EE.5-PS3-1

Science Instructional Activity – *page 1 of 2*

Target Level	**Precursor Level**	**Initial Level**	**Accessibility Considerations for Science and Engineering Practice: Developing and Using Models**
Create a model (e.g., visual/tactile displays) to describe that energy in animals' food was once energy from the Sun.	Use models (e.g., visual/tactile displays) to describe that plants capture energy from sunlight.	Identify simple models (e.g., concrete pictures or tactile displays) that show that plants need sunlight to grow.	• Access information through concrete pictures, physical scale models (e.g., tactile displays), and/or computer-generated models. • Represent relationships with diagrams, showing only the most relevant information.

Activity Title	**Estimated Classroom Time Needed**	**Essential Questions**
Energy from the Sun	One session	• Does the student recognize that food contains energy? • Does the student recognize that energy comes from the Sun?

Suggested Materials

Picture cards or tactile graphics to build models of food chains. For example, pictures cards of:

- Healthy plants
- Unhealthy plants (plants that are small, plants that have withered leaves)
- The Sun
- Plant-eating animals
- Arrows (to indicate direction of energy transfer)

Engage Students in the Activity

Ask students if they have ever observed an animal eating. Have them share examples. Lead students to identify animals that eat plants. Then ask, "Why do animals need to eat?" (Possible answers: helps them grow, makes them stronger, gives them energy)

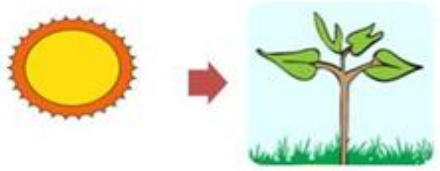
The following video introduces food chains:
"Fabulous Food Chains," https://www.youtube.com/watch?v=MuKs9o1s8h8

Activity Description

Students will use models to track energy from the Sun to animals.

Define (throughout activity): energy, grow, sunlight, food chain

Step 1: Focus on what living things need. Talk about how humans need food to live. Explain to students that food provides energy for people. Identify foods for animals. Make sure students identify plants as foods that humans and animals eat. Plants get energy from the Sun. The Sun releases energy. Ask students if they have ever felt warmth from the Sun, as this is energy. Plants make their own food using energy from sunlight. Have students sort through pictures or tactile graphics of healthy plants that have been exposed to sunlight and unhealthy plants that have not been exposed to sunlight. Students should recognize which plants are expected to grow. Later, when building models, only pictures or tactile graphics of plants that are healthy and exposed to sunlight should be used.



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Step 2: Models will be used to show that sunlight is energy for the plant. Show students picture response cards or tactile graphics of the Sun, a plant, and an arrow to symbolize the transfer of energy. Let the student explore the cards or graphics. Explain to students that the arrow shows energy moving from the Sun to the plant. Create a model that shows the transfer of energy from the Sun to a plant.

Step 3: Add a picture card or tactile graphic of an animal to show that animals get energy from plants. Follow the energy from the Sun to the animal. For example, if the pictures or tactile graphics are of the Sun, a plant, and a rabbit, discuss how the Sun provides energy to the plant and the plant provides energy to the rabbit to grow. The energy in the rabbit's food comes from the Sun. Students should understand that the models represent the transfer of energy. Students can extend the model to show energy moving from one animal to another (e.g., adding a wolf to the end of the model in the provided example). Show students examples of incorrect models and talk about why they are incorrect (e.g. energy does not move directly from the Sun to an animal or from a plant to the Sun). After this discussion, students will create a model using three picture cards or tactile graphics that demonstrate the movement of energy from the Sun to a plant to an animal. Build multiple models using different plants and animals for practice.

Ideas for Differentiating the Activity		
At the Target level:	***At the Precursor level:***	***At the Initial level:***
Students will create a model with the Sun and two or three other organisms that shows that the energy in the animal's food came from the Sun.	Students will use a given model to show how energy moves from the Sun to plants (e.g., identify correct direction of an arrow).	Students will complete a basic model representing that plants need sunlight to grow by selecting pictures or tactile graphics of plants that have been exposed to sunlight (healthy) and plants that have not been exposed to sunlight (unhealthy, wilted).
Checks for Understanding		
At the Target level, students will:	***At the Precursor level, students will:***	***At the Initial level, students will:***
Arrange the Sun and organisms in the correct order and use arrows to show how energy moves from the Sun to plants to animals, or correctly interpret a given model.	Identify the direction that energy moves using an arrow or interpret the meaning of the arrow in a given model.	Identify healthy plants that have been exposed to sunlight and unhealthy plants that have not been exposed to sunlight.

Please complete a short survey about your experiences using the science instructional activities by clicking on this link or by copying and pasting this url: https://kansasedu.qualtrics.com/jfe/form/SV_5t0tWMHjEgO4J1z

Thank you!