

**2<sup>nd</sup> GRADE SCIENCE**  
**Semester 1/1<sup>st</sup> Quarter**  
**Benchmark Blueprint**

<b>Strand 1: Inquiry Process</b>		
Inquiry Process establishes the basis for students' learning in science. Students use scientific processes: questioning, planning and conducting investigations, using appropriate tools and techniques to gather data, thinking critically and logically about relationships between evidence and explanations, and communicating results.		
<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>Concept 1: Observations, Questions, and Hypotheses</b> Observe, ask questions, and make predictions.	PO 1. Formulate relevant questions about the properties of objects, organisms, and events in the environment. (See M02-S2C1-01)	
	PO 2. Predict the results of an investigation (e.g., in animal life cycles, phases of matter, the water cycle).	
<b>Concept 2: Scientific Testing (Investigating and Modeling)</b> Participate in planning and conducting investigations, and recording data.		
<b>Concept 3: Analysis and Conclusions</b> Organize and analyze data; compare to predictions.		
<b>Concept 4: Communication</b> Communicate results of investigations.		

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**Strand 2: History and Nature of Science**

Scientific investigation grows from the contributions of many people. History and Nature of Science emphasizes the importance of the inclusion of historical perspectives and the advances that each new development brings to technology and human knowledge. This strand focuses on the human aspects of science and the role that scientists play in the development of various cultures.

<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<p><b>Concept 1: History of Science as a Human Endeavor</b>            Identify individual and cultural contributions to scientific knowledge.</p>		
<p><b>Concept 2: Nature of Scientific Knowledge</b>            Understand how science is a process for generating knowledge.</p>		

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**Strand 3: Science in Personal and Social Perspectives**

Science in Personal and Social Perspectives emphasizes developing the ability to design a solution to a problem, to understand the relationship between science and technology, and the ways people are involved in both. Students understand the impact of science and technology on human activity and the environment. This strand affords students the opportunity to understand their place in the world – as living creatures, consumers, decision makers, problem solvers, managers, and planners.

<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>Concept 2: Science and Technology in Society</b> Understand the impact of technology.		

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**Strand 4: Life Science**

Life Science expands students' biological understanding of life by focusing on the characteristics of living things, the diversity of life, and how organisms and populations change over time in terms of biological adaptation and genetics. This understanding includes the relationship of structures to their functions and life cycles, interrelationships of matter and energy in living organisms, and the interactions of living organisms with their environment.

<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>Concept 1: Characteristics of Organisms</b> Understand that basic structures in plants and animals serve a function.	PO 1. Identify animal structures that serve different functions (e.g., sensory, defense, locomotion).	
	PO 2. Identify the following major parts of: <ul style="list-style-type: none"> <li>• the digestive system – mouth, esophagus, stomach, small and large intestines</li> <li>• respiratory system – nose, trachea, lungs, diaphragm</li> <li>• circulatory system – heart, arteries, veins, blood</li> </ul> (See 1CH-F3-01)	
	PO 3. Describe the basic functions of the following systems: <ul style="list-style-type: none"> <li>• digestive – breakdown and absorption of food, disposal of waste</li> <li>• respiratory – exchange of oxygen and carbon dioxide</li> <li>• circulatory – transportation of nutrients and oxygen throughout the body</li> </ul> (See 1CH-F3-02)	
<b>Concept 2: Life Cycles</b> Understand the life cycles of plants and animals.	PO 1. Describe the life cycles of various insects.	
	PO 2. Describe the life cycles of various mammals.	
	PO 3. Compare the life cycles of various organisms.	

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<p><b>Concept 2: Nature of Scientific Knowledge</b>            Understand how science is a process for generating knowledge.</p>	PO 1. Identify components of familiar systems (e.g., organs of the digestive system, bicycle).	
	PO 2. Identify the following characteristics of a system: <ul style="list-style-type: none"> <li>• consists of multiple parts or subsystems</li> <li>• parts work interdependently</li> </ul>	
	PO 3. Identify parts of a system too small to be seen (e.g., plant and animal cells).	

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<b>Comprehensive Health Education Standards</b>		
<b>STANDARD 1</b>		
Students comprehend concepts related to health promotion and disease prevention.		
<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>1CH-F7. Identify the characteristics, causes, prevention and treatment of common childhood injuries and illnesses</b>	PO 1. List common childhood illnesses, their causes and prevention	
	PO 2. List common childhood injuries, their causes, prevention and treatment	
	PO 3. Illustrate ways to keep germs from spreading	
	PO 4. Illustrate ways to prevent injuries	

<b>Comprehensive Health Education Standards</b>		
<b>STANDARD 2</b>		
Students demonstrate the ability to access accurate health information.		
<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>2CH-F6. Describe the consequences of appropriate and inappropriate use of drugs and medicine</b>	PO 1. Identify safe practices of taking medicine and storing it properly	
	PO 2. Identify the harmful affects of inappropriate use of drugs and medicine	

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<b>Comprehensive Health Education Standards</b>		
<b>STANDARD 3</b>		
Students demonstrate the ability to practice health-enhancing behaviors and reduce health risks.		
<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>3CH-F3. Identify hazards found in the home, school and community and demonstrate ways to avoid or reduce the threats</b>	PO 1. List hazards found in the home, school, and community	
	PO 2. Discuss ways to avoid and/or reduce the threats	
<b>3CH-F5. Demonstrate first aid procedures and appropriate responses to common emergencies in the home, school and community</b>	PO 1. Describe a minimum of three first aid procedures	
	PO 2. Determine correct response in case of accident or sudden illness	

<b>Comprehensive Health Education Standards</b>		
<b>STANDARD 4</b>		
Students analyze the influence of culture, media, technology and other factors on health.		
<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>4CH-F2. Explain how the media influence health behaviors</b>	PO 1. Describe how advertising influences health behavior	
	PO 2. Describe how movies and cartoons influence health behavior	

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<b>Comprehensive Health Education Standards</b>		
<b>STANDARD 5</b>		
Students demonstrate the ability to use interpersonal skills to enhance health.		
<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>5CH-F3. Describe ways to communicate care, consideration, and respect of self and others</b>	PO 1. Explain how one communicates feelings (nonverbal and verbal)	
	PO 2. Show use of effective "I" messages	

<b>Comprehensive Health Education Standards</b>		
<b>STANDARD 7</b>		
Students demonstrate the ability to advocate for personal, family and community health		
<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>7CH-F2. Collect information about health issues</b>	PO 1. State health issues (safety, personal care, disease prevention, substance abuse prevention, nutrition, emotional and family life)	

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<b>Concept 1: Observations, Questions, and Hypotheses</b> Observe, ask questions, and make predictions.		
<b>Concept 2: Scientific Testing (Investigating and Modeling)</b> Participate in planning and conducting investigations, and recording data.	<i>PO 1. Demonstrate safe behavior and appropriate procedures (e.g., use of instruments, materials, organisms) in all science inquiry.</i>	
	<i>PO 2. Participate in guided investigations in life, physical, and earth and space sciences.</i>	
	<i>PO 3. Use simple tools such as rulers, thermometers, magnifiers, and balances to collect data (U.S. customary units). (See M02-S4C4-06)</i>	
	<i>PO 4. Record data from guided investigations in an organized and appropriate format (e.g., lab book, log, notebook, chart paper). (See W-F4-01)</i>	

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<p><b>Concept 3: Analysis and Conclusions</b>            Organize and analyze data; compare to predictions.</p>	PO 1. Organize data using graphs (i.e., pictograph, tally chart), tables, and journals. (See M02-S2C1-02)	
	PO 2. Construct reasonable explanations of observations on the basis of data obtained (e.g., Based on the data, does this make sense? Could this really happen?). (See M02-S2C1-04)	
	PO 3. Compare the results of the investigation to predictions made prior to the investigation. (See M02-S2C2-05)	
	PO 4. Generate questions for possible future investigations based on the conclusions of the investigation.	
<p><b>Concept 4: Communication</b>            Communicate results of investigations.</p>		

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**Strand 5: Physical Science**

Physical Science affords students the opportunity to increase their understanding of the characteristics of objects and materials they encounter daily. Students gain an understanding of the nature of matter and energy, including their forms, the changes they undergo, and their interactions. By studying objects and the forces that act upon them, students develop an understanding of the fundamental laws of motion, knowledge of the various ways energy is stored in a system, and the processes by which energy is transferred between systems and surroundings.

<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>Concept 1: Properties of Objects and Materials</b> Classify objects and materials by their observable properties.	PO 1. Describe objects in terms of measurable properties (e.g., length, volume, weight, temperature) using scientific tools. (See M02-S4C4-01 and M02-S4C4-02)	
	PO 2. Classify materials as solids, liquids, or gases.	
	PO 3. Demonstrate that water can exist as a: <ul style="list-style-type: none"> <li>• gas – vapor</li> <li>• liquid – water</li> <li>• solid – ice</li> </ul>	
	PO 4. Demonstrate that solids have a definite shape and that liquids and gases take the shape of their containers.	

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<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>Concept 1: Observations, Questions, and Hypotheses</b> Observe, ask questions, and make predictions.		
<b>Concept 2: Scientific Testing (Investigating and Modeling)</b> Participate in planning and conducting investigations, and recording data.		
<b>Concept 3: Analysis and Conclusions</b> Organize and analyze data; compare to predictions.		
<b>Concept 4: Communication</b> Communicate results of investigations.	PO 1. Communicate the results and conclusions of an investigation (e.g., verbal, drawn, or written). (See M02-S2C1-02 and W02-S3C2-01)	
	<i>PO 2. Communicate with other groups to describe the results of an investigation.</i> <i>(See LS-F1)</i>	

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<b>Concept 1: History of Science as a Human Endeavor</b> Identify individual and cultural contributions to scientific knowledge.	<i>PO 1. Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Daniel Hale Williams [physician], supports Strand 4; Charles Drew [physician], supports Strand 4; Elizabeth Blackwell [physician], supports Strand 4).</i>	
	PO 2. Identify science-related career opportunities.	
<b>Concept 2: Nature of Scientific Knowledge</b> Understand how science is a process for generating knowledge.		

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<b>CONCEPT</b>	<b>PERFORMANCE OBJECTIVE</b>	<b>ASSESSMENT</b>
<b>Concept 2: Science and Technology in Society</b> Understand the impact of technology.	PO 1. Analyze how various technologies impact aspects of people’s lives (e.g., entertainment, medicine, transportation, communication).	
	PO 2. Describe important technological contributions made by people, past and present: <ul style="list-style-type: none"> <li>• automobile – Henry Ford</li> <li>• airplane – Wilbur and Orville Wright</li> <li>• telephone – Alexander G. Bell</li> </ul>	
	PO 3. Identify a simple problem that could be solved by using a suitable tool.	

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**Strand 6: Earth and Space Science**

Earth and Space Science provides the foundation for students to develop an understanding of the Earth, its history, composition, and formative processes, and an understanding of the solar system and the universe. Students study the regularities of the interrelated systems of the natural world. In doing so, they develop understandings of the basic laws, theories, and models that explain the world (NSES, 1995). By studying the Earth from both a historical and current time frame, students can make informed decisions about issues affecting the planet on which they live.

CONCEPT	PERFORMANCE OBJECTIVE	ASSESSMENT
<b>Concept 3: Changes in the Earth and Sky</b> Understand characteristics of weather conditions and climate.	PO 1. Measure weather conditions (e.g., temperature, precipitation). (See M02-S4C4-04 and M02-S4C4-05)	
	PO 2. Record weather conditions (e.g., temperature, precipitation).	
	PO 3. Identify the following types of clouds: <ul style="list-style-type: none"> <li>• cumulus</li> <li>• stratus</li> <li>• cirrus</li> </ul>	
	PO 4. Analyze the relationship between clouds, temperature, and weather patterns.	