



<b>Revision Date</b>	April 18, 2020
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**Department of Curriculum & Instruction**

**Second Grade Science**

<b>Unit</b>	2-8 Investigating Physical Characteristics and Behaviors of Organisms
<b>Time Frame</b>	4/5-4/30
<b>Big Ideas</b>	<ol style="list-style-type: none"> <li>1. Animals have physical characteristics (parts and structures) that help them meet their basic needs in order to survive in their environment.</li> <li>2. Plants have physical characteristics (parts and structures) that help them meet their basic needs in order to survive in their environment.</li> <li>3. Animals use both external and behavioral characteristics to help meet their basic needs of air, water, and food.</li> <li>4. Roots secure a plant and absorb water and nutrients from the soil, stems of plants carry water to other parts of the plant, and leaves absorb and use sunlight for energy.</li> </ol>
<b>Essential Questions</b>	<ol style="list-style-type: none"> <li>1. What physical characteristics help animals meet their basic needs?</li> <li>2. What observations can we make about the physical characteristics an animal uses to meet its basic needs?</li> <li>3. How do the different parts of a plant help it meet its basic needs?</li> </ol>

<b>TEKS / Student Expectations</b>	<b>Skills</b>	<b>Concepts</b>
<b>SCI.2.1A</b> Identify, describe, and demonstrate safe practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately.	Identify  Describe  Demonstrate	<b>SAFE PRACTICES</b> Including, but not limited to: <ul style="list-style-type: none"> <li>• Wearing safety goggles or chemical splash goggles, as appropriate</li> <li>• Washing hands</li> <li>• Using materials appropriately</li> <li>• Follow classroom and outdoor safety guidelines, as outlined in Texas Education Agency-approved safety standards</li> <li>• Handle organisms appropriately</li> </ul>
<b>SCI.2.2A</b> Ask questions about organisms, objects, and events during observations and investigations.	Ask	<b>QUESTIONS DURING OBSERVATIONS AND INVESTIGATIONS</b> Including, but not limited to: <ul style="list-style-type: none"> <li>• Events</li> </ul>
<b>SCI.2.2B</b> Plan and conduct descriptive investigations.	Plan  Conduct	<b>INVESTIGATIONS</b> Including, but not limited to: Descriptive
<b>SCI.2.2E</b> Communicate observations and justify explanations using student-generated data from simple descriptive investigations.	Communicate	<b>OBSERVATIONS</b> Including, but not limited to:



TEKS / Student Expectations	Skills	Concepts
	Justify	<ul style="list-style-type: none"> <li>Student-generated data from simple descriptive investigations</li> </ul> <b>EXPLANATIONS</b> Including, but not limited to: <ul style="list-style-type: none"> <li>Making claims from observations</li> <li>Providing evidence from observations in order to support claims</li> </ul> Using reasoning to explain or justify the claims
<b>SCI.2.2F</b> Compare results of investigations with what students and scientists know about the world.	Compare	<b>RESULTS OF INVESTIGATIONS</b> Including but not limited to: What students and scientists know about the world
<b>SCI.2.3A</b> Identify and explain a problem and propose a task and solution for the problem.	Identify, Explain Propose	Identify, Explain <b>A PROBLEM</b> Including, but not limited to: <ul style="list-style-type: none"> <li>Grade level appropriate problems</li> </ul> Propose <b>A TASK AND SOLUTION FOR THE PROBLEM</b> Including, but not limited to: <ul style="list-style-type: none"> <li>Possible task               <ul style="list-style-type: none"> <li>Observe and research the problem</li> </ul> </li> </ul> Propose a solution
<b>SCI.2.3C</b> Identify what a scientist is and explore what different scientists do.	Identify  Explore	<b>WHAT A SCIENTIST IS</b> <b>WHAT DIFFERENT SCIENTISTS DO</b> Including, but not limited to: <ul style="list-style-type: none"> <li>Specific disciplines scientists study (e.g., botany, zoology, geology, oceanography, meteorology, and ecology)</li> <li>Scientists to consider exploring at this time:               <ul style="list-style-type: none"> <li>John Muir (naturalist, conservationist)</li> <li>Eugenie Clark (ecologist; oceanographer- sharks)</li> <li>*Amelia Earhart (pilot)</li> <li>*Robert Fulton (first commercially successful steamboat)</li> </ul> </li> </ul> *Correlate with Social Studies TEKS 2.4B
<b>SCI.2.4A</b> Collect, record, and compare information using tools, including computers, hand lenses, rulers, plastic beakers, magnets, collecting nets, notebooks, and safety	Collect	<b>INFORMATION USING TOOLS</b> Including, but not limited to:



TEKS / Student Expectations	Skills	Concepts
goggles or chemical splash goggles, as appropriate; timing devices; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums.	Record  Compare	<ul style="list-style-type: none"> <li>• Computers</li> <li>• Hand lenses</li> <li>• Plastic beakers</li> <li>• Notebooks</li> </ul> Safety goggles or chemical splash goggles
<b>SCI.2.4B</b> Measure and compare organisms and objects.	Measure, Compare	Measure, Compare <b>ORGANISMS</b> Including, but not limited to: <ul style="list-style-type: none"> <li>• Measure               <ul style="list-style-type: none"> <li>○ Length of organisms</li> </ul> </li> </ul>
Readiness <b>SCI.2.10A</b> Observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs.	Observe, Record, Compare	Observe, Record, Compare <b>HOW THE PHYSICAL CHARACTERISTICS AND BEHAVIORS OF ANIMALS HELP THEM MEET THEIR BASIC NEEDS</b> Including, but not limited to: <ul style="list-style-type: none"> <li>• Physical characteristics help meet basic needs               <ul style="list-style-type: none"> <li>○ Structures                   <ul style="list-style-type: none"> <li>• Fins (move, balance)</li> </ul> </li> <li>○ Coloration</li> <li>○ Body coverings                   <ul style="list-style-type: none"> <li>• Scales</li> <li>• Feathers</li> </ul> </li> </ul> </li> <li>• Behaviors help meet basic needs               <ul style="list-style-type: none"> <li>○ Movement</li> </ul> </li> </ul> Communication
Supporting <b>SCI.2.10B</b> Observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs.	Observe, Record, Compare	Observe, Record, Compare <b>HOW THE PHYSICAL CHARACTERISTICS OF PLANTS HELP THEM MEET THEIR BASIC NEEDS</b> Including, but not limited to: <ul style="list-style-type: none"> <li>• Physical characteristics help meet basic needs               <ul style="list-style-type: none"> <li>○ Roots (take in water)</li> <li>○ Stems (carry water throughout the plant)</li> </ul> </li> </ul>



TEKS / Student Expectations	Skills	Concepts
		<ul style="list-style-type: none"><li>○ Leaves (make food)</li><li>○ Flowers (make seeds)</li><li>○ Fruit (holds seeds)</li><li>○ Seeds (make new plants)</li></ul>

**Tier I Instructional Strategies – Classroom Instruction for All Students**

Misconceptions:

- Students may think that plants get their energy from the soil through roots and that leaves take in water, rather than understanding plants get their energy from the Sun.
- Students may think that plants don't grow in the winter, that plants hibernate like animals, and that nothing is alive in winter months, rather than understanding that although some plants are dormant during the winter many others thrive and grow.
- Students may think that all animals live on land, rather than understanding animals live in a variety of locations in their ecosystems.

There are some excellent interactive videos to go through with your students that are a part of your online textbook resources.

To access them simply follow the steps below:

1. Log on to Judson ISD teacher portal



2. Click on your HMH ThinkCentral SAML icon



3. select TX Science Fusion and grade

a. Animal Physical Characteristics

These images from TX Science Fusion can help illustrate the physical characteristics of these animals meeting their basic needs.



Suction cups help the frog climb and hold on.



Fins help fish swim and balance. They also help fish steer.



An elephant can use its trunk to grab and lift. It can also use its trunk to drink water.

This experiment allows students to compare what an animal with extra layers of insulation blubber is able to stay warm in colder water compared to an animal without it.

### How Do Body Coverings Help Animals?

How do body coverings help animals meet their need to stay warm? Investigate to find out.

**Materials**  
 plastic gloves  
 2 large zip-top plastic bags  
 large zip-top plastic bag half full of vegetable shortening  
 bowl of ice water  
 mitten

- Put on a pair of plastic gloves. Cover your left hand in vegetable shortening.
- Put each hand in a zip-top bag. Zip up both bags.
- Put both hands in cold water. Observe and compare how your hands feel.
- Repeat the activity. This time, cover your left hand in a mitten instead of shortening.

## 2.9B Plant Physical Characteristics

1. Students can fill out a foldable in their journal that has the parts of a plant
2. Students collect a plant that has as many of the physical characteristics discussed as possible then tape it into their journals. Be sure to close the journals stack and press with some weight until dry.
3. The celery stem experiment will provide another opportunity to show how the physical characteristics of the stem help the plant meet its basic needs by transporting water throughout the plant. Students will observe and record what the celery looks like at first then after sufficient time observe record and compare.





**Critical Writing Prompts**

What physical characteristics help animals and plants meet their basic needs?  
What observations can we make about the physical characteristics an animal uses to meet its basic needs?  
What comparisons can we make among animals about the behaviors they use for meeting their basic needs?

**Vocabulary**

Basic needs	Feathers	Movement
Behavior	Feet	Nutrients
Fruit	Fins	Roots
Function	Flowers	Scales
Growth	Food	Seeds
Physical characteristics	Function	Shelter
Structure	Fur/hair	Space
	Grow	Stems
	Heads	System

**Sample STAAR or STAAR-Like Assessment Items**

[Assessment Link](#)

**Resources**

\*The suggested resources are one of many ways to address the TEKS student expectation.  
[ThinkCentral](#)  
[Lead4ward Instructional Strategies Playlist](#)  
[Bottle Biology Terra Aqua Column](#) page 22-25  
[PBS Learning Bottle Biology](#)  
[Celery Stem experiment](#)