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Luis Guai is to find out why the penny holds water  
SCIENCE WITH GRAMMO

name \_\_\_\_\_ class \_\_\_\_\_ team \_\_\_\_\_

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### The Penny Experiment

### EXPERIMENT

Step 1. Wash and rinse a penny in tap water. Dry it completely with a paper towel.

Step 2. Place the penny on a flat surface. The flatter the surface is, the better this experiment is going to go.

Step 3. Use an eyedropper or pipette to draw water and, carefully, drop individual drops of water onto the flat surface of the heads side of the penny from a height of two inches.

Step 4. Keep track of the water drops as you add them, one at a time, until water runs over the edge of the penny. You'll probably be surprised by the number of drops you get on there.

Repeat the experiment as many times as you want

What is missing from the above procedure?

Liquid	Trial 1	Trial 2	Trial 3	Trial 4	Average
Water	30	32	33	30	

### HOW DOES IT WORK?

There are two properties at work in this experiment: cohesion and surface tension. Cohesion is the attraction of like molecules to one another. In this case, the like molecules are the H<sub>2</sub>O molecules in the water drops. Surface tension is a special term we use to describe the cohesion between water molecules.

5 Water's cohesion and surface tension are special because of hydrogen bonds. Hydrogen bonds are formed by the hydrogen atoms of one molecule being attracted to the oxygen atoms of another molecule.

10 The cohesion and surface tension of water becomes apparent when the drops of water you add to the penny reach the penny's edge. Once the water has reached the edge, you begin to see a bubble or dome of water forming on top of the penny. The bubble shape is a result of the water molecules clinging to one another in an optimal shape (just like the bonds on the surface of a blown bubble).

See more at: <http://www.stevespanglerscience.com/lab/experiments/penny-drops#sthash.SKkAG4F.dpuf>

How are cohesion and surface tension different?

Why does water form a bubble on a penny?

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standards S2a, S6d, S7d, S7c, R57.6-8.1

S7d, S7c