

EDUCATIONAL PLANNING

CAREER EXPLORATIONS

It is expected that students will:

- Explore their individual skills and talents
- Examine different life and career options through each of the Nevada Career Clusters
 - Art/Communications Pathway
 - Business Pathway
 - Health Pathway
 - Human Services Pathway
 - Natural Resources Pathway
 - Technology Pathway
- Demonstrate their abilities as:
 - A planner
 - A learner
 - A citizen
 - An employee
- Present publicly the results of their explorations and investigations
- Formulate a record of their explorations and investigations

Statement of Non-Discrimination

The Lander County School District does not knowingly discriminate against any person on the basis of race, color, creed, religion, national or ethnic origin, sex, age, or disability in admission or access to, or treatment or participation in its programs and activities.

LANDER COUNTY SCHOOL DISTRICT

Box 1300
625 Weaver Avenue

Phone: 775-635-2886

Fax: 775-635-5347

E-mail: jrickley@lander.k12.nv.us



Public Education
Our Investment
In America



Public Education
Our Investment
In America



CORE CURRICULUM LANDER COUNTY SCHOOL DISTRICT

CURRICULUM

OVERVIEW

ELEMENTARY GRADES

4-6

AUSTIN ELEMENTARY SCHOOL

200 HIGHWAY 305 SOUTH

AUSTIN, NEVADA 89310

ELEANOR LEMAIRE ELEMENTARY SCHOOL

985 W. HUMBOLDT STREET

BATTLE MOUNTAIN, NEVADA 89820

CONTACT PERSONNEL

BOARD OF SCHOOL TRUSTEES

Shawn Mariluch, President

Frank Sullivan, Clerk

Walt Holland, Member

Joel Lenz, Member

Bev Huntington, Member

Joan Westover, Member

Melissa Bakker, Member

CENTRAL ADMINISTRATION

Curtis Jordan, Superintendent

James F. Rickley, Assistant Superintendent

BUILDING ADMINISTRATION

Tom Brannan, Principal

Mary S. Black Elementary School

Eliza Pierce Elementary School

Toby Melver, Principal

Eleanor Lemaire Elementary School

Austin Elementary School

Austin High School

Lorrie Sparks, Principal

Battle Mountain Junior High School

Amy Kester, Principal

Battle Mountain Senior High School



Public Education
Our Investment
in America



SIXTH GRADE—SOCIAL STUDIES

GEOGRAPHY (Continued)

- Understand the physical and human features and cultural characteristics of places and use this information to define and study regions and their patterns of change.
- Understand how physical processes shape Earth's surface patterns and ecosystems.

HISTORY

It is expected that students will:

- Use chronology to organize and understand the sequence and relationship of events.
- Understand the development of human societies, civilizations, and empires through 400 CE.

TIPS FOR PARENTS

GRADES 4 - 6

- Read with your child for approximately thirty minutes daily.
- Encourage your child to check-out books from the school or public library.
- Read, write, and share stories as a family; share family history with your child
- Share poetry and songs with your child.
- Set a time and place for doing homework. Encourage your child to do the work independently and to ask questions when help is needed. Help answer questions as needed while your child does the work. Review the work with your child by having him/her tell you how it is done.
- Talk with and listen to your child daily; discuss what is being learned in school.
- Establish communication with your child's teacher.
- Take an interest in your child's schoolwork and activities
- Become a parent volunteer at your child's school.
- Play games that help your child read and practice basic math facts and computation (e.g., Monopoly, Sorry, Yahtzee, Uno).
- Keep a book or magazine in the car for your child to read while you drive.
- Encourage your child to carefully observe and describe the natural world, make predictions, test predictions, describe patterns and change, and identify ways to classify materials
- Visit locations such as parks, museums, the zoo, and the university with your child.
- Involve your child in daily activities which promote the use of reading, writing and mathematics (e.g., estimate how much groceries will cost, write a grocery list, count money, calculate miles per hour on trips, read recipes, measure ingredients for cooking and help cook, read the newspaper; discuss advertisements, graphs and charts, compare prices, write letters to relatives and friends, review the calendar each day).



Public Education
Our Investment
in America



SIXTH GRADE—LIFE SCIENCE

DIVERSITY OF LIFE

It is expected that students will:

- Explore the major groups of animals
- Explore the major groups of plants
- Analyze the characteristics of organisms that do not fit the description of plants or animals

TAXONOMY

It is expected that students will:

- Describe characteristics scientists use to classify organisms
- Distinguish between common names and scientific names
- Use a key to identify organisms

CELLULAR REPRODUCTION AND GENETICS

It is expected that students will:

- Explore cells as the structural foundation for all living things
- Describe how traits are passed from one generation to the next
- Explain how natural selection leads to new and varied species

SIXTH GRADE—SOCIAL STUDIES

Sixth grade students study the history and geography of the world around them and the role the United States plays in those interactions.

CIVICS

It is expected that students will:

- Know why society needs rules, laws, and governments
- Know the roles, rights, and responsibilities of United States citizens and the symbols of our country

ECONOMICS

It is expected that students will:

- Demonstrate an understanding of how markets work, including an understanding of why markets form, how supply and demand interact to determine market prices and interest rates, and how changes in prices act as signals to coordinate trade.
- Demonstrate an understanding of various forms of money; how money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.

GEOGRAPHY

It is expected that students will:

- Use maps, globes, and other geographic tools and technologies to locate and derive information about people, places and environments.



Public Education
Our Investment
In America



A WORD FROM THE SUPERINTENDENT

Dear Parents,

This curriculum overview has been developed to help you understand what is expected of students at each grade level in the core subject areas. It provides a listing of the Nevada Content Standards and many of the specific skills and concepts that are being taught. This information may serve as a guide to help you evaluate the progress of your child in these subjects. Additionally, such benchmarks foster accountability in our schools and help ensure that we provide all children with a quality education. More comprehensive information about the curriculum for all subject areas may be obtained from your school's principal.

Sincerely,

Curtis Jordan, Superintendent

FROM THE PRINCIPAL

Effective educational programs depend upon a strong partnership between parents, the community and the school. I believe that parental involvement enriches the academic experiences of all children. Your participation is encouraged and welcomed and I invite you to contact me or your child's teacher if you have any suggestions or questions.

Many thanks for your commitment to your child's education.

Toby Melver, Principal



Public Education
Our Investment
In America



NEVADA CONTENT STANDARDS

Content Standards identify what students should know and be able to do by the end of high school. The skills and concepts for each grade level in the Curriculum Overview are aligned with the Nevada Content Standards

ENGLISH LANGUAGE ARTS/READING

1. Students know and use word analysis skills and strategies to comprehend new words encountered in text.
2. Students use reading process skills and strategies to build comprehension.
3. Students read to comprehend, interpret, and evaluate literature from a variety of authors, cultures, and times.
4. Students read to comprehend, interpret, and evaluate informational texts for specific purposes.
5. Students write a variety of texts that inform, persuade, describe, evaluate, or tell a story and are appropriate to purpose and audience.
6. Students write with a clear focus and logical development, evaluating, revising, and editing for organization, style, tone, and word choice.
7. Students write using standard English grammar, usage, punctuation, capitalization, and spelling.
8. Students listen to and evaluate oral communications for content, style, speaker's purpose, and audience appropriateness.
9. Students speak using organization, style, tone, voice, and media aids appropriate to audience and purpose.
10. Students participate in discussions to offer information, clarify ideas, and support a position.
11. Students formulate research questions, use a variety of sources to obtain information, weigh the evidence, draw valid conclusions, and present findings.

MATHEMATICS

1. To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions.



Public Education
Our Investment
In America



SIXTH GRADE—MATHEMATICS

SPATIAL RELATIONSHIPS AND GEOMETRY (Continued)

- Build a 3-dimensional model from a 2-dimensional drawing
- Model slope
- Draw and measure angles; find the missing angle of a triangle
- Construct circles, angles and triangles using geometry tools

DATA ANALYSIS

It is expected that students will:

- Interpret data from graphs, including circle graphs
- Conduct probability experiments
- Solve probability problems
- Analyze different forms of statistical charts and graphs to draw conclusions and make predictions

SIXTH GRADE—LIFE SCIENCE

Life Science is designed to introduce sixth grade students to general concepts of life science, related technologies, and career choices. Students will participate in an activity-oriented course which utilizes writing, cooperative learning, and problem solving. The four major concepts that are taught are cells, organization and structure, life processes and cycles, and interrelationships of living things.

FOUNDATIONS OF SCIENCE

It is expected that students will:

- Describe the steps of the scientific method
- Use the appropriate metric measurement for length, mass, volume, and temperature
- Practice safety measures in the laboratory

THE CELL

It is expected that students will:

- Distinguish between living and non-living matter
- Compare plant and animal cells
- Discuss the relationships among cells, tissues, organs, systems, and organisms

HUMANS AND ENVIRONMENT

It is expected that students will:

- Explain how human populations interact with the environment
- Distinguish between renewable and nonrenewable resources
- Diagram various natural cycles



Public Education
Our Investment
In America



SIXTH GRADE—MATHEMATICS

Sixth grade students incorporate previously learned mathematics concepts in developing new skills and understanding of decimal and fraction operations, ratios and percents, and broaden their understanding of measurement and geometric concepts. Problem solving, connections, reasoning and communication will be integrated within the mathematical content. To assist students in becoming proficient at computation and estimation, the use of technology, manipulatives and other visual tools are incorporated into the instructional design.

NUMBERS, NUMBER SENSE, AND COMPUTATION

It is expected that students will:

- Compute, model and translate among forms of rational numbers
- Develop accuracy in modeling and computing with fractions, decimals and percents
- Develop estimation and rounding skills
- Develop strategies for solving application problems using decimals, ratios and percents
- Apply the concept of number theory to solve problems
- Compare and order fractions and decimals

PATTERNS, FUNCTIONS, AND ALGEBRA

It is expected that students will:

- Describe and evaluate relationships using charts and tables
- Create tables and charts to extend patterns
- Create tables and charts to represent ordered pairs on a coordinate grid
- Model situations using algebraic expressions

MEASUREMENT

It is expected that students will:

- Estimate and convert units of measure for length, weight, and capacity
- Determine the most precise unit of measurement for a particular situation
- Estimate and use formulas to find the perimeter, circumference and area of plane figures
- Use ratios to compare relationships between objects

SPATIAL RELATIONSHIPS AND GEOMETRY

It is expected that students will:

- Measure angles and find the sum of interior angles
- Classify and compare geometric figures
- Identify actual measurements from scale drawings
- Locate and plot points on a coordinate grid



Public Education
Our Investment
In America



NEVADA CONTENT STANDARDS

Content Standards identify what students should know and be able to do by the end of high school. The skills and concepts for each grade level in the Curriculum Overview are aligned with the Nevada Content Standards

MATHEMATICS (CONTINUED)

2. To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations.
3. To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements.
4. To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will identify, represent, verify, and apply spatial relationships and geometric properties.
5. To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections.
6. Students will develop their ability to solve problems by engaging in developmentally appropriate problem solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts in order to: formulate their own problems; find solutions to problems from everyday situations; develop and apply strategies to solve a wide variety of problems; and integrate mathematical reasoning, communication, and connections.
7. Students will develop their ability to communicate mathematically by solving problems in which there is a need to obtain information from the real world through reading, listening, and observing in order to: translate this information into a mathematical language and symbols; process this information mathematically; and present results in written, oral, and visual formats.



Public Education
Our Investment
In America



Content Standards identify what students should know and be able to do by the end of high school. The skills and concepts for each grade level in the Curriculum Overview are aligned with the Nevada Content Standards

MATHEMATICS (CONTINUED)

8. Students will develop their ability to reason mathematically by solving problems in which there is a need to investigate significant mathematical ideas and construct their own learning in all content areas in order to justify their thinking; reinforce and extend their logical reasoning abilities; reflect on and clarify their own thinking; and ask questions to extend their thinking.
9. Students will develop the ability to make mathematical connections by solving problems in which there is a need to view mathematics as an integrated whole, identifying relationships between content strands and integrating mathematics with other disciplines, allowing the flexibility to approach problems in a variety of ways within and beyond the field of mathematics.

SCIENCE

1. Forces and Motion—Students understand that forces such as gravitational, electrical, and magnetic influence the motion of objects.
2. Structure and Properties of Matter—Students understand that materials have distinct properties which depend on the amount of matter present, its chemical composition, and structure.
3. Energy and Matter: Interactions and Forms—Students understand that changes in temperature and pressure can alter states of matter. Energy exists in many forms, and one form can change into another.
4. Chemical Reaction—Students understand that chemical reactions change substances into different substances.
5. Nuclear and Electromagnetic Energy—Students understand that nuclear energy and electromagnetic energy are produced from both natural and human-made sources in many forms.
6. Structure and Function—Students understand that all life forms, at all levels of organization, use specialized structures and similar processes to meet life's needs.
7. Internal and External Influences on Organisms—Students understand that organisms respond to internal and external influences.



THE WRITING PROCESS

It is expected that students will:

- Apply the five stages of the writing process
- Analyze the influence of setting on characters
- Compare works of literature from the same historical period
- Write responses to literary selections
- Write summaries of nonfiction text
- Write with clarity and express ideas concisely

THE RESEARCH PROCESS

It is expected that students will:

- Formulate a plan for research to answer a focused question
- Differentiate and evaluate information from primary and secondary sources
- Document research sources according to a given format
- Record information using note-taking and organizational formats
- Present research findings using written text and/or media

COMMUNICATION/STUDY SKILLS

It is expected that students will:

- Speak and listen cooperatively
- Ask and answer questions to generate possible solutions to a problem
- Practice active listening skills
- Evaluate oral presentations
- Follow multi-step oral directions
- Apply techniques to aid memory
- Apply test-taking strategies



SIXTH GRADE—READING

Sixth grade students emphasize the development of strategic reading behaviors. Their focus is on utilizing vocabulary, thought processes, and strategies to become independent readers and learners.

WORD KNOWLEDGE

It is expected that students will:

- Use word parts to determine word meaning
- Use context clues to determine word meaning
- Identify differences between literal and figurative language in text

THE READING PROCESS

It is expected that students will:

- Apply reading process skills and strategies to literature and informational text
- Differentiate between main ideas and supporting details
- Summarize information from several sources
- Interpret non-literal language

LITERATURE

It is expected that students will:

- Identify the characteristics and elements of various literary forms
- Read and respond to various forms of literature
- Describe how an author creates mood by choosing words with specific connotations
- Compare a variety of themes generated by a single topic

INFORMATIONAL TEXT

It is expected that students will:

- Identify and use text features to gain meaning
- Find similarities and differences in a text in the treatment, scope, or organization of ideas
- Evaluate how authors' ideas and purposes shape the content of texts
- Analyze the historical and cultural perspective of nonfiction
- Follow multi-step written directions to complete a task
- Practice interpreting maps, charts, and graphs
- Draw conclusions or make inferences
- Interpret information in new contexts
- Understand stated information (main ideas and details)
- Identify purpose or viewpoint
- Practice real-life reading skills
- Read independently to gather information



Public Education
Our Investment
In America



NEVADA CONTENT STANDARDS

Content Standards identify what students should know and be able to do by the end of high school. The skills and concepts for each grade level in the **Curriculum Overview** are aligned with the Nevada Content Standards

SCIENCE (CONTINUED)

8. Heredity and Diversity—Students understand that life forms are diverse and that they pass some characteristics to their offspring.
9. Evolution—The Process of Biological Change—Students understand that life forms change over time.
10. Earth Structures and Composition—Students understand that the Earth is composed of interrelated systems of rocks, water, air, and life.
11. Earth Models—Students understand that the Earth may be represented by a variety of maps and models.
12. Earth History—Students understand that Earth systems (such as weather and mountain formation) change or vary.
13. Cycles of Matter and Energy—Students understand that Earth systems have a variety of cycles through which energy and matter continually flow.
14. The Solar System and the Universe—Students understand that the Earth is part of a planetary system within the Milky Way Galaxy, which is part of the known universe.
15. Ecosystems—Students demonstrate an understanding that ecosystems display patterns of organization, change, and stability as a result of the interactions and interdependencies among the life forms and the physical components of the Earth.
16. Natural Resources—Students demonstrate and understand that natural resources include renewable and non-renewable materials and energy. All organisms, including human, use resources to maintain and improve their existence, and use of resources can have positive and negative consequences.
17. Conservation—Students understand that humans have the unique ability to change personal and societal behavior based on ethical considerations regarding other organisms, the planet as a whole, and future generations.
18. Scientific, Historical, and Technological Perspectives—Students understand that science is a unique way of knowing about things. Many men and women have contributed to the tradition of science. The ability to pursue activities and careers in science is accessible to people from all cultures and all levels of ability.



Public Education
Our Investment
In America



Content Standards identify what students should know and be able to do by the end of high school. The skills and concepts for each grade level in the Curriculum Overview are aligned with the Nevada Content Standards

SCIENCE (CONTINUED)

19. Reasoning and Critical Response Skills—Students understand that many decisions require critical consideration of scientific evidence.
20. Systems, Models, Risk, and Predictions—Students understand that a variety of models can be used to describe and predict things and events.
21. Scientific Values and Attitudes—Students understand that science is an active process of systematically examining the natural world.
22. Communication Skills—Students understand that a variety of communication methods can be used to share scientific information.
23. Scientific Applications of Mathematics—Students understand that scientific inquiry is enhanced and often communicated by using mathematics.
24. Laboratory Skills and Safety—Students can appropriately and safely apply the tools and techniques of scientific inquiry.

SOCIAL STUDIES

Civics

1. Rules and Law—Students know why society needs rules, laws, and governments.
2. The U.S. Government—Students know the United States Constitution and the government it creates.
3. National and State Government—Students can explain the relationship between the states and national government.
4. The Political Process—Students describe the roles of political parties, interest groups, and public opinion in the democratic process.
5. Citizenship—Students know the roles, rights, and responsibilities of United States citizens and the symbols of our country.
6. State and Local Government—Students know the structure and functions of state and local governments.



Public Education
Our Investment
in America



LITERATURE/INFORMATIONAL TEXT

It is expected that students will:

- Apply reading process skills and strategies
- Read and respond to various literary forms
- Identify characteristics and elements of various literary forms
- Use evidence from a story to support inferences about a character
- Compare a variety of themes generated by a single topic
- Identify elements of informational media
- Identify purpose or viewpoint
- Read and follow multi-step directions

RESEARCH

It is expected that students will:

- Narrow subjects into topics and formulate research questions
- Select pertinent information from a variety of sources
- Record information using note-taking and organizational formats
- Evaluate information from and differentiate between primary and secondary sources
- Document research sources according to a given format
- Present research findings using written text and/or media

COMMUNICATION/STUDY SKILLS

It is expected that students will:

- Speak and listen cooperatively
- Identify effective speaking techniques
- Ask and answer questions to generate possible solutions to a problem
- Develop, deliver, and evaluate oral presentations
- Follow multi-step oral directions
- Give multi-step directions to complete a task
- Organize information for a variety of purposes
- Practice test-taking strategies



Public Education
Our Investment
in America



FIFTH GRADE—SOCIAL STUDIES

HISTORY

- Organize chronologically major events and people of United States history
- Read, interpret, and analyze historical passages

SIXTH GRADE—ENGLISH

Sixth grade students develop reading, writing, speaking, listening, research, and study skills. Grammar, usage, and mechanics are taught as necessary elements of the writing process. Literature serves as a model for writing and critical thinking.

WORD KNOWLEDGE

It is expected that students will:

- Apply high-frequency spelling rules in writing
- Recognize and correctly spell homonyms
- Recognize multiple-meaning words
- Use word parts to determine word meaning
- Use context clues to determine word meaning
- Apply knowledge of connotation and denotation to make appropriate word choices
- Identify differences between literal and figurative language

GRAMMAR, USAGE, AND MECHANICS

It is expected that students will:

- Use the eight parts of speech in writing
- Write using standard English grammar, usage, and mechanics

WRITING

It is expected that students will:

- Apply the five stages of the writing process
- Apply the analytic writing traits assessed by the Nevada State Proficiency Exam in writing
- Write compositions in the descriptive, narrative, expository, and persuasive modes
- Write responses to literary selections that demonstrate an understanding of character motivation and development
- Compose various letters for business and personal use
- Write with clarity and express ideas concisely



Public Education
Our Investment
In America



NEVADA CONTENT STANDARDS

Content Standards identify what students should know and be able to do by the end of high school. The skills and concepts for each grade level in the Curriculum Overview are aligned with the Nevada Content Standards

SOCIAL STUDIES (CONTINUED)

7. Political and Economic Systems—Students explain the different political and economic systems in the world.
8. International Relations—Students know the political and economic relationship of the United States and its citizens to other nations.

Economics

1. The Economic Way of Thinking—Students will use fundamental economic concepts, including scarcity, choice, cost, incentives, and costs versus benefits to describe and analyze problems and opportunities, both individual and social.
2. Measuring U.S. Economic Performance—Students will demonstrate a knowledge of past and present U.S. economic performance, identify the economic indicators used to measure that performance, and use this knowledge to make individual decisions and discuss social issues.
3. Functioning of Markets—Students will demonstrate an understanding of how markets work, including an understanding of why markets form, how supply and demand interact to determine market prices and interest rates, and how changes in prices act as signals to coordinate trade.
4. Private U.S. Economic Institutions—Students will describe the roles played by various U.S. economic institutions, including financial institutions, labor unions, for-profit business organizations, and not-for-profit organizations.
5. Money—Students demonstrate an understanding of various forms of money; how money makes it easier to trade, borrow, save, invest, and compare the value of goods and services; and how the Federal Reserve System and its policies affect the U.S. money supply.
6. The U.S. Economy as a Whole—Students will demonstrate an understanding of the U.S. economic system as a whole in terms of how it allocates resources; determines the nation's production, income, unemployment, and price levels; and leads to variations in individual income levels.



Public Education
Our Investment
In America



Content Standards identify what students should know and be able to do by the end of high school. The skills and concepts for each grade level in the Curriculum Overview are aligned with the Nevada Content Standards

SOCIAL STUDIES (CONTINUED)

7. An Evolving Economy—Students will demonstrate an understanding of how investment, entrepreneurship, competition, and specialization lead to changes in an economy’s structure and performance.
8. The Role of Government in a Market Economy—Students will explain the role of government in a market economy.
9. The International Economy—Students explore the characteristics of non-U.S. economic systems in order to demonstrate an understanding of how they are connected, through trade, to people and cultures throughout the world.

Geography

1. The World in Spatial Terms—Students use maps, globes, and other geographic tools and technologies to locate and derive information about people, places, and environments.
2. Places and Regions—Students understand the physical and human features and cultural characteristics of places and use this information to define and study regions and their patterns of change.
3. Physical Systems—Students understand how physical processes shape Earth’s surface patterns and ecosystems.
4. Human Systems—Students understand how economic, political, and cultural processes interact to shape patterns of human migration and settlement, influence and interdependence, and conflict and cooperation.
5. Environment and Society—Students understand the effects of interactions between human and physical systems and the changes in use, distribution, and importance of resources.
6. Geographic Applications—Students apply geographic knowledge of people, places, and environments to interpret the past, understand the present, and plan for the future.
7. Geographic Skills—Students ask and answer geographic questions by acquiring, organizing, and analyzing geographic information.



Public Education
Our Investment
in America



HISTORY

It is expected that students will:

- Identify current events from multiple sources
- Record and interpret events on a graphic organizer, such as a calendar or time line
- Ask a historical question and identify resources to be used in research
- Organize historical information from a variety of sources
- Define hunter-gatherer
- Identify explorations of the Vikings in North America
- Describe Native North American life prior to European contact (e.g., clothing, communication, family, food, shelter, transportation, tools)
- Describe expeditions of early explorers, including: Christopher Columbus, Ferdinand Magellan
- Identify and describe the reasons for the early exploration of the New World
- Describe relationships among Native Americans, Europeans, Asians, and Africans
- Describe colonial life in North America
- Identify the events that led to the Declaration of Independence
- Describe the significance of the American Revolution
- Identify key people of the American Revolution, including: George Washington, Ben Franklin
- Describe the relationship between the War of 1812 and the national anthem
- Identify the Civil War and final outcome, including: Union and Confederacy, Generals Grant and Lee
- Identify the contributions of the inventors and discoverers, including Thomas Edison, Wright brothers, Alexander Graham Bell, George Washington Carver
- Describe the significance of the Industrial Revolution
- Describe the contributions of immigrant groups to the United States
- Describe the significance of Labor Day
- Describe the distinction between Veterans’ Day and Memorial Day
- Identify the major events of the Great Depression (e.g., stock market crash, Dust Bowl, migration, Hoover Dam)
- Identify the United States’ participation in World War II (e.g., Pearl Harbor, homefront, D-Day, atomic bomb)
- Identify major advancements in science and technology, including: television, computers
- Identify the major points in Martin Luther King, Jr.’s “I Have A Dream” speech
- Identify major news events on the local, state, national, and world level



Public Education
Our Investment
in America



GEOGRAPHY (Continued)

- Identify the sources of various economic goods and describe their movement between states and countries
- Investigate an economic issue by asking and answering geographic questions about location
- Compare differences in the economic development and quality of life among the countries in North America
- Describe why types of organizations may differ by geographic region
- Describe issues of cooperation and conflict within the United States
- Describe ways in which changes in the physical environment affect humans
- Describe places in the United States where the physical environment has been altered by technology
- Explore the impact of human modification of the physical environment on the people who live in that location
- Describe the patterns of distribution and use of natural resources in the United States
- Compare the use of the same resource in the United States with another place in the world
- Describe how the physical setting influenced an event in the past
- Use current events to ask and answer geographic questions
- Discuss a geographic issue from more than one point of view
- Describe a geographic issue and the possible impact it could have in the future
- Ask geographic questions about the origin and significance of spatial patterns
- Locate and gather geographic information from a variety of sources
- Create complex maps, graphs, tables, or charts to display geographic information
- Investigate and interpret information from a variety of geographic sources
- Draw a conclusion by presenting geographic information in an oral or written report accompanied by maps and graphics
- Locate, compare, and contrast places on maps and globes using latitude and longitude
- Identify, locate, and distinguish among varying land forms, bodies of water, and major geographical features of the United States
- Identify and describe varying land forms and bodies of water on the Earth
- Read and interpret appropriate editorial cartoons



Public Education
Our Investment
in America



Content Standards identify what students should know and be able to do by the end of high school. The skills and concepts for each grade level in the Curriculum Overview are aligned with the Nevada Content Standards

SOCIAL STUDIES (CONTINUED)

History

1. Chronology—Students use chronology to organize and understand the sequence and relationship of events.
2. History Skills—Students will use social studies vocabulary and concepts to engage in inquiry, in research, in analysis, and in decision making.
3. Prehistory to 400 CE—Students understand the development of human societies, civilizations, and empires through 400 CE.
4. 1 CE to 1400—Students understand the characteristics, ideas, and significance of civilizations and religions from 1 CE to 1400.
5. 1200 to 1750—Students understand the impact of the interaction of peoples, cultures, and ideas from 1200 to 1750.
6. 100 to 1865—Students understand the people, events, ideas, and conflicts that led to the creation of new nations and distinctive cultures.
7. 1860 to 1920—Students understand the importance and impact of political, economic, and social ideas.
8. The Twentieth Century, a Changing World: 1920 to 1945—Students understand the importance and effect of political, economic, technological, and social changes in the world from 1920 to 1945.
9. The Twentieth Century, a Changing World: 1945 to 1990—Students understand the shift of international relationships and power as well as the significant developments in American culture.
10. New Challenges, 1990 to the Present—Students understand the political, economic, social, and technological issues challenging the world as it approaches and enters the new millennium.



Public Education
Our Investment
in America



FOURTH GRADE—ENGLISH LANGUAGE ARTS/READING

Fourth grade students independently acquire meaning by expanding communication skills. Students use reading, writing, listening, and speaking to communicate in an organized and clear manner.

WORD KNOWLEDGE—PHONICS/STRUCTURAL ANALYSIS, VOCABULARY, SPELLING

It is expected that students will:

- Use knowledge of phonics, structural elements, and syntax to read and to determine the meaning of unfamiliar words in context
- Identify and use knowledge of common Greek- and Latin- derived roots and affixes to determine the meaning of words in context
- Use dictionaries and glossaries to determine the meanings and other features of unknown words and derivations of words
- Use knowledge of vocabulary and context clues to determine meanings of unknown words
- Use patterns to spell correctly
- Use structure rules to spell correctly
- Use spelling strategies to spell correctly

READING COMPREHENSION—PROCESS SKILLS AND STRATEGIES

It is expected that students will:

- Use graphic organizers to access prior knowledge, predict, preview, and set a purpose to aid comprehension
- Select and use self-correcting strategies to gain meaning from text
- Apply skills and strategies to aid comprehension
- Use note taking, outlining, summarizing, and other graphic organizers to organize and understand information from text
- Adjust reading rate to suit difficulty and type of text
- Read narrative and expository texts aloud with fluency



Public Education
Our Investment
In America



FIFTH GRADE—SOCIAL STUDIES

GEOGRAPHY

It is expected that students will:

- Use maps and map features, including directional orientation, map symbols, and grid system, to identify and locate major geographical features in Nevada and the United States
- Identify the characteristics and purposes of different maps and globes
- Read and derive geographic information from photographs, maps, graphs, and computer resources
- Construct maps, charts, tables, and graphs to display information about human and physical features in the United States
- Identify the purpose and content of various U.S. maps
- Answer spatial questions about a map using basic geographic vocabulary
- Recognize that states in the United States may be grouped into regions (e.g., West, Southwest, Midwest, Southeast, Northeast)
- Label a map of the United States with the names of the fifty states and major cities (e.g., Washington, D.C., Los Angeles, Seattle, Denver, Chicago, Atlanta, New York)
- Describe physical and human features and cultural characteristics of places and regions in the United States
- Identify examples in the community or region that reflect cultural identity
- Describe the characteristics of the community and Nevada from different perspectives
- Identify the effects of the use of technology in different communities in the United States
- Identify and describe the locations of selected historical events
- Describe how the community and Nevada have changed over time
- Identify the criteria used to define different types of regions
- Identify the components of each of Earth's four basic physical systems: atmosphere, lithosphere, hydrosphere, and biosphere
- Define and give examples of natural hazards (e.g., hurricanes, tornadoes, tsunamis)
- Identify the parts of different ecosystems, including soil, climate, plant life, and animal life
- Describe the biodiversity of different ecosystems on Earth
- Investigate an ecosystem by asking and answering geographic questions
- Explain differences in population distribution within Nevada and the United States
- Identify the push-pull factors influencing human migration and settlement
- List examples of historical movements of people, goods, and ideas
- Describe the differences among frontier, rural, suburban, and urban migration and settlement



Public Education
Our Investment
In America



ECONOMICS (Continued)

- Demonstrate an understanding that choosing a little more or a little less generates either a benefit or a cost
- Identify the benefits and costs of spending now versus saving for later
- Identify and compare per capita measures for the U.S. for different time periods
- Define inflation and deflation and explain how they affect individuals
- Identify and give examples of interest rates for borrowing and saving
- Explain why trade must be mutually beneficial
- Demonstrate an understanding of supply and demand in a market
- Identify the intent of advertisements
- Contrast the effects of price changes on the behavior of buyers and sellers
- Provide examples of labor unions
- Explain the purposes for establishing for-profit organizations
- Explain the purpose for establishing not-for-profit organizations
- Explain why it is easier for people to save and trade using money rather than using other commodities
- Identify forms of money used in the United States prior to the twentieth (20th) century
- Identify the resources needed for production in households, schools, and community groups
- Demonstrate an understanding that an individual can be both a consumer and a producer
- Identify inventions according to use
- Recognize the three types of productive resources: natural (e.g., minerals) human (e.g., educated workers) and capital (e.g., machinery)
- Illustrate how one person's spending becomes another person's income
- Describe how income reflects choices people make about education, training, skill development, lifestyle, and careers
- Explain why specialization increases productivity and interdependence
- Give examples of items for which a sales tax is charged and items for which a sales tax is not charged
- Explain why the U.S. imports and exports goods
- Give the value of the U.S. dollar in terms of the currencies of other countries
- Describe the services of financial institutions
- Describe the advantages and disadvantages of a specific occupation
- Read and interpret product diagrams



Public Education
Our Investment
in America



READING COMPREHENSION—LITERATURE

It is expected that students will:

- Use knowledge of character, setting, plot, conflict, and resolution to comprehend a variety of works
- Make inferences about and compare characters' traits using text for verification
- Identify an historical event or cultural influence as portrayed in literature
- Identify explicit and implied themes in a variety of reading selections
- Locate figurative language, including simile, metaphor, and personification in text
- Read and identify the structures of a variety of selections
- Demonstrate an active interest in reading
- Make predictions about conflicts and resolutions

READING COMPREHENSION—INFORMATIONAL TEXTS

It is expected that students will:

- Use information to comprehend text
- Identify and compare main ideas and important concepts of various texts
- Develop hypotheses based upon prior knowledge and information from a text
- Interpret information in new contexts
- Make inferences/draw conclusions about texts and support them with evidence from a variety of sources
- Identify authors' purposes for writing
- Read and follow multi-step directions to complete a task

WRITING—COMPOSITION

It is expected that students will:

- Write informative papers with a clear focus using a variety of sources
- Write organized friendly letters, formal letters, thank you letters, and invitations in an appropriate format for a specific audience and purpose
- Write a narrative or story that moves through a logical sequence of events, provides insight into why the incident is notable, and includes details to develop the plot, characters, and setting
- Write responses with supporting details to literary selections
- Write compositions with a main idea and supporting details
- Write short expository texts with supporting details
- Use expanded vocabulary in writing



Public Education
Our Investment
in America



FOURTH GRADE—ENGLISH LANGUAGE ARTS/READING

WRITING—PROCESS

It is expected that students will:

- Generate ideas for writing through individual activities such as brainstorming and clustering
- Organize ideas through activities that draw upon sequencing and classifying skills such as listing, webbing, and mapping
- Write compositions of at least one paragraph with a main idea and supporting details
- Revise drafts to improve meaning and focus of writing by adding and deleting words and sentences
- Edit for use of standard English
- Produce writing with voice and purpose for an intended audience
- Share drafts with others and make revisions based upon written responses

WRITING—MECHANICS

It is expected that students will:

- Identify and correctly use grammar in writing simple, compound, and complex sentences
- Write compound and complex sentences
- Use correct punctuation in a variety of works
- Use irregular and plural possessives
- Use rules of capitalization
- Identify correct word order in sentences
- Correct run-on sentences
- Use correct spelling of frequently used words
- Create readable and legible compositions

LISTENING

It is expected that students will:

- Interpret speakers' verbal and non-verbal messages and distinguish fact from opinion
- Listen to identify how speaking techniques are used to convey a message
- Identify language and dialect usage that vary in different contexts, regions, and cultures
- Follow oral directions to complete a complex task



Public Education
Our Investment
in America



FIFTH GRADE—SOCIAL STUDIES

Fifth grade students study the history and geography of the United States. They become aware of the importance of the Constitution and learn how the federal government functions.

CIVICS

It is expected that students will:

- Identify the Declaration of Independence and the U.S. Constitution as written documents that are the foundation of the United States government
- Explain the Preamble of the United States Constitution
- Describe the operation of representative government, including the rights of political minorities
- Identify the three branches of government (as set forth in the U.S. Constitution)
- Name the two houses of the U.S. Congress
- Identify the powers of the U.S. Congress (e.g., power to tax, declare war, impeach the President)
- Identify the duties of the President
- Describe the purpose of a judge and jury in a trial as it relates to resolving disputes
- Name the two major political parties
- Give examples of interest groups
- Identify sources of information people use to form an opinion
- Describe the difference between a natural-born and a naturalized citizen of the United States
- Describe the symbolic importance of the Fourth of July and the Pledge of Allegiance
- Identify the Bill of Rights
- Identify ways conflicts can be resolved in a peaceful manner that respect individual rights
- Know that there are different types of courts
- List the characteristics of a nation-state, including: self rule, territory, population, organized government
- Identify the countries bordering the United States
- Explain ways in which nations interact
- Describe careers that require knowledge and skills in citizenship, law, and government
- Differentiate between facts and opinions
- Demonstrate concern and respect for the rights of self and others

ECONOMICS

It is expected that students will:

- Describe how scarcity requires a person to make a choice and identify a cost associated with the decision
- Demonstrate an understanding that people may respond to the same incentive in different ways because they may have different preferences



Public Education
Our Investment
in America



FIFTH GRADE—SCIENCE

THE NATURE AND HISTORY OF SCIENCE (Continued)

- Identify a problem or need; design a product/tool; and communicate a proposed technological solution for the identified problem
- Develop physical and mechanical models to explain how something works or how something is constructed
- Predict that some events are more likely to happen than others
- Describe and compare the components and interrelationships of a simple system

SCIENTIFIC INQUIRY: PROCESSES AND SKILLS

It is expected that students will:

- Observe and interact with objects, organisms, and phenomena and raise questions that can be scientifically researched
- Design and conduct investigations and experiments independently, with a partner, and with a small group
- Keep records of investigations and observations in a science notebook/journal
- Make careful observations and test things more than once
- Offer reasons for findings and consider the reasons suggested by others
- Investigate, replicate, and describe experiments conducted by others and review and question their conclusions; compare findings of others to findings of similar investigations
- Give written or oral instructions that others are able to follow
- Organize information into charts, tables, and graphs
- Collaborate on a group project
- Explain that sometimes changing one thing causes changes in another
- Explain to other students how to go about solving numerical problems
- Make quantitative estimates of familiar lengths, weights, and time intervals, and check them by measurements
- Recognize the appropriate unit for a particular measurement
- Recognize that repeated measurements of the same thing are likely to vary slightly
- Use appropriate equipment tools, techniques, and information resources to gather, analyze, and interpret data/information
- Use safety equipment and attire
- Measure and mix dry and liquid materials safely in prescribed amounts
- Use provided materials to construct objects for a particular task
- Label measurements and diagrams properly
- Use appropriate technology in lab procedures for measuring and recording
- Manipulate objects and observe events in an experiment



Public Education
Our Investment
in America



FOURTH GRADE—ENGLISH LANGUAGE ARTS/READING

SPEAKING

It is expected that students will:

- Select and use varied vocabulary and apply standard English to communicate ideas
- Select and use appropriate public speaking techniques
- Give organized presentations that demonstrate a clear viewpoint
- Read aloud and recite literary, dramatic, and original works
- Give clear and concise directions to complete a task

DISCUSSION

It is expected that students will:

- Contribute to and listen attentively in conversations and group discussions
- Ask and answer questions with relevant details to clarify ideas
- Share ideas, opinions, and information clearly and effectively
- Identify and express opinions and state facts

RESEARCH AND STUDY SKILLS

It is expected that students will:

- Formulate research questions and establish a focus and purpose for inquiry
- Use a variety of library resources, media, and technology to find information on a topic
- List sources used in research
- Organize and record information using note-taking from print and non-print resources
- Present research findings for different purposes and audiences using various media
- Use test-taking strategies

FOURTH GRADE—MATHEMATICS

Fourth grade students extend their learning of multiplication and division of whole numbers. They solve problems which involve addition and subtraction of fractions and decimals. Students also refine their estimation skills and solve problems involving geometric figures, probability and measurement.

NUMBERS, NUMBER SENSE, AND COMPUTATION

It is expected that students will:

- Read, write, order, and compare whole numbers
- Explain relative size (magnitude) of numbers using powers of ten (hundreds and thousands) as benchmarks
- Use estimation to determine the reasonableness of answers



Public Education
Our Investment
in America



NUMBERS, NUMBER SENSE, AND COMPUTATION
(Continued)

- Use and identify place value positions of whole numbers
- Use subtraction to model and explain division
- Describe the relationships of operations (addition, subtraction, multiplication, and division)
- Describe and use the processes and properties of addition, subtraction, multiplication, and division, including correct notations and related words
- Identify and compare fractions with like denominators, using numbers, models, and drawings
- Compare fractions with like denominators, without models
- Immediately recall and use multiplication and corresponding division facts through the 12's
- Describe and use algorithms for addition, subtraction, multiplication, and division
- Add and subtract multi-digit numbers, with and without regrouping
- Multiply by multiples of ten or a hundred
- Multiply multi-digit numbers by one-digit number, with and without regrouping
- Divide multiples of ten or one hundred by multiples of ten
- Divide a two- or three-digit number by a one-digit number, with or without a remainder
- Add and subtract decimals
- Multiply and divide money amounts by a one-digit whole number producing a solution with no remainder
- Generate and solve two-step addition and subtraction and one-step multiplication problems, using pencil and paper, mental computation, and estimation
- Use estimation and mental computation in appropriate situations to solve problems
- Use a variety of appropriate strategies to estimate, compute, and solve mathematical and real-world problems

PATTERNS, FUNCTIONS, AND ALGEBRA

It is expected that students will:

- Use and interpret operational and relational symbols
- Analyze, describe, create and extend patterns using numbers, appropriate tables, and calculators
- Identify, describe, and represent numeric and geometric patterns and relationships
- Find solutions to given equations from a given replacement set (e.g., find the solution to $3 \times 7 = \underline{\quad}$, given the replacement set (19, 20, 21))



Public Education
Our Investment
in America



ENVIRONMENTAL SCIENCES

It is expected that students will:

- Investigate and describe interrelationships and interdependence of organisms with each other and with the non-living parts of their habitats
- Investigate and describe how, for any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all
- Explain how the sun is the primary source of energy for nearly every ecosystem and that living things get that they need to survive from their environments
- Investigate and describe how the local ecosystem has unique characteristics
- Investigate and describe how resources have distinct properties that determine their usefulness
- Investigate and describe how technology can be used to extend resources (e.g., recycling)
- Explain how earth materials, including those found in Nevada, provide many of the resources that humans use
- Explain that humans tend to use resources to meet more than their minimal needs for food, shelter and warmth
- Investigate and describe how consumptive patterns of people vary in different places
- Investigate and describe that ecosystems have components that can be observed to change, while other components appear to stay the same
- Explain that changes in environments can be natural events or influenced by human activities, including technology

THE NATURE AND HISTORY OF SCIENCE

It is expected that students will:

- Explain that science is a systematic way of exploring the world
- Develop descriptions, models, explanations, and predictions based on evidence from investigations
- Describe key scientists, classical experiments in science, and technological inventions that lead to a better understanding of the impact of science on society
- Recognize and explain that science is an activity done by more than one person working together
- Explain that technology enables scientists and others to study the motion of objects that are moving rapidly or that are hardly moving at all
- Explain that science is an ongoing process of investigation (inquiry)
- Investigate and describe careers related to technological design
- Explain that claims must be supported by evidence and logical argument



Public Education
Our Investment
in America



FIFTH GRADE—SCIENCE

LIFE SCIENCE (Continued)

- Describe how there are variations among individuals within a population of a certain species
- Explain that reproduction is a characteristic essential to the continuation of every species
- Classify animals and plants according to their physical characteristics
- Investigate and describe how environmental changes allow some plants and animals to survive and reproduce, but others may die
- Investigate and describe how individuals of the same kind differ in their characteristics and sometimes the differences give an advantage in surviving and reproducing

EARTH AND SPACE SCIENCES

It is expected that students will:

- Investigate and describe how rocks are composed of different combinations of minerals
- Investigate and describe how erosion and deposition rates can be affected by the slope of the land and by human activities
- Investigate and describe how the surface of the Earth, including the ocean floor, has a varied topography
- Investigate and describe how soil is made of many different biological and mineral materials and varies from place to place
- Identify compass directions on a map
- Explain how the Nevada state road map is a tool that can be used to navigate from one location to another
- Explain how many things can be represented by two-dimensional maps and three-dimensional models
- Explain that the surface of the Earth changes due to a variety of factors
- Investigate and describe how fossils are evidence of past life
- Explain that the sun is the main source of energy for people
- Investigate and describe various meteorological phenomena
- Investigate and describe the factors that affect processes such as evaporation and condensation
- Investigate and describe how change is an ongoing process that can be seen throughout the natural world
- Investigate and describe the basic components of our solar system
- Describe the apparent motion of celestial objects across the sky
- Describe that stars in the sky are not scattered evenly and are not all the same in brightness or color



Public Education
Our Investment
In America



FOURTH GRADE—MATHEMATICS

PATTERNS, FUNCTIONS, AND ALGEBRA (Continued)

- Use variable expressions (open sentences) to model situations

MEASUREMENT

It is expected that students will:

- Measure distance, time, temperature, capacity, weight/mass, volume, and area using standard measuring devices (English and metric)
- Measure and compare length in inches, feet, yards, and miles to the nearest fractional part ($1/4$, $1/2$); convert within this system of measurement
- Measure and compare lengths in metric units (e.g., millimeter, centimeter, meter, kilometer); convert within metric system of measure
- Determine totals for monetary amounts in problem-solving situations
- Describe and determine the perimeter and area of polygons
- Describe and determine the perimeter and area of rectangles (including squares)
- Communicate the difference between area and perimeter
- Estimate measurements with appropriate precision

SPATIAL SENSE AND GEOMETRY

It is expected that students will:

- Describe geometric properties, patterns, and relationships
- Identify parts of a solid figure (base, face, edge, vertex)
- Identify, describe, and classify two- and three-dimensional figures by relevant properties including the number of vertices (corners), edges, and the shapes of faces using models
- Identify, describe, and draw basic geometric figures including points, line segments, rays, angles, intersecting lines, and parallel lines using models
- Identify, draw, and classify angles including acute, right, obtuse, according to their measurements
- Predict, verify, and describe results of combining, subdividing, and changing shapes
- Represent concepts of similarity, congruence, and symmetry using motion geometry

DATA ANALYSIS

It is expected that students will:

- Collect, organize, display, describe, and interpret simple data using number lines, pictographs, bar graphs, and frequency tables
- Read, interpret, and discuss charts, tables, and graphs from books, newspapers, and magazines



Public Education
Our Investment
In America



FOURTH GRADE – MATHEMATICS

DATA ANALYSIS (Continued)

- Conduct simple probability experiments using concrete materials and represent the results using fractions
- Apply probability concepts and counting rules
- Solve problems and make predictions based on collected data
- Understand and apply measures of central tendency and variability

PROBLEM SOLVING

It is expected that students will:

- Select, modify, develop, and apply strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts
- Apply previous experience and knowledge to new problem-solving situations
- Verify, interpret, and evaluate results with respect to the original problem situation, determining an efficient strategy for the given situation
- Try more than one strategy when the first strategy proves to be unproductive
- Generalize solutions and strategies from earlier problems to new problem situations
- Interpret and solve a variety of mathematical problems by paraphrasing, identifying necessary and extraneous information, selecting and justifying efficient methods and/or strategies, and ensuring the answer is reasonable
- Use technology, including calculators, to understand quantitative relationships (e.g., for skip counting and pattern exploration)
- Use technology, including calculators, to investigate, define, and describe qualitative relationships such as patterns and functions

MATHEMATICAL COMMUNICATION

It is expected that students will:

- Use inquiry techniques (e.g., discussion, questioning, research, data gathering) to solve mathematical problems
- Identify and translate key words and phrases that imply mathematical operations
- Use physical materials, diagrams, models, pictures, writing, and tables to represent and then communicate mathematical ideas through oral, verbal, and written formats
- Explain and justify thinking about mathematical ideas and solutions
- Make conjectures and present arguments in discussions of mathematical ideas
- Use everyday language to explain thinking about strategies and solutions to mathematical problems



FIFTH GRADE – SCIENCE

PHYSICAL SCIENCE (Continued)

- Investigate and describe that objects may move in a variety of ways
- Classify objects by whether they sink or float in air or water
- Investigate and describe the way that magnets attract and repel each other and certain kinds of other materials
- Compare mixtures and solutions; compare and separate mixtures based on their properties
- Describe, classify, and compare matter in terms of elements, compounds, mixtures, and solutions
- Investigate and describe distinctive crystal patterns remaining after a solvent has evaporated
- Investigate and describe how materials can be broken down physically into smaller and smaller pieces, and that each piece may retain its same properties
- Investigate and describe how the observable properties of a material depend on its composition
- Investigate and describe how warm objects cool and cool objects warm when they are put together until they reach the same temperature
- Investigate and describe how energy can be used to bring about changes in matter
- Investigate and describe how vibrations produce sound
- Describe how electrical components are utilized in the design of simple electrical circuits
- Investigate and describe how observable changes in matter may occur when different materials are heated, mixed, or cooled

LIFE SCIENCE

It is expected that students will:

- Investigate, compare, and contrast the different life cycles of different living things
- Investigate, compare, and contrast the different structures of organisms that serve different functions for growth, reproduction, and survival
- Investigate and describe how plants and animals have features that help them live in various environments
- Investigate and describe how clues for behavior may be detected by the senses in humans and other living things
- Investigate and describe how some organisms can learn from their experiences
- Investigate and describe how some environmental conditions are more favorable than others to living things
- Investigate and describe how some characteristics between offspring and parents are inherited, but other characteristics are learned
- Explain how living things may be classified on the basis of similar features, behaviors, and/or habits



FIFTH GRADE—MATHEMATICS

MATHEMATICAL REASONING

It is expected that students will:

- Justify answers and the steps taken to solve problems with and without manipulative and physical models
- Use patterns and relationships to analyze mathematical situations; draw logical conclusions about mathematical problems
- Follow a logical argument and judge its validity
- Apply deductive and inductive reasoning in mathematical situations to extend logical reasoning
- Ask questions to reflect on, clarify, and extend thinking
- Review and refine the assumptions and steps used to derive conclusions in mathematical arguments
- Determine relevant, irrelevant, and/or sufficient information to solve mathematical problems

MATHEMATICAL CONNECTIONS

It is expected that students will:

- Link new concepts to prior knowledge
- Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics
- Use models to explain the relationship of concepts to procedures
- Identify practical applications of mathematical principles that can be applied to other disciplines
- Apply mathematical thinking and modeling to solve problems that arise in other disciplines (e.g., rhythm in music and motion in science)
- Identify, explain, and use mathematics in everyday life

FIFTH GRADE—SCIENCE

Fifth grade students apply the process skills of observing, communicating, comparing, organizing and relating. They pursue scientific answers to questions, record findings, and present results of experiments or investigations. They study predictable patterns in the universe. Students continue the study of earth, life, and physical sciences and technological design. Fifth grade students use scientific tools and technology as appropriate.

PHYSICAL SCIENCE

It is expected that students will:

- Investigate and describe the relationship that exists between the size of a change in motion of an object to the size of a push or pull on that object
- Investigate and describe that objects usually move downward



Public Education
Our Investment
In America



FOURTH GRADE—MATHEMATICS

MATHEMATICAL COMMUNICATION (Continued)

- Express mathematical ideas and use them to define, compare, and solve problems orally and in writing
- Use mathematical notation to communicate and explain mathematical situations

MATHEMATICAL REASONING

It is expected that students will:

- Use patterns and relationships to analyze mathematical situations; draw logical conclusions about mathematical problems
- Apply deductive and inductive reasoning in mathematical situations to extend logical reasoning
- Ask questions to reflect on, clarify, and extend thinking
- Determine relevant, irrelevant, and/or sufficient information to solve mathematical problems

MATHEMATICAL CONNECTIONS

It is expected that students will:

- Link new concepts to prior knowledge
- Use mathematical ideas from one area of mathematics to explain an idea from another area of mathematics
- Use models to explain the relationship of concepts to procedures
- Identify practical applications of mathematical principles that can be applied to other disciplines
- Apply mathematical thinking and modeling to solve problems that arise in other disciplines (e.g., rhythm in music and motion in science)
- Identify, explain, and use mathematics in everyday life

FOURTH GRADE—SCIENCE

Fourth grade students conduct simple tests to study rocks and soil; they describe the water cycle; and they study plants and animals. They observe and record notes as they study electricity, force, and change. Fourth grade students conduct scientific investigations, record data, and compare, measure, and organize information. Scientific equipment and technology are used by students.

PHYSICAL SCIENCE

It is expected that students will:

- Investigate and describe balance points of different objects
- Investigate and describe how objects can sink or float in water
- Investigate and describe properties of materials when they are combined (mixtures)



Public Education
Our Investment
In America



FOURTH GRADE – SCIENCE

PHYSICAL SCIENCE (Continued)

- Observe and describe that different objects and materials may be composed of parts that are too small to be seen without magnification
- Investigate, construct, and describe how electrical circuits can produce light, heat, sound, and magnetic effects

LIFE SCIENCE

It is expected that students will:

- Investigate, describe, compare, and contrast identifiable structures and characteristics of plants and animals
- Investigate and describe the behavior of individual organisms when influenced by internal cues (e.g., hunger) and by external cues (e.g., environment)
- Observe and describe variations among individuals within the human population

EARTH AND SPACE SCIENCES

It is expected that students will:

- Investigate, compare, contrast, and describe the properties of rocks and minerals
- Compare and contrast the location of landforms
- Investigate and describe the composition of different soils
- Identify and describe various meteorological phenomena (e.g., floods, drought)
- Investigate and describe the properties, forms, and uses of water
- Identify the components of our solar system (e.g., planets, moon, asteroids, comets, sun)
- Observe and describe properties, locations, and movements of the sun, moon, stars, clouds, birds, and planes
- Observe and describe the changes of the moon's appearance over time
- Investigate and describe how distance affects the brightness of any light source

ENVIRONMENTAL SCIENCES

It is expected that students will:

- Investigate and describe the variables that affect the survival of organisms within an ecosystem
- Identify the natural resources of Nevada
- Investigate and describe resources which can be used and reused or renewed
- Observe, investigate, and describe how some environmental changes occur quickly and some occur slowly



Public Education
Our Investment
In America



FIFTH GRADE – MATHEMATICS

PROBLEM SOLVING (Continued)

- Select, modify, develop, and apply strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts
- Apply previous experience and knowledge to new problem-solving situations
- Verify, interpret, and evaluate results with respect to the original problem situation, determining an efficient strategy for the given situation
- Try more than one strategy when the first strategy proves to be unproductive
- Apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or until it is clear that no solution exists
- Generalize solutions and strategies from earlier problems to new problem situations
- Interpret and solve a variety of mathematical problems by paraphrasing, identifying necessary and extraneous information, selecting and justifying efficient methods and/or strategies, and ensuring the answer is reasonable
- Use technology, including calculators, to solve problems and verify solutions
- Use technology, including calculators, to investigate, define, and describe quantitative relationships such as patterns and functions

MATHEMATICAL COMMUNICATION

It is expected that students will:

- Discuss and exchange ideas about mathematics as a part of learning
- Use inquiry techniques (e.g., discussion, questioning, research, data gathering) to solve mathematical problems)
- Identify and translate key words and phrases that imply mathematical operations
- Use physical materials, diagrams, and tables to represent and then communicate mathematical ideas through oral, verbal, and written formats
- Explain and justify thinking about mathematical ideas and solutions
- Make conjectures and present arguments in discussions of mathematical ideas
- Use everyday language to explain thinking about strategies and solutions to mathematical problems
- Express mathematical ideas and use them to define, compare, and solve problems orally and in writing
- Use mathematical notation to communicate and explain mathematical situations



Public Education
Our Investment
In America



SPATIAL RELATIONSHIPS AND GEOMETRY

It is expected that students will:

- Identify, describe, compare, and classify two- and three-dimensional figures by relevant properties including the number of vertices and edges and the number and shapes of faces
- Identify, define, describe, and draw geometric figures, including points, intersecting, perpendicular and parallel lines, line segments, rays, angles, and planes
- Draw and classify triangles according to their properties (e.g., right, scalene, obtuse, equilateral)
- Identify and draw circles and parts of circles and describe the relationships between the various parts (e.g., arcs, diameter, and central angles)
- Identify shapes that have congruence, similarity, and/or symmetry of figures using a variety of methods (e.g., transformational, motions, models, drawings, and measurement)
- Using a grid, identify coordinates for a given point or locate points of given coordinates in the first quadrant
- Describe uses of geometry in practical problems and situations

DATA ANALYSIS

It is expected that students will:

- Collect, organize, read, and interpret data using a variety of graphic representations including tables, line plots, stem and leaf plots, scatter plots and histograms
- Describe the limitations of various graph formats
- Select an appropriate type of graph to accurately represent the data and justify the selection
- Use data from graphs, tables, and charts to draw and explain conclusions and predictions
- Conduct simple probability experiments using concrete materials and represent the results using fractions
- Solve probability problems using a variety of methods including constructing sample spaces and tree diagrams
- Model and then compute measures of central tendency including mean, median, and mode.

PROBLEM SOLVING

It is expected that students will:

- Select, modify, develop, and apply strategies to solve a variety of mathematical and practical problems and to investigate and understand mathematical concepts
- Apply previous experience and knowledge to new problem-solving situations
- Verify, interpret, and evaluate results with respect to the original problem situation, determining an efficient strategy for the given situation



THE NATURE AND HISTORY OF SCIENCE

It is expected that students will:

- Identify the components of scientific investigation (e.g., observing, collecting data, classifying)
- Exchange scientific observations and ideas
- Model and describe contributions made to scientific thought and design technology
- Explain that measuring instruments can be used to gather information for making scientific comparisons of objects and events and for designing and constructing things that will work properly
- Compare the advantages and disadvantages of using technology (e.g., tools for measurement, calculators, computers)
- Explore and research science-related careers
- Design or construct models of mechanical devices
- Describe how well a product/tool does what it was designed to do (e.g., zippers, can openers)
- Identify and describe technological systems

SCIENTIFIC INQUIRY: PROCESSES AND SKILLS

It is expected that students will:

- Observe and interact with objects, organisms, and phenomena and raise questions that can be investigated and researched
- Plan and conduct investigations and experiments independently, with a partner, or with a small group
- Use appropriate equipment, tools, techniques, and resources to gather, analyze, and interpret data/ information
- Conduct fair tests to make observations
- Record observations of investigations over time in a science notebook/journal (e.g., changes in structures or characteristics of a plant or animal)
- Develop and communicate descriptions, explanations, and predictions, based on evidence
- Create illustrations, graphs, and charts to convey ideas and record observations
- Cooperate and contribute ideas within a group
- Estimate numerical answers to problems before calculating
- Determine whether measurements and descriptions are reasonably accurate
- Generate new questions based on results of investigations and research



FOURTH GRADE—SOCIAL STUDIES

Fourth grade students study the history and geography of Nevada. They learn about regions of the United States and develop an understanding of government.

CIVICS

It is expected that students will:

- Describe the effects on society of the presence and absence of law
- Identify the Supreme Court as the highest court in the land
- List the qualities of a leader
- Identify ways conflicts can be resolved in a peaceful manner that respects individual rights
- Explain why and how local governments are created within states
- Name the three branches of state government
- Describe the purposes of democratic government
- Discuss components of the democratic election process
- Identify the Constitution as the fundamental law of the land
- Identify the three levels of American government: federal, state, and local
- Name the head of the federal, state, and local government (e.g., President, Governor, Mayor)
- Complete tasks independently
- Work cooperatively in groups
- Recognize differences of opinion
- Evaluate the causes of issues and problems
- Recognize the role of mediation in problem resolution
- Recognize the role/duties of various civil servants (e.g., police, lawyers, military personnel)
- Identify the purpose of the court system

ECONOMICS

It is expected that students will:

- Define employment and unemployment
- Identify financial institutions
- Identify the rewards and risks of saving money in financial institutions
- Give examples of purchases made using credit
- Identify factors within an individual's control that can affect the likelihood of being employed
- Provide an example of how purchasing a tool or acquiring education can be an investment
- Describe the characteristics of an entrepreneur
- Describe the steps an entrepreneur would take to start a business



Public Education
Our Investment
In America



FIFTH GRADE—MATHEMATICS

NUMBERS, NUMBER SENSE, AND COMPUTATION (Continued)

- Use estimation and mental computation in appropriate situations to solve problems
- Use a variety of appropriate strategies to estimate, compute, and solve mathematical and real-world problems

PATTERNS, FUNCTIONS, AND ALGEBRA

It is expected that students will:

- Classify, compare, and contrast numbers and data
- Identify, describe, and explain patterns and relationships in the number system (e.g., patterns formed by triangular numbers, perfect squares, arithmetic and geometric sequences) using concrete materials, paper and pencil, and calculators
- Using whole numbers as a replacement set, find possible solutions to such inequalities as $8 + 4 > n$
- Use variables in open sentences
- Use variables to describe simple functions and relationships
- Generate number sequences given the first term and any basic computations rule (e.g., given a 4 and the rule is "add 6," then the sequence can be written as 10, 16, , 22, 28, ...)
- Solve simple equations using a variety of methods (e.g., inverse operations, mental mathematics, and estimation and verify)

MEASUREMENT

It is expected that students will:

- Measure, compare, and convert length to the closest fractional part ($1/4$ and $1/2$) of inches, feet, yards, and miles
- Measure, compare, and convert length to the closest decimal unit of milli-, centi-, kilo-, and meters
- Estimate measures of length, volume, capacity, quantity, and weight, communicating the degree of accuracy needed and when a more precise measure is required
- Determine totals and change due for monetary amounts in problem solving situations
- Describe and determine the perimeter and area of polygons
- Describe and determine the area and perimeter of right triangles and rectangles including squares
- Communicate the difference between perimeter and area
- Identify equivalent periods of time, including relationships between and among seconds, minutes, hours, days, months, and years, such as $60 \text{ sec.} = 1 \text{ min.}$



Public Education
Our Investment
In America



FIFTH GRADE—MATHEMATICS

NUMBERS, NUMBER SENSE, AND COMPUTATION (Continued)

- When rounding, identify which place value will be most helpful in estimating an answer and determine the reasonableness of the answer
- Describe and use properties and relationships of operations (addition, subtraction, multiplication, and division)
- Identify and use least common multiples, greatest common factors
- Identify prime and composite numbers
- Compare and order negative numbers within the context of everyday happenings (e.g., temperature) and plot those numbers on a number line
- Identify fractional parts of regions and sets
- Compare and order fractions and/or decimals with like and unlike denominators
- Describe the place of fractions (including decimal notations) in the number system
- Identify and/or generate equivalent fractions
- Rename, identify fractions in simplest form
- Explain the relationships among fractions, decimals, percents, and ratios, using objects and symbols
- Rename fractions as decimals and vice versa
- Use and apply multiplication and corresponding division through the 12's
- Use basic facts of addition, subtraction, multiplication, and division facts with speed and accuracy in computation and problem solving
- Describe and use algorithms for addition, subtraction, multiplication, and division
- Add and subtract multi-digit numbers
- Multiply multi-digit numbers by two-digit numbers, including strategies for powers of 10
- Divide multi-digit numbers by two-digit numbers, including strategies for powers of 10
- Multiply and divide multi-digit numbers
- Use order of operations to solve problems
- Use models and drawings to identify, compare, add, and subtract fractions with like denominators and to solve problems
- Add and subtract fractions and mixed numbers with like denominators
- Use models and drawings to identify, compare, add, and subtract decimals and to solve problems
- Add and subtract decimals
- Multiply and divide decimals by whole numbers in problems representing practical situations
- Generate and solve addition, subtraction, multiplication, and division problems using whole numbers in practical situations



Public Education
Our Investment
in America



FOURTH GRADE—SOCIAL STUDIES

ECONOMICS (Continued)

- Give examples of ways sellers compete
- Describe how the exchange of goods and services around the world creates interdependence among people in different places
- Describe basic economic concepts : supply, demand, production
- Describe employment as a source of income
- Describe the economic activities of Nevada (e.g., mining, tourism)
- Discuss types of industry in Nevada
- Compare job opportunities available in frontier, rural, suburban, and urban areas of Nevada

GEOGRAPHY

It is expected that students will:

- Identify and use intermediate directions on a compass rose to locate places on a map
- Compare the information found on different maps of Nevada (e.g., physical, political, historical)
- Gather geographic information from electronic sources
- Use maps, photographs, and graphs of Nevada to collect geographic information
- Construct a map of Nevada displaying its human and physical features
- Identify the purpose and content of various Nevada maps
- Identify and explain spatial patterns on a map of Nevada
- Recognize that states are divided into counties or their equivalents and identify the county of residence in Nevada
- Locate and name the major mountains, rivers, and lakes on a map of the United States
- List examples of physical and human features from the community or region
- Recognize and illustrate elements of their culture
- Describe the characteristics of another culture from their point of view
- Compare how communities use different types of technology
- Choose an historical figure and locate the place and region on which he/she had an impact
- Give examples of how places where they lived have changed in their lifetime
- Recognize the difference between a physical and a cultural region



Public Education
Our Investment
in America



FOURTH GRADE—SOCIAL STUDIES

GEOGRAPHY (Continued)

- Diagram and explain the water cycle
- Describe the effects of various natural hazards on the physical environment
- Generate examples of various ecosystems found in Nevada and the United States
- Explain the location and distribution of a specific ecosystem in Nevada and the United States
- Construct a model of an ecosystem
- Define and illustrate population density
- List reasons why people move to or from a particular place
- Describe changes in how people move from one place to another
- Locate and list examples of frontier, rural, suburban, and urban communities
- Compile a list of where goods and services are produced
- Describe that the availability and price of an economic product is affected by geography
- Compare housing, health care, and education among regions in Nevada or the United States
- Classify organizations as cultural, political, or economic organizations, depending on their major function
- Describe how cooperation and conflict affect people in different communities
- Describe a change that has taken place in their local environment
- Describe places in Nevada where the physical environment has been altered by technology
- Use maps or photographs to document human modification of the physical environment
- Identify various natural resources found in Nevada and the western United States
- List examples of how people use and manage natural resources within Nevada
- Describe the physical setting of an historical event
- Describe the physical setting of a current event
- Describe a contemporary issue from a spatial or ecological perspective
- Choose an environmental problem that affects Nevada and develop possible solutions
- Develop questions that will aid in the identification of spatial patterns
- Evaluate geographic information and select a method for display



Public Education
Our Investment
in America



FIFTH GRADE—ENGLISH LANGUAGE ARTS/READING

SPEAKING (Continued)

- Give organized reports that demonstrate a clear point of view and incorporate multi-media aids as needed for enhancement
- Give multi-step directions to complete a task

DISCUSSION

It is expected that students will:

- Participate in conversations and group discussions as a contributor and leader
- Ask and answer literal, critical, and evaluative questions to clarify or extend ideas
- Share ideas, opinions, and information with a group, choosing language that communicates messages clearly and effectively
- Compare and contrast ideas and viewpoints of several speakers

RESEARCH AND STUDY SKILLS

It is expected that students will:

- Formulate research questions and establish a focus and purpose for inquiry
- Select information from multiple resources to answer questions
- List sources used in research
- Record information using note-taking and organizational formats
- Present research findings using charts, maps, or graphs with written text
- Use parts of a book to locate information and answer questions
- Use test-taking strategies

FIFTH GRADE—MATHEMATICS

Fifth grade students develop proficiency in using whole numbers, fractions, and decimals to solve problems. They design surveys and collect, display, and analyze data to draw conclusions and make predictions. Students also solve problems involving perimeter, area, and volume and use a grid (coordinate plane) to identify coordinates or locate points.

NUMBERS, NUMBER SENSE, AND COMPUTATION

It is expected that students will:

- Read and write numbers, number words, and ordinals
- Use and identify place value
- Round numbers to an appropriate place value



Public Education
Our Investment
in America



FIFTH GRADE—ENGLISH LANGUAGE ARTS/READING

WRITING—PROCESS

It is expected that students will:

- Generate ideas for future writing through activities such as clustering, brainstorming, and listening to and following story models
- Organize ideas through activities such as outlining, listing, webbing, and mapping
- Write paragraphs and compositions with topic sentences, variety of sentences, logical sequence, and main ideas that are supported by details and state a conclusion
- Revise compositions to improve the meaning and focus of writing
- Edit for use of standard English
- Produce writing with a voice that shows awareness of an intended audience and purpose
- Share final drafts with a designated audience

WRITING—MECHANICS

It is expected that students will:

- Use correct grammar when writing
- Identify and write prepositional phrases, appositives, and independent clauses; use transitions and conjunctions to elaborate ideas
- Use correct punctuation when writing
- Use rules of capitalization
- Use correct spelling of frequently used words, with special attention to roots, suffixes, and prefixes
- Use legible handwriting

LISTENING

It is expected that students will:

- Interpret a speaker's verbal and non-verbal messages, purposes, and viewpoint; distinguish fact from opinion
- Identify the intent of persuasive speaking techniques, evaluate a speaker's delivery using given criteria, and provide constructive feedback
- Identify and describe language and dialect usage that vary in contexts, regions, and cultures
- Follow multi-step oral directions to complete a task

SPEAKING

It is expected that students will:

- Use specific and varied vocabulary and apply standard English to communicate ideas
- Select and use appropriate public speaking techniques



Public Education
Our Investment
in America



FOURTH GRADE—SOCIAL STUDIES

GEOGRAPHY (Continued)

- Locate and summarize geographic information from a variety of geographic sources
- Incorporate a visual display into a report about a geographic topic
- Identify and describe geographic regions of the world by referencing lines of latitude and longitude
- Use scales on maps to determine distances portrayed

HISTORY

It is expected that students will:

- Record events on a graphic organizer, such as a calendar or time line
- Locate Nevada's earliest Native American inhabitants, known as the Desert Archaic people
- Identify Nevada's Native American cultures
- Describe experiences of pioneers moving west, including Donner Party, Oregon/California Trails
- Identify explorers and settlers in preterritorial Nevada, including: Kit Carson, John C. Fremont
- Explain the symbols, mottoes, and slogans related to Nevada, including: "Battle Born," state seal, Silver State, state flag
- Recognize the ongoing nature of history (e.g., migration, human settlement, demographic)
- Describe important historical people, events, and places in Nevada
- Create timelines that show people and events in sequence using months, years, decades, and centuries
- Recognize famous people in Nevada's history
- Discuss how and why people from various cultures immigrated and migrated to the American West
- Read historical passages and interpret details
- Identify appropriate resources for historical information



Public Education
Our Investment
in America



Fifth grade students read increasingly complex literature. Students use reading, writing, listening, and speaking skills to communicate for different purposes.

WORD KNOWLEDGE—PHONICS/STRUCTURAL ANALYSIS, VOCABULARY, SPELLING

It is expected that students will:

- Use knowledge of phonics, structural elements, grammar, and syntax to read and to determine the meaning of unfamiliar words in context
- Identify and use the meaning of high-frequency Greek- and Latin-derived roots and affixes to determine the meaning of words
- Use dictionaries and glossaries to find word origins, pronunciations, and to determine meanings of unknown words
- Use context clues such as restatement, definitions, and examples to determine the meaning of unknown words
- Use sound patterns, structure rules, and strategies to spell correctly
- Build vocabulary by expanding knowledge of word meanings

READING COMPREHENSION—PROCESS SKILLS AND STRATEGIES

It is expected that students will:

- Select and apply pre-reading strategies that enhance comprehension
- Apply self-correcting strategies to gain meaning from text
- Select and use a variety of skills and strategies during reading
- Identify main ideas, fact and opinion or cause/effect, summarize, and draw conclusions
- Use summarizing, note-taking, and outlining to comprehend information
- Clarify understanding of text
- Adjust reading rate to suit reading purpose and difficulty of text

READING COMPREHENSION—LITERATURE

It is expected that students will:

- Distinguish main incidents of a plot that lead to the climax, and explain how the problem or conflict is resolved
- Make inferences supported by the text about characters' traits and motivations
- Predict conflicts and resolutions
- Identify historical events and cultural contexts as portrayed in literature
- Compare stated and implied themes in a variety of works



READING COMPREHENSION—LITERATURE (Continued)

- Locate and interpret figurative language, including simile, metaphor, and personification in text
- Describe how authors' purpose and writing styles influence reader response
- Read and describe differences in purpose and structure in fiction and non-fiction selections
- Demonstrate an active interest in reading

READING COMPREHENSION—INFORMATIONAL TEXTS

It is expected that students will:

- Use knowledge of format, graphics, sequence, diagrams, illustrations, charts, and maps to comprehend text
- Discern main idea and supporting evidence
- Clarify and connect main ideas and concepts and identify their relationship to other sources/ topics
- Read to evaluate new information and hypotheses by comparing them to known information/ ideas
- Interpret information in new context
- Draw conclusions and make inferences about texts supported by textual evidence and experience
- Identify and interpret authors' ideas and purposes in texts including advertisements and public documents
- Read and follow multi-step directions in order to perform procedures and complete tasks

WRITING—COMPOSITION

It is expected that students will:

- Write informative papers that develop a clear topic with appropriate facts, details, and examples from a variety of sources
- Write well-organized communications such as memos/ faxes, friendly or business letters (envelope) in an appropriate format for a specific audience and purpose
- Write a narrative or story that develops a plot or sequence and uses "showing" rather than "telling" details to describe the setting, characters, and events of the story
- Write responses to literary selections that support judgments with selected examples
- Write summaries of oral and written stories
- Write short expository text that speculate on cause effect and offer persuasive evidence
- Use expanded vocabulary in writing

