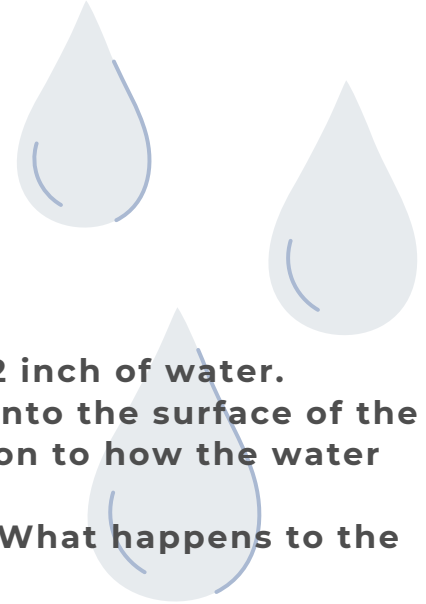


GOAL:

Explore the properties of water through an experiment.

MATERIALS:

- water
- light-colored bowl
- toothpicks
- black pepper
- dish soap



STEPS:



1. Fill your bowl with 1/2 inch of water.
2. Shake black pepper onto the surface of the water, paying attention to how the water reacts.
3. What do you notice? What happens to the pepper?
4. Carefully apply some dish soap to one end of the toothpick. Then gently dip the end of the toothpick into the middle of the water's surface.
5. What happened?

DISCUSSION:

What things float on the surface of water in nature?

What would happen if we added salt or sugar to the water instead of pepper?



QUICK TIP: Try to apply other household substances to your toothpick as well. What happens with vegetable oil? What about with milk?

FUN FACT:

Water molecules attract each other and form a bond, creating a skin-like barrier called surface tension between air and the water molecules below.

WHAT ARE SOME OF WATER'S PROPERTIES?



In this experiment, you saw that, unlike salt or sugar, pepper flakes don't dissolve in the water—they float on the surface. This is because the pepper is hydrophobic, which means that the water is not attracted to it. Water molecules cling to one another, creating surface tension, which keeps the pepper flakes floating on top instead of sinking to the bottom of the bowl.

With the addition of dish soap, the pepper flakes darted away from the toothpick. Cleansers are designed to break down surface tension, which helps us to wipe away spills and stains. Water molecules still want to retain their surface tension, so they move away from the cleanser and take the pepper flakes with them.

WHAT CAN WE LEARN FROM WATER?

Water is a necessity for all life on Earth. It is present in the atmosphere and even inside our bodies. We use it every day, in everything we do. By learning about the different properties of water, we can create new ways to take care of our water sources.