04737 Fuller Road, East Jordan, MI 49727
(231) 536-3369 |www.miravenhill.org
info@miravenhill.org

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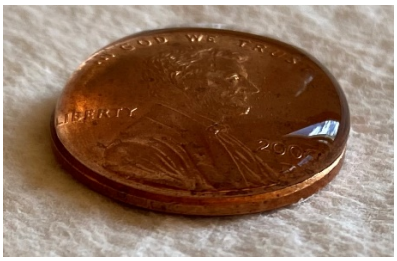
**Mission:** Raven Hill provides a place that enhances hands-on and lifelong learning for all ages by connecting science, history & the arts.

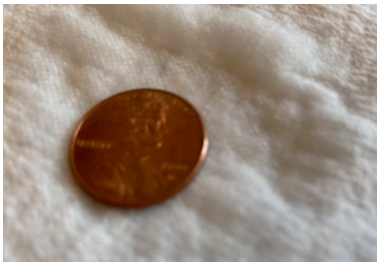
# Surface tension

Gather materials: paper towel, eyedropper, small glass or bowl water and a penny. This is one of my favorite lessons. Water molecules (or particles) are polar. This is, they have a negative end and a positive end, so they act like little magnets and attract each other. That attraction is especially noticeable at the surface of the water and is called surface tension. It allows water striders to "walk on water", because the insects don't break the surface tension. If the particles are "stretched" too far apart, the surface tension breaks. Today, we are going to see how many drops of water can fit on a penny. Write your prediction or your best guess down before you begin. Write down everyone's prediction. Place the penny with heads up on paper towel. Practice with the eyedropper, if you need to, before you begin, so that one drop comes out at a time and can be counted. To use the eyedropper, put the eyedropper into the water, squeeze the bulb at the top and then release the bulb, before you pull the eyedropper out of the water. The water will stay in as long as you don't squeeze the bulb. Squeeze the bulb gently to release one drop at a time onto your penny. Hold the eyedropper about a ½ inch above the penny and hold it straight up and down. Add one drop of water at time, counting the drops until the surface tension breaks and the water "falls off" the penny. Did you notice how the water "rounds up" on the penny, before the surface tension breaks? Compare the actual number of drops to your prediction. How close were you? Dry your penny. Put it in a dry spot on your paper towel and try the experiment again. Was your second trial close to the number of drops in the first trial? What happens if you use the tails side of the penny? Does the tails side of a penny hold more or less than the head side of a penny? Does a new or old penny hold more drops? How many times should you try before you can draw a good conclusion? Enjoy and don't forget to clean up, when you are done investigating. HAVE FUN AND, BE SURE TO CLEAN UP YOUR INVESTIGATION AFTERWARDS!


1 Surface tension supplies


2 Count drops


3 Surface tension holds water on penny


4 Surface tension breaks