Sand on the Move

Model how moving water changes a shore

E.4.9C "Students will demonstrate an understanding of how natural processes and human activities affect the features of Earth's landforms and oceans. Analyze and interpret data to describe (i.e., NASA, NOAA..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline places where moving water picks up, carries, or drops sand, and circle the shore features that change.

A Storm Changes the Shore

1. A barrier island is a long strip of sand between the ocean and quieter water behind it. On this island, a beach faces the ocean, and a shallow lagoon lies behind the sand. Small waves pick up loose grains on the beach. When the waves slide back, they carry some grains away. Over time, this movement can change the beach's shape.

2. One night, a strong storm sends high waves across the island. Water cuts a narrow path through the sand, making an inlet that connects the ocean and lagoon. The rushing water carries sand from the island into the lagoon. As the water slows, some of that sand settles on the lagoon floor. The inlet now lets ocean water move in and out with the tides.

3. After the storm, people measure the beach at one spot. It is two meters narrower than it was before the storm. They also find a new pile of sand in the lagoon near the inlet. These clues show that water moved sand from one place to another. If strong waves keep reaching that spot, the beach may become even narrower unless new sand arrives.

2 ANSWER WITH EVIDENCE

Use the passage

1. How did the storm make a new connection between the ocean and lagoon?

2. Why did sand settle on the lagoon floor instead of staying in the rushing water?

3. What two clues show that water moved sand after the storm?

4. If strong waves keep reaching the measured spot, what may happen to the beach there? Explain why.

3 YOUR TURN

Your own words

At a different shore, steady waves move sand along a beach toward the sheltered mouth of a bay, where the water slows. Draw before-and-after panels that model the moving sand, add arrows for the water, and write one sentence predicting what could happen to the bay's opening if sand keeps piling up there.

ANSWER KEY

Sand on the Move

GRADE 4 · E.4.9C

PART 1 · READ AND MARK

Underline places where moving water picks up, carries, or drops sand, and circle the shore features that change. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How did the storm make a new connection between the ocean and lagoon?	**Storm water cut an inlet through the island's sand, connecting the ocean and lagoon.**
2	Why did sand settle on the lagoon floor instead of staying in the rushing water?	**The water slowed in the lagoon, so it dropped some of the sand it carried.**
3	What two clues show that water moved sand after the storm?	**The beach was two meters narrower at one spot, and a new pile of sand was in the lagoon.**
4	If strong waves keep reaching the measured spot, what may happen to the beach there? Explain why.	**The beach may become narrower because waves can carry more sand away unless new sand arrives.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Before panel: Label the beach and an open bay mouth; draw arrows along the beach toward the bay. After panel: Draw a smaller amount of sand on that part of the beach and a pile of sand at the bay mouth. If sand keeps piling up, the bay's opening could become narrower.

For the model, accept arrows showing sand moving along the beach and a deposit where the water slows. The prediction should describe a possible change to the bay's opening caused by that deposit.