Water on a Coin

We tend to think of water in the same terms as we do air: it is so common that we take it for granted. The oceans cover nearly 3/4 of Earth's surface, and are essential for life on our planet. But water is actually a very unique substance. It is the only substance we know of on Earth that can appear naturally in three different states, or phases: as a solid, we know it as ice; as a liquid, we call it water, and as a gas, we call it steam, or vapor.

Like all substances, water is made up of atoms: in this case, two hydrogen atoms attached to an oxygen atom. These three atoms combine in a specific way to form a water molecule. As you will learn later, it is the structure of the molecule that determines the properties of a substance. The structure of water molecules is what gives water its unusual behavior (unusual when compared to other substances), and determines how water interacts with other substances. This activity introduces and explores a very unusual property of water: surface tension.

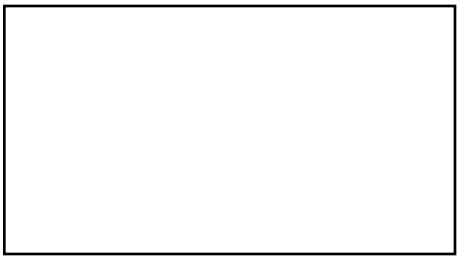
Procedure for the "Water on a Coin" Investigation

1. **Place a penny on a paper towel. Guess the number of drops of water you can place on the penny before the water falls off the penny. Write this guess in the chart below.**
2. **Test your guess by placing drops of water one at a time onto the surface of the penny with a medicine dropper. As you place the drops onto the penny, draw what the water and penny look like before the water falls off.**
3. **Repeat the process using nickels, dimes, and quarters. In each case, make sure you write down your guess before doing the investigation, and draw a picture of what the water looks like on the coin.**

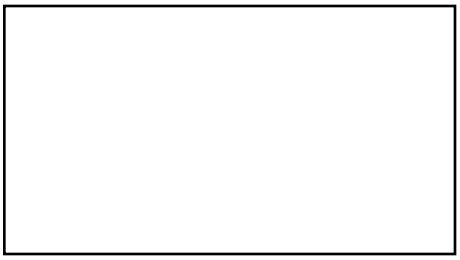
Predicted and Actual Results		
	Number of Drops	
Item	Prediction	Actual Results
Penny		
Nickel		
Dime		
Quarter		

Results:

Draw and describe the way that water "sits" on each of the coins:

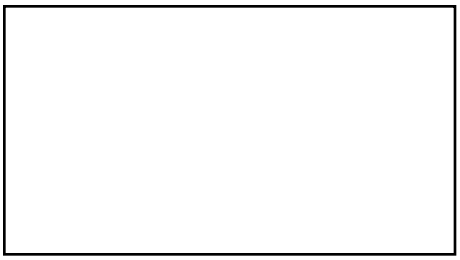


penny drawing

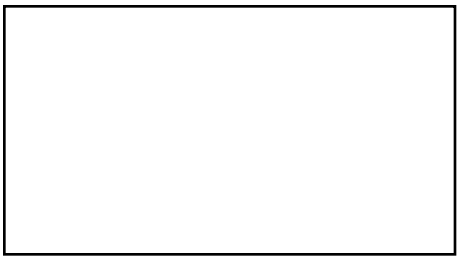


nickel drawing

descriptions:



dime drawing



quarter drawing

descriptions:

<u>Conclusions</u>

1) Why do you think some coins hold more drops of water than other coins?

2) Why do you think water "piles up" on a coin, rather than spilling over the edges right away?