



## CHEMISTRY KEEPS YOU CLEAN

### Materials

Cooking oil or spray  
Cocoa powder  
Liquid soap  
sink

Note: Do not eat or drink anything used in this activity. Perform this activity over a sink to prevent mess.

### Procedure

- Have your parent pour or spray a small amount of oil into one of your hands. Place about a teaspoon of cocoa powder into your other hand.
- Rub your hands together to distribute the mixture of oil and cocoa all over both of your hands to simulate very dirty hands.
- Have your parent turn on the faucet, running warm water.
- Rub your hands together for twenty seconds, like you are washing them under the water. Did the water wash away the "dirt" on your hands?
- Have your parent add a small dab of liquid soap to your hands. Rub your hands together for twenty more seconds under the water. What happened when you added soap?
- Finish cleaning and dry your hands.

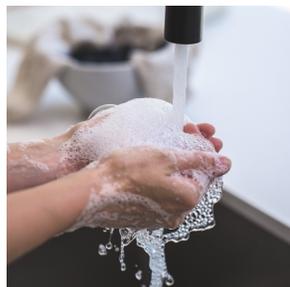
### Results

The soap helped you get your hands clean!

### Why?

Water alone has a hard time removing dirt and germs from your hands, because water and oil don't mix—and dirt and germs like to hang out with the oils on your hands! Soap helps because it can mix with both oil and water. Did you know soap molecules have a water-loving end and an oil-loving end? Each end holds onto what it loves, helping to wash greasy, dirty germs down the drain when you wash your hands. Because germs can't be seen, it's important to use soap every time!

This activity was adapted from the American Chemical Society's "Celebrating Chemistry: Chemistry – Our Health, Our Future". You can find more activities on their website, [acs.org](http://acs.org)



Follow this link to learn the steps to proper hand washing from the World Health Organization: [https://www.who.int/gpsc/clean\\_hands\\_protection/en/](https://www.who.int/gpsc/clean_hands_protection/en/)