

4th Grade Science Pacing Calendar

SCIENCE PROCESSES AND INQUIRY	Qtr:			
Process Standard 1: Observe and Measure – Observing is the first action taken the learner to acquire new information about an object, organism, or event. Opportunities for observation are developed through the use of a variety of scientific tools. Measurement allows observations to be quantified. The student will accomplish these objectives to meet this process standard.	1	2	3	4
1. Observe and measure objects, organisms, and/or events (e.g., mass, length, time, volume, temperature) using International System of Units (SI) (i.e., grams, milligrams, meters, millimeters, centimeters, kilometers, liters, milliliters, and degrees Celsius).	√			
2. Compare and/or contrast similar and/or different characteristics (e.g., color, shape, size, texture, sound, position, change) in a given set of objects organisms or events.	√			
Process Standard 2: Classify – Classifying establishes order. Objects, organisms, and events are classified based on similarities, differences, and interrelationships. The student will accomplish these objectives to meet this process standard.	1	2	3	4
1. Classify a set of objects, organisms, and/or events using two or more observable properties (e.g., simple dichotomous keys).	√			
2. Arrange objects, organisms, and/or events in serial order (e.g., least to greatest, fastest to slowest).	√			
Process Standard 3: Experiment – Experimenting is a method of discovering information. It requires making observations and measurements to test ideas. The student will accomplish these objectives to meet this process standard.	1	2	3	4
*1. Ask questions about the world and formulate an orderly plan to investigate a question	√			
2. Evaluate the design of a scientific investigation.	√			
*3. Design and conduct a scientific investigation.	√			
4. Recognize potential hazards and practice safety procedures in all science investigations.	√			
Process Standard 4: Interpret and Communicate – Interpreting is the process of recognizing patterns in collected data by making inferences, predictions, or conclusions. Communicating is the process of describing, recording, and reporting experimental procedures and results to others. Communication may be oral, written, or mathematical and includes organizing ideas, using appropriate vocabulary, graphs, other visual representations, and mathematical equations. The student will accomplish these objectives to meet this process standard.	1	2	3	4
*1. Report data using tables, line, bar, trend, and/or simple circle graphs.	√		√	
2. Interpret data tables, line, bar, trend and/or simple circle graphs.	√		√	
3. Make predictions based on patterns in experimental data.	√		√	
4. Communicate the results of investigations and/or give explanations based on data.	√		√	

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Process Standard 5: Inquiry – Inquiry can be defined as the skills necessary to carry out the process of scientific or systemic thinking. In order for inquiry to occur, students must have the opportunity to ask a question, formulate a procedure, and observe phenomena. The student will accomplish these objectives to meet this process standard.	1	2	3	4
*1. Use different ways to investigate questions and evaluate the fairness of the test.	√		√	
*2. Use a variety of measurement tools and technology.	√		√	
*3. Formulate a general statement to represent the data.	√		√	
*4. Share results of an investigation in sufficient detail so that data may be combined with data from other students and analyzed further.	√		√	
PHYSICAL SCIENCE	Qtr:			
Standard 1: Position and Motion of Objects – The position of a moving object can be described relative to a stationary object or the background. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:	1	2	3	4
1. The position and motion of objects can be changed by pushing or pulling. The size of the change is related to the strength of the push or pull.			√	
2. The motion of an object can be described by tracing and measuring its position over time.			√	
Standard 2: Energy – Energy is the ability to do work or to cause a change in matter. Forms of energy include electricity, heat (thermal), light and sound. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:	1	2	3	4
1. Electricity is the flow of electrical power or charge.			√	
a. The flow of electricity is controlled by open and closed circuits.				
b. Some materials are conductors of electricity while others are insulators.			√	
2. Heat results when substances burn, when certain kinds of materials rub against each other, and when electricity flows through wires.			√	
a. Metals are good conductors of heat and electricity.				
b. Increasing the temperature of any substance requires the addition of heat energy.			√	
3. Light is a form of energy made of electromagnetic waves.			√	
a. Light waves travel in a straight line.				
b. Substances may cause light waves to change direction of travel (e.g., reflection, refraction).			√	
c. Sound is a form of energy caused by waves of vibrations that spread from its source.			√	
LIFE SCIENCE	Qtr:			
Standard 3: Characteristics of Organisms – Each type of organism has structures that enable it to function in unique and specific ways to obtain food, reproduce and survive. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:	1	2	3	4
1. Organisms can survive only in environments in which their needs can be met (e.g., food, shelter, air, reproduction, and water).	√			

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2. Living organisms may be grouped by various characteristics or the environment in which they live (e.g., habitats, anatomy, behaviors).	✓			
3. Many observable characteristics of an organism are inherited from the parents of the organisms (e.g., color of flowers, number of limbs on an animal).	✓			
4. Energy from the Sun is passed to organisms through food chains.	✓			
ELEMENTARY EARTH/SPACE SCIENCE	Qtr:			
Standard 4: Properties of Earth and Moon - The Earth and its Moon have specific properties. The student will engage in investigations that integrate the process standards and lead to the discovery of the following objectives:	1	2	3	4
1. Earth materials consist of rock, soils, water, and air.			✓	
2. The processes of erosion, weathering, and sedimentation affect Earth materials (e.g., earthquakes, floods, landslides, volcanic eruptions).			✓	
3. Fossils provide evidence about the plants and animals that lives long ago and the nature of the environment at that time (e.g., the formation of fossils).			✓	
4. The observable shape of the moon changes from day to day in a cycle that lasts about a month.			✓	

Asterisks (*) have been used to identify standards and objectives that must be assessed by the local school district. All other skills may be assessed by the Oklahoma School Testing Program (OSTP).