

Students will answer all vocabulary, study guide questions and additional study problems as outlined below.

Supplemental and Reading Material provide additional information to help master concepts.

| Essential Standards: | Students Will Be Able To: |
|--|--|
| <p>1.1.2 Describe tidal impact due to the gravitational force between the Earth and Moon.</p> <p>1.1.4 Describe the differential heating of Earth's surface (water vs. land).</p> <p>2.1.1 Explain the development of NC shorelines and barrier islands.</p> <p>2.3.1 Explain how water is an energy agent.</p> <p>2.6.4 Attribute changes to Earth's systems to global climate change.</p> | <ul style="list-style-type: none"> • Describe tidal impact due to the gravitational force between the Earth and Moon. • Explain the development of NC shorelines and barrier islands. • Explain how sea level changes affect the barrier islands and shorelines of NC. • Explain temperature and density currents in the ocean. • Explain ocean acidification, its connection to global climate change and effect on ocean organisms. • Explain how global changes in temperature will impact sea level. • Analyze how changes in sea level have been affected by other changes such as glaciations and plate movement. |

Vocabulary—Define, know, and be able to apply the following terms:

- | | | |
|----------------------|---------------------------|---------------------------|
| 1. Surface Current * | 8. Specific Heat Capacity | 15. Barrier Island * |
| 2. Density Current * | 9. Estuary * | 16. Spit |
| 3. Upwelling * | 10. Seawalls * | 17. Breakwaters * |
| 4. Longshore Current | 11. Beach (Re)Nourishment | 18. Ocean Acidification * |
| 5. Rip Current | 12. Jetties * | 19. Coriolis Effect |
| 6. Spring Tide * | 13. Groins * | 20. Thermal Expansion |
| 7. Neap Tide * | 14. Dunes | |

Academic students complete vocabulary with asterisks *only. Honors students complete all 20 words.

Study Guide—Answer, know, and understand the following concepts:

- Describe the forces that cause tides, and identify why the sun has less of an impact on tides than the moon.
- Contrast the ranges of spring and neap tides.
- Diagram the position of the sun, moon, and earth during spring tides and neap tides. (Additional Question #1)
- Identify several factors that influence the movement of ocean currents.
- Describe the processes that create density currents.
- Describe how oceans currents distribute heat globally.
- Identify the structure and function of barrier islands.
- Identify the structure and function of sand dunes and
- Identify several impacts of humans on shorelines.
- Explain ocean acidification and its effects on ocean organisms.
- Explain the impact of global temperatures on sea level.
- Explain the impact of glaciation on sea level.
- Explain the impact of plate movement on sea level.
- Identify several ways in which humans aim to protect ocean shorelines, water quality, and tidal ecosystems.

Supplemental--Do practice the following activities as you work through the unit:

- Complete a tidal graph.
- Describe the physical and ecological environment of the ocean floor region.

Unit Reading Material:

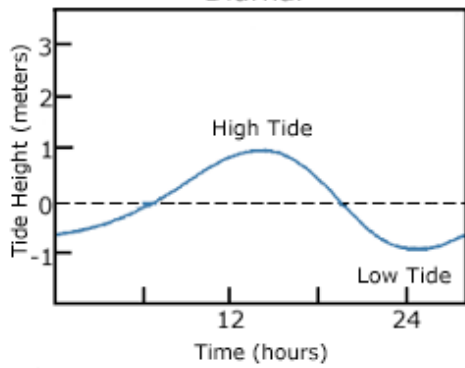
- Textbook: Chapter 14-16
- Digital Textbook: Ch. 6
- Class Notes
- Handouts

Additional Study Problems:

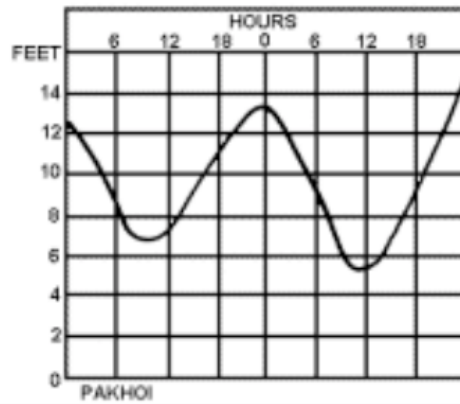
1. Draw and label both a SPRING TIDE and a NEAP TIDE. Include in each diagram, the sun, moon, and Earth:

2. Identify the number of high and low tides experiences by each of the following, per day:

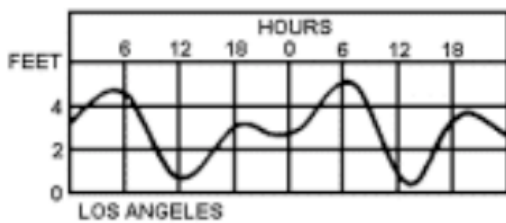
GRAPH A



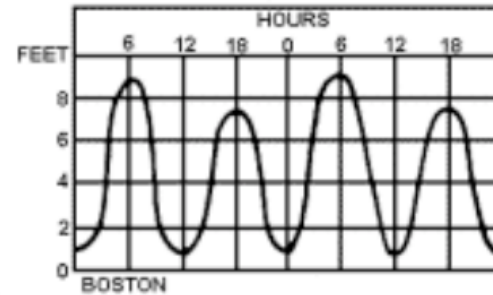
GRAPH B



GRAPH C



GRAPH D



3. Compare and contrast **Surface Currents** with **Density Currents**. Make sure to include the driving force for each current and how they move.

4. Diagram the Coriolis Effect in both the Northern and Southern Hemisphere. Explain how it impacts currents.

