sauvie island center

PRE-TRIP LESSON: SUNSHINE FOR LUNCH

Overview: Students learn that all food energy comes from the sun, through exploring and comparing natural food webs in the wild with conventional human food sources.

Sauvie Island Center Field Trip Connections: Seed to Harvest, Plant Parts, Soil and Compost, Food Web

Objectives:
Students will be able to:
- Identify that all food originally comes from sun energy
- Define a food chain
- Categorize organisms as predator or prey (K-2) or producers, herbivores, carnivores, or omnivores (3-5)

NGSS Essential Questions:
- How do organisms obtain and use the matter and energy they need to live and grow?
- How do organisms interact with their environment and what are the effects of these interactions?
- How do food and fuel provide energy?

Grades: 2-5

Time: 45 minutes

Location: Classroom

Materials:
- White board or chart paper and marker
- Paper and pencils

Lesson Outline:

1. In the classroom, tell students that today, you will explore where food comes from. We normally buy food in the grocery store, but how does it get to the store?

- Begin by thinking about where animals get their food. Ask students for an example of a predator or carnivore that lives in Oregon. Ask students what that animal eats, and what its prey eats. Guide students all the way back to energy from the sun. Track the progression on the whiteboard. (ex: Coyote ← Robin ← Caterpillar ← Maple leaf ← Sun) Define this progression as a food chain.

- Discuss that instead of eating, like us animals, plants make their own energy from the sun through the process of photosynthesis.

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Lesson Outline *cont:*

- Along the way, identify carnivores (meat eaters), herbivores (plant eaters), omnivores (plant and meat eaters), and producers (plants, which produce their own energy from the sun).

- As a group, or in small groups, have students record several other examples of food chains. Emphasize that all food chains start out with the sun giving energy to a producer.

2. Explain that human food also comes from the sun, and so we are also a part of food chains. Write on the board the "food chain" of several students' favorite foods, like chocolate or cheese.

- Example: Melissa's favorite food is cheese, which comes from milk, which comes from a cow, which eats grass, which produces its energy from the sun. Or: Human ← Cheese ← Milk ← Cow ← Grass ← Sun

- Identify the roles ("trophic levels") of each player in the chain. Example: humans are omnivores, cows are herbivores, grass is a producer.

3. Have students work in small groups to write a list of everything they ate for lunch that day, and then trace each food's connection back to the sun. Can they identify which players are producers, herbivores, omnivores, and carnivores are a part of these chains?

4. Challenge students - Can they think of a food that does not come from the sun? All foods that we eat that give us energy can be traced back to the sun!
The only things we eat that don't come from the sun and from a farm are minerals (salt) and some chemical additives (like food coloring dye in candies). Although we consume these, they don't give us energy.

5. Review that food for all living things originally comes from the sun, and review food chain vocabulary. Tell students that during their field trip on the farm, they will get to see (and taste!) many foods growing in the sunshine on the farm!

Extension Opportunities:
- Follow this lesson up with the "From Farm to Store" lesson to trace the journey of food as it is processed and transported.

- Create posters of the food chains of students' favorite foods, with pictures or drawings, to display in the school.

- Have students research the various ingredients of processed foods.

- As homework, have students work with families to write down everything they ate for dinner and determine how each of those foods are connected to the sun.

- Sing the "Food Chain" song by the Banana Slug String Band: https://bananaslugs.bandcamp.com/track/food-chain

PRE-TRIP LESSON: SUNSHINE FOR LUNCH CONT.

Extension Opportunities *cont.*

- For younger students, discuss the steps of each food journey as a group. Sing each step of the food chain to the tune of "The Farmer in the Dell," adding in the locations and creating motions for each step. Examples:

"The sun shines down, the sun shines down, out on Sauvie Island, the shines down"
"The cow eats the grass, the cow eats the grass, out on Sauvie Island, the cow eats the grass"

Next Generation Science Standard Connections:

Disciplinary Core Ideas:

Life Science 1.C: Organization for Matter and Energy Flow in Organisms *How do organisms obtain and use the matter and energy they need to live and grow?*

All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

Life Science 2.A: Interdependent Relationships in Ecosystems *How do organisms interact with their environment and what are the effects of these interactions?*

- Plants depend on water and light to grow. (2-LS2-1)
- The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." (5-LS2-1)

Physical Science 3.D: Energy in Chemical Processes and Everyday Life *How do food and fuel provide energy?*

The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1)

Science and Engineering Practices:

Developing and Using Models

- Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.
- Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.