

**CURRICULUM**

**GUIDE**

Science – Grade 3

Providence  
Schools

## UNIT A

### Content students have to learn

### Processes students will learn and use

#### Unit A.1 – Energy (9 days)

- Collect and organize data about physical properties of matter, including temperature, color, size, shape, weight, texture, and flexibility.
- Observe and describe physical changes, including freezing and thawing.
- Make predictions about the changes in the state of matter when adding or taking away heat.
- Given examples, predict the observable effects of energy.
- Describe ways in which heat can be produced, such as electricity, friction, and burning.

- » Observe and describe physical changes in matter caused by the addition or reduction of heat.
- » Collect data from observing changes in properties.
- » Predict how matter might change if heat is added or removed.
- » Demonstrate safe practices during classroom investigations.

#### Unit A.2 – Light (7 days)

- Investigate the observable effects of light.
- Observe that light is a form of energy that travels in a straight line.
- Predict, describe, and investigate how light can be reflected, refracted, or absorbed when interacting with objects.

- » Use tools to redirect light.
- » Observe light interacting with various objects.
- » Investigate sources that produce light.
- » Predict and describe how light is reflected, refracted, or absorbed.
- » Demonstrate safe practices during classroom investigations.

#### Unit A.3 – Matter (11 days)

- Identify and compare solids, liquids, and gases.
- Describe the properties of solids, liquids, and gases.
- Measure the mass of objects to prove that all matter has mass.

- » Sort materials based on properties and state.
- » Measure objects to determine mass and volume.
- » Compare objects by measuring.
- » Demonstrate safe practices during classroom investigations.

#### Unit A.4 – Changing Matter (5 days)

- Observe and describe physical changes to matter.
- Describe properties of solids, liquids, and gases.
- Identify and compare solids, liquids, and gases.
- Make predictions about the changes in the state of matter when adding or taking away heat.
- Measure the mass of objects to prove that all matter has mass.

- » Observe physical changes in matter.
- » Describe properties of matter.
- » Compare states of matter.
- » Use metric units to measure the mass of objects.
- » Demonstrate safe practices during classroom investigations.

## UNIT A

### Content students have to learn

### Processes students will learn and use

#### Unit A.5 – Matter Has Mass

(3 days)

- Understand how matter is measured.
- Use appropriate tools and standardized measurement to determine the mass of an object.
- Understand units of measurement and why these units must be standardized.
- Understand the difference between mass and weight.
- Demonstrate that the mass of an object remains the same despite a change in its shape.

- » Predict the mass of an object using appropriate measurements.
- » Develop a plan to conduct investigations.
- » Compare and contrast weight and mass.
- » Collect and record data during investigations.
- » Demonstrate safe practices during classroom investigations.
- » Communicate valid conclusions supported by data.

#### Unit A.6 – Sound Energy

(3 days)

- Understand that sound is a type of energy.
- Understand how the pitch and volume of a sound are produced and carried.
- Understand the cause for different pitches and volumes of sounds produced by objects.
- Classify pitches and sounds produced by different objects.

- » Collect and record data during investigations.
- » Demonstrate safe practices during classroom investigations.
- » Communicate valid conclusions supported by data.

#### Unit A.7 – Heat Energy Moves

(4 days)

- Understand that heat affects matter in many ways.
- Understand that heat moves from warm objects to cool objects until both objects are the same temperature.
- Understand how land heats the surrounding air.
- Explain how the flow of heat can be controlled.
- Classify matter as a conductor or an insulator.

- » Predict how heat will travel from one object to another.
- » Investigate how heat flows through different types of matter.
- » Collect and record data during investigations.
- » Demonstrate safe practices 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 – Properties of Water (4 days)

- Understand that water is a natural material of the earth.
- Understand that water can be changed into different states.
- Describe the properties of water.
- Predict and describe the movement of a liquid.

- » Observe physical changes of a liquid.
- » Describe the properties of a liquid.
- » Predict and describe the movement of a liquid.
- » Use scientific thinking and processes to conduct investigations and build explanations by observing, comparing, and communicating.
- » Demonstrate safe practices during classroom investigations.

#### Unit B.2 – Heat Added and Removed (6 days)

- Observe and describe physical changes in liquids.
- Make logical predictions about changes in the state of matter when adding or taking away heat.
- Observe and describe how heat moves from one object to another, causing a change in temperature.
- Explain how liquids have properties different from those of solids and gases.
- Explain how heat can change the properties of matter.

- » Use tools to observe changes in the properties of a liquid.
- » Compare the properties of the three states of water.
- » Use scientific thinking and processes to conduct investigations and build explanations by observing, comparing, organizing, and communicating.
- » Demonstrate safe practices during classroom investigations.

#### Unit B.3 – Water Cycle (6 days)

- Make predictions about changes in the state of matter when adding or taking away heat.
- Observe and describe how heat moves from one object to another causing a change in temperature.
- Describe how water changes into vapor in the air and reappears as a liquid when it is cooled.
- Understand evaporation and condensation as part of the water cycle.

- » Make observations using a simple investigation.
- » Predict changes in matter by adding or removing heat.
- » Investigate the effects of temperature on the rate of evaporation.
- » Measure the rate of evaporation.
- » Observe the process of condensation.
- » Demonstrate safe practices during classroom investigations.

#### Unit B.4 – Investigating Water (6 days)

- Observe and describe physical changes.
- Demonstrate that heat moves from one object to another, causing a change in temperature.
- Identify water, soil, rocks, and air as earth materials.
- Understand that earth materials have physical properties.
- Observe and describe how heat can change the properties of earth materials.

- » Observe and compare the movement of water through different materials.
- » Identify uses of earth materials.
- » Investigate changes in matter caused by adding heat.
- » Demonstrate safe practices during classroom investigations.

## UNIT B

### Content students have to learn

### Processes students will learn and use

#### Unit B.5 – Water Changes the Earth’s Surface (4 days)

- Recognize that forces are involved in changing the earth’s surface.
- Understand that water is a force that causes changes to the earth’s surface.
- Demonstrate that water can cause change.

- » Identify materials found on the earth’s surface.
- » Cite evidence that water acts as a force that changes the earth’s surface.
- » Predict, observe, and record changes to the earth’s surface due to water.
- » Use data or photographs to investigate how water causes changes to earth material.
- » 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 – Observing Weather Changes (4 days)

- Describe weather changes.
- Understand that changes in weather can be described as weather patterns.
- Understand the role of the water cycle and how clouds are formed.
- Explain how scientific tools help in gathering data.

- » Collect, record, observe, and compare data from investigations to describe changes in weather patterns.
- » Analyze weather data to describe changes in weather patterns.
- » Observe changes in the water cycle.
- » Demonstrate safe practices during classroom investigations.
- » Communicate valid conclusions supported by data.

#### Unit B.7 – Patterns in the Sky (4 days)

- Recognize that the earth rotates on its axis and revolves around the sun.
- Recognize that the earth’s rotation makes objects appear different at different times.
- Use data to make predictions and draw conclusions about the relationship between the earth and objects in the sky.

- » Observe and record changes in the appearance of the moon, sun, and stars.
- » Predict the effects of the rotation of the earth on the appearance of the moon and sun.
- » Cite evidence regarding the existence of forces that cannot be seen.
- » Record, analyze, and interpret data.
- » Demonstrate safe practices during classroom investigations.
- » Use scientific processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and analyzing.

## UNIT B

### Content students have to learn

### Processes students will learn and use

#### Unit B.8 – Habitats and Ecosystems

(7 days)

- Describe the components of an ecosystem.
- Recognize the importance of balance within an ecosystem.
- Understand the interdependence of animals within an ecosystem.
- Construct a food web.
- Understand what effect a change might have on an ecosystem.

- » Research a particular animal and its habitat.
- » Design an ecosystem for a selected organism.
- » Cite evidence regarding how food webs maintain balance within an ecosystem.
- » 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.9 – Human Characteristics

(3 days)

- Compare and contrast structural features of animals.
- Identify and describe structural features of animals that allow them to survive.
- Identify traits that organisms inherit from their parents.
- Identify traits that organisms learn from their parents or as a result of changes in the environment.

- » Collect and record data during investigations.
- » Demonstrate safe practices during classroom investigations.
- » Use scientific thinking processes to conduct investigations and build explanations: observing, citing evidence, communicating, comparing, and analyzing.

Providence  
Schools

797 Westminster Street  
Providence, RI 02903

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