Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DUE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **ES9 Unit 5: Oceans**

**Essential Standards:**

1.1.2 Describe tidal impact due to the gravitational force between the Earth and Moon.

1.1.4 Describe the differential heating of Earth’s surface (water vs. land).

2.1.1 Explain the development of NC shorelines and barrier islands.

2.3.1 Explain how water is an energy agent.

2.6.4 Attribute changes to Earth’s systems to global climate change.

**Students Will Be Able To:**

* 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. Estuary
2. Barrier Island
3. Salinity
4. Density Current
5. Surface Current
6. Coriolis Effect
7. Specific Heat Capacity
8. Heat Sink
9. Tide

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

1. Identify the structure **AND** function of
   1. barrier islands.
   2. sand dunes.
2. Describe the structure **AND** how each of the following slows beach erosion:
   1. Groins
   2. Jetties
   3. Breakwaters
   4. Sand fences
   5. Beach (re)nourishment
3. Create a chart about the density of ocean water including
   1. the two factors that affect density
   2. descriptions of how each of the above factors affect density
   3. several ways that each of the factors could be increased/decreased
4. Identify several factors that influence the movement of ocean surface currents.
5. Explain how gyres create ocean garbage patches.
6. Describe how 2 locations at the same latitude can have different temps. based only on surface currents.
7. Compare sand and water with respect to the following:
   1. specific heat capacity
   2. rate of heating
   3. rate of cooling
   4. amount of temperature change in same time period
8. Describe the steps involved in coastal upwelling **AND** the resulting environmental impacts.
9. Describe the forces that cause tides, including why the sun has less of an impact on tides than the moon.
10. Contrast spring tides and neap tides by
    1. Comparing their tidal ranges.
    2. Diagraming the positions of the sun, moon, and Earth during each type of tide.
11. Explain WHAT ocean acidification is **AND** its effects on ocean organisms.
12. Explain the impact of the following on sea level:
    1. Global temperatures
    2. Glaciation (glacier formation)
    3. Deglaciation (melting glaciers)
    4. Global land area

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

1. Analyze a tidal graph.

**Unit Reading Material:**

* Class notes and handout
* Digital Textbook: Ch. 6
* Hard Copy Textbook: Ch. 14-16

**Unit 5—Oceans—Calendar**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| 10/13 | 10/14 | 10/15 | 10/16 | 10/17 | 10/18 | 10/19 |
|  |  |  |  | **U5:** Ocean Basics  Shorelines | Density Currents |  |
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| 10/20 | 10/21 | 10/22 | 10/23 | 10/24 | 10/25 | 10/26 |
|  | Surface Currents  Formal Lab Rep Due | Moderation of Coastal Climates | Upwelling  Tides | Ocean Acidification  Sea Level Change | **U6:** Atmospheric Layers |  |
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| 10/27 | 10/28 | 10/29 | 10/30 | 10/31 | 11/1 | 11/2 |
|  | **Mid-Term EXAM/Study Guide DUE (Pd 1 & 3)**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Unit 5 Sheet DUE/**  Unit 5 Review  **(Pd 2 & 4)** | **Mid-Term EXAM/Study Guide DUE (Pd 2 & 4)**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Unit 5 Sheet DUE/**  Unit 5 Review **(Pd 1 & 3)** | **Unit 5 TEST** |  | **OFF**  **HOLIDAY** |  |

**Unit 5 TEST Analysis**

1. My test grade was \_\_\_\_\_\_\_\_\_%.
2. I am \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with this grade because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. I studied all/most/some/a few/no days this unit (circle one).
4. I studied by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. I asked for help at \_\_\_\_ SMART lunches.
2. I missed the following questions:

|  |  |  |  |
| --- | --- | --- | --- |
| Question # | Question Topic | Study Guide #/Notes | I missed this question because . . . |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |