OCEANS 11 Name: _____ Date:_____

A Sticky Molecule – Article/Activity

Background Information: Water is a molecular compound composed of 2 hydrogen and 1 oxygen atom. The compound is molecular because the electrons between the hydrogen and oxygen are shared (covalent bond). Although a water molecule has an overall neutral charge, the actual structure of a water molecule makes it a polar molecule. The polarity of the water molecule causes it to be attracted to other water molecules as well as molecules of other substances, this is called **hydrogen bonding**. The attraction between water molecules is called **cohesion**. The attraction of water molecules to other substances, like soil or glass, is called **adhesion**. The cohesive force that occurs between water molecules is so strong that when comes in contact with another medium, such as air, the water creates a "sticky skin", which is known as **surface tension**. These bonds are so strong that they can support insects, you may have seen this before demonstrated by a water strider.

Activity One

Prediction: I will be able to put _____ drops of water on the coin.

Directions: Slowly begin to place drops of water on the coin, add the drops one drop at a time. Count the drops, until the water drop collapses, and spills over the side on the coin. Record your results in the table. Compare and record the results of 3 other people.

Name	Nickel		Dime		Quarter	
	Heads	Tails	Heads	Tails	Heads	Tails
	drops	drops	drops	drops	drops	drops
	drops	drops	drops	drops	drops	drops
	drops	drops	drops	drops	drops	drops
	drops	drops	drops	drops	drops	drops

1. What coin had the most drops? _____
2. Explain the difference between highest and lowest drops on each coin from other people. (Hint: examine the coins)

_____

_____

_____

3. What main property of water allows you to put more drops than expected?_____
4. A molecule is a combination of atoms that are bonded together. How are the oxygen and hydrogen atoms of a water molecule held together in a polar covalent bond? Draw a diagram.

5. For one coin add drops of the new substance provided by your teacher. How does it compare? _____

Activity Two

Prediction: I will be able to float _____ paperclips on the surface of the water.

Directions: Attempt to place a paperclip on the surface of the water in the cup. (Hint: Place the paperclip on the prongs of the fork, and gently lower onto the water.) Place as many paperclips as possible onto the surface of the water. Record the number of paperclips. Obtain results from 3 other classmates. Fill in the table:

Name	Number of Paper clips

1. What was the highest number of paperclips placed on the surface?_____
2. What main property of water allowed you to place paperclips on the surface? _____
3. What is the name of the bond that causes cohesion between water molecules? _____

Draw how the molecules of water could be positioned so that they would “stick” together.