FORMAL ASSESSMENT

Hooray for Horseshoe Crabs

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. Use the performance assessment indicators in the table below along with the suggested answers in the Teacher Guide to arrive at a score for each performance task.

In addition, you can use the attached Student Assessment handout to conduct a formal assessment at the conclusion of the activity. Use the suggested answers and performance assessment indicators to rate each student's progress.

Performance Tasks	Performance Assessment Indicators		
	Low - Basic	**Medium - Proficient**	**High- Advanced**
Students can identify the key characteristics of the horseshoe crab, starting with its three main anatomical divisions.	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.
Students can identify the key characteristics which link this species to arthropods and not true crabs.			
Students can identify the horseshoe crab's major external and internal organs.			

Questions and Answers

1. **Describe some ways in which horseshoe crabs are like other crabs.**

   Horsehoe crabs, like other crabs, have exoskeletons, a body divided into segments, and legs with joints.

2. **Describe some ways in which horseshoe crabs differ from other crabs.**

   True crabs have antennae, jaws, and only five pairs of legs. Horseshoe crabs don’t have antennae or jaws and have six pairs of legs.

3. **Identify and briefly describe the three main parts of the horseshoe crab's body.**

   The front section is called the prosoma. The middle section is called the opisthosoma. And the horseshoe crab’s tail is called the telson.

Reflection Question

Why do you think estuaries are good habitats for horseshoe crabs?

Estuaries are shallow and contain bottom sediments that are ideal for horseshoe crabs to find marine worms and mollusks like razor clams and soft shell clams to eat. Horseshoe crabs live in the water, but come up onto the sandy beach to reproduce.

Student answers will vary.

STUDENT ASSESSMENT

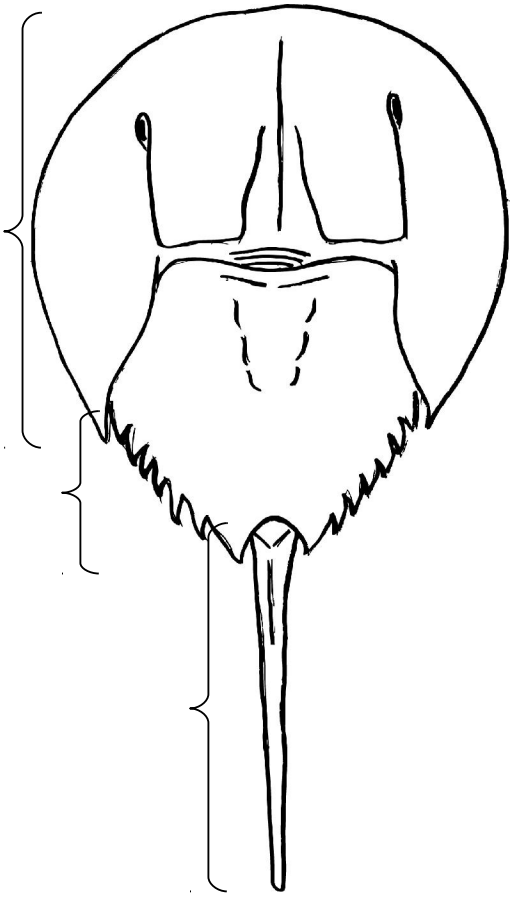
Hooray for Horseshoe Crabs

Your challenge is to use what you know about horseshoe crabs to describe the basic characteristics that allow them to survive in the estuary environment.

1. Horseshoe crabs are similar to other crabs, but they are not true crabs. They don't belong to the same class, Crustacea, as the blue crab and other crabs. Horseshoe crabs are in a class of their own: Merastomata. Describe some ways in which horseshoe crabs are like other crabs.

2. Describe some ways in which horseshoe crabs differ from other crabs.

3. Identify and briefly describe the three main parts of the horseshoe crab's body.



Reflection Question

Why do you think estuaries are good habitats for horseshoe crabs?