Name _____ Date _____ Class _____

Lab Investigation

PRE LAB

Modeling Ocean Currents

DIRECTIONS: Read the information below to review how wind affects surface currents, and how water temperature and water density affect deep water currents.

Reviewing Content

A current is a large stream of water moving through the ocean. There are surface currents and deep currents. Wind is the main force driving surface currents. Deep currents move because of differences in water temperature and water density.

Surface currents move in circular patterns within the major ocean basins. The currents flow either clockwise or counterclockwise. The circular pattern of surface currents is due largely to the Coriolis effect. It causes currents to curve to the right in the Northern Hemisphere, and to curve to the left in the Southern Hemisphere.

Surface currents move water of different temperatures around the ocean. Warm water moves from equatorial areas toward the poles. Cooler water moves from polar areas toward the equator. Currents also warm or cool the air above them, thus influencing climates.

Reviewing Inquiry Focus

Models are used to represent a process, system, object, or environment that often cannot be seen as a whole. In some cases, it is a process that takes place over such a long period of time that it is impossible to observe directly. For example, a model of a river can show how it carves out a canyon over thousands of years.

Scientists model the ocean because it is a huge and complex system that cannot be easily studied in its natural state. Ocean models can be used to gather both qualitative and quantitative data. Qualitative data are observations about an item that cannot be measured, such as its feel or smell. Quantitative data are measurements scientists make using tools such as rulers, scales, or timers.

OPTIONAL

1. What are you making a model of in this investigation?

   _____

2. Will you collect qualitative or quantitative data in this investigation?

   _____

****OPTIONAL: If you want, you can set up a model to make qualitative observations of how surface currents move. You can do this by creating a model of the continents using clay on a cookie sheet/pan/ glass casserole dish. Once you've formed the continents. and pressed them into place in your container, you can add just enough water to flow in between your clay continents. Then, you can use a straw to create wind and observe the movements of the water currents.**

***** You could set up a model like the ones in the videos with adult supervision as well.**