

5-LS2-1 **Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.** [Clarification statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.]
[*Assessment boundary: Assessment does not include molecular explanations.*]

Practice: Developing and Using Models

Crosscutting Concept: Systems and System Models

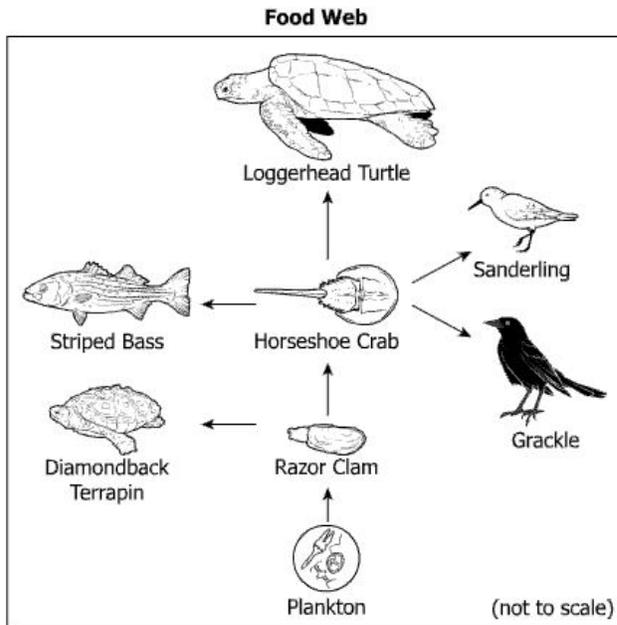
TASK 1

Question: A giraffe eats leaves from a tree. What is it gaining in terms of energy by doing this? Where does the tree get the energy to grow and produce leaves and fruit? Where does the energy go after the giraffe eats it?

Source:

<http://scholarworks.gvsu.edu/cgi/viewcontent.cgi?article=1271&context=honorsprojects>

TASK 2



Which of these represents a correct flow of energy based on the food web shown?

- A. Loggerhead Turtle → Horseshoe Crab → Razor Clam
- B. Horseshoe Crab → Loggerhead Turtle → Sanderling
- C. Diamondback Terrapin → Razor Clam → Plankton
- D. Razor Clam → Horseshoe Crab → Sanderling

TASK 3

Four friends were talking about how matter and energy move through an ecosystem. This is what they said:

Morrie: “I think only energy cycles through an ecosystem.”

Felicia: “I think only matter cycles through an ecosystem.”

Stefano: “I think both matter and energy cycle through an ecosystem.”

Lincoln: “I think neither matter nor energy cycles through an ecosystem.”

Which friend do you most agree with? Explain your thinking.

TASK 4

What is the role of decomposers in a food chain?

- A. They consume other organisms.
- B. They break down dead organic matter.
- C. They use the Sun's energy to make food.
- D. They convert inorganic matter into organic matter.

Correct Response: B

TASK 5

Rocky Mountain National Park's ecosystem includes the following plants, animals, and decomposers that make up a small set of the living things at the park:

- Limber pines, a type of tree
- Black bears
- Snowshoe hares
- Needlegrass, a type of plant
- Ravens, a type of bird
- Mountain lions
- Fungi and bacteria

1. Including parts of the environment (for example, the sun) draw a model that shows how each of the living things at the park are connected. Label each thing in your model as a plant, animal, decomposer, or the environment.

2. Imagine a deer mouse dies in Rocky Mountain National Park. Add the mouse to your model – now, adding arrows to your model, show how the matter from the mouse travels through the ecosystem.

3. Write a paragraph description for how the movement of matter happens in your model.

4. How did matter change as it moved throughout your model?