CURRICULUM GUIDE

Science - Grade 4

Providence Schools

Background

Providence Schools teachers and administrators worked collaboratively with consultants from the Charles A. Dana Center at the University of Texas at Austin to develop the mathematics and science curriculum frameworks. The curriculum frameworks encompass two critical questions:

- Content Standards that establish clearly defined expectations for all students, helping to answer the question, ***What do students have to learn?***
- Performance Standards that determine performance expectations for content standards, helping to answer the question, ***How well do the students have to learn it?***

The curriculum framework provides a work plan that directs the instruction delivered in every classroom in every school in the district. Instruction—the way the curriculum is presented to students—will focus on the needs of students.

Purpose and Use of Curriculum Guides

Curriculum Guides for the curriculum for each grade and subject outline the approximate number of days that each unit in the curriculum will be taught; describe the content to be learned; and list the essential questions that students should be able to answer by the end of the unit.

Parents should become familiar with the Curriculum Guides. You should know when your child is being taught different topics. You should also know the essential questions that your child should be able to answer by the end of each unit.

It is important that you understand that you do not have to be familiar with the content that your child is learning in order to help them with their studies. There are basic questions that you can ask to determine if your child understands the content.

Ask your child what she is learning in each subject

Does she understand the topic? Is the unit exciting or boring? What specifically does she like or dislike about the topic? Does she understand how the topic relates to the real world?

You know your child better than anyone. You will be able to tell if she or he is benefiting from the instruction and understanding the content of the material by the way they answer you. Speak to your child's teacher if you suspect there is a problem.

Ask your child about his assignments

What is the required work? Has he finished the work on time? Is he having difficulty? If he is having difficulty, why?

Encourage your child to talk to her teachers if she is having difficulty understanding a concept or completing an assignment. If your child continues to experience difficulty, speak to the teacher yourself so that the two of you can work together to support your child.

Even if you do not understand the content that your child is learning, the fact that you are showing interest in his or her school work and believe that it is important that he or she does well sends a powerful message.

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SEMESTER A	
Content students will be learning	**Essential questions students should be able to answer by end of unit**
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.	» How do we distinguish between living and nonliving things? » What properties of living organisms can be observed? » How do living organisms change over time? » How do living organisms react to changes in their environment?
Unit A.2 - Structures of Life: Plants (3 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.	» How do organisms change over time? » What conditions do organisms need in order to grow? » What is the sequence in the life cycle of an organism?
Unit 3 - Structures of Life: Animals (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 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.	» How do the exterior structures of an organism enable it to survive in its habitat? » How does an organism's habitat meet its needs? » What behaviors emerge as organisms are observed over a period of time? » When conducting investigations using living organisms, how do we ensure that the organisms are handled using safe and ethical practices?
Unit 4 - Structures of Life: Comparing Animals (9 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.	» How do the exterior structures of an organism enable it to survive in its habitat? » How does an organism's habitat meet its needs? » What behaviors emerge as organisms are observed over a period of time? » What characteristics are used to classify living organisms? » When conducting investigations using living organisms, how do we ensure that the organisms are handled using safe and ethical practices?

SEMESTER B

Content students will be learning	Essential questions students should be able to answer by end of unit
Unit B.1 - Magnets (4 days) • Identify, compare, and sort objects by physical roperties. • 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.	» How are forces observed and measured? » What effects can forces have on objects?
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.	» What is a circuit? » What types of materials would allow energy to move through a circuit?
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.	» In what ways does a series circuit compare to a parallel circuit?
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.	» How can the strength of a magnet be determined? » How does an electromagnet differ from a permanent magnet?
Unit B.5 - Uses of Electricity (9 days) • Diagram, build, and observe systems that include electric circuits. • Explain the role of energy (electricity and magnetism) within a system. • Measure, record, and compare the relative strength of magnetic forces and electricity. • Identify the essential components of a simple electrical system and understand their functions. • Observe and describe interactions that occur between objects within a simple electrical system.	» In a simple system, what happens to the energy provided by the cell? » What evidence supports the idea that a magnet and an electric current interact?