

The Tides & Seasons Quest

Gravity & the Earth-Sun-Moon System

Name: _____

Date: _____

Circle the best answer for 1 and 2. Answer 3 in complete sentences.

1. Spring tides happen during which phases?

- (A) First and third quarter
- (B) New and full moon
- (C) Waxing and waning crescent
- (D) Only full moon

2. What causes Earth's seasons?

- (A) Earth's distance from the Sun
- (B) The tilt of Earth's axis as it orbits the Sun
- (C) The Moon's gravity
- (D) Earth's rotation

Read: Tide log for a beach in Maine: High tide 4:10 a.m. (3.1 m), low tide 10:22 a.m. (0.4 m), high tide 4:35 p.m. (3.0 m), low tide 10:48 p.m. (0.5 m).

3. Explain the pattern in the tide log. What causes it?

Use Claim-Evidence-Reasoning: Claim, Evidence, Reasoning.

The Tides & Seasons Quest: Exit Ticket

Total: 5 points. Mastery: 4 or more.

#	Answer	Points
1	(B) New and full moon	1 point
2	(B) The tilt of Earth's axis as it orbits the Sun	1 point
3	Claim: The beach has two high and two low tides each day because of the Moon's gravity and Earth's rotation. Evidence: The log shows high tides at 4:10 a.m. and 4:35 p.m. and low tides at 10:22 a.m. and 10:48 p.m. Reasoning: The Moon's gravity pulls the oceans into two bulges. As Earth rotates, the beach passes through both bulges (high tides) and the low areas between them (low tides), about every 6 hours.	3 points: Claim: Moon's gravity + rotation; Evidence: two highs and two lows with times; Reasoning: two bulges; Earth rotates through them.