Germs!
*Primary Audience: Grades 1 - 3*

**Video:** Watch the video [Science Now: Why Do You Need to Get a Flu Shot Every Year](#)

Vaccines are one of the many ways in which we can help prevent the spread of germs and pathogens. In this activity, students will learn about how germs are spread.

**Description:** Students will learn the importance of covering their mouth and nose while Sneezing.

**Part 1: Cover Your Mouth**

**Objective:** Students will learn the importance of covering their mouth and nose while sneezing.

**Materials:**
- Talcum powder or flour
- Tissues
- Soap
- Water

**Instructions:**
1. Talk about how germs are invisible to us.
2. Explain that you are going to show them what it might look like when you sneeze if you could see germs.
3. Put Talcum powder (or flour) in your hand. Hold your hand in front of your mouth/nose and pretend to sneeze into it. Powder will fly everywhere, making a big visual impact.
4. Sneze again. This time use a tissue.
   a. Discuss: If instead of sneezing, you had coughed, what would have happened?
5. Put more powder in your hand a shake the hand of a child. Discuss – what happened to the “germs” on your hand?
6. Discuss together how to prevent passing germs.
7. Wash your hands with soap and water. Discuss why it is so important to wash our hands.

**What’s Going On?**

Students will see dramatically how germs can be spread when you sneeze. They will also learn about the importance of covering your nose and mouth with a tissue when you sneeze or cough and that washing their hands after they sneeze will help prevent the spread of germs.
Part 2: Growing Cooties

Objective: Students will learn the importance of hand washing by observing mold growing on potatoes. *Note: the potatoes in this activity will be monitored over a 3-week period.*

Materials:
- 3 clean, dry potatoes
- 3 glass jars with tight fitting lids
- Soap and water
- Individual paper towels
- Hand Sanitizer
- Warm place to store the jars
- Paper and pencil for recording results

Instructions:
Set up the Experiment
1. Label one of the jars “clean hands,” one of the jars “dirty hands,” and one of the jars “hand sanitizer.” (If you do not have hand sanitizer available, simply perform the other parts of the experiment to compare clean and dirty hands.)
2. Each participant in the activity should now move about the room touching tabletops, pens, door knobs, countertops, and other high-touch objects and surfaces to collect germs.
3. Have one child take one of the potatoes in their hands, being sure to handle it well. If multiple people or children are participating, pass the potato from person to person, with the last person in line placing the potato into the glass jar labeled “dirty hands.” Screw the lid on tightly.
4. Wash hands.
5. Now repeat Step 2 once more, touching the SAME items. This time, after collecting germs, have each person wash their hands with soap and water, scrubbing for at least 20 seconds. Have each participant dry their hands with individual paper towels.
6. Repeat Step 3 with a new potato, handling the potato well, passing it from person to person, with the last person placing the potato into the glass jar labeled “clean hands.” Screw the lid on tightly.
7. Wash hands.
8. Now repeat Step 2 one last time, touching the SAME items. This time, after collecting germs, have all participants clean their hands with hand sanitizer and allow their hands to air dry before handling the last potato.
9. Repeat step 3 with the last potato, handling the potato well, passing it from person to person, with the last person placing the potato into the glass jar labeled “hand sanitizer.” Screw the lid on tightly.
10. Place all three jars in a warm location
Monitor the Results

1. Pass out a piece of paper to each participant. Have them label their paper “Growing Cooties” at the top. Have them fold their paper to make four squares. Number each box from one to four. They will write the date of each observation as it occurs.

2. In the first box, write today’s date. Draw the potato experiment in the first box. Be sure to include all 3 potatoes and label each potato (clean hands, dirty hands, hand sanitizer). They should look about the same.

3. Check in on your potatoes weekly. At the end of each week, each participant should observe, draw, and label the potatoes. Discuss any changes you see. At the end of the experiment they will have a visual representation of the changes that took place. Continue the process for three weeks.

What’s Going On?
The students should see more mold growing on the “dirty hands” potato. This will give the students first-hand proof that washing hands does reduce or prevent the spread of germs. Germs can make you sick. Hand washing and keeping your hands clean will kill and/or wash away those germs.

Note: Growth of germs will depend on the warmth of the jars. Germs could grow faster if your room is warmer, and this may take less time than three weeks. Keep lids on at all times! At the end of the experiment throw everything away UNOPENED!

Mold is a fungus and it uses water in its tissues. Mold and other fungi don’t photosynthesize to make their food. Instead, they feed off of materials they land on. Molds don’t need sunlight to grow; they grow just as quickly in the dark. They only need sunlight for spore production. Most sources recommend growing mold in a dark, moist, and warm place. The main reason for growing molds in the dark is to keep them from drying out in sunny locations. If you put your potatoes near a sunny window for warmth, you can discuss with children that mold doesn’t need sunlight to grow.

Extension: If you enjoyed this, try designing your own experiment together! Perhaps you want to see the difference between mold being grown in the dark and mold being grown in the sunlight. Or maybe you want to see if there is a difference between the germs from the kitchen countertop and the germs from the bathroom countertop. However you design your experiment, be sure to wash your hands after each step and keep your potatoes in a tightly closed container the entire time, including during observations. At the end of the experiment, throw everything away unopened.
Part 3: Hot Potato

Objective: Students will learn how quickly and easily germs are spread.

Materials:
- Flour
- Sponge (or sponge-like ball)

Instructions:
1. Cover the ball/sponge in flour
2. Have all participants sit in a circle and pass the ball/sponge around the circle.
3. After the ball has gone completely around the circle tell the students the flour on the sponge represents germs. Discuss: what does that tell us about the surfaces and objects we touch every day?

Interactive questions:
- Knowing how germs are spread, how can we help prevent the spread?

Additional Resources:
Reach out to the COSI Department of Science Content by emailing sciencequestions@cosi.org if you have any questions or comments – or if you want to share a photo of your experiment!