

MAPPING GRADE 2 SCIENCE INSTRUCTION

Concept: Seasonal Effects on Plants and Animals
PWC Strand: Life Science

CMS Unit Test: Adaptations
Reporting Category: Life Processes & Living Systems

PWC Objective: 2.2.1

The student will investigate and understand that weather and seasonal changes affect plants and animals. Key concepts include:

- effects on growth and behavior of living things (migration, hibernation, camouflage, adaptation, dormancy) **(SOL 2.7a)**

What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How does changing weather and seasonal patterns affect plants and animals and their surroundings? • What is adaptation? • What are some behavioral responses to changes in the environment? <p><u>Critical Attributes:</u></p> <p>2.7a Living things change as they interact with their surroundings. As seasons change, plants and animals, including humans, respond to changes in temperature, the amount of light, and type of precipitation. We call the changes in response to the environment <i>adaptations</i>.</p> <p>2.7a We can observe some of the patterns of behavior in plants and animals as they adjust to seasonal changes in weather. Some environments undergo extreme changes in temperature or other conditions during the year. Living things that live in such conditions have special responses that help them adjust. <i>Migration</i> is when animals move from one place to another as a result of temperature changes. We refer to the inactive periods of animals in the cold temperatures of winter as <i>hibernation</i>. Adverse conditions of weather may slow the growth and development of plants and animals (dormancy), whereas optimal weather conditions may accelerate growth and development.</p>	<ul style="list-style-type: none"> • Identify growth and behavioral responses of plants and animals to weather and seasonal changes. Examples of responses that are adaptive include migration, hibernation, and dormancy. • Identify animals that migrate, hibernate, or show other changes throughout the seasons or in the presence of adverse environmental conditions.

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What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p>2.7a Many familiar trees produce new leaves in the spring and lose them in the fall due to seasonal changes in temperature and light. Trees that lose their leaves are dormant in winter. <i>(Note: Teachers can use the term deciduous, but students are not responsible for it.)</i></p> <p>2.7a Some animals blend in with the environment for protection and will change coloring as the seasons change. This outward coloration that allows animals to appear similar to the plants and places in which they live is known as <i>camouflage</i>. The coloration patterns in frogs are useful examples of camouflage in an animal's habitat.</p>	<ul style="list-style-type: none">• Compare and contrast the responses of plants and animals to weather and seasonal changes.• Evaluate the usefulness of camouflage in an animal's habitat (for example, coloration patterns in frogs).

MAPPING GRADE 2 SCIENCE INSTRUCTION

Concept: Life Cycles
PWC Strand: Life Science

CMS Unit Test: Life Cycles
Reporting Category: Life Processes & Living Systems

PWC Objective: 2.2.2

The student will investigate and understand that plants and animals go through a series of orderly and identifiable changes during their lives. Key concepts include:

- some animals undergo distinct stages during their life cycles while others generally resemble their parents **(SOL 2.4a)**
- changes from the formation of the flower to the development of fruit in flowering plants **(SOL 2.4b)**

What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What do we call the series of orderly changes living things go through? • What are the different patterns in life cycles of living organisms? • What are the specific stages of the butterfly, grasshopper, and frog life cycles? • How does a plant grow from flower to fruit? <p><u>Critical Attributes:</u></p> <p>Living things go through a life cycle. They are born, they grow, they make new living things, and then they die. This cycle then happens to the new things that are born and continues over and over.</p> <p>2.4a Life cycles do not necessarily follow the same pattern for all plants and animals. Some plants and animals do not resemble their parents as they go through the stages of their life cycle (such as butterflies and frogs). Other plants and animals look very much like their parents throughout their life cycles (such as grasshoppers).</p>	<ul style="list-style-type: none"> • Compare and contrast life cycles of a frog, a butterfly, and a grasshopper.

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MAPPING GRADE 2 SCIENCE INSTRUCTION

Concept: Ecosystems and Habitats
PWC Strand: Life Science

CMS Unit Test: Ecosystems and Habitats
Reporting Category: Life Processes & Living Systems

PWC Objective: 2.2.3

The student will investigate and understand that living things are part of a system. Key concepts include:

- interdependence of living and nonliving things **(SOL 2.5a)**
- influence of change on habitats and living things **(SOL 2.5b)**
- endangered species and extinction **(PWC)**

What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p><u>Essential Question:</u></p> <ul style="list-style-type: none"> • What is the system of interaction between living and nonliving things called? • How are the living organisms dependent upon one another and on the non-living parts of their environment? • How are habitats influenced? • What causes living things to adapt to their environment? • Why do some living things become extinct? <p><u>Critical Attributes:</u></p> <p>2.5a Living things depend on the other living things and on the parts of the environment that are not alive for food, water, air, space, shelter, and reproduction. All of the interactions between and among living things and their non-living surroundings are referred to as an ecosystem.</p> <p>2.5a The shelter a living thing seeks may be living (such as a tree or coral) or non-living (such as caves or houses).</p>	<ul style="list-style-type: none"> • Classify objects as to whether they are living or non-living. • Describe the non-living components of an organism's surroundings, including water, space, and shelter. (Shelter may be living or non-living.)

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What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p>2.5b The earth is constantly changing, and change affects ecosystems. The habitats (places where animals and plants naturally live) of living things, such as forests, grasslands, rivers and streams, change due to many influences. Habitats change from season to season. Some changes happen naturally such as flooding, and humans cause some changes as well. Natural changes include environmental influences such as weather. Since the parts of an ecosystem depend on each other, when one part is affected by a change, other parts are also affected.</p> <p>PWC Sometimes the changes in habitats are so dramatic that living things cannot get the food, shelter, and water they need to survive. When this happens, the living things die out and none of its kind is found anywhere on Earth. This is called extinction. Living things that are in danger of becoming extinct are called endangered species. We can help endangered animals and plants by keeping the places where they live safe and clean.</p>	<ul style="list-style-type: none">• Describe how animals are dependent on their surroundings. For example, how are squirrels and other animals affected by the loss of forest habitat?• Construct and interpret simple models of different kinds of habitats, including a forest and a stream.• Predict and describe seasonal changes in habitat and their effects on plants and animals. For example, how do trees change through the seasons, and how do animals respond to changes in the seasons?