



EPIDEMIOLOGY Glitter Germs



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BIG IDEA

It takes soap, scrubbing, and water to keep your hands germ-free!

MATERIALS

- Glitter
- Paper
- Bowl of Water
- Liquid Soap

INSTRUCTIONS

1. With your hands over a piece of paper, sprinkle a little bit of glitter onto one hand. Touch your hands together. What do you notice? The glitter probably easily spread and stuck to both hands.
2. What do you think would happen if you touched something? Let's try it out! Press your hands gently to the piece of paper. Some of the glitter probably comes off your hands and sticks to the paper. Why could that be?
3. Let's do a hand-washing experiment using a bowl of water.
4. First, dip your hands in the water, rub them together while counting to 10, then take them out. Does this method work?
5. Next, let's see what happens when you add soap. Put some soap onto one hand and rub your hands together while counting to 10. Then dip your hands in the water and rub them together while counting to 10. Is this method better?

THE SCIENCE

In this experiment, the glitter represents germs, which are **microscopic** and too small to see. When you touch surfaces that have germs on them, those germs stick to oil on your hands that your skin naturally produces, just like the glitter did. Then, when you touch other objects (like the paper), you transfer germs! That's why it's very important to wash your hands frequently.

What happens when you wash your hands with just water? Much like germs, the glitter is light and **hydrophobic**. If something is **hydrophobic**, then it repels water because it's literally "afraid" of it. The friction of your hands rubbing together helps remove some, but not all, of the glitter.

What happens when you wash your hands with soap and water? Soap is good at cleaning because it has both **hydrophobic** and **hydrophilic** pieces. If something is **hydrophilic**, then it combines with water because it "loves" water. The **hydrophobic** parts of the soap break the bonds between your skin and the oil (where the glitter is) and the **hydrophilic** parts create bonds with the water. Once those bonds are created, you can rinse the glitter (and germs) away!

Since germs are hydrophobic, it is important to use soap and scrubbing action to remove them from surfaces such as your hands! Dry your hands afterward as wet hands can transfer germs more easily!