Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Bell \_\_\_\_Date \_\_\_\_\_\_\_\_\_\_

Ocean Currents Webquest

Part 1: Oceans Introduction

<http://www.enchantedlearning.com/subjects/ocean/>

Oceans cover about \_\_\_\_\_\_\_\_\_% of the Earth’s surface. The oceans contain roughly \_\_\_\_\_\_\_\_% of the Earth’s water supply.

Name the Earth’s five main oceans and the square miles of each:

a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d. Southern\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (delimited or recognized in year\_\_\_\_\_\_\_\_\_)

e. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Part 2: Ocean Currents

<http://www.ducksters.com/science/earth_science/ocean_waves_and_currents.php>

An ocean current is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_flow of water in the ocean. Some currents are surface currents while other currents are much deeper flowing hundreds of feet below the surface of the water. Surface currents are usually caused by the \_\_\_\_\_\_\_\_\_.

As the wind changes, the current may change as well. Currents are also influenced by the rotation of the Earth called the \_\_\_\_\_\_\_\_\_\_\_effect. This causes currents to flow \_\_\_\_\_\_\_\_\_\_\_in the northern hemisphere and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the southern hemisphere. Deep ocean currents are caused by a number of things including changes in the \_\_\_\_\_\_\_\_\_\_\_\_\_, salinity (how \_\_\_\_\_\_\_\_ the water is), and \_\_\_\_\_\_\_\_\_\_ of the water.

One other factor impacting ocean currents is the gravitational pull of the Moon and

the Sun.

Ocean currents can have a significant impact on \_\_\_\_\_\_\_\_\_\_. In some areas warm water is moved from the equator to a colder region causing the region to be \_\_\_\_\_\_\_\_\_\_\_\_. One example of this is the \_\_\_\_\_\_\_\_\_\_\_\_current. It pulls warm water from the equator to the coast of Western Europe. As a result, areas such as the United Kingdom are typically much \_\_\_\_\_\_\_\_\_\_ than areas at the same northern latitude in North America.

Part 3: Coriolis Effect

<http://www.geography4kids.com/files/atm_coriolis.html>

What does the Coriolis force cause everything to do? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If you are in the Southern Hemisphere you will end up curving to the \_\_\_\_\_\_\_\_\_\_.

If you are in the Northern Hemisphere, you curve to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Part 4: Coriolis effect Continued

<http://www.classzone.com/books/earth_science/terc/content/visualizations/es1904/es1904page01.cfm?chapter_no=visualization>

In the 1st animation: The target location in the Northern Hemisphere where the plane

was headed when it took off has moved with the Earth’s rotation, so the plane would

end up to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of its original target.

In the 2nd animation: The target location in the Southern Hemisphere where the plane was headed when it took off has moved with Earth's rotation, so the plane would end up to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of its original target.

Part 5: Upwelling

<http://www.classzone.com/books/earth_science/terc/content/visualizations/es2405/es2405page01.cfm?chapter_no=visualization>

In this animation, winds blowing along the coast push the coastal surface water. When combined with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, this motion moves surface water away from the coast. As surface water moves outward, cold, plankton-rich water from the ocean bottom moves toward the coast and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to replace the displaced surface water.

Part 5: Wave Motion

<http://www.classzone.com/books/earth_science/terc/content/visualizations/es1604/es1604page01.cfm?chapter_no=visualization>

When wave \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ passes through water, the water moves in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ motion. Energy is passing from left to right in this animation, but the water itself stays in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ general location.

Part 6: Ocean

Currents and Global Wind

<https://aamboceanservice.blob.core.windows.net/oceanservice-prod/education/pd/oceans_weather_climate/media/ocean_and_wind_currents.swf> To show the ocean currents and global wind patterns on Earth, click on the buttons

at the bottom of the page. To see both at the same time, click on “Both Currents”.

Use your observations to answer the following questions.

1.Name two observations you can make when looking at the ocean and wind

currents.

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2.Look at the direction of the surface currents in the oceans and at the

direction of the wind. What evidence do you find that wind influences the

direction of the surface currents in the oceans?

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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.Notice the location and flow of warm (red) and cold (blue) ocean currents. Why

do you suppose that currents flowing toward the equator are generally cool while currents flowing away from the equator are warm?

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