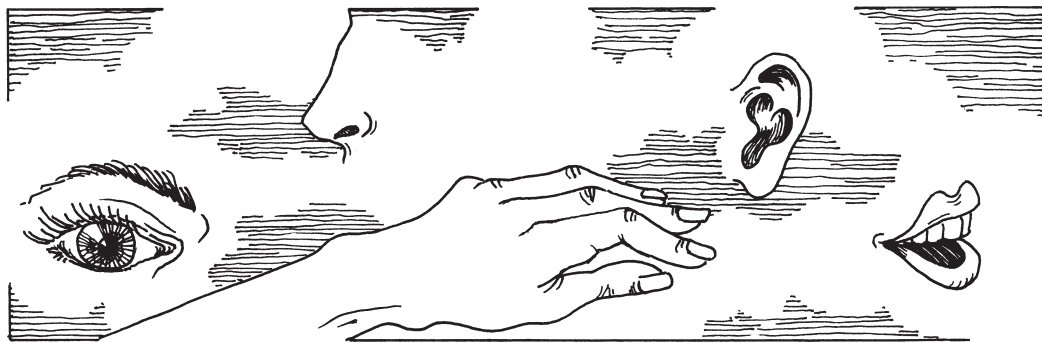


Language Arts Chapter Teacher Sheet



Activity #1: Reading About Estuaries

Objectives:

To read a passage about estuaries, discuss the passage, and then discuss a question related to the passage.

Time:

This activity will require 2 - 3 class periods, depending on the reading level of the students.

Background:

There are a number of books and articles that have been written about estuaries, coastlines, and the sea many from this Language Arts section. In reading these books and articles, students will be able to understand how different people feel about this area. Discussions of these readings can aid students in expressing their thoughts and feelings, and in formulating an appreciation of the thoughts and feelings of others.

The Socratic Seminar is one strategy teachers can use to help students read and understand a passage and discuss the reading in a controlled debate format.

Materials:

Attached are two passages from the book *The Edge of the Sea*, written by Rachel Carson in 1955. You can use either of these passages, or any other passage that pertains to estuaries such as those in the Language Arts section. Hand out a copy of the passage you select to each student. Students will also need their notebooks or journals. Before class begins, prepare the clothesline by dividing it into 10 sections, each 1 meter long. Each section represents 1000 years. Place a piece of tape at the beginning of each section as a marker for the students.

Procedure:

Students should sit in groups of four. Begin by asking the students to read the selected passage. While they are reading, they should use the right-hand column of the paper to write down any words or phrases with which they might be unfamiliar. After the students have finished reading, ask them to discuss the words/phrases they wrote down with a partner to see if they can determine their meanings. Next, the two pairs in each group should discuss the passages.

Ask students to volunteer a word or phrase that they had trouble with, along with any explanations or definitions their group might have come up with. Write this on an overhead or whiteboard. Ask other members of the class for their explanations of the words/phrases. Discuss the possible meanings, and decide on the correct meaning for the word/phrase. All students should then write the word or phrase, along with its meaning, in their notebook. Continue surveying the class in this way for other words or phrases students had trouble understanding. By the end of the class, the reading passage should have been thoroughly discussed, and all students should have a clear understanding of the entire piece.

On the next day, ask the students to sit in two circles, one inside the other. Students sitting in the inner circle will participate in a debate/discussion. Students sitting in the outer circle will evaluate the performance of the student in the inner circle that they are sitting behind. The students in the outer circle must be completely quiet during the debate. They are to list in their notebooks how many times the student they are monitoring spoke, the quality of their comments, and how well the comments added to the debate. The evaluator's comments are to be shared **ONLY** with the person they are evaluating.

After approximately 20 minutes of debate, the inner and outer circles should switch positions, and a new debate is started.

Below are some sample questions you can use for the attached passages. Feel free to make up your own questions, also.

Passage 1:

1. In the passage we read yesterday, Rachel Carson described a world we cannot see unless we use a microscope. How important do you think this world is to the health of an estuary, and what do you think would happen if this unseen world no longer existed?
2. In what ways does human activity affect the unseen world described by Rachel Carson in the passage we read yesterday, and should we be worried about those things that might affect it?

Passage 2:

1. Describe how you felt when you were on a beach at night, or describe how you might feel about being on a beach at night.
2. How do you think the Tijuana Estuary will look 1,000 years from now? How will it be the same, and how will it be different.

Passage 1:

Name

Period

Date

From *The Edge of the Sea* by Rachel Carson, 1955

We think of rock as a symbol of durability, yet even the hardest rock shatters and wears away when attacked by rain, frost or surf. But a grain of sand is almost indestructible. It is the ultimate product of the work of the waves - the minute, hard core of mineral that remains after years of grinding and polishing. The tiny grains of wet sand lie with little space between them, each holding a film of water about itself by capillary attraction. Because of this cushioning liquid film, there is little further wearing by attrition. Even the blows of heavy surf cannot cause one sand grain to rub against another.

In the intertidal world, this minuscule world of the sand grains is also the world of inconceivably minute beings, which swim through the liquid film around a grain of sand as fish would swim through the ocean covering the sphere of the earth.

Among this fauna and flora of the capillary water are single-celled animals and plants, water mites, shrimplike crustacea, insects, and the larvae of certain infinitely small worms - all living, dying, swimming, feeding, breathing, reproducing in a world so small that our human senses cannot grasp its scale, a world in which the micro-droplet of water separating one grain of sand from another is like a vast, dark sea.

Not all sands are inhabited by this "interstitial fauna". Those derived from the weathering of crystalline rocks are most abundantly populated. Shell or coral sand seldom if ever contains copepods and other microscopic life; perhaps this indicates that the grains of calcium carbonate create unfavorable alkaline conditions in the water around them.

On any beach the sum of all the little pools amid the sand grains represents the amount of water available to the animals of the sands during the low-tide interval. Sand of average fineness is able to contain almost its own volume of water, and so at low tide only the topmost layers dry out under a warm sun. Below is damp and cool, for the contained water keeps the temperatures of the deeper sand practically constant. Even the salinity is fairly stable, only the most superficial layers are affected by rain falling on the beach or by streams of fresh water coursing across.

Passage 2:

Name

Period

Date

From *The Edge of the Sea* by Rachel Carson

Now I hear the sea sounds about me; the night high tide is rising, swirling with a confused rush of waters against the rocks below my study window. Fog has come into the bay from the open sea, and it lies over water and over the land's edge, seeping back into the spruces and stealing softly among the juniper and the bayberry. The restive waters, the cold wet breath of the fog, are of a world in which man is an uneasy trespasser; he punctuates the night with the complaining groan and grunt of a foghorn, sensing the power and menace of the sea.

Hearing the rising tide, I think how it is pressing also against other shores I know - rising on a southern beach where there is no fog, but a moon edging all the waves with silver and touching the wet sands with lambent sheen, and on a still more distant shore sending its streaming currents against the moonlit pinnacles and the dark caves of the coral rock.

Then in my thoughts these shores, so different in their nature and in the inhabitants they support, are made one by the unifying touch of the sea. For the differences I sense in this particular instant of time that is mine are but the differences of a moment, determined by our place in the stream of time and in the long rhythms of the sea. Once this rocky coast beneath me was a plain of sand; then the sea rose and found a new shore line. And again in some shadowy future the surf will have ground these rocks to sand and will have returned the coast to its earlier state. And so in my mind's eye these coastal forms merge and blend in a shifting, kaleidoscopic pattern in which there is no finality, no ultimate and fixed reality - earth becoming fluid as the sea itself.
