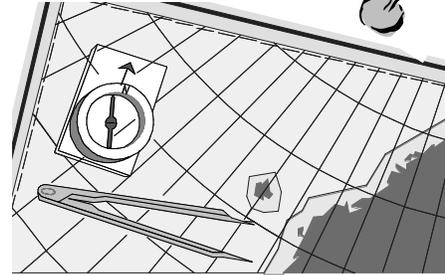
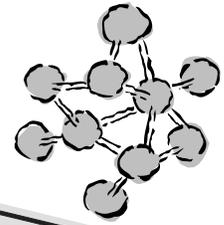


# 6th Grade Curriculum Parent Guide



## Welcome to Sixth Grade

Curriculum performance standards were developed for each grade level that will lead students to specific eighth grade academic goals. By the end of grade eight, students will read and respond to a wide range of writing to build an understanding of written materials, of themselves, and of others.

In the language arts, students will learn to read, interpret, and critically analyze literature; read and discuss literary and nonliterary texts to understand human experiences; read to acquire information; and create or produce writing to communicate with different audiences for a variety of purposes. Students will plan, revise, edit, and publish clear and effective writing; understand the function of various forms, structures, and punctuation marks of standard improving communication in American English and use them appropriately in communications. Students will learn to orally communicate information, opinions, and ideas effectively to different audiences for a variety of purposes. They will participate effectively in discussions and develop their vocabulary and ability to use words, phrases, idioms, and various grammatical structures as a means of improving communication. They will recognize and interpret various uses and adaptations of language in social, cultural, regional, and professional situations, and learn to be flexible and responsive in their use of English.

Students will also use computers to acquire, organize, analyze, and communicate information; make informed judgments about media and products; create media products appropriate to audience and purpose; demonstrate a working knowledge of media production and distribution; and analyze and edit media work as appropriate to audience and purpose. Students will conduct research and inquiry on self-selected or assigned topics, issues, or problems and use an appropriate form to communicate their findings.

In social studies, students gain geographical perspectives on the world by studying the earth and the interactions of people with places where they live, work and play. Knowledge of geography helps students to address the various cultural, economic, social and civic implications of life in earth's many environments. In Wisconsin schools, the content, concepts and skills related to geography may be taught in units and courses that deal with geography, history, global studies, anthropology, sociology, psychology, current events and world religions.

Students will learn about the history of Wisconsin, the United States and the world, examining change and continuity over time in order to develop historical perspective, explain historical relationships and analyze issues that affect the present and the future. Reconstructing and interpreting historical events provides a needed perspective in addressing the past, the present and the future. Students will learn about political science and acquire the knowledge of political systems necessary for developing individual civic responsibility by studying the history and contemporary uses of power, authority and governance. Students in will learn about production, distribution, exchange and consumption so that they can make informed economic decisions.

Students in Wisconsin will learn about the behavioral sciences by exploring concepts from the discipline of sociology, the study of the interactions among individuals, groups and institutions; the discipline of psychology, the study of factors that influence individual identity and learning; and the discipline of anthropology, the study of cultures in various times

and settings. Learning about the behavioral sciences helps students to understand people in various times and places. By examining cultures, students are able to compare our ways of life and those of other groups of people in the past and present.

Students in Wisconsin will draw upon a broad body of mathematical knowledge and apply a variety of mathematical skills and strategies, including reasoning, oral and written communication and the use of appropriate technology, when solving mathematical, real-world and non-routine problems. In order to participate fully as a citizen and a worker in our contemporary world, a person should be mathematically powerful. Mathematical power is the ability to explore, to conjecture, to reason logically and to apply a wide repertoire of methods to solve problems. People use numbers to quantify, describe and label things in the world around them. It is important to know the many uses of numbers and various ways of representing them. Number sense is a matter of necessity, not only in one's occupation but also in the conduct of daily life, such as shopping, cooking, planning a budget or analyzing information provided by the media.

Students will be able to use geometric concepts, relationships and procedures to interpret, represent and solve problems. Geometry and its study of shapes and relationships is an effort to understand the nature and beauty of the world.

Students will also select and use appropriate tools (including technology) and techniques to measure things to a specified degree of accuracy. They will use measurements in problem-solving situations. Measurement is the foundation upon which much technological, scientific, economic and social inquiry rests. Dramatic advances in technology have launched the world into the Information Age, where data are used to describe past events or predict future events. Whether in the business place or in the home, as producers or consumers of information, citizens need to be well versed in the concepts and procedures of data analysis in order to make informed decisions.

Students discover, describe and generalize simple and complex patterns and relationships. In the context of real-world problem situations, the student will use algebraic techniques to define and describe the problem to determine and justify appropriate solutions.

## Language Arts

### Reading/Literature

- Use context clues to identify meaning of unfamiliar and multiple meaning words
- Use syllabication, prefixes, and suffixes to read and understand unfamiliar words
- Use sentence structures to understand unfamiliar words
- Use headings, bold print, and graphics to understand and clarify meaning
- Evaluate the differences between fact and opinion
- Use chronology and cause and effect to aid comprehension
- Use dictionaries to look up pronunciations and meanings of words
- Identify, analyze, and summarize main ideas, orally and in writing
- Evaluate author's viewpoint, purpose, and possible bias
- Use headings, bold print, pictures, graphics, and chronology to increase comprehension
- Establish reading and writing habits through positive modeling by adults
- Identify and analyze the characteristics of fictional and nonfictional genres such as fables, myths, plays, poems, short stories, and novels
- Identify, analyze, and summarize main ideas and supporting details
- Analyze story elements including the internal and external conflict, characters (personality traits), plot and theme
- Analyze use of flashback, foreshadowing, symbolism, and figurative language
- Evaluate point of view, purpose, and possible bias
- Analyze, evaluate, and synthesize non-fiction and fiction material
- Develop criteria to evaluate literary merit of non-fiction and fiction material
- Explain opinions about a text orally and in writing
- Identify dialects and dialogue
- Categorize fact and opinion and cause and effect statements based on story elements
- Provide interpretive responses, orally and in writing, to literary and nonliterary texts representing the diversity of American cultural heritage and cultures of the world
- Identify common historical, social, and cultural themes and issues in literary works and selected passages
- Draw on a broad base of knowledge about the themes, ideas, and insights found in classical literature while reading, interpreting, and reflecting on contemporary texts

- Evaluate the themes and main ideas of a work considering its audience and purpose
- Interpret and use charts, tables, timelines, and manuals in paper and electronic form
- Use technological resources to gather, organize, and present information
- Compare and contrast the accuracy and usefulness of information from print and audio sources
- Identify and explain information, main ideas, and organization of various informational sources
- Identify and compare the facts in documents, narratives, charts, and tables and other sources

## Writing

- Select a piece of expository writing and synthesize and evaluate its characteristics
- Write a five-paragraph expository piece with supportive evidence and details
- Determine the purpose and audience for a persuasive essay
- Write a five-paragraph persuasive essay with a clear position and three coherent arguments and reliable evidence to support it
- Understand the use of theme in narrative writing
- Write a personal narrative in correct sequence with a beginning, middle, and end
- Write narrative pieces with sufficient detail and descriptive language
- Write creative fiction with major characters, a developed plot, concrete details, and descriptive language
- Write personal opinion responses to verbal or visual material
- Write in timed and untimed situations for different purposes and audiences using technology and reference materials
- Write using pencil and paper as well as technology
- Produce drafts and finished pieces that generate, focus, and organize ideas and revise language, organization, content, and tone
- Identify strategies for improving drafts in writing conferences with a teacher
- Produce a well developed, organized response in a limited time
- Understand the use of words, phrases, and clauses in sentences
- Use coordinate and subordinate conjunctions, relative pronouns, and comparative adjectives
- Use correct tenses to indicate the order of events
- Use principles of agreement for subject-verb, pronoun-noun, and preposition-pronoun
- Punctuate compound, complex, and compound-complex sentences
- Employ the conventions of capitalization
- Spell words correctly and use strategies to spell unfamiliar words

## Oral Language

- Share brief impromptu remarks about topics of interest to an audience
- Relate a personal narrative using detailed descriptions in correct sequence
- Perform oral readings of stories and present in formal and informal settings
- Interview each other to practice the roles of interviewer and interviewee
- Use sources such as newspaper and magazine articles, internet searches, and reference books to get ideas for a topic
- Prepare and deliver a persuasive speech
- Present a comprehensive research report appropriate to the event and audience
- Use appropriate eye contact, projection, tone, volume, rate, and articulation
- Use appropriate etiquette when expressing thanks and receiving praise
- Listen politely and respond appropriately to praise and constructive criticism
- Identify key ideas in a listening experience and order them sequentially
- Use listening skills appropriate to the speaker's experience
- Distinguish between significant and insignificant details
- List the details that support the key ideas while listening to a speaker
- Evaluate the reliability of oral information based on logic
- Listen attentively and respond appropriately to the opinions of others
- Construct an opinion supported by facts
- Investigate the opinions of others by asking relevant questions
- Seek out ideas and opinions of others in a discussion
- Articulate reasons for giving helpful constructive criticism
- Listen to ideas and opinions of others and give appropriate feed-back
- Summarize the main points of a discussion orally and in writing

- Display appropriate body language and facial expressions during discussions
- Discuss the differences between the content of a discussion versus the speaker
- Practice leading a discussion
- Define supported and unsupported statements

## **Language**

- Understand the relationship between denotation and connotation
- Improve knowledge and use of reference skills
- Use dictionary to obtain detailed information
- Use and analyze figurative language
- Apply words to inform, explain, and persuade
- Create idioms appropriate to a given context
- Consider the purpose and audience when making language choices
- Enhance and build vocabulary
- Identify the purpose and audience when reading or writing a story
- Use daily journals to develop written language skills

## **Media and Technology**

- Use basic word processing functions including copy, cut, paste; centering; single and double spacing; tab; indent; style functions
- Use a spell checker correctly
- Write rough draft, revise and finalize (ex. Inspiration).
- Create data base fields, enter and sort data, produce a report (i.e. writing portfolio book list)
- Use on-screen help when using various computer programs
- Identify keywords, use basic search engines & demonstrate efficient Internet navigation
- Examine selected resources for pertinent information, determine validity and authority
- Become familiar with e-mail functions
- Identify criteria for judging quality of print and non-print resources (including electronic)
- Identify and interpret symbols in various forms of media
- Identify personal criteria for selecting materials and/or broadcast programs
- Identify stereotypes in various forms of media
- Make use of written and/or oral reviews and evaluations from teachers, peers, critics reviewers
- Create media products (including both written and technology-enhanced)
- Identify audience and purpose of media product
- Select appropriate format
- Use presentation software program to create a media product
- Revise media productions by adding, deleting, and adjusting the sequence and arrangement of information, images, or other content as necessary to improve focus, clarity, or effect.
- Develop criteria for comprehensive feedback on the quality of media work and use it during production.
- Use a graphics program to create or modify images or pictures
- Identify the criteria to be used, assess the product and determine ways to improve presentation (ex. story board, Inspiration)

## **Research & Inquiry**

- Identify problem or question, review prior knowledge, determine focus and questions
- Determine audience and purpose of presentation
- Refine selection and location skills
- Analyze and evaluate information found in graphs, charts, maps and tables
- Use appropriate note-taking strategies and record sources of information
- Develop note-taking strategies, record information
- Organize and evaluate information to summarize findings
- Evaluate information and use relevant info to solve problem or answer question
- Determine need for more information
- Select presentation format and develop product
- Evaluate product according to predetermined criteria and determine ways to improve

# Social Studies

## Geography

- Use a variety of geographic representations, such as political, physical, and topographic maps, a globe, aerial photographs, and satellite images, to gather and compare information about a place
- Create, interpret, use and distinguish between various representations of the earth, such as maps, globes photographs or satellite images in comparing Canada and the United States.
- Apply principles of latitude and longitude in locating and comparing pre-Columbian civilizations, major cities and geographic features in the Western Hemisphere.
- Evaluate the advantages and disadvantages of various kinds of map projections.
- Analyze the problem of accurately representing a globe on a flat surface.
- Construct mental maps of selected locales, regions, states, and countries and draw maps from memory, representing relative location, direction, size, and shape
- Use an atlas to estimate distance, calculate scale, identify dominant patterns of climate and land use, and compute population density
- Explain how physical, population, climate and vegetation maps are used in gathering information about a country or region in our hemisphere.
- Compute population density and name a city, country and continent with a dense and limited population.
- Identify and compare the natural resource bases of different states and regions in the United States and elsewhere in the world, using a statistical atlas, aerial photographs, satellite images, and computer databases
- Collect and interpret information on ways people adapt to living in different physical environments.
- Describe and distinguish between the environmental effects on the earth of short-term physical changes, such as those caused by floods, droughts, and snowstorms, and long-term physical changes, such as those caused by plate tectonics, erosion, and glaciations.
- Describe forces that shape the land, such as floods, drought, weathering and erosion.
- Describe the movement of people, ideas, diseases, and products throughout the world
- Explain how the reasons why people leave/migrate to other areas.
- Describe and analyze the ways in which people in different regions of the world interact with their physical environments through vocational and recreational activities
- Interpret how physical geography has created cultural diversity.
- Describe how climate affects the products that a region can produce.
- Describe how buildings and their decoration reflect cultural values and ideas, providing examples such as cave paintings, pyramids, sacred cities, castles, and cathedrals
- Describe how the architecture of Ancient Civilizations reflected their cultural value.
- Identify major discoveries in science and technology and describe their social and economic effects on the physical and human environment
- Explain the positive and negative affects of hydroelectric dams on human environments.
- Identify and describe the social and economic impact of roads and aqua-ducts in Ancient civilizations.
- Give examples of the causes and consequences of current global issues, such as the expansion of global markets, the urbanization of the developing world, the consumption of natural resources, and the extinction of species, and suggest possible responses by various individuals, groups, and nations
- Describe and evaluate two important reasons why the world population is rapidly rising and explain two problems it is causing.

## History: Time, Continuity and Change

- Interpret the past using a variety of sources, such as biographies, diaries, journals, artifacts, eyewitness interviews, and other primary source materials, and evaluate the credibility of sources used
- Interpret similar and different events in Western & Eastern Hemispheres using a variety of primary and secondary sources.
- Employ cause-and-effect arguments to demonstrate how significant events have influenced the past and the present in United States and world history
- Describe the relationships between and among significant events, such as the causes and consequences of wars in United States and world history
- Explain how and why events may be interpreted differently depending upon the perspectives of participants, witnesses, reporters, and historians

- Use historical evidence to determine and support a position about important political values, such as freedom, democracy, equality, or justice, and express the position coherently
- Analyze important political values such as freedom, democracy, equality, and justice embodied in documents such as the Declaration of Independence, the United States Constitution, and the Bill of Rights
- Explain how Ancient & Politics/Beliefs influenced United States Political system.
- Identify significant events and people in the major eras of United States and world history
- Explain significant individuals that impacted the history of the Western & Eastern Hemisphere.
- Identify major scientific discoveries and technological innovations and describe their social and economic effects on society.
- Describe the major accomplishments of the Ancient civilizations including major scientific discoveries and technological innovation on their social and economic lifestyle.
- Explain the need for laws and policies to regulate science and technology
- Explain how laws and policies have been used to regulate science and technology in Ancient Civilization.
- Analyze examples of conflict, cooperation, and interdependence among groups, societies, or nations
- Explain the reasons for wars/major conflicts in the Western & Eastern hemispheres.
- Describe how history can be organized and analyzed using various criteria to group people and events chronologically, geographically, thematically, topically, and by issues

### **Political Science and Citizenship: Power, Authority, Governance and Responsibility**

- Identify and explain democracy's basic principles, including individual rights, responsibility for the common good, equal opportunity, equal protection of the laws, freedom of speech, justice, and majority rule with protection for minority rights
- Summarize a country's struggle for freedom and describe the effects of this ongoing struggle for Western & Eastern Civilizations.
- Explain how laws are developed, how the purposes of government are established, and how the powers of government are acquired, maintained, justified, and sometimes abused
- Explain major ideas about why government is necessary.
- Evaluate ideas about the purpose of government.
- Locate, organize, and use relevant information to understand an issue of public concern, take a position, and advocate the position in a debate
- Research and advocate a position on what the United States policy should be on illegal immigration from Mexico, Central America and the Caribbean.
- Identify ways in which advocates participate in public policy debates
- Describe how public policies are formed and implemented.
- Describe the role of international organizations such as military alliances and trade associations
- Define what is involved in any international organization.
- Answer the question ... "How does NAFTA directly impact workers in Wisconsin?"

### **Economics: Production, Distribution, Exchange, Consumption**

- Describe and explain how money makes it easier to trade, borrow, save, invest, and compare the value of goods and services
- Discuss how currency plays a vital role within an economic system.
- Identify and explain basic economic concepts: supply, demand, production, exchange, and consumption; labor, wages, and capital; inflation and deflation; market economy and command economy; public and private goods and services
- Identify and describe stages of economic development and some of the problems faced at each stage.
- Describe how investments in human and physical capital, including new technology, affect standard of living and quality of life
- Describe and analyze the impact of investment in society.
- Give examples to show how government provides for national defense; health, safety, and environmental protection; defense of property rights; and the maintenance of free and fair market activity
- Identify and explain various points of view concerning economic issues, such as taxation, unemployment, inflation, the national debt, and distribution of income.
- Identify the issues that land use and the move to urban areas have created in various civilizations.
- Identify the location of concentrations of selected natural resources and describe how their acquisition and distribution generates trade and shapes economic patterns

- Identify natural resources and trace the process by which raw materials are processed for human use.
- Differentiate between renewable and nonrenewable natural resources.
- Describe fossil fuel energy resources and patterns associated with human consumption.
- Explain how and why people who start new businesses take risks to provide goods and services, considering profits as an incentive
- Summarize the reason that various civilizations were willing to take risks to provide goods to the native population.
- Explain why the earning power of workers depends on their productivity and the market value of what they produce
- Describe the interaction of supply and demand in determining market price.
- Identify the economic roles of institutions such as corporations and businesses, banks, labor unions, and the Federal Reserve System.
- Define the role of economics in a society.
- Describe how personal decisions can have a global impact on issues such as trade agreements, recycling, and conserving the environment.
- Summarize how specific human actions affect a natural environment.

## **The Behavioral Sciences: Individuals, Institutions and Society**

- Give examples to explain and illustrate the influence of prior knowledge, motivation, capabilities, personal interests, and other factors on individual learning
- Give examples to explain and illustrate how factors such as family, gender, and socioeconomic status contribute to individual identity and development
- Describe how it feels to be a recent immigrant from elsewhere in the western hemisphere and identify what must be done to adjust to life in an alien environment.
- Describe the ways in which local, regional, and ethnic cultures may influence the everyday lives of people
- Describe visible cultural elements in the students' local or nearby community such as distinctive building styles, billboards in Spanish, and foreign language ads in newspapers.
- Describe and explain the means by which individuals, groups, and institutions may contribute to social continuity and change within a community
- Define culture and the process of cultural diffusion.
- List challenges all people will face as more people move to the cities and suggest possible solutions to those problems.
- Describe and explain the means by which groups and institutions meet the needs of individuals and societies
- Use cultural clues such as food preferences, language use and customs to explain how migration creates cultural connections civilizations.
- Describe and explain the influence of status, ethnic origin, race, gender, and age on the interactions of individuals
- Describe and define the composition of social and economic classes in Latin America.
- Identify and explain examples of bias, prejudice, and stereotyping, and how they contribute to conflict in a society
- Differentiate between prejudice and discrimination.
- Give examples of the cultural contributions of racial and ethnic groups in Wisconsin, the United States, and the world
- Give examples of cultural contributions of groups such as: The Greeks, Romans, Egyptians, etc.
- Explain how language, art, music, beliefs, and other components of culture can further global understanding or cause misunderstanding.
- Explain how beliefs and practices, such as ownership of property or status at birth, may lead to conflict among people of different regions or cultures and give examples of such conflicts that have and have not been resolved
- Give the reasons for the emergence of military dictatorships in Latin America and explain how they remained in power.
- Describe conflict resolution and peer mediation strategies used in resolving differences and disputes
- Select examples of artistic expressions from several different cultures for the purpose of comparing and contrasting the beliefs expressed
- Compare works of art from two cultures, such as Mayan and Inuit.
- Describe cooperation and interdependence among individuals, groups, and nations, such as helping others in times of crisis
- Describe the functions of the United Nations in dealing with peacekeeping, emergency aid and disease prevention.
- Explain the importance of trade and other connections between regions.

## **Science Connections**

Science Themes: Develop their understanding of the science themes by using the themes to frame questions about science-related issues and problems.

- Define and explain how the following science themes can be applied to the natural world: systems (solar system), order (planets), organization (kingdoms), and interactions (motion and energy); evidence (data), models (solar system) and explanations (Newton's Laws); constancy (law of conservation of energy), change (mountain building), and measurement (temperature, weight); evolution (geological time periods), equilibrium (motion, force, and energy), and energy (kinetic and potential).

Science Systems and the Themes: Describe limitations of science systems and give reasons why specific science themes are included in or excluded from those systems.

- Describe limitations of science systems and give reasons why specific science themes are included in or excluded from those systems (i.e., collecting data about the solar system may be limited by cost, time, technology and knowledge).

Defending and Critiquing Explanations: Defend explanations and models by collecting and organizing evidence that supports them and critique explanations and models by collecting and organizing evidence that conflicts with them.

- Discuss the characteristics of a good explanation (use supporting evidence) and why models are used (i.e., economical and practical, less dangerous).

Evidence: Collect evidence to show that models developed as explanations for events were (and are) based on the evidence available to scientists at the time.

- Collect evidence to show that models developed as explanations for events were (and are) based on the evidence available to scientists at the time (i.e., early maps of the world were based on limited explorer knowledge).

New Evidence: Show [include the following themes when showing] how models and explanations, based on systems, were changed as new evidence accumulated (the effects of constancy, evolution, change, and measurement should all be part of these explanations).

- Understand that models will change over time as new evidence is collected.

Predicting with Models and Explanations: Use models and explanations to predict actions and events in the natural world.

- Use models and/or explanations to predict actions and events in the natural world (i.e., predict the impact of volcanoes, glaciers and earthquakes on the landscape and people living in the affected areas).

Models: Design real or thought investigations to test the usefulness and limitations of a model.

- Work as a group to identify the usefulness and limitations of a model (i.e., discuss limitations of equipment used for laws of motion, earthquake safe buildings, solar system models, globes).

Predicting with Themes: Use the themes of evolution, equilibrium, and energy to predict future events or changes in the natural world.

- Use the themes of evolution, equilibrium, and energy to predict future events or changes in the natural world (i.e., effects of plate tectonics on future locations of land masses).

## Nature of Science

Science Knowledge and Concepts: Describe how scientific knowledge and concepts have changed over time in the earth and space, life and environmental and physical sciences.

- Describe how scientific knowledge and concepts have changed over time in the Earth and space (i.e., because of carbon dating, discovery of new fossils, continental drift).

Change Over Time: Identify and describe major changes that have occurred over time in conceptual models and explanations in the earth and space, life and environmental, and physical sciences and Identify the people, cultures, and conditions that led to these developments.

- Identify and describe major changes that have occurred over time in conceptual models and explanations in the earth and space, life and environmental, and physical sciences and identify the people, cultures, and conditions that led to these developments (i.e. ancient models of the universe, shape of the earth).

Rules of Science: Explain how the general rules of science apply to the development and use of evidence in science investigations, model-making, and applications.

- Understand that the rules of science require using data without changing data to meet expected outcomes.
- Understand that repeated tests with similar results can support the development of a model.

Reasoning: Describe types of reasoning and evidence used outside of science to draw conclusions about the natural world.

- Provide examples of non-scientific reasoning being used to draw conclusions about the natural world (i.e., mythology, astrology).

Application of Science Knowledge: Explain ways in which scientific knowledge is shared, checked, and extended, and show how these processes change over time.

- Understand that much of today's scientific knowledge is based on previous scientific ideas that have changed over time (i.e., model of solar system).

Uses and Limitations of Science: Explain the ways in which scientific knowledge is useful and also limited when applied to social issues.

- Understand the cost factors related to further development of space exploration and travel (i.e., tourists in space).

## Science Inquiry

Questioning: Identify questions they can investigate using resources and equipment they have available.

- Before and after conducting an experiment in class, the students will identify questions that they have about the topic.

Data and Information Sources: Identify data and locate sources of information including their own records to answer the questions being investigated.

- Use the data collected during investigations to develop conclusions and report findings.

Conducting Investigations: Design and safely conduct investigations that provide reliable quantitative or qualitative data, as appropriate, to answer their questions.

- Know the essential components of a scientific study.

Inferences: Use inferences to help decide possible results of their investigations, [and] use observations to check their inferences.

- Understand what inferences are.

Explaining Results: Use accepted scientific knowledge, models, and theories to explain their results and to raise further questions about their investigations.

Relating Inferences from Investigations: State what they have learned from investigations, relating their inferences to scientific knowledge and to data they have collected.

Explaining Conclusions: Explain their data and conclusions in ways that allow an audience to understand the questions they selected for investigation and the answers they have developed.

- Practice explaining data and conclusions in a way that allows others to understand the questions they elected to investigate.

Using Technology: Use computer software and other technologies to organize, process, and present their data.

- Use computer software and other technologies to organize, process, and present their data (Power Point, Inspiration, Excel, internet, etc.).

Defending Validity: Evaluate, explain, and defend the validity of questions, hypotheses, and conclusions to their investigations.

- Share and defend data from an investigation with peers and teacher.

Realizing the Importance of Implications: Discuss the importance of their results and implications of their work with peers, teachers, and other adults.

- Discuss the importance of data collected from investigations and its connections to real life situations.

Further Questioning: Raise further questions which still need to be answered.

- Working as a group, raise further questions about investigations which still need to be answered.

## Physical Science

Physical and Chemical Properties: Observe, describe, and measure physical and chemical properties of elements and other substances to identify and group them according to properties such as density, melting points, boiling points, conductivity, magnetic attraction, solubility, and reactions to common physical and chemical tests.

Chemical Interactions (Changes): Use the major ideas of atomic theory and molecular theory to describe physical and chemical interactions among substances, including solids, liquids, and gases.

New Substances: Understand how chemical interactions (change) and behaviors lead to new substances with different properties.

Explaining Interactions: While conducting investigations, use the science themes to develop explanations of physical and chemical interactions and energy exchanges.

Forces of Motion: While conducting investigations, explain the motion of objects by describing the forces acting on them.

- Give examples of a force.
- Apply Newton's Law in explaining forces during investigations.

Explaining Motion: While conducting investigations, explain the motion of objects using concepts of speed, velocity, acceleration, friction, momentum, and changes over time, among others, and apply these concepts and explanations to real-life situations outside the classroom.

- Know the mathematical formula for speed.
- Identify and give examples of velocity, speed, acceleration, friction and momentum.

- Use speed and acceleration data to create charts and graphs and interpret the results. (Graphing includes a variety of mediums, calculators, computers, and other tools).

Using Definitions and Ideas: While conducting investigations of common physical and chemical interactions occurring in the laboratory and the outside world, Use commonly accepted definitions of energy and the idea of energy conservation.

- Explain and give examples of different forms of energy.
- Give an example of energy changing forms.
- State the Law of Conservation of energy and explain the concept.

Interactions of Objects: Describe and investigate the properties of light, heat, gravity, radio waves, magnetic fields, electrical fields, and sound waves as they interact with material objects in common situations.

- Explain and give examples of light, heat, gravity, and sound waves.
- Identify sources of light, heat, gravity, sound waves and electric fields

Models of Energy Transmission: Explain the behaviors of various forms of energy by using the models of energy transmission, both in the laboratory and in real-life situations in the outside world.

- Understand how the sun's energy transfers through plants (food chains).
- Explain how radiant energy converts to electrical energy.

Models of Atomic Structure: Explain how models of the atomic structure of matter have changed over time, including historical models and modern atomic theory.

## Earth and Space Science

Changes in Earth Features: Using the science themes, Explain and predict changes in major features of land, water, and atmospheric systems.

- Give examples of land features and water systems that have changed over time.
- Explain how environmental changes affect major land features and water systems.

Underlying Structures of the Earth: Describe underlying structures of the earth that cause changes in the earth's surface.

- Describe underlying structures of the earth
- Explain how changes in the interior of the earth cause changes on the earth's surface.

Forces Acting on the Earth: Using the science themes during the process of investigation, describe climate, weather, ocean currents, soil movements and changes in the forces acting on the earth.

- Identify the forces that wear down and build the Earth's surface.
- Compare and contrast climates and give reasons for differences.

Influence of Living Organisms: Using the science themes, analyze the influence living organisms have had on the earth's systems, including their impact on the composition of the atmosphere and the weathering of . Explain the role of living organisms in the production of fossil fuels.

Evidence of Earth History: Analyze the geologic and life history of the earth, including change over time, using various forms of scientific evidence.

- Identify the geological eras.
- Collect and identify fossils.
- Identify characteristics associated with the different geological areas.

Use of Resources: Describe through investigations the use of the earth's resources by humans in both past and current cultures, particularly how changes in the resources used for the past 100 years are the basis for efforts to conserve and recycle renewable and non-renewable resources.

· Compare and contrast current and past use of earth resources giving reasons why the resources we have used have changed.

- Predict how current resource use patterns will affect resource supplies for the next generation.
- Explain how recycle programs may affect renewable and non-renewable resources.

Celestial Models: Describe the general structure of the solar system, galaxies, and the universe, explaining the nature of the evidence used to develop current models of the universe.

- Identify and understand differences between structures of the solar system, galaxies and the universe.

Cycles of the Earth: Using past and current models of the structure of the solar system, explain the daily, monthly, yearly, and long-term cycles of the earth, citing evidence gained from personal observation as well as evidence used by scientists.

· Explain how rotation and revolution of the earth moon system effects daily, monthly, yearly and long term cycles of the earth.

## Life and Environmental Science

**Structure and Function of Living Things:** Understand the structure and function of cells, organs, tissues, organ systems, and whole organisms.

- Understand that a cell is a basic building block of all life.
- Distinguish between various types of cells.
- Define and explain relationships between cells, organs, tissues, organ systems, and whole organisms.

**Adaptation Structures:** Show how organisms have adapted structures to match their functions, providing means of encouraging individual and group survival within specific environments.

- Give examples of adaptations in different organisms.

**Single and Multi Celled Organisms:** Differentiate between single-celled and multiple-celled organisms (humans) through investigation, comparing the cell functions of specialized cells for each type of organism.

- Explain the difference between single-celled (bacteria and protists) and multiple-celled organisms (plants and fungi) and give examples of each.

**Characteristic Traits:** Investigate and explain that heredity is comprised of the characteristic traits found in genes within the cell of an organism.

**Passing on Characteristics:** Show how different structures both reproduce and pass on characteristics of their group.

**Internal and External Regulation:** Understand that an organism is regulated both internally and externally.

- Define what is meant by internal and external regulation in an organism.
- Give examples of internal and external regulation in an organism.

**Behavior Adaptations:** Understand that an organism's behavior evolves through adaptation to its environment.

**Population Balance:** Show through investigations how organisms both depend on and contribute to the balance or imbalance of populations and/or ecosystems, which in turn contribute to the total system of life on the planet.

- Identify how populations within an ecosystem affect one another.
- Explain what happens when populations in an ecosystem are not in equilibrium.

**Changes that Impact on the Survival and Growth of Certain Species:** Explain how some of the changes on the earth are contributing to changes in the balance of life and affecting the survival or population growth of certain species.

- Give examples of local and global changes which have affected various species and explain how the species was affected (i.e., endangered species).

**Human Influence on the Environment:** Project how current trends in human resource use and population growth will influence the natural environment, and show how current policies affect those trends.

- Define natural resources and give examples.
- Identify uses of natural resources and their limits.

## Science Application

**Careers:** Identify and investigate the skills people need for a career in science or technology and identify the academic courses that a person pursuing such a career would need.

- Identify careers that involve science and technology.
- Identify skills one would need to have a career in a science field (i.e., making observations, strong sense of inquiry, patience, analyzing data, collecting information, communication skills, understanding tools and technology).
- Identify course work required in high school and post high school institutions for specific careers in science.

**Influence of Discoveries:** Explain how current scientific and technological discoveries have an influence on the work people do and how some of these discoveries also lead to new careers.

- Identify scientific and technological discoveries through discussion of current events.
- Explain how scientific and technological discoveries have influenced careers (i.e., environmental science, space research, forensics, research, computer programming, transplant technology, gene therapy, water treatment, sanitation, bridge construction).

**Impact of Science and Technology:** Illustrate the impact that science and technology have had, both good and bad, on careers, systems, society, environment, and quality of life.

- Identify and explain positive and negative effects science and technology have had on society (i.e., faster pace, longer life expectancy, accessibility, invasion of privacy, loss/increase of jobs, organization, opportunities, internet usage, impact on environment, energy sources, energy consumption and costs).

**Science Models/Machines:** Propose a design (or re-design) of an applied science model or a machine that will have an impact in the community or elsewhere in the world and show how the design (or re-design) might work, including potential side effects.

· Design applied science models or machines and explain how they could affect society (i.e., egg drop, design temperature control {insulation} containers, structural design, landscape design, living habitat design, Rube Goldberg).  
Science or Technology Solutions: Investigate a specific local problem to which there has been a scientific or technological solution, including proposals for alternative courses of action, the choices that were made, reasons for the choices, any new problems created, and subsequent community satisfaction.

- Identify local scientific or technological problems and their solutions and explain processes (methods) by which problems were solved.

Discoveries Result in New Technology: Use current texts, encyclopedias, source books, computers, experts, the popular press, or other relevant sources to identify examples of how scientific discoveries have resulted in new technology.

- Gather information, using a variety of current and reliable resources, to identify scientific discoveries which have resulted in new technologies (Science in the News activity). (i.e., genetics and cloning, Global Positioning System, pacemakers, velcro, genetic engineering, laser eye surgery.)

Science and Technology Interdependence: Show evidence of how science and technology are interdependent, using some examples drawn from personally conducted investigations.

- Describe how science and technology are interdependent by citing examples.
- Science in Social and Personal Perspectives

Evidence in Media: Evaluate the scientific evidence used in various media (for example, television, radio, Internet, popular press, and scientific journals) to address a social issue, using criteria of accuracy, logic, bias, relevance of data, and credibility of sources.

- Analyze, and discuss scientific evidence from various media sources, for accuracy, logic, bias, relevance of data, and credibility of sources.
- Identify scientific and technological discoveries through discussion of current events.
- Recognize what makes a source reliable.

Scientific Solution: Present a scientific solution to a problem involving the earth and space, life and environmental, or physical sciences and participate in a consensus-building discussion to arrive at a group decision.

- Identify scientific problems and possible solutions.
- Participate in group discussions regarding an environmental problem and potential solutions.
- Develop group decisions.

Consequences of Decisions on Health and Safety: Understand the consequences of decisions affecting personal health and safety.

- Define consequences of decisions affecting personal health and safety (i.e., environmental consequences).
- Participate in the Science Safety Unit.

## Mathematical Processes

Students will use reasoning abilities to:

- perceive patterns (congruent, similar, divisibility, L.C.M., G.C.F., prime factorization, comparing and ordering, sequence)
- identify relationships (ratio and proportion)
- evaluate information (too much, not enough, what do you need to use)

■ Use reasoning abilities to:

- design questions that will help with further research
- justify a statement using logical reasoning by explaining processes used to arrive at the answer
- test reasonableness of results through estimation, sampling
- to defend work by using the four-step process (explore, plan, solve, examine)

■ Apply the following problem-solving strategies:

- |                           |                                     |
|---------------------------|-------------------------------------|
| · choose an operation     | · draw a diagram                    |
| · use manipulatives       | · guess and check                   |
| · make a chart/table/list | · use estimation                    |
| · work backwards          | · note important information        |
| · use a calculator        | · identify needed/extra information |
| · find a pattern          | · use a graph                       |
| · use an equation         | · use a formula                     |
| · solve a simpler problem | · classify                          |
| · eliminate possibilities | · Venn diagrams                     |

- Justify strategies and solutions through oral and written explanations.
- Communicate logical arguments clearly to show why a result makes sense using words, numbers, pictures, symbols, charts, graphs, tables, diagrams, models.
- Know when to use the appropriate resource/strategy.
- Justify logical arguments through oral and written explanation.
  - Analyze non-routine problems by illustrating, guessing, simplifying, relating to everyday life, modeling, and acting it out.
- Use mathematics as a way to understand other areas of the curriculum (e.g. measurement in science, geography skills in social studies, and Venn diagrams in language arts).
- See relationships between various kinds of problems and actual events.
- Develop effective oral and written presentations that include:
  - appropriate use of technology
  - the conventions of mathematical discourse (e.g., symbols, definitions, labeled drawings)
  - mathematical language
  - clear organization of ideas and procedures
  - understanding of purpose and audience
- Exercise and apply what they know in written form by using a journal.
- Calculators – a learner will apply the following scientific calculators.
- Computers – a learner will apply the following: spreadsheet tool; graphing tool; geometry tool; internet access.
- The learner will determine when technology is appropriate and when other approaches are more appropriate or efficient.
- Present results of a project, written and oral, to an audience.
- Communications – The learner will explain and demonstrate mathematical concepts, procedures and ideas to others by reading, talking about it, sharing and assisting others.
  - think/pair/share
  - peer tutoring
  - study buddies
  - cooperative groups
- Curriculum connections: social studies/history/geography; health/physical education; science; music; language arts; art; and electives.
- Real-world connections: the learner will use real-world connections as they apply in daily life, careers, as consumers and in multi-cultural situations.

## **Number Operations and Relationships**

- Read and write and demonstrate numbers through the trillions.
- Read, write and demonstrate decimals through the ten-thousandths
- Read, write and demonstrate fractions.
- Illustrate and interpret the meaning of percents using models.
- Identify, name and graph decimals, fractions and integers on a number line
- Use powers and exponents in expressions.
- Add and subtract decimals, fractions with like and unlike denominators, mixed numbers, measures of time and integers.
  - Multiply and divide: whole numbers, decimals, fractions, mixed numbers and integers.
- Solve for, as well as write, powers and positive exponents in expressions.
- Introduce numerical and algebraic expressions using order of operations.
- Introduce two-step equations using formulas.
- Recall of multiplication and division facts 0-12.
- Be introduced to and express fractions as terminating and repeating decimals.
- Be introduced to and express terminating decimals as fractions in simplest form.
- Express percents as fractions and vice versa.
- Express percents as decimals and vice versa.
- Estimate the percents of numbers.
- Find the percent of a number.
- Express fractions in simplest form.
- Express mixed numbers as improper fractions and vice versa using numbers and models.
- Compare and order fractions, decimals and integers using  $<$ ,  $>$ ,  $=$ .
- Determine whether a pair of ratios forms a proportion by using cross products ( $=$  or  $\neq$ ).
- Solve proportions by using cross products.

- Apply proportional thinking in a variety of problem situations that include, but are not limited to:
  - ratios and proportions (e.g., rates, scale drawings, similarity)
  - percents including those greater than 100 and less than one (e.g., discounts, rate of increase or decrease, sales tax)
- Express ratios and rates as fractions.
- Solve proportions by using cross products.
- Find actual length from a scale drawing and vice versa.
- Express percents as fractions and vice versa.
- Express percents as decimals and vice versa.
- Estimate the percent of a number.
- Find the percent of a number.
- Model and solve problems involving number-theory concepts such as:
  - prime and composite numbers
  - divisibility and remainders
  - greatest common factors
  - least common multiples
- Find the prime factorization of a composite number.
- Use the divisibility rules for 2, 3, 5, 6, 9, and 10.
- Find the greatest common factor of two or more numbers.
- Find the least common multiple of two or more numbers.
- Dividing whole numbers and repeating and terminating rational decimals.
- In problem-solving situations, select and use appropriate computational procedures with rational numbers such as:
  - calculating mentally
  - estimating
  - using technology (e.g., scientific calculators, spreadsheets)
- Estimate addition, subtraction, multiplication and division using rounding or patterns.
- Estimate addition and subtraction using front-end estimation.
- Estimate quotients using compatible numbers.
- Problem solving strategies:
  - Classify information, guess and check, use a graph, make a table, determine reasonable answers, use a formula, solve a simpler problem, choose the method of computation, make a list, eliminate possibilities, find a pattern, use logical reasoning, draw a diagram, make a model, work backward, use an equation and not enough information is present.

## Geometry

- Describe special and complex two- and three-dimensional figures (e.g., rhombus, polyhedron, cylinder) and their component parts (e.g., base, altitude and slant height) by:
  - naming, defining and giving examples
  - comparing, sorting and classifying them
  - identifying and contrasting their properties (e.g., symmetrical, isosceles, regular)
  - drawing and constructing physical models to specifications
  - explaining how these figures are related to objects in the environment
- Identify and draw points, line segments, line rays, perpendicular lines, parallel lines, and intersecting lines.
- Draw and construct physical models to specifications by using a compass, protractor, and straight edge.
- Describe and classify angles and triangles (equilateral, isosceles, scalene, acute, obtuse and right).
- Identify and classify polygons (three-sided through n-sided).
- Construct polygons with a specified number of sides.
- Identify and draw congruent, similar and symmetrical figures.
- Construct and identify the parts of a circle including diameter and radius.
- Analyze three-dimensional objects by counting their faces, edges and vertices.
- Analyze, select and present examples of three-dimensional figures in real-life settings.
- Identify and use relationships among the component parts of special and complex 2-and 3-dimensional figures (e.g., parallel sides, congruent faces).
- Distinguish the difference between regular and irregular polygons.
- Calculate the third angle given the measurement of two angles of a triangle.
- Analyze three-dimensional objects by counting their faces, edges and vertices.

- Identify 3-dimensional shapes from 2-dimensional perspectives and draw 2-dimensional sketches of 3-dimensional objects preserving their significant features.
- Draw and construct physical models.
- Perform transformations on 2-dimensional figures and describe and analyze the effects of the transformations on the figures.
- Describe the effects of slides, flips and turns of 2-dimensional figures.
- Create tessellations.
- Locate objects using the rectangular coordinate system.
  - Employ technology to demonstrate the rectangular coordinate system when grade appropriate.
- Identify ordered pairs using the rectangular coordinate system.
- Identify and graph the transformations or movements of geometric figures shown on a coordinate grid.
- Locate and examine points on a map using a grid system.

## Measurement

- Identify and describe attributes in situations where they are not directly or easily measurable (e.g., distance, area of an irregular figure, likelihood of occurrence).
- Find irregular figures located in the school and estimate area of each.
- Determine appropriate tools and accurately measure length and mass.
- Explain the process and results of steps 2 and 3 to the class in written and oral reports.
- Use at least one technology (word processing, calculators, power point, overheads, graphics, photography, etc.) in the written and oral reports.
- Demonstrate understanding of basic measurement facts, principles and techniques including the following:
  - approximate comparisons between metric and US customary units (e.g., a liter and a quart are about the same; a kilometer is about six-tenths of a mile.)
  - knowledge that direct measurement\* produces approximate, not exact, measures.
  - the use of smaller units to produce more precise measures.
  - employment of appropriate grade level technology.
- Compare and contrast metric and customary units of measure.
- Demonstrate that each unit of measurement is part of another either smaller or larger unit.
- Construct a model to demonstrate that direct measurement produces approximate, not exact, measures.
- Determine measurement directly\* using standard units (metric and US customary) with these suggested degrees of accuracy:
  - lengths to the nearest mm or 1/16 of an inch
  - weight (mass) to the nearest 0.1 g or 0.5 ounce
  - liquid capacity to the nearest ml
  - angles to the nearest degree
  - temperature to the nearest Centigrade and Fahrenheit degree
  - elapsed time to the nearest second
- Determine measurements to the following degrees of accuracy:
  - length to the nearest eighth, quarter, half-inch, foot, yard, millimeter, centimeter, meter
  - weight to the nearest ounce, pound, gram, and kilogram \_
  - temperature to the nearest degree in Celsius and Fahrenheit
  - time to the nearest second \_
  - liquid capacity to the nearest ounce, cup, pint, quart, half-gallon, gallon, milliliter, liter, and fluid ounce
  - angles to the nearest degree.
- Determine appropriate units to measure length, mass, temperature, capacity and time.
- Apply measurement skills to real life problems.
- Determine measurements indirectly using:
  - estimation
  - conversion of units within a system (e.g., quarts to cups, millimeters to centimeters)
  - ratio and proportion (e.g., similarity, scale drawings)
  - geometric formulas to derive lengths, areas, volumes of common figures (e.g., perimeter, circumference, surface area)
  - the Pythagorean relationship
  - geometric relationships and properties for angle size (e.g., parallel lines and transversals; sum of angles of a triangle, vertical angles)

- Estimate measurement indirectly by using non-standard units.
- Convert units within metric/customary systems.
- Apply geometric formulas to calculate:
  - perimeter and circumference.
  - area of triangles, quadrilaterals, and circles.
  - surface area and volume of rectangular prisms.
- Solve basic rate problems (unit price, distance per unit of time).
- Create ratio and proportion/scale drawings.
- Apply measurement skills to real life problems.

## Statistics and Probability

- Work with data in the context of real-world situations by:
  - formulating questions that lead to data collection and analysis
  - designing and conducting a statistical investigation
  - using technology to generate displays, summary statistics and presentations
- Collect, organize and record real-world data.
- Conduct surveys, experiments or simulations and display results.
- Formulate questions and determine the appropriate data to collect and how to collect data.
- Draw reasonable conclusions about real-world data.
- Use technology to produce a simple database.
- Explore the uses of a computer database.
- Organize and display data from statistical investigations using:
  - appropriate tables, graphs and/or charts (e.g., circle, bar, or line, for multiple sets of data)
  - appropriate plots (e.g., line, stem-and-leaf, box, scatter)
- Gather and organize data into a table.
- Construct bar graphs, line graphs and circle graphs.
- Construct a simple line plot.
- Create story problems based on collected data for classmates to solve.
- Extract, interpret and analyze information from organized and displayed data by using:
  - frequency and distribution, including mode and range
  - central tendencies of data (mean and median)
  - indicators of dispersion (e.g., outliers)

## Statistics and Probability

- Predict and calculate the mean, median, mode and range from a set of data.
- Analyze information based on frequency and distribution.
- Assess and select the appropriate scale and interval for graphs or frequency tables.
- Examine the effect of extreme values on measures of central tendency.
- Assess and select the best measure of central tendency to represent data.
- Solve data problems by extracting, interpreting, and analyzing data.
- Use the results of data analysis to:
  - make predictions
  - develop convincing arguments
  - draw conclusions
- Predict and draw conclusions from data.
- Analyze data from simple line, bar, and circle graphs.
- Apply results of the data analysis to solve problems.
- Construct and present arguments to support analysis and display of data.
- Compare several sets of data to generate, test, and, as the data dictate, confirm or deny hypotheses.
- Formulate a hypothesis from multiple sets of actual data.
- Analyze the data to determine the criteria that makes the hypothesis true or false.
- Evaluate the data for accuracy.
- Summarize the data on charts and graphs and present to the class.
- Evaluate presentations and statistical analyses from a variety of sources for:

- credibility of the source
- techniques of collection, organization and presentation of data
- missing or incorrect data
- inferences
- possible sources of bias
- Determine if a source is credible.
- Analyze techniques of organization and presentation.
- Determine if any data is missing or incorrect.
- Determine the likelihood of occurrence of simple events by:
  - using a variety of strategies to identify possible outcomes (e.g., lists, tables, tree diagrams)
  - conducting an experiment
  - designing and conducting simulations
  - applying theoretical notions of probability (e.g., that four equally likely events have a 25% chance of happening)
  - employing appropriate grade level technology for presentations
- Use a variety of strategies to identify possible outcomes (lists, tables, tree diagrams.)
- Design and conduct an experiment.
- Conduct simulations (solve problems by acting them out).

## Algebraic Relationships

- Work with algebraic expressions in a variety of ways, including:
  - using appropriate symbolism, including exponents\* and variables
  - evaluating expressions through numerical substitution
  - generating equivalent expressions
  - adding and subtracting expressions
- Use vocabulary symbols and notation of algebra correctly (n,n, =,<,>).
- Evaluate expressions using order of operations.
- Demonstrate the use of exponents in algebraic expressions.
- Solve problems involving algebraic expressions.
- Work with linear and nonlinear patterns\* and relationships in a variety of ways, including:
  - representing them with tables, with graphs and with algebraic expressions, equations and inequalities
  - describing and interpreting their graphical representations (e.g., slope, rate of change, intercepts)
  - using them as models of real-world phenomena
  - describing a real-world phenomenon that a given graph might represent
- Identify and solve inequalities.
- Complete function tables.
- Graph functions from function tables.

## Algebraic Relationships

- Recognize, describe, and analyze functional relationships by generalizing a rule that characterizes the pattern of change among variables. These functional relationships include exponential growth and decay (e.g., cell division, depreciation)
- Use linear equations and inequalities in a variety of ways, including:
  - writing them to represent problem situations and to express generalizations.
  - solving them by different methods (e.g., informally, graphically, with formal properties, with technology).
  - writing and evaluating formulas (including solving for a specified variable).
  - using them to record and describe solution strategies.
- Identify and solve linear equations by using mental math and the guess and check strategy (use of a replacement set).
- Solve problems by using a formula.
- Solve linear equations by using inverse operations.
- Solve proportion equations.
- Solve linear equations using models.
- Solve 2-step equations using models.
- Solve problems by writing and solving an equation.
- Use a calculator to solve equations.

- Identify, solve and graph inequalities.
- Solve equations involving addition, subtraction, multiplication and division of fractions/ decimals.
- Recognize and use generalized properties and relations, including:
  - additive and multiplicative property of equations and inequalities
  - commutativity and associativity of addition and multiplication
  - distributive property
  - inverse and identities for addition and multiplication
  - transitive property
- Recognize, use, and differentiate between the basic properties of arithmetic:
  - Order/Commutative property for  $+/x$ .
  - Zero property for  $+/x$ .
  - One/Identity Property for  $x/\div$ .
  - Inverse property for  $+/-$  and  $x/\div$  ( $12-3=9/9+3=12$ ).
  - Property of one for  $x$  and  $\div$ .
  - Associative property for  $+$  and  $x$  [ $5x(3x2)=(5x3)x2$ ].
  - Distributive property.

## Health

### Mental Emotional Health

Explain the difference between healthy behaviors and risk behaviors. Demonstrate the ability to use goal-setting and decision-making skills to enhance health. Demonstrate communication skills to build and maintain healthy relationships. Predict how decisions regarding health behaviors have consequences for self and others. Demonstrate ways to communicate care, consideration, and respect of self and others. Identify stress management strategies. Identify six suicide prevention skills to use when a person shows signs of suicide.

### Family Living

Analyze the possible causes of conflict of youth in schools and communities. Generate way to avoid and get assistance in threatening situations. Describe characteristics needed to be a responsible friend and family member. Describe how the behavior of family and peers contributes to ones physical, mental, emotional, and social health. Discuss ways family members deal with death of a family member, separation and divorce of parents, dating and remarriage, formation of a step-family, and new siblings. Weigh the balance of giving and taking in a healthful relationship. Distinguish between safe, risky, and harmful behaviors in relationships. Identify topics to include when discussing dating with parents.

### Growth and Development

List the physical changes that occur during puberty. State the function and care for the endocrine system. Explain what happens during a 28-day menstrual cycle. State the function and care of the reproductive system. Explain the process of conception. Describe the the development of the baby of the 1st, 2nd, and 3rd trimester of pregnancy. Discuss the problems that can occur during pregnancy Explain why abstinence is the best choice for teens.

### Nutrition

Identify the functions of each of the six basic classes of nutrients. Illustrate The Food Guide Pyramid showing the 5 basic food groups, examples of foods in each, and the number of servings each day. Comprehend concepts related to health promotion and disease related to health promotion and disease prevention. Explain why teens need to eat a variety of food combined with physical activity. Evaluate the information that is found on a food label. Analyze the validity of health information, products, and services. Recommend suggestions how to choose healthful foods. Recognize the importance of a safe food handling/cooking and kitchen. Identify steps to use to maintain a desirable weight. Recognize the causes, symptoms, and treatment for anorexia nervosa, bulimia, and obesity. Recognize the warning signs that indicate the negative body image.

### Personal Health

Recognize the importance of assuming responsibility for personal health behaviors. Demonstrate ways to care for the body. Explain why regular physical activity can help with weight managements and body composition. Identify the importance of why a person needs rest and sleep. Sketch out a physical fitness plan. Illustrate types of exercise to develop physical fitness. Identify the 5 areas of Phy. Fitness Identify the components of a complete workout. Demonstrate the steps of RICE for injuries. Design a physical fitness plan using the activity pyramid. Students role-play

## **Alcohol, Tobacco, and Other Drugs**

Explain why drugs have different effects on different body actions. Analyze the information on the labels of OTC drugs and prescription drugs. Summarize the effects of alcohol on the mind including decision-making, violence, depression, and suicide. Analyze the effects of alcohol on the body. Explain how smoking affects the cardiovascular and respiratory system. Discuss smoking-related conditions and diseases. Analyze how smoking affects appearance, relationships, and spending habits. Identify ways in which tobacco ads try to encourage teens to use tobacco products. Discuss the effects of controlled drugs and illegal drug use. Explain how drug misuse and abuse progresses to drug dependence. List support programs for drug dependent, family members, and friends. Demonstrate the ability to resist drug use and abuse.

## **Communicable and Chronic Diseases**

Understand the difference between communicable and non-communicable diseases. List behaviors that reduce the risk of being infected with a communicable disease. Discuss the cause, symptoms, and treatment for sexually transmitted diseases. Distinguish between safe, risky, and harmful behaviors in relationships. Outline how you can and cannot become infected with HIV/AIDS. Explain how HIV destroys the immune system.

## **Injury Prevention and Safety**

List the protective factors that reduce the risk of violence. Discuss the kinds of violent behavior and why it is important recognize them. List anger management skills and conflict resolution skills. Explain the first aid procedures for emergency situations. Demonstrate how to perform life saving techniques. Examples are choking, rescue breathing, and CPR.

## **Consumer and Community Health**

Explain how technology/media influences the consumer. Discuss tempting appeals used in advertisements. Explain how to make a budget and why it is important. Explain why it is important to be cautious when charging products and services.

## **Environmental Health**

Analyze how environment and personal health are interrelated. Name products that can be sorted and recycled.