.
- 6.3.11 Identify factors affecting change within a system (for example, force, inertia, light, heat).
- 6.3.12 Predict and measure which quantities will change, and which will not change, when matter experiences an external influence (for example, measuring the forces and distances involved in simple machines; boiling a liquid; measuring mass following a change).

HEALTH

- 6.4 Understand how to maintain and enhance personal health.
 - 6.4.1 Describe the structure and function of the human reproductive system.
 - 6.4.2 Describe the structure and function of the human endocrine system and the human life cycle.
 - 6.4.3 Describe the purposes of body cell division (mitosis) and sex cell division (meiosis).
 - 6.4.4 Describe the role of chromosomes and genes in heredity.
 - 6.4.5 Distinguish between inherited traits and acquired traits.
 - 6.4.6 Describe and give examples of incommunicable and communicable diseases, including sexually transmitted diseases.
 - 6.4.7 Describe the role of the immune system in fighting disease.
 - 6.4.8 Explain the biological basis for reducing health risk factors, including recommendations for exercise, nutrition, tobacco, alcohol, drugs, and sexual activity.
 - 6.4.9 Recognize that human sexuality is a force that can impact the mental and physical health of an individual and society.

SOCIAL STUDIES/ANCIENT CIVILIZATIONS

Focus: Chronological Study of Selected Ancient Civilizations

HISTORY

- 6.1 Understand the interaction with the environment of the earliest civilizations and its effect on the developing cultures.
 - 6.1.1 Describe the earliest human communities and their chronological place on the historical timeline.
 - 6.1.2 Identify the locations of early civilizations that populated the major regions of the world.
 - 6.1.3 Describe the adaptations of the people of the early civilizations to the environment.
 - 6.1.4 Discuss man-made and climatic factors that stimulated the domestication of plants and animals.

GEOGRAPHY

- 6.2 Understand how geographic factors influence the economic development, political, religious, and social policies of societies.
 - 6.2.1 Locate the major river systems and describe the physical environment that supported permanent settlement and early civilizations in Mesopotamia, Egypt, and Africa.
 - 6.2.2 Describe the relationship between geography and the development of city-states in the region of the Aegean Sea.
 - 6.2.3 Locate and describe the physical setting and major river system that

- supported the rise of India.
- 6.2.4 Cite the geographic factors that contributed to the political and economic growth of the Roman territories and expansion of the empire.
- 6.2.5 Describe the geographic characteristics of China that led to political, cultural, and economic isolation.
- 6.2.6 Trace the migration of Jews in the Mediterranean region and the impact of their conflict with the Romans.

ECONOMICS

- 6.3 Understand the organization of various economic systems.
 - 6.3.1 Describe the major social and economic accomplishments of Mesopotamia.
 - 6.3.2 Describe the development of agricultural techniques that allowed the production of economic surplus and the emergence of cities as centers of culture and power.
 - 6.3.3 Describe the role of Egyptian trade in the eastern Mediterranean and Nile Valley.
 - 6.3.4 Describe the relationship of trade and commerce among Greek city-states and within the wider Mediterranean region.
 - 6.3.5 Identify the locations of the trans-Eurasian “silk roads” in the period of the Han Dynasty and the Roman Empire and explain their significance.
 - 6.3.6 Evaluate the contributions of the Roman Republic to the economic growth including currency and trade routes.

CIVICS AND GOVERNMENT

- 6.4 Understand the political structures of early civilizations.
 - 6.4.1 Know the significance of Hammurabi’s Code.
 - 6.4.2 Describe the relationship between religion and the political order of Mesopotamia and Egypt.
 - 6.4.3 Explain the shift from tyranny and oligarchy to early democratic forms of government and the return to dictatorship in Ancient Greece and the development of the idea of citizenship.
 - 6.4.4 Compare and contrast direct democracy as represented by Athenian democracy and representative democracy.
 - 6.4.5 Identify the political issues prevalent in China during the time of Confucius and his efforts to resolve them.
 - 6.4.6 List the policies and achievements of the Qin Dynasty in the unification of China.’
 - 6.4.7 Cite the political contributions of the Han Dynasty to the development of the imperial bureaucratic state and the expansion of the Chinese empire.
 - 6.4.8 Describe the governmental structure of the Roman Republic and its contributions to the political structures of today.
 - 6.4.9 Describe the transition of Rome from republic to empire.

SOCIOLOGY/ANTHROPOLOGY

- 6.5 Understand the relationships that exist among religion, philosophy, and culture.
 - 6.5.1 Describe the relationship between religion and the social and political order in Mesopotamia and Egypt.
 - 6.5.2 Discuss the main features of Egyptian art and architecture.

- 6.5.3 Trace the evolution of language and its written form.
- 6.5.4 Describe how the ideas of the Hebrew traditions are reflected in the moral and ethical traditions of Western civilization.
- 6.5.5 Describe the origins and significance of Judaism as the first monotheistic religion.
- 6.5.6 Explain the significance of Greek mythology to the everyday lives of people of the region and cite examples of the influence of Greek literature on our literature and language of today.
- 6.5.7 Compare and contrast the culture and history of Athens and Sparta.
- 6.5.8 Identify important Greek figures in the arts and sciences and their contributions.
- 6.5.9 Describe the tenets of Brahmanism in India and its evolution into early Hinduism.
- 6.5.10 Describe social structure of the caste system in India.
- 6.5.11 Describe the life and moral teachings of Buddha and the growth of Buddhism into other geographic regions.
- 6.5.12 Identify important contributions made by the Indian culture to artistic and intellectual fields such as Sanskrit literature, medicine, metallurgy, and mathematics.
- 6.5.13 Summarize the life of Confucius and the central teachings of Confucianism and Daoism.
- 6.5.14 Explain the contributing factors to the spread of Christianity in Europe and other Roman territories.
- 6.5.15 Summarize the lasting contributions of Roman art, literature, language, architecture, law, technology and science.

MUSIC

- 6.1 The student describes and analyzes musical sound and demonstrates musical artistry. The student is expected to:
 - 6.1.1 Use standard terminology in explaining interval, music notation, musical instruments or voices, and musical performance.
 - 6.1.2 Identify music forms presented aurally and through musical notation.
- 6.2 The student performs a varied repertoire of music. The student is expected to:
 - 6.2.1 Perform independently, with accurate intonation and rhythm, demonstrating fundamental skills and basic performance techniques.
 - 6.2.2 Perform expressively, from memory or notation, a varied repertoire of music representing styles from diverse cultures.
- 6.3 The student reads and writes music notations. The student is expected to:
 - 6.3.1 Sight-read simple music in treble and/or other clefs in various keys and meters.
 - 6.3.2 Identify music symbols and terms referring to dynamics, tempo, and articulation and interpret them appropriately when performing.
- 6.4 The student relates music to history, to society, and to culture. The student is expected to:
 - 6.4.1 Describe aurally presented excerpts of music representing diverse genres, styles, periods, and cultures.
 - 6.4.2 Perform songs and movement from diverse cultures, including American genres.
 - 6.4.3 Relate the other fine arts to music concepts.

- 6.5 The student responds to and evaluates music and musical performance. The student is expected to:
- 6.5.1 Evaluate the quality and effectiveness of music and musical performances.

PHYSICAL EDUCATIONS

The three basic concepts addressed in the physical education standards are movement, physical activity /health and social development.

- 6.1 The student demonstrates competency in fundamental movement patterns and proficiency in a few specialized movement forms. The student is expected to:
 - 6.1.1 Move in time to complex rhythmical patterns such as 3/4 time or 6/8 time.
 - 6.1.2 Throw a variety of objects demonstrating both accuracy and distance such as Frisbee, softball, and basketball.
 - 6.1.3 Strike a ball to a wall or to a partner with a paddle/racquet using forehand and backhand strokes continuously.
 - 6.1.4 Hand or foot dribble while preventing an opponent from stealing a ball.
 - 6.1.5 Throw and catch a ball consistently while guarded by an opponent.
 - 6.1.6 Participate with a group to keep an object in the air without catching it such as volleyball and soccer.
- 6.2 The student applies movement concepts and principals to the learning and development of motor skills. The student is expected to:
 - 6.2.1 Make appropriate changes in performance based on feedback to improve skills.
 - 6.2.2 Practice in ways that are appropriate for learning skills such as whole/part/whole, shorter practice distributed over time is better than one long session, or practicing is best in game-like conditions.
- 6.3 The student exhibits a health enhancing, physically–active lifestyle that improves health and provides opportunities for enjoyment and challenge. The student is expected to:
 - 6.3.1 Participate in moderate to vigorous health-related physical activities on a regular basis.
 - 6.3.2 Establish and monitor progress toward appropriate personal fitness goals.
- 6.4 The student knows the benefits from being involved in daily physical activity and factors that affect physical performance. The student is expected to:
 - 6.4.1 Describe selected long-term benefits of regular physical activity.
 - 6.4.2 Describe how participating in cardiovascular endurance, muscular strength and endurance and flexibility actions impact personal fitness.
 - 6.4.3 Recognize the effects of substance abuse on personal health and performance in physical activity.
 - 6.4.4 Analyze ways outside influences affect decisions about care of the body such as alcohol and tobacco advertising and peer pressure.
 - 6.4.5 Recognize that idealized images of the human body and performance as presented by the media may not be appropriate to imitate.
- 6.5 The student understands safety practices associated with physical activity and space. The student is expected to:
 - 6.5.1 Use equipment safely and properly.
 - 6.5.2 Select and use proper attire that promotes participation and prevents injury.
 - 6.5.3 Include warm-up and cool-down procedures regularly during exercise; monitor potentially dangerous environmental conditions such as wind, cold, heat, and insects; and recommend prevention and treatment choices.

- 6.6. The student understands basic components such as strategies and rules of structured physical activities including, but not limited to, games, sports and dance. The student is expected to:
 - 6.6.1 Know basic rules for sports played such as setting up to start, restarting, and violating rules.
 - 6.6.2 Keep accurate score during a contest.
- 6.7. The student develops positive self-management and social skills needed to work independently and with others in physical activity settings. The student is expected to:
 - 6.7.1 Handle conflicts that arise with others without confrontation.
 - 6.7.2 Accept decisions made by designated game officials.
 - 6.7.3 Identify and follow rules while playing sports and games.
 - 6.7.4 Accept successes and performance limitations of self and others, exhibit appropriate behavior and recognize that improvement is possible with appropriate practice.

VISUAL ARTS

- 6.1 Develop perceptions to increase visual awareness and sensitivity to surroundings. The student develops and organizes ideas from the environment. The student is expected to:
 - 6.1.1. Illustrate themes from direct observation, personal experience, and traditional events.
 - 6.1.2. Analyze and form generalizations about the interdependence of the art elements such as color, texture, form, line, space, and value and principles such as emphasis, pattern, rhythm, balance, proportion, and unity, using art vocabulary appropriately.
- 6.2 Expresses ideas through original artworks, using a variety of media with appropriate skill. The student is expected to:
 - 6.2.1 Creates artwork that expresses a variety of ideas based on personal experience and direct observations.
 - 6.2.2 Describe in detail a variety of practical applications for design ideas.
 - 6.2.3 Demonstrate technical skills effectively, using a variety of art media and materials to produce designs, drawings, paintings, prints, sculptures, fiber art, photographic imagery, and electronic media-generated art.
- 6.3 Demonstrates an understanding of art history and culture as records of human achievement. The student is expected to:
 - 6.3.1 Identify in artwork the influence of historical and political events.
 - 6.3.2 Compare specific artworks from a variety of cultures.
 - 6.3.3 Compare career and vocational opportunities in art.
- 6.4 Makes informed judgments about personal artworks and the works of others. The student is expected to:
 - 6.4.1 Conduct in-progress analyses and critiques of personal artworks
 - 6.4.2 Analyze original artworks, portfolios, and exhibitions by peers and others to form conclusions about properties and historical and cultural contexts.

FOREIGN LANGUAGE

Language study is best begun in kindergarten (or earlier) and continued without interruption through grade 12 and beyond. Research confirms that children easily and naturally acquire language at an early age. The degree of proficiency is directly proportional to the amount of

time spent by students in meaningful study. The student develops insight into the nature of language and culture by comparing the student's own language and culture to another.

1.1 The student communicates in a language other than English using the skills of listening, speaking, reading, and writing.

1.1.1 Students listen to and derive meaning from a variety of foreign language sources. In order to meet this standard the student will:

- Recognize common expressions;
- Obtain meaning from diverse listening sources;
- Demonstrate comprehension through appropriate responses; and
- Engage in a variety of listening situations.
- Identify the main idea from simple instructions or conversations, basic survival situations, and familiar topics, such as school, leisure time activities, and family life;
- Obtain meaning from simple conversations at a normal rate of speech;
- Identify the main idea and/or specific information from a listening situation, live or recorded, such as stories, dialogue, film, songs, poems, plays, and conversations.

1.1.2 Students speak in a foreign language for a variety of purposes and for diverse audiences. In order to meet this standard, a student will:

- Apply pronunciation rules and intonation patterns;
- Use vocabulary, grammatical forms, and structures of the target language to convey meaning;
- Apply knowledge of cultural practices to spoken language;
- Express needs, tell stories, obtain and convey information, explain concepts and procedures, and persuade; and
- Interact with speakers of the language in a variety of venues: personal, business, dramatic presentations.
- Apply pronunciation and intonation patterns;
- Describe and narrate with learned vocabulary;
- Express and justify simple opinions;
- Maintain brief conversations on familiar topics;
- Ask and answer complex questions.

1.1.3 Students read and derive meaning from a variety of materials written in a foreign language. In order to meet this standard, students will:

- Recognize words, phrases, idiomatic expressions, and grammatical structures;
- Demonstrate comprehension of reading materials written for a variety of purposes;
- Use and apply the information gained from reading;
- Respond to the cultural elements contained in reading materials of the language.
- Comprehend main ideas of reading selections based on familiar vocabulary;
- Respond to the reading selection;
- Analyze cultural elements found in the reading materials.

1.1.4 Students write in a foreign language for a variety of purposes and for diverse audiences. In order to meet this standards students will;

- Write for purposes such as relating personal experiences, obtaining and conveying information, explaining ideas and opinions, and persuading;

- Write for audiences such as peers, teachers, and community members;
- Plan, draft, revise, proof read, and edit written communications;
- Use correct grammar, sentence structure, vocabulary, spelling, punctuation, and Write descriptions and narrations, and express and justify opinions;
- Obtain and report factual information
- Develop and organize ideas, plan, draft, revise, proofread, and edit their own work and that of other students.

2.1 The student gains knowledge and understanding of other cultures. The student is expected to:

- Demonstrate knowledge of aspects of foreign cultures such as daily life, education, history, geography, government, economics, and the arts;
- Apply knowledge of cultural practices when communicating in a foreign language;
- Use the foreign language to access cultural information available only in that language.
- Discuss components of the social patterns of the cultures (practices, perspectives – how people perceive things, and products - what people make) being studied;
- Use culturally appropriate language and gestures to interact with peers and adults;
- Express themselves in writing in a culturally appropriate manner.