

FORMAL ASSESSMENT

Where Rivers Meet the Sea

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
Students can identify different geographic types of estuaries (coastal plain, tectonic, bar-built, and fjords).	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 where Earth's estuaries are located.			
Students can use data from a sea surface temperature map to examine where the temperatures of ocean water are warmest or coolest near estuaries.			
Students can create a travel brochure about a selected National Estuarine Research Reserve.			

Questions and Answers

1. Define an estuary in your own words.

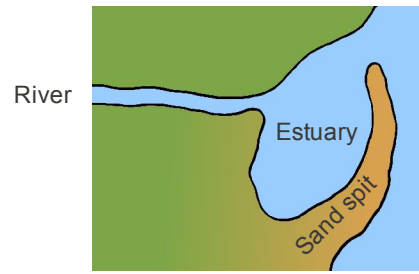
An estuary is a semi-enclosed body of water that has a free connection to the open ocean and within which seawater is diluted by freshwater from land drainage. Some unique Great Lakes coastal wetlands are referred to as fresh water estuaries. They occur where rivers and the Great lakes water mix in shallow wetlands located near the mouth of the river.

2. Draw pictures and label the parts of the two types of estuaries listed below:

Coastal Plain estuary with a delta



Bar-built estuary



3. The Great Lakes have estuaries, but not saltwater. How can the Great Lakes have estuaries?

Estuaries can also be found where fresh water from rivers or streams mixes with chemically distinct water from a large freshwater lake. These estuaries are called freshwater estuaries.

4. Estuaries are located all over the world. In the United States there are twenty-eight estuaries that have been set aside as national reserves. What is the name of the agency that promotes stewardship in estuaries around the United States? What is this agency's mission?

This group of estuary reserves is called the National Estuarine Research Reserve System (NERRS). The areas within the reserves, including valuable estuaries, are protected for long-term research, water-quality monitoring, education, and coastal stewardship.

Reflection Question

What does the title of this activity, *Where Rivers Meet the Sea*, mean to you?

Student answers will vary.

STUDENT ASSESSMENT

Where Rivers Meet the Sea

Estuaries are found all over the planet. Estuaries can be described by the way their freshwater and salt water circulate. Your challenge is to describe the common characteristics of an estuary. To help you get started answer the questions below:

1. Define an estuary in your own words.

2. Draw pictures and label the parts of the two types of estuaries listed below:

Coastal Plain estuary with a delta

Bar-built estuary

3. The Great Lakes have estuaries, but not saltwater. How can the Great Lakes have estuaries?

4. Estuaries are located all over the world. In the United States there are twenty-eight estuaries that have been set aside as national reserves. What is the name of the agency that promotes stewardship in estuaries around the United States? What is this agency's mission?

Reflection Question

What does the title of this activity, *Where Rivers Meet the Sea*, mean to you?