# Moon Pull, Moving Water

Read how the Earth-moon relationship creates daily tides.

**6.3.e** "the relationship between Earth and the moon is the primary cause of tides."

NAME _____ DATE _____

## 1 READ AND MARK

Read it twice

**YOUR JOB** Underline each sentence that explains what causes tides or why tides change at a coast. Number 1 and 2 beside the two sentences that explain how the sun can make the difference between high and low tides larger or smaller.

### Why the Water Rises

1. At a beach, the waterline does not stay in one place. It rises during high tide and falls during low tide. The main reason is the gravitational pull between Earth and the moon. Gravity is a force that pulls objects toward each other. The moon pulls on all of Earth, but its pull is stronger on the side of Earth closer to the moon. This difference in pull helps move ocean water into a broad bulge on the moon-facing side.

2. Water also forms a second broad bulge on the side of Earth farthest from the moon. As Earth turns, a place on a coast moves through these bulges and the lower-water areas between them. That is why many coastal places have two high tides and two low tides in about one day. The timing is not exactly twelve hours, because the moon travels around Earth while Earth rotates. Local shore shape can change the height and timing of a tide.

3. The sun's gravity also pulls on Earth's oceans, but the Earth-moon relationship is the primary cause of daily tides. When the sun, Earth, and moon line up, the pulls combine and create a larger difference between high and low tides. When the sun and moon pull from directions that are closer to a right angle, the difference is smaller. These patterns affect tide height, while the moon's gravity and Earth's rotation explain the regular daily cycle.

## 2 ANSWER WITH EVIDENCE

Use the passage

1. What is the main reason ocean water rises and falls in tides?

2. Why does the moon-facing side of Earth form a broad water bulge?

3. Why do many coastal places have two high tides and two low tides in about one day?

4. How does tide height differ when the sun, Earth, and moon line up compared with when the sun and moon pull from directions closer to a right angle?

## 3 YOUR TURN

Your own words

A friend says daily tides happen because the sun heats the ocean each day. Write three sentences that correct this claim. Include the moon's role and one way the sun can affect tide height.

**ANSWER KEY**

# Moon Pull, Moving Water

**GRADE 6 · 6.3.e**

## PART 1 · READ AND MARK

Underline each sentence that explains what causes tides or why tides change at a coast. Number 1 and 2 beside the two sentences that explain how the sun can make the difference between high and low tides larger or smaller. Accept any marking that follows this job and points at the right text.

## PART 2 · ANSWERS

| # | QUESTION | ANSWER |
|---|---|---|
| 1 | What is the main reason ocean water rises and falls in tides? | **The gravitational pull between Earth and the moon is the main reason.** |
| 2 | Why does the moon-facing side of Earth form a broad water bulge? | **The moon pulls on all of Earth, but its pull is stronger on the side closer to the moon. This difference in pull helps move ocean water into a bulge.** |
| 3 | Why do many coastal places have two high tides and two low tides in about one day? | **As Earth turns, a coastal place moves through two water bulges and the lower-water areas between them.** |
| 4 | How does tide height differ when the sun, Earth, and moon line up compared with when the sun and moon pull from directions closer to a right angle? | **When they line up, the difference between high and low tides is larger. When the pulls are closer to a right angle, the difference is smaller.** |

## PART 3 · YOUR TURN (SAMPLE ANSWER)

Tides are mainly caused by the gravitational relationship between Earth and the moon, not by daily heating from the sun. The moon's pull helps form broad water bulges, and Earth's rotation carries coasts through them. The sun can make the difference between high and low tides larger or smaller.

Accept responses that identify the Earth-moon gravitational relationship as the primary cause and explain that Earth's rotation moves coasts through water bulges. For the open response, accept a correct statement that the sun changes tide height but is not the primary cause of daily tides.