Marsh Connections

Trace how four Earth systems interact in a coastal marsh.

5-ESS2-1 "Develop a model to describe the interaction of geosphere, biosphere, hydrosphere, and atmosphere. (SEP: 2; DCI: ESS2.A; CCC: Systems)"

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle the names of the four Earth parts. Underline two sentences that show one part changing another, then draw a cause-to-effect arrow beside each sentence.

A Marsh in Motion

1. At a coastal marsh, four parts of Earth meet. The geosphere is the solid ground, including sand and soil. The hydrosphere is water, the atmosphere is the air, and the biosphere is living things. After heavy rain, fresh water runs off nearby land into the marsh. The moving water carries tiny bits of soil into shallow pools.

2. As the tide rises, salty ocean water spreads over the marsh. Some water soaks into the muddy ground. Cordgrass takes in this water through its roots, and its roots hold the mud in place. Small crabs dig tunnels in the mud, making spaces where water and air can enter. At low tide, water flows back toward the ocean.

3. On a sunny afternoon, some water on the mud's surface changes into water vapor and enters the air. A breeze moves the vapor away. When a storm arrives, strong winds push waves higher onto the shore. Waves pull loose soil from bare patches, but thick cordgrass slows the moving water. Changes in one part of this marsh can affect the others.

2 ANSWER WITH EVIDENCE

Use the passage

1. Use words and arrows to model how rising tidewater reaches cordgrass through the ground. Label the Earth parts in your model.

2. A crab digs a tunnel. Which two Earth parts can then enter the mud? Explain how the crab changes what happens in the ground.

3. Use an arrow to model what happens between the hydrosphere and atmosphere on a sunny afternoon. What changes form?

4. Draw arrows from storm winds to waves to soil loss. Add cordgrass to show how it changes this interaction.

3 YOUR TURN

Your own words

Imagine a garden with a sprinkler, soil, plants, and air on a hot day. In the box, draw and label the geosphere, biosphere, hydrosphere, and atmosphere. Add at least three arrows with short labels to show interactions, and connect every part to at least one arrow.

ANSWER KEY

Marsh Connections

GRADE 5 · 5-ESS2-1

PART 1 · READ AND MARK

Circle the names of the four Earth parts. Underline two sentences that show one part changing another, then draw a cause-to-effect arrow beside each sentence. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Use words and arrows to model how rising tidewater reaches cordgrass through the ground. Label the Earth parts in your model.	**Tidewater (hydrosphere) → muddy ground (geosphere), where water soaks in → cordgrass roots (biosphere), which take in the water.**
2	A crab digs a tunnel. Which two Earth parts can then enter the mud? Explain how the crab changes what happens in the ground.	**Water (hydrosphere) and air (atmosphere) can enter the mud. The crab (biosphere) makes spaces in the ground (geosphere) for both.**
3	Use an arrow to model what happens between the hydrosphere and atmosphere on a sunny afternoon. What changes form?	**Water on the mud (hydrosphere) → water vapor in the air (atmosphere). Liquid water changes into water vapor.**
4	Draw arrows from storm winds to waves to soil loss. Add cordgrass to show how it changes this interaction.	**Strong winds (atmosphere) → higher waves (hydrosphere) → loose soil pulled away (geosphere). Cordgrass (biosphere) slows the moving water, which can reduce soil loss.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Labels: garden soil (geosphere), plant (biosphere), sprinkler water (hydrosphere), air (atmosphere). Arrows: sprinkler water → soil, soaks in; water in soil → plant, roots take it in; water in wet soil → air, evaporates.

Accept different accurate arrows and labels if they show the stated interactions. For the garden model, check that all four Earth parts are labeled and connected by at least three meaningful arrows.