

FORMAL ASSESSMENT

Estuary Food Pyramid

Each activity in the Estuaries 101 Middle School Curriculum is designed around specific performance tasks. A generalized set of scoring rubrics is provided to judge student progress against these performance tasks.

Distribute the attached Student Assessment handout. Use the performance assessment indicators in the table below along with the suggested answers in order to arrive at a score for each performance task.

Performance Tasks	Performance Assessment Indicators		
	Low - Basic	Medium - Proficient	High- Advanced
Build a food pyramid to examine the movement of food energy through an estuary ecosystem.	The response is partially correct. There is also evidence of inaccurate, incomplete, or inappropriate skills or knowledge.	The response is correct, and demonstrates accurate understanding of concepts. Minor inaccuracies may appear but there is no evidence of misconceptions.	Evidence of higher-level thinking and the application of the appropriate skills and prior knowledge. The response is correct and complete, and contains elaboration and extension. There is no evidence of misconceptions. Minor inaccuracies should not necessarily lower the score.

Questions and Answers

1. Assign each organism on the list below to its correct trophic level on the estuary food pyramid by writing the organism's name on the level.

Horseshoe crab: Level 3 Consumer

Blue heron: Level 4 Consumer or Level 5 Apex Predator

Oyster: Level 2 Consumer

Phytoplankton: Level 1 Producer

Bull shark: Level 4 Consumer or Level 5 Apex Predator

2. Where does each organism get its energy?

The producer gets its energy from the sun. The consumers get their energy by consuming either a producer or other consumers.

3. Moving from the bottom of the food pyramid to the top, what happens to the number of organisms at each level? Explain your answer.

At each level of the food pyramid, there is less biomass or food energy available than at the level below. The student should realize that, in terms of numbers, the populations of organisms decrease going up the pyramid. It takes more of the prey to support fewer of the predators as energy flows through the system.

Reflection Question

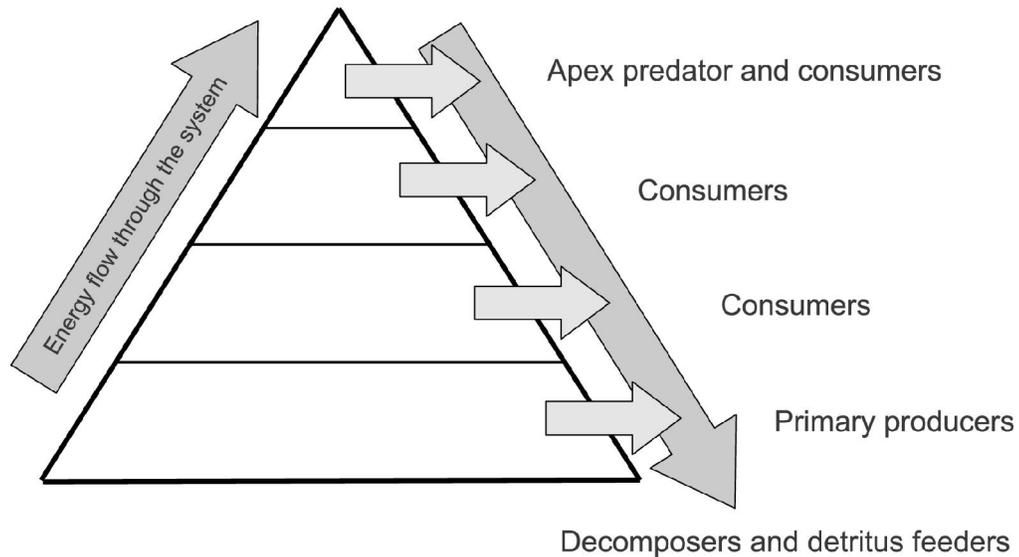
What roles do animals and plants play in the food pyramid and why is it important to the estuary ?

Student answers will vary, but should include discussions of the roles of producers and consumers, and the flow of energy through the estuary ecosystem.

STUDENT ASSESSMENT

Estuary Food Pyramid

You are a researcher from Sapelo Island, Georgia. You are interested in monitoring how food energy moves from one estuary organism to another.



- Assign each organism on the list below to its correct trophic level on the estuary food pyramid by writing the organism's name on the level.
 - Horseshoe crab
 - Blue heron
 - Oyster
 - Phytoplankton
 - Bull shark
- Where does each organism get its energy?
- Moving from the bottom of the food pyramid to the top, what happens to the number of organisms at each level? Explain your answer.

Reflection Question

What roles do animals and plants play in the food pyramid and why is it important to the estuary ?