

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

Ms. Randall Marine Science

## Sea Secrets – The Ocean Floor

Earth's crust is both younger and thinner beneath the ocean than it is under the continents. That is because new ocean floor is continually forming at **the mid-ocean ridges**. These ridges wrap around Earth like the seams on a baseball. Coming off the sides of the ridges are "rift valleys" from which molten rock from within Earth pours out like lava from a volcano. When it cools, it forms new ocean floor. As the rock cools, magnetic particles in the lava are frozen, pointing in the direction of the North Pole. This is the beginning of the **theory of plate tectonics**.

Do you know?

The highest place on Earth's crust? \_\_\_\_\_

The lowest place on Earth's crust? \_\_\_\_\_

Define:

Abyss \_\_\_\_\_

\_\_\_\_\_

Trench \_\_\_\_\_

\_\_\_\_\_

Continental Slope \_\_\_\_\_

\_\_\_\_\_

Continental Shelf \_\_\_\_\_

\_\_\_\_\_

**Objective:** To identify the features of the ocean and draw a profile of the ocean floor to find a sunken treasure.

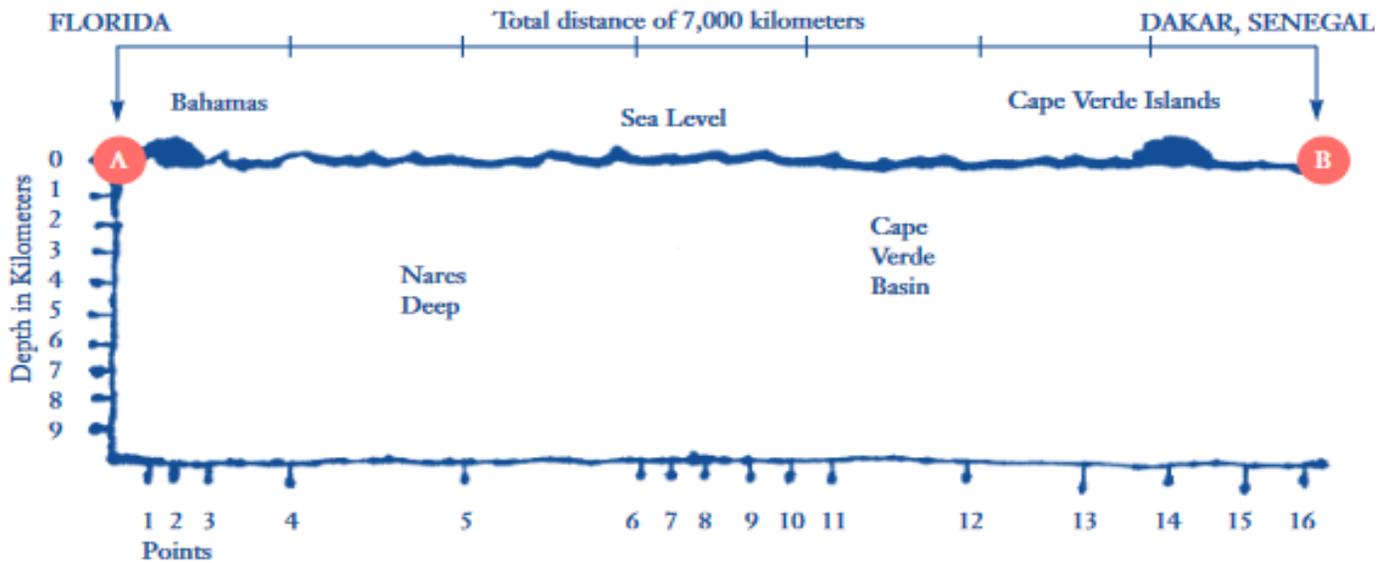
**Procedure:**

1. Look at the map of the Atlantic Ocean as it would appear without water, on the next page. **Locate and circle:** The Mid-Atlantic Ridge, the abyssal plain, the continental slope, and the continental shelf of North America.
2. On the map, draw a line from point A (Bahamas) to point B (Dakar, Senegal), which is a total distance of 7,000 kilometers. Somewhere along the route between these two points is a sunken submarine from World War II filled with two tons of gold.
3. Use the data on page three to draw the ocean profile (side view of the ocean floor) in order to locate the submarine and the sunken treasure.

How does the sea reveal its secrets? What does the ocean floor look like? Scientists have a rough idea based on depth soundings and satellite pictures from space. The picture of the Atlantic Ocean that you see here is what the seafloor would look like if somebody could "pull the plug" and drain the water. The Atlantic Ocean floor is very rugged, with as many ups and downs as there are on land.



Draw the ocean profile on the chart provided.



Point Location	Approximate Ocean Floor Depth (km)
1	1.2
2	Above sea level
3	5.0
4	5.9
5	6.3
6	5.8
7	2.0
8	3.0
9	2.0
10	3.5
11	5.5
12	6.0
13	5.0
14	Above sea level
15	1.8
16	Above sea level

- Label the two continental slopes** (the parts of the ocean profile that show the steep drop from the continental shelf to the deep ocean plans)
- Label the area of the Mid-Atlantic Ridge**
- Locate the sunken sub with the treasure. It is located at the data point approximately two thousand kilometers west of Cape Verde Islands and east of the Mid- Atlantic Ridge. **Mark the spot on your profile with and "X."** How deep is it? \_\_\_\_\_

Conclusion Questions:

1. Analyze your ocean profile. Name the two parts of the Atlantic that have the deepest depths of about six kilometers.

- a. \_\_\_\_\_
- b. \_\_\_\_\_

2. Do you think you'll send down a team to look at the sub, or will you use a remotely operated vehicle? Why?

\_\_\_\_\_

\_\_\_\_\_

3. Do you think you'll make the base of operation the Cape Verde Islands or the Bahamas? Why? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Label the diagram below.

