

Wash This Way!

When you wash your hands, how do you do it? With soap and water? With water alone? Do you scrub your hands or simply rinse them under the faucet? Does it even matter?

Yes, it does!

What You'll Need:

- nonstick cooking spray
- ultrafine glitter
- timer or watch with a second hand
- access to a sink with warm and cold water, soap, and paper towels
- data sheet (Draw 8 small outlines of hands on a sheet of paper.)

What You'll Do

» **1.** Choose four volunteers.

» **2.** Have each volunteer "dirty" their hands as follows:

- a. Coat hands lightly with nonstick cooking spray. **Spray over a sink or newspaper because the floor will get very slippery if the spray gets on the floor.** Rub hands together to thoroughly coat the front and back of the hands and between all fingers.
- b. Sprinkle one hand with glitter and rub the hands together to cover the front, back, and fingers of both hands. The glitter represents germs typically found on our hands.



» **3.** Have the volunteers wash their hands as follows:

- a. **Volunteer 1:** Wash with warm water, rinsing only (no scrubbing or soap) for 5 seconds.
- b. **Volunteer 2:** Wash with warm water, scrubbing for 20 seconds under the faucet without using soap.
- c. **Volunteer 3:** Wash with warm water and soap, scrubbing hands (while not under the faucet) for 5 seconds, and rinsing just until no soap is left on the hands.
- d. **Volunteer 4:** Wash with warm water and soap, scrubbing hands (while not under the faucet) for 20 seconds, and rinsing just until no soap is left on the hands.

» **4.** Observe the cleanliness of each volunteer's hands. Record observations on the data sheet by shading in the outline of a hand to indicate where you still see glitter.

» **5.** Tell each volunteer to dry their hands thoroughly with a paper towel. Again, observe and record the cleanliness of each volunteer's hands.

» **6.** Once you've recorded all observations, have all the volunteers completely wash up with soap and water to remove all glitter and cooking spray.



Department of Health and Human Services, National Institutes of Health
Supported by a Science Education Partnership Award (SEPA) from the
National Center for Research Resources

Some Variations:

Small amounts of baby oil or petroleum jelly (such as Vaseline®) can be used instead of the nonstick cooking spray. Finely ground spices such as cinnamon, nutmeg, or paprika can be used instead of ultra fine glitter.

Questions to Consider:

- Which volunteer used the hand washing technique that you normally use or that you think most people normally use?
- Which hand washing method was the most effective? Which was the least effective?
- What factor do you think is most important in hand washing?

What You'll Discover:

The ultra fine glitter serves as a visual reminder of the germs found on our hands, although the glitter is much bigger than germs actually are. Germs can be harmful because they can cause disease or infection, but other microorganisms (such as some bacteria) found on our hands are harmless to us.

Unfortunately, some people rarely wash their hands and, of those who do, most overestimate how thoroughly they do it. According to most experts, you should use the following steps to properly wash your hands, spending about 20–30 seconds on the whole procedure.

1. Wet your hands under warm running water and apply soap.
2. Rub your hands together swiftly as you wash them. This will take about 15–20 seconds, and the soap should be bubbly.
→ Be sure to wash all surfaces of the hands, including between the fingers and under nails. Don't forget to include your wrists.
3. Rinse well until all soap is gone.
4. Dry your hands with a clean paper towel.

Soap is important because it helps to break up the layer of fats and oils on your skin. This oil layer entraps germs. When you remove the layer, the germs get caught up in the soap lather and are washed down the sink as you rinse. Drying with a paper towel helps rub off any remaining germs.

Experts agree that hand washing is the best way to prevent the spread of disease.

- U.S. Navy researchers found they could reduce the number of respiratory illnesses by 45 percent just by ordering recruits to wash their hands as little as five times per day.
- A study of elementary school children found that schools with programs to teach kids the importance of proper hand washing reduced student absenteeism due to illness by as much as half.
- In a study of 41 day care centers, infrequent hand washing after nose wiping, diapering, and before meal preparation was associated with a strikingly higher rate of illness.

Time to Wash

- | | |
|---|---|
|  | Before, during, and after preparing food |
|  | Before eating |
|  | Before treating a cut or wound |
|  | After blowing your nose, coughing, or sneezing |
|  | After using the bathroom |
|  | After handling animals or animal wastes |
|  | After cleaning bathrooms or mopping the floor |
|  | After changing a diaper |
|  | When your hands are visibly dirty |
|  | More frequently when someone in your home is sick |