CURRICULUM GUIDE

Science – Grade 4

Providence Schools

UNIT A

Content students have to learn	Processes students will learn and use
Unit A.1 – Structures of Life: Seeds (3 days)	
• Distinguish between living organisms and nonliving objects. • Identify, sort, and compare organisms based on external features. • Observe that organisms need water, air, food, and space to grow. • Identify and explain how the physical structure and characteristics of an organism allow it to survive in its environment.	» Observe and compare properties of living organisms. » Communicate information about living organisms. » Monitor and record changes in organisms over a period of time. » Demonstrate safe practices during classroom investigations. » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and organizing.
Unit A.2 – Structures of Life: Plants (5 days)	
• Distinguish between living organisms and nonliving objects. • Identify, sort, and compare organisms based on external features. • Understand that organisms need water, air, food, and space to grow and reproduce. • Observe changes, record data, and scientifically draw and label the stages in the life cycle of an organism. • Compare life cycles of various organisms. • Explain how the physical structures of an organism allow it to survive in its environment. • Identify sources of energy for living organisms.	» Observe, describe, and compare organisms. » Observe, draw, and label an organism's structures as they change over time. » Demonstrate safe practices during classroom investigations. » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and organizing.
Unit A.3 – Structures of Life: Animals (7 days)	
• Distinguish between living organisms and nonliving objects. • Identify, sort, and compare organisms based on external features. • Understand that organisms need water, air, food, and shelter/space to grow and reproduce. • Compare life cycles of various organisms. • Explain how the physical structures of an organism allow it to survive and defend itself in its environment. • Identify sources of energy for living organisms. • Design a habitat that provides for the needs of an organism.	» Monitor and record observations of the structures of an organism. » Observe properties of living organisms. » Investigate and record territorial behavior of organisms. » Demonstrate safe and ethical practices during classroom investigations. » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and organizing.

Content students have to learn	Processes students will learn and use
Unit A.4 – Structures of Life: Comparing Animals (7 days)	
• Distinguish between living organisms and nonliving objects. • Identify, sort, and compare organisms based on external features. • Understand that organisms need water, air, food, and shelter/space to grow. • Explain how the physical structures of an organism allow it to survive and defend itself in its environment. • Identify sources of energy for living organisms. • Design a habitat that provides for the needs of an organism. • Investigate and document behavior when changes are introduced into an organism's habitat. • Predict and describe the change in position and motion of objects when a force is applied.	» Compare the structures, functions, and behaviors of organisms. » Investigate and measure the pulling strength of an organism. » Monitor, record, and communicate observations of organisms over time. » Design, conduct, and present an investigation. » Demonstrate safe and ethical practices during classroom investigations. » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, measuring, and organizing.
Unit A.5 – Properties of Earth Materials (9 days)	
• Describe, compare, sort, and classify rocks, soils, and minerals according to physical properties. • Record and analyze data about the physical properties of rocks, soils, and minerals. • Cite evidence to support why rocks, soils, and minerals are classified the way they are. • Determine and explain uses for earth materials.	» Record and analyze data. » Demonstrate safe practices during classroom investigations. » Select appropriate tools and describe the information/data they will provide. » Use scientific thinking processes to conduct investigations and build explanations: observing, describing, comparing, analyzing citing evidence, and communicating.
Unit A.6 – Changes in the Earth's Surface (12 days)	
• Recognize that the surface of the earth changes over time. • Understand that some changes to the earth's surface are the result of rapid processes such as landslides, volcanic eruptions, and earthquakes. • Understand that the earth's surface is continually changing. • Identify sudden and gradual changes that affect landforms. • Recognize that water is a force that causes changes in the earth's surface.	» Observe local landforms for evidence of change. » Create models to simulate the effects of wind and water on landforms. » Cite examples of how wind, water, and ice have shaped or reshaped local landforms. » Collect and record data during investigations. » Demonstrate safe procedures during classroom investigations. » Communicate valid conclusions supported by data.

UNIT B

Content students have to learn	Processes students will learn and use
Unit B.1 – Magnets **(5 days)**	
• Identify, compare, and sort objects by physical properties. • Investigate magnetism as a force. • Determine ways to detect magnetic forces. • Understand that magnets attract objects that have certain properties. • Identify and describe the types of interactions that occur between two magnets. • Observe and measure the strength of magnetic forces.	» Observe and record properties of objects. » Cite evidence for grouping objects by physical properties. » Cite evidence regarding the existence of forces that cannot be seen. » Predict the effects of forces. » Observe and measure the strength of forces. » Record and analyze data. » Demonstrate safe practices during classroom investigations. » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and organizing.
Unit B.2 – Simple Circuits **(5 days)**	
• Diagram and build electric circuits. • Observe and describe interactions that occur between objects and an electricity source. • Identify the essential components of an electric circuit and understand their functions. • Explain how electricity flows in a circuit. • Identify, compare, sort, and classify objects as conductors or insulators.	» Observe and record physical properties of objects. » Cite evidence for grouping objects by physical properties. » Demonstrate and cite evidence of the flow of electricity. » Record and analyze data. » Demonstrate safe practices during classroom investigations. » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and organizing.
Unit B.3 – Advanced Circuits **(5 days)**	
• Diagram and build electric circuits. • Build, observe, and compare circuits. • Observe and describe interactions that occur between objects and an electricity source. • Identify the essential components of an electric circuit and understand their functions. • Explain how electricity flows in different types of circuits.	» Demonstrate and cite evidence of the flow of electricity. » Organize, record, and analyze data to support judgments about the advantages and disadvantages of series and parallel circuits. » Demonstrate safe practices during classroom investigations. » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and organizing.

UNIT B

Content students have to learn	Processes students will learn and use
Unit B.4 – Magnetic Effects **(4 days)**	
• Build and observe systems that create magnetic effects. • Observe and describe interactions that occur between objects within a simple electrical system. • Identify the essential components of a simple electrical system and understand their functions. • Measure, record, and compare the relative strength of magnetic forces.	» Predict the effects of a change in variables on the relative strength of a force. » Observe and measure the strength of forces. » Conduct investigations to determine how to increase the strength of a force. » Organize, record, and analyze data to make predictions. » Demonstrate safe practices during classroom investigations. » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and organizing.
Unit B.5 – Force and Motion **(12 days)**	
• Recognize that a force is a push or a pull. • Recognize that forces cause changes in the position, speed, and/or direction of motion. • Understand that data or graphs can help explain how a force acts upon an object. • Understand the effect of gravity on an object.	» Cite evidence regarding the existence of forces, such as gravity, that cannot be seen. » Observe and record changes in the direction of motion, position, and/or speed of objects. » Predict the effects of gravity on objects. » Conduct investigations to demonstrate how forces act on a moving object. » Record, analyze, and interpret data. » Demonstrate safe practices during classroom investigations. » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and analyzing.
Unit B.6 – Space **(6 days)**	
• Identify objects in the solar system. • Observe that objects in the sky have patterns of movement. • Recognize that the moon revolves around the earth. • Understand that the sun is the center of the solar system. • Understand that stars can be grouped into constellations.	» Construct models of the solar system. » Research the historical connection between constellations and mythology.

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