

Tides are the daily rise and fall of ocean levels. High tide, as the name implies, is when the ocean's water level is at its highest. During this time if you are at the beach you may have to move your towel back to avoid getting wet as the water level slowly rises and gets closer to you. At low tide, as the name also implies, the ocean's water level is at its lowest. Now your towel might suddenly be very far away from the water as the sea level retreats.

The rising and falling of our planet's oceans is due to the gravitational pull of the moon. To try and understand how this works, imagine that you are looking up at the moon in the night sky. Now imagine seeing a line straight down from the moon and hitting a point on the surface of the earth directly below it. Finally imagine that line going straight through the center of the earth and touching a point on the other side of the world. Those two points are where a high tide will occur. This happens because the gravitational force or "pull" of the moon is strongest where it is closest. Think of it as the moon trying to pull the ocean water closer to it. The moon's gravity causes the water to bulge forward, almost like it is trying to touch the sky and land on the moon.

Now imagine a line going through the center of the earth that is perpendicular to the line we created earlier. This line also goes to two opposing points on the earth and this is where low tides occur. This is where the gravitational pull is the weakest. During low tides, the water is "happy where it is."

As the moon moves, so too does the location of the "bulge" therefore creating a change in tides. Due to the way the earth and moon rotate, most coastal places experience two low tides and two high tides a day. The next time you are at the beach pay attention to where you place your towel, and how the ocean may get closer to you or farther away from you as the day goes on.

- 1. If you are at the beach and notice the waves crashing closer to your towel, you can assume...**
  - A. the gravitational pull of the moon is getting stronger.
  - B. the gravitational pull of the moon is getting weaker
  - C. the water is trying to escape the gravitational pull of the moon.
  - D. a low tide is beginning.
  
- 2. What is the purpose of the introductory paragraph?**
  - A. To describe how tides work
  - B. To describe what happens during in high and low tides
  - C. To describe the moon's gravitational pull
  - D. To describe different ocean levels

**3. What causes a change in tides?**

- A. Levels of water
- B. Movements of the moon
- C. Changes in Gravity
- D. Changes in weather

**4. What technique does the author use to help you envision the mechanics of tides?**

- A. role-play
- B. elaboration
- C. analysis
- D. imagination

**5. The author refers to the water being “happy where it is” during ...**

- A. low tide.
- B. high tide.
- C. both tides.
- D. parts of the year.

**6. Which of the following could replace the word “retreats” in the following sentence?**

- A. advances
- B. rises
- C. moves back
- D. scatters

**7. Which of the following best describes the purpose of the second and third paragraphs?**

- A. To explain the relationship between the tides and mathematics.
- B. To explain the meaning of gravity
- C. To compare and contrast high and low tides
- D. To describe why most coastal regions have two high and low tides