SIXTH GRADE

CONTENT STANDARDS FOR CALIFORNIA SCHOOLS

Parent Resource Book

Designed to Improve Student Performance through Communication and Partnership

Adapted and Prepared by:

Tehama County Department of Education
and the Eighteen School Districts of
Tehama County, California

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Tehama County Department of Education (TCDE) is dedicated to supporting schools and districts as they work to improve student achievement and meet the needs of all learners. The Department provides services and resources to educators, parents, students, and the community. Please visit our website at www.tehamaschools.org for a complete listing of Department offerings. The following programs offer resources that may be especially valuable for parents:

Early Childhood Education Programs

TCDE Early Childhood Education Programs provide leadership and assistance to ensure quality experiences for children ages 0 to 5 years. The goal for these programs is to give young children the tools they need to enter school with a foundation of knowledge and skills that will allow them to be successful throughout their school experience.

Contact: Paula Brown-Almond, Programs Director (530) 528-7343

Student Support Services

TCDE Student Support Serivces provide residents of Tehama County, health and human service agencies, and schools research, materials, and/or technical assistance in the areas of substance abuse and violence prevention, health education, school safety and crisis planning, as well as resiliency and youth development.

Contact: Amy Henderson, Programs Director (530)528-7357

Safe Education and Recreation for Rural Families - SERRF

SERRF provides a safe, healthy, enriching environment for school children during the after school hours. Homework tutoring, academic enrichment, recreation, social skills development, and prevention activities are all a part of the SERRF Program.

Contact: Karla Stroman, Program Director (530) 528-7392

Special Programs

TCDE provides a wide range of services for children and young adults with special needs. These specialized programs and services are operated at the request of the county school districts, but it is the Individualized Education Plan Team who makes decisions about the type of placement or services a student may be provided.

Contact: Heidi Schueller, Assistant Superintendent of Special Programs and Services (530) 528-7248

Looking For More?

Visit the TCDE website for a wealth of additional information, website links, and other free educational resources…

www.tehamaschools.org

* **Internet safety information** – teach your children safe browsing skills
* **Early childhood education** – programs & resources
* **After school activities** – SERRF program, school finder, sponsored events
* **Free educational resources** – links to homework help, educational games and other free resources to make learning fun and enriching
* **Information for parents** – school safety, emergency notifications
* **School performance information** – learn about the schools in Tehama County

Resources

Sources of Energy and Materials Differ in Amounts, Distribution, Usefulness, and the Time Required for Their Formation.

- Together, discuss the different types of energy found in the world, discussing renewable and nonrenewable resources.
- Together, identify different things around the house and determine what the item is made of and identify if that material is a renewable or nonrenewable resource.
- Together, discuss where electrical energy comes from, the different methods of generating electricity, and the consequences, if any, of these different processes.
- Together, begin the process of conserving electricity. Each month, when the electric bill arrives, put the number of "kw" used during the month. Post the number each month and invite the family to use less electricity.
- Using the information above, encourage your child make a line graph showing the usage of electricity over a period of six months.

Investigation and Experimentation

Scientific Progress is Made by Asking Meaningful Questions and Conducting Investigations

- Invite your child to conduct a science fair project, making sure they include the:
  1. Question ..... The question that they will answer
  2. Hypothesis ..... Their first answer to the question
  3. Materials Used ..... Items for the experiment
  4. ResultsWhat really happened
  5. Conclusions..... What was learned from the experiment
- Encourage your child select the appropriate tools to conduct their experiment.
- Encourage your child as he/she makes graphs/charts to display their data. Model as necessary.

The Importance of Parent Involvement and Content Standards

California Content Standards identify what students should know and be able to do at each grade level. They identify what is to be learned. There are standards for the four core academic areas of English Language Arts, Mathematics, History/Social Science, and Science. There are also standards for English Language Development, Physical Education, Health Education, Career Technical Education and the Visual and Performing Arts.

The standards for the four core academic areas are included in this resource booklet as it is important for parents to know what students are expected to learn so learning can be reinforced at home. We know from research that "students with involved parents are more likely to earn higher grades and test scores and enroll in higher-level programs, be promoted, pass their classes, earn credits, attend school regularly, have better social skills, and graduate and go on to postsecondary education."

Also included in this booklet are suggestions for setting up a home environment to optimize student learning and specific home activities in support of each of the four core areas of language arts, mathematics, history/social science, and science. We know that when parents talk to their children about school, expect them to do well, make sure that out-of-school activities are constructive, and help them plan for college, their children perform better in school.

Unleash the power of this booklet. Become familiar with the standards so you know what your child is expected to learn. Follow the five suggestions for setting up an environment to increase student learning. Engage in the suggested activities to support learning. Have fun learning together!

Environment for Student Learning

We encourage all parents to set up an environment to increase student learning:

1. **Strive to establish an encouraging family atmosphere by:**
   - Acknowledging and supporting your child's efforts.
   - Reinforcing positive behavior.
   - Providing opportunities for service to others.

2. **Be involved in your child's education by:**
   - Providing help, resources, and encouragement.
   - Showing interest and supporting your child's work.
   - Upholding the school's expectations.
   - Supporting and participating in school service opportunities.

3. **Set up an atmosphere conducive to learning by:**
   - Scheduling a regular, daily time where all family members are studying.
   - Making sure the house is quiet during this study time.
   - Establishing a location for completing homework that has appropriate lighting and supplies (e.g., paper, pencils, glue, crayons, resources).
   - Assigning a special place to keep school materials.
   - Reviewing the child's homework before it is handed in.
   - Establishing a consistent bedtime.

4. **Strengthen communication with your child by:**
   - Spending quality time with your child.
   - Sharing resources from your community with your child (e.g., parks, libraries, special buildings).
   - Establishing and enforcing reasonable consequences for misbehavior.

5. **Be involved in your child's school community by:**
   - Attending parent/teacher conferences.
   - Contacting your child's teacher when questions arise.
   - Spending time in your child's classroom.
   - Attending school functions.

Heat

Heat Moves in a Predictable Flow from Warmer Objects to Cooler Objects

- Together, light a candle in a darkened room and watch the heat waves.
- Invite your child touch a metal faucet spout then turn on the hot water. Let them feel the change of temperature in the metal. Discuss the differences between convection of heat via the flow of water and the conduction heat in the metal.

Energy in the Earth System

Earth's Surface is Affected by the Transfer of Energy

- Together, put water in two different jars and record the temperature of the water. Put the two jars in the sun, covering one jar with a white paper and the other with black paper. After an hour, record the temperatures of the water. Encourage a discussion with your child about why the water temperatures are different, the concept of heat and color and how this effects the color of clothes worn in places where it is hot.
- Together, place a "pin wheel" above a candle, far enough so it will not catch on fire. Watch the heat from the candle spin the pin wheel. Encourage discussion about heat radiation.

Ecology

Organisms in Ecosystems Exchange Energy and Nutrients

- Together, take a trip and talk about the different types of ecosystems, discussing the types of plants and animals that are found and why some are more abundant than others.
- In the park or in your own back yard, you and your child select one square yard of ground that has plants and small animals (e.g., beetles, worms). Together, plot the location of each organism and talk about how each interacts.
- On the square yard of ground, invite your child to count the number of each kind of plant and animal found, recording the results and making a bar graph displaying this information.

Home Activities for Science

Focus on Earth Science

Plate Tectonics and Earth's Structure

Plate Tectonics Accounts for Important Features of the Earth's Surface

- With your child, create, or find a map of the Pacific basin and locate Japan, the Philippines, Hawaii, North and South America, their major mountain ranges, and the San Andreas Fault. Together label the areas that have earthquakes or volcanoes.
- With your child, search the Internet for a sight showing the location of earthquakes and active volcanoes. Encourage your child to put a mark on the map showing the location of each earthquake and volcano. The area around the Pacific Ocean is known as the "Ring of Fire." Using the map, discuss this concept with your child.
- With your child, search the Internet. Find the number of earthquakes that take place in the world every day. Invite your child to record this number. Next, invite your child to record the number of earthquakes that take place in one week.

Shaping Earth's Surface

Topography is Reshaped by the Weathering

- When walking by a stream with your child, invite your child to look at the inside and outside curves. Discuss how and why the edges are different.
- Encourage your child to look at different land formations and discuss all signs of erosion with him/her.
- Walk along a beach and observe the wave action on the surface of the sand. Next create different shapes in the sand and watch how the waves affect them.
- Together, find two aluminum basting pans filling one with dirt and one with growing grass. Tilt the two pans. Using a light spray, run water in each pan and watch the erosion that takes place. Discuss the part plants play in saving our soil.
- Together, watch the news or search the internet for natural disasters. Discuss their effects on people, plants, and animals. Encourage your child to determine if man's activities might have influenced the disaster. If so, how?

State Standards for English Language Arts

Reading

1.0 Word Analysis, Fluency, and Systematic Vocabulary Development

1.1 Read text aloud with grade-appropriate fluency and accuracy.
1.2 Identify/interpret figurative language and words with multiple meanings.
1.3 Recognize the origins and meanings of frequently used foreign words in English and using these words accurately.
1.4 Monitor text for unknown words or words with novel meanings by using word, sentence, and paragraph clues to determine meaning.
1.5 Understand and explain "shades of meaning" in related words (e.g., softly and quietly).

2.0 Reading Comprehension

2.1 Identify the structural features of popular media (e.g., newspapers, magazines, online information) and using the features to obtain information.
2.2 Analyze text that uses the compare and contrast organizational pattern.
2.3 Connect and clarify main ideas by identifying their relationships to other sources and related topics.
2.4 Clarify and understand text by creating outlines, logical notes, summaries, or reports.
2.5 Follow multiple-step instructions for preparing applications.
2.6 Determine the adequacy and appropriateness of the evidence for an author's conclusions.
2.7 Make reasonable assertions about text through accurate, supporting citations.
2.8 Note instances of unsupported inferences, fallacious reasoning, persuasion, and propaganda in text.

3.0 Literary Response and Analysis

3.1 Identify the forms of fiction and describe the major characteristics of each form.
3.2 Analyze the effect of the character's qualities on the plot/ resolution of conflict.
3.3 Analyze the influence of setting on the problem and its resolution.
3.4 Define how tone or meaning is conveyed in poetry.

3.5 Identify the speaker and recognizing the difference between first- and third-person narration.
3.6 Identify and analyze features of themes conveyed through characters, actions, and images.
3.7 Explain the effects of common literary devices in a variety of fictional and nonfictional texts.
3.8 Critique the credibility of characterizations and the degree to which a plot is contrived or realistic.

Writing

1.0 Writing Strategies

1.1 Choose the form of writing (e.g., personal letter, letter to the editor, review, poem, report, narrative) that best suits the intended purpose.
1.2 Create multiple-paragraph compositions.
1.3 Use a variety of organizational patterns (e.g., comparison/ contrast, order of importance) in writing.
1.4 Use organizational features of electronic text to locate information.
1.5 Compose documents with appropriate formatting by using word processing skills and principles of design.
1.6 Revise writing to improve the organization and consistency of ideas within and between paragraphs.

2.0 Writing Applications

2.1 Write narratives.
2.2 Write expository compositions.
2.3 Write research reports.
2.4 Write responses to literature.
2.5 Write persuasive compositions.

Written and Oral English Language Conventions

1.0 Written and Oral English Language Conventions

1.1 Use simple, compound, and compound-complex sentences; using effective coordination and subordination of ideas to express thoughts.
1.2 Use indefinite pronouns verb tenses, ensuring that verbs agree with compound subjects.
1.3 Use colons, semicolons, and commas in compound sentences.
1.4 Use correct capitalization.
1.5 Spell frequently misspelled words correctly (e.g, their, they're, there).

d. Know that different kinds of organisms may play similar ecological roles in similar biomes.
e. Know that the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.

Resources

6. Sources of energy and materials differ in amounts, distribution, usefulness, and the time required for their formation.

a. Know the utility of energy sources is determined by factors that are involved in converting these sources to useful forms and the consequences of the conversion process.
b. Know different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable.
c. Know the natural origin of the materials used to make common objects.

Investigation and Experimentation

7. Scientific progress is made by asking meaningful questions and conducting careful investigations.

a. Develop a hypothesis.
b. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
c. Construct appropriate graphs from data and develop qualitative statements about the relationships between variables.
d. Communicate the steps and results from an investigation in written reports and oral presentations.
e. Recognize whether evidence is consistent with a proposed explanation.
f. Read a topographic map and a geologic map for evidence provided on the maps and construct and interpret a simple scale map.
g. Interpret events by sequence and time from natural phenomena (e.g., the relative ages of rocks and intrusions).
h. Identify changes in natural phenomena over time without manipulating the phenomena (e.g., a tree limb, a grove of

d. Know that earthquakes, volcanic eruptions, landslides, and floods change human and wildlife habitats.

Heat

3. Heat moves in a predictable flow from warmer objects to cooler objects until all the objects are at the same temperature.

a. Know that energy can be carried from one place to another by heat flow or by waves, including water, light and sound waves, or by moving objects.
b. Know that when fuel is consumed, most of the energy released becomes heat energy.
c. Know that heat flows in solids by conduction (which involves no flow of matter) and in fluids by conduction and by convection (which involves flow of matter).
d. Know that heat energy is also transferred between objects by radiation (radiation can travel through space).

Energy in the Earth System

4. Many phenomena on Earth's surface are affected by the transfer of energy through radiation and convection currents.

a. Know that the sun is the major source of energy for phenomena on Earth's surface; it powers winds, ocean currents, and the water cycle.
b. Know that solar energy reaches Earth through radiation, mostly in the form of visible light.
c. Know that heat from Earth's interior reaches the surface primarily through convection.
d. Know that convection currents distribute heat in the atmosphere and oceans.
e. Know that differences in pressure, heat, air movement, and humidity result in changes of weather.

5. Organisms in ecosystems exchange energy and nutrients among themselves and with the environment.

a. Know that energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.
b. Know that matter is transferred over time from one organism to others in the food web and between organisms and the physical environment.
c. Know that populations of organisms can be categorized by the functions they serve in an ecosystem.

Listening and Speaking

1.0 Listening and Speaking Strategies

1.1 Relate the speaker's verbal communications (e.g., word choice, pitch, feeling, tone) to nonverbal message (e.g., posture, gesture).
1.2 Identify the tone, mood, and emotion conveyed in the communication.
1.3 Restate and execute multiple-step oral instructions and directions.
1.4 Select a focus, organizational structure, and point of view; matching the purpose, message, occasion, and vocal modulation to the audience.
1.5 Emphasize salient points to assist the listener in following the main ideas and concepts.
1.6 Support opinions with detailed evidence and with visual or media displays that use appropriate technology.
1.7 Use effective rate, volume, pitch, and tone and aligning nonverbal elements to sustain audience interest and attention.
1.8 Use rhetorical devices (e.g., cadence, repetitive patterns) for intent and effect.
1.9 Identify persuasive and propaganda techniques used in television.

2.0 Speaking Applications

2.1 Deliver narrative presentations.
2.2 Deliver informational presentations.
2.3 Deliver oral responses to literature.
2.4 Deliver persuasive presentations.
2.5 Deliver presentations on problems and solutions.

Activities for Language Arts

Reading

- Schedule regular visits to the library and/or bookstore.
- Provide comfortable reading level and age appropriate materials.
- Subscribe to magazines of interest for different members of the family.
- Share information about books, magazines, and/or newspapers.
- Schedule a family reading time when everyone is reading books, magazines, newspapers, etc.

Reading Comprehension

- Have family discussions about things read, including book reviews, discussions about various characters in a story, etc.
- After reading a story, ask questions about the story that relate to the main idea, story details, sequence of events, and different story endings.
- Share newspaper articles read and discuss the intent of the article.

Writing

- Encourage your child write about daily events in their journal.
- Encourage your child write letters and thank you notes.
- Encourage your child write summaries of movies, T.V. programs, etc.
- Encourage your child communicate with friends using E-mail.
- Invite your child use a computer for writing, using portions of the program that make the paper "pleasing to the eye" such as adding graphics to the text.
- Encourage your to child edit his/her own work.

Written and Oral English Language Conventions

- Play word games such as Scrabble, Probe, Pictionary with your child.
- Have your child edit/correct errors found in the newspaper.
- Gently edit together works your child has written looking for correct punctuation, capitalization, grammar, and sentence structure. Celebrate the writing!

State Standards for Science

Focus on Earth Science

Plate Tectonics and Earth's Structure

1. Plate tectonics accounts for important features of Earth's surface and major geologic events.

a. Know evidence of plate tectonics is derived from the fit of the continents; the location of earthquakes, volcanoes, and midocean ridges; and the distribution of fossils, rock types, and ancient climatic zones.
b. Know the Earth is composed of several layers: a cold, brittle lithosphere; a hot, convecting mantle; and a dense, metallic core.
c. Know that lithospheric plates, the size of continents and oceans, move at rates of centimeters per year in response to movements in the mantle.
d. Know that earthquakes are sudden motions along breaks in the crust called faults and that volcanoes and fissures are locations where magma reaches the surface.
e. Know that major geologic events, such as earthquakes, volcanic eruptions, and mountain building, result from plate motions.
f. Know how to explain major features of California geology (including mountains, faults, volcanoes) in terms of plate tectonics.
g. Know how to determine the epicenter of an earthquake and know that the effects of an earthquake on any region vary, depending on the size of the earthquake, the distance of the region from the epicenter, the local geology, and the type of construction in the region.

Shaping Earth's Surface

2. Topography is reshaped by the weathering of rock and soil and by the transportation and deposition of sediment.

a. Know that water running downhill is the dominant process in shaping the landscape, including California's landscape.
b. Know that rivers and streams are dynamic systems that erode, transport sediment, change course, and flood their banks in natural and recurring patterns.
c. Know that beaches are dynamic systems in which the sand is supplied by rivers and moved along the coast by the action of waves.

family members for each level and role play the system. At the end of the weekend, discuss the feelings of each person and the social justice for this system.

- The next weekend, role play a democratic form of government where discussion, collaboration, and voting take place prior to decisions that effect the family. Again, discuss the feelings of each person and the social justice for this system.
- Go to a cultural restaurant (e.g., Chinese, Greek, Indian) and sample the food, comparing it to American food. Discuss why this food became part of that country's diet (e.g., weather, land, soil conditions, proximity to the ocean).
- Go on a shopping trip and look for material or items made totally of one of the four different types of natural fibers (silk, cotton, wool, and linen). Compare these fibers for texture, durability and comfort. Discuss why these natural fibers are usable in all cultures.

Structures During Development of Rome

- Look on a map or globe and locate Rome and the surrounding area. Discuss why the Roman Empire took over the "then known world" (e.g., talk about climate, geography, the vast coastline, agriculture).
- Discuss the system of bartering, used by the Romans. Set up a store in your house, owned and run by mother. All children must barter for all merchandise, using a form a currency developed by the kids (e.g., Jelly Bellys, M & M's.). Discuss the process of bartering and how this concept is used in your family and America today.
- Look around the community to discover buildings that have Roman architectural influence.

Listening and Speaking

- Discuss points of views expressed in the media with your family.
- Listen as your child speaks, supporting him/her in the correct use of grammar.
- Encourage your child to listen to the opinions of others and, when needed, ask for support of their opinions.

State Standards for Mathematics

Number Sense

1.0 Comparing and Ordering Numbers

1.1 Compare and order positive and negative fractions, decimals, and mixed numbers and place them on a number line.

1.2 Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (a/b, *a* to *b*, *a:b*).

1.3 Use proportions to solve problems (e.g., determining the value of *N* if 4/7 = N/21, finding the length of a side of a polygon similar to a known polygon). Use cross-multiplication as a method for solving such problems, understanding it as the multiplication of both sides of an equation by a multiplicative inverse.

1.4 Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.

2.0 Calculating

2.1 Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.

2.2 Explain the meaning of multiplication and division of positive fractions and perform the calculations (e.g., *5/8 ÷ 15/16 = 5/8* x *16/15 = 2/3*).

2.3 Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations, that use positive and negative integers and combinations of these operations.

2.4 Determine the least common multiple and the greatest common divisor of whole numbers; use them to solve problems with fractions (e.g., to find a common denominator to add two fractions or to find the reduced form for a fraction).

Algebra and Functions

1.0 Writing Expressions

1.1 Write and solve one-step linear equations in one variable.

1.2 Write and evaluate an algebraic expression for a given situation, using up to three variables.

Home Activities for History–Social Science

Early Physical and Cultural Development of Humankind

- Visit a museum to see fossil evidence, or artifacts, of pre-historic man.
- Using branches, vines, twigs, and/or grass, build a shelter in the back yard, like the ones built by pre-historic man, and spend the night in this shelter. Discuss with your child the shelter built and how it felt to sleep there.

Early Civilizations of Mesopotamia, Egypt, and Kush

- Create a series of symbols for different words or letters. Encourage your child to write a message using these symbols, as done by the ancient cultures then read the message.
- While camping by a river/creek, invite your child to build a toy boat and put it in the water. Observe the current it follows, obstructions, problems with navigation, etc. Compare this with the problems people had with early water transportation.

Structures of the Ancient Hebrews

- Talk together about the present religions in the world and discuss some of their similarities and differences.
- Discuss together the significance of Judaism, the first religion to believe in one God, a God who gives moral laws for man.
- On a map, locate the county of Egypt and the surrounding area, noting that this is where the Hebrews developed as a nation.

Structures of the Early Civilizations of Greece, India, and China

- On a map, locate major Asian cities located by rivers, and cities along the Mediterranean Sea Coastline. Discuss reasons why these cities developed, including the importance of water for trading goods, delivering news, political influences and cultural ideas. Discuss how water helped sustain cities and expand the civilization.
- With your family, spend some time living in a Caste system. Assign all the family duties to duplicate a Caste System. (e.g., The top people are dictators to the two layers below them. The second layer may dictate to the lower level, but not the top. The lowest level are the servants.) Appoint

6. Detail the political contributions of the Han Dynasty to the development of the imperial bureaucratic state and the expansion of the empire.
7. Cite the significance of the trans-Eurasian "silk roads" in the period of the Han Dynasty and Roman Empire and their locations.
8. Describe the diffusion of Buddhism northward to China during the Han Dynasty.

6.7 Students analyze the geographic, political, economic, religious, and social structures during the development of Rome.

1. Identify the location and describe the rise of the Roman Republic, including the importance of such mythical and historical figures as Aeneas, Romulus and Remus, Cincinnatus, Julius Caesar, and Cicero.
2. Describe the government of the Roman Republic and its significance (e.g., written constitution and tripartite government, checks and balances, civic duty).
3. Identify the location of and the political and geographic reasons for the growth of Roman territories and expansion of the empire, including how the empire fostered economic growth through the use of currency and trade routes.
4. Discuss the influence of Julius Caesar and Augustus in Rome's transition from republic to empire.
5. Trace the migration of Jews around the Mediterranean region and the effects of their conflict with the Romans, including the Romans' restrictions on their right to live in Jerusalem.
6. Note the origins of Christianity in the Jewish Messianic prophecies, the life and teachings of Jesus of Nazareth as described in the New Testament, and the contribution of St. Paul the Apostle to the definition and spread of Christian beliefs (e.g., belief in the Trinity, resurrection, salvation).
7. Describe the circumstances that led to the spread of Christianity in Europe and other Roman territories.
8. Discuss the legacies of Roman art and architecture, technology and science, literature, language, and law.

1.3 Apply algebraic order of operations and the commutative, associative, and distributive properties to evaluate expressions; and justify each step in the process.
1.4 Solve problems manually by using the correct order of operations or by using a scientific calculator.

2.0 Rates and Proportions

2.1 Convert one unit of measurement to another (e.g., from feet to miles, from centimeters to inches).
2.2 Demonstrate an understanding that *rate* is a measure of one quantity per unit value of another quantity.
2.3 Solve problems involving rates, average speed, distance, and time.

3.0 Patterns

3.1 Use variables in expressions describing geometric quantities (e.g., $P = 2w + 21$, $A = 1/2\ bh$, $C = \pi\ d$ - the formulas for the perimeter of a rectangle, the area of a triangle, and the circumference of a circle, respectively).
3.2 Express in symbolic form simple relationships arising from geometry.

Measurement and Geometry

1.0 Area and Volume

1.1 Understand the concept of a constant such as π; knowing the formulas for the circumference and the area of a circle.
1.2 Know common estimates of π (3.14; 22/7) and use these values to estimate and calculate the circumference and the area of circles; compare with actual measurements.
1.3 Know and use the formulas for the volume of triangular prisms and cylinders (area of base x height); compare these formulas and explain the similarity between them and the formula for the volume of a rectangular solid.

2.0 Geometry

2.1 Identify angles as vertical, adjacent, complementary, or supplementary and provide descriptions of these terms.
2.2 Use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle.
2.3 Draw quadrilaterals and triangles from given information about them (e.g., a quadrilateral having equal sides but no right angles, a right isosceles triangle).

Statistics, Data Analysis, and Probability:

1.0 Data

1.1 Compute the range, mean, median, and mode of data sets.

1.2 Understand how additional data added to data sets may affect these computations of measures of central tendency.

1.3 Understand how the inclusion or exclusion of outliers affects measures of central tendency.

1.4 Know why a specific measure of central tendency (mean, median, mode) provides the most useful information in a given context.

2.0 Limitations

2.1 Compare different samples of a population with the data from the entire population and identify a situation in which it makes sense to use a sample.

2.2 Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling) and which method makes a sample more representative for a population.

2.3 Analyze data displays and explain why the way in which the question was asked might have influenced the results obtained and why the way in which the results were displayed might have influenced the conclusions reached.

2.4 Identify data that represent sampling errors and explain why the sample (and the display) might be biased.

2.5 Identify claims based on statistical data and, in simple cases, evaluating the validity of the claims.

3.0 Probabilities

3.1 Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome.

3.2 Use data to estimate the probability of future events (e.g., batting averages or number of accidents per mile driven).

3.3 Represent probabilities as ratios, proportions, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable; knowing that if *P* is the probability of an event, 1-*P* is the probability of an event not occurring.

3.4 Understand that the probability of either of two disjoint events occurring is the sum of the two individual probabilities and that the probability of one event following

5 Outline the founding, expansion, and political organization of the Persian Empire.

6. Compare and contrast life in Athens and Sparta, with emphasis on their roles in the Persian and Peloponnesian Wars.

7. Trace the rise of Alexander the Great and the spread of Greek culture eastward and into Egypt.

8. Describe the enduring contributions of important Greek figures in the arts and sciences (e.g., Hypatia, Socrates, Plato, Aristotle, Euclid, Thucydides).

6.5 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of India.

1. Locate and describe the major river system and discuss the physical setting that supported the rise of this civilization.
2. Discuss the significance of the Aryan invasions.
3. Explain the major beliefs and practices of Brahmanism in India and how they evolved into early Hinduism.
4. Outline the social structure of the caste system.
5. Know the life and moral teachings of Buddha and how Buddhism spread in India, Ceylon, and Central Asia.
6. Describe the growth of the Maurya empire and the political and moral achievements of the emperor Asoka.
7. Discuss important aesthetic and intellectual traditions (e.g., Sanskrit literature, including the *Bhagavad Gita*; medicine; metallurgy; and mathematics, including Hindu-Arabic numerals and the zero).

6.6 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of China.

1. Locate and describe the origins of Chinese civilization in the Huang-He Valley during the Shang Dynasty.
2. Explain the geographic features of China that made governance and the spread of ideas and goods difficult and served to isolate the country from the rest of the world.
3. Know about the life of Confucius and the fundamental teachings of Confucianism and Taoism.
4. Identify the political and cultural problems prevalent in the time of Confucius and how he sought to solve them.
5. List the policies and achievements of the emperor Shi

6.3 Students analyze the geographic, political, economic, religious, and social structures of the Ancient Hebrews.

1. Describe the origins and significance of Judaism as the first monotheistic religion based on the concept of one God who sets down moral laws for humanity.
2. Identify the sources of the ethical teachings and central beliefs of Judaism (the Hebrew Bible, the Commentaries): belief in God, observance of law, practice of the concepts of righteousness and justice, and importance of study; and describe how the ideas of the Hebrew traditions are reflected in the moral and ethical traditions of Western civilization.
3. Explain the significance of Abraham, Moses, Naomi, Ruth, David, and Yohanan ben Zaccai in the development of the Jewish religion.
4. Discuss the locations of the settlements and movements of Hebrew peoples, including the Exodus and their movement to and from Egypt, and outline the significance of the Exodus to the Jewish and other people.
5. Discuss how Judaism survived and developed despite the continuing dispersion of much of the Jewish population from Jerusalem and the rest of Israel after the destruction of the second Temple in A.D. 70.

6.4 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of Ancient Greece.

1. Discuss the connections between geography and the development of city-states in the region of the Aegean Sea, including patterns of trade and commerce among Greek city-states and within the wider Mediterranean region.
2. Trace the transition from tyranny and oligarchy to early democratic forms of government and back to dictatorship in Ancient Greece, including the significance of the invention of the idea of citizenship (e.g., from *Pericles' Funeral Oration*).
3. State the key differences between Athenian, or direct, democracy and representative democracy.
4. Explain the significance of Greek mythology to the everyday life of people in the region and how Greek literature continues to permeate our literature and language today, drawing from Greek mythology and epics,

another, in independent trials, is the product of the two probabilities.

3.5 Understand the difference between independent and dependent events.

Mathematical Reasoning

1.0 Making Decisions about a Problem

1.1 Analyze problems by identifying relationships, distinguishing relevant from irrelevant information, and observing patterns.

1.2 Formulate and justify mathematical conjectures based on a general description of the mathematical question or problem posed.

1.3 Determine when and how to break a problem into simpler parts.

2.0 Solving Problems and Justify Reasoning

2.1 Use estimation to verify the reasonableness of calculated results.

2.2 Apply strategies and results from simpler problems to more complex problems.

2.3 Estimate unknown quantities graphically and solve for them using logical reasoning and arithmetic and algebraic techniques.

2.4 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, and models, to explain mathematical reasoning.

2.5 Express the solution clearly and logically by using the appropriate mathematical notation and terms and clear language; support solutions with evidence in both verbal and symbolic work.

2.6 Indicate the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.

2.7 Make precise calculations and check the validity of the results from the context of the problem.

3.0 Make Connections

3.1 Evaluate the reasonableness of the solution in the context of the original situation.

3.2 Note the method of deriving the solution and demonstrate a conceptual understanding of the derivation by solving similar problems.

3.3 Develop generalizations of the results obtained and the strategies used and apply them in new circumstances.

Home Activities for Mathematics

Number Sense

- Together, play number games that involve the use of numbers (e.g., dice games, card games, etc.)
- When shopping, invite your child real and practical experiences such as weighing fruit, comparing prices, calculating discounts, determining the better buy, and figuring change.
- When cooking, encourage your child change the recipe by doubling or cutting in half the amounts.
- Invite your child to open a savings account. Encourage him/her to calculate interest, fees, and penalties for a savings account.

Algebra and Functions

- Encourage your child plan a trip and determine miles to travel, gas mileage for the car, the amount of gas to be used, the traveling speed, and estimated arrival time.
- Encourage your child discuss the different currency rates in different countries. Discuss how much 100 dollars of American money might be worth in Japan, China, Canada. For information, use the internet and/or library.

Measurement and Geometry

- Have your child build projects (e.g., sewing, woodwork, crafts, tile floors, anything requiring a design) using the concepts of geometry, area, and circumference.
- Work with your child in planning home improvement projects that require measuring, using standard and metric units (e.g., building a cabinet, determining square footage of a room before painting).

Statistics, Data Analysis, and Probability

- Encourage your child to calculate averages for sports (e.g., free throw percentage, baseball averages, football rushing average, passing percentage, quarterback ratings).
- When working on a science project, encourage your child collect and record data.
- Invite your child to play card or dice games and mathematically determine the probability of winning.

Mathematical Reasoning

- Encourage your child to play reasoning games (e.g., purchase a logic book).

- Invite your child solve puzzles (e.g., riddles, crossword).
- Invite your child plan a family budget. Model for him/her how a budget is determined.

State Standards for History–Social Science

World History and Geography: Ancient Civilizations

6.1 Students describe what is known through archaeological studies of the early physical and cultural development of humankind from the Paleolithic era to the agricultural revolution.

1. Describe the hunter-gatherer societies, including the development of tools and the use of fire.
2. Identify the locations of human communities that populated the major regions of the world and describe how humans adapted to a variety of environments.
3. Discuss the climatic changes and human modifications of the physical environment that gave rise to the domestication of plants and animals and new sources of clothing and shelter.

6.2 Students analyze the geographic, political, economic, religious, and social structures of the early civilizations of Mesopotamia, Egypt, and Kush.

1. Locate and describe the major river systems and discuss the physical settings that supported permanent settlement and early civilizations.
2. Trace the development of agricultural techniques that permitted the production of economic surplus and the emergence of cities as centers of culture and power.
3. Understand the relationship between religion and the social and political order in Mesopotamia and Egypt.
4. Know the significance of Hammurabi's Code.
5. Discuss the main features of Egyptian art and architecture.
6. Describe the role of Egyptian trade in the eastern Mediterranean and Nile valley.
7. Understand the significance of Queen Hatshepsut and Ramses the Great.
8. Identify the location of the Kush civilization and describe its political, commercial, and cultural relations with Egypt.
9. Trace the evolution of language and its written forms.