

Contagion

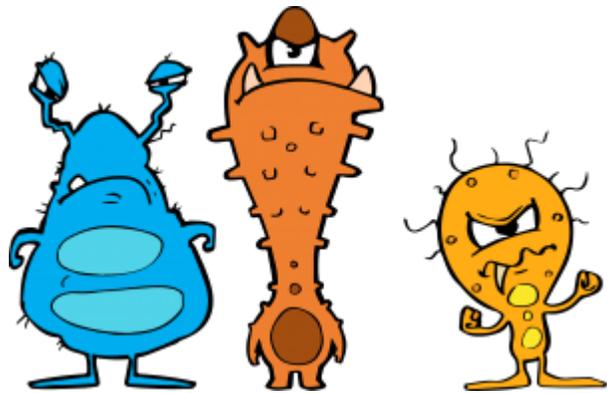
Volunteer's Worksheet

Recommended Application for this Lesson

- School visit

Materials needed

- 16 oz empty soda bottles with caps
- Water
- Yeast packets
- Sugar
- Spoons
- Balloons
- Fridge/coolers with ice
- Hot plates
- Ring stands and clamps
- Glitter
- Unscented lotion
- Soap
- Paper towels
- Air freshener



Introduction

- Explain what germs are: small organisms such as bacteria, fungi, and viruses. The spread of germs can cause us to get sick.
- Not all germs are bad for us. Example: yeast which is used to make bread and bacteria in our stomachs which help us digest.
- Diseases, caused by germs, can spread from person to person through physical contact, blood, and other bodily fluids (like saliva and snot).
- The spread of diseases can be prevented by regularly washing hands and covering our mouths when we sneeze and cough.
- Germs thrive in warm environments (such as our bodies). We can suppress the growth of bacteria by surrounding it in a cold environment, this is why we refrigerate our food!

Directions

How Germs Spread

- Have children match a photo of the item which would prevent the spread of germs
 - Band aids → bleeding
 - Soap → shaking hands
 - Tissues → sneezing/coughing

Yeast Balloon

- Fill a small soda bottle with one inch of water.
- Add yeast packet to the water and gently swirl the bottle for a few seconds to mix.

- Repeat the last 2 steps with another bottle but add 1 teaspoon of sugar to the second bottle and swirl again.
- Stretch out 2 balloons by repeatedly blowing them up. Pull the neck of the balloon over the opening of each bottle.
- Place the two bottles with balloons in a warm place and allow to grow. You can also make several pairs of bottles (one with sugar, one without) and place each pair in a location of varying temperature (one pair at room temp, one in the fridge, one heated slightly) to compare how temperature affects the yeast growth.
- Allow the bottles to sit until the end of the lesson.
- The bottles with sugar and in warmer environments should have produced the most gas in the balloon, signifying the growth of the yeast.
- The bottles can also be replaced with Erlenmeyer flasks so they can be heated on low on a hot plate.
- Explain how yeast is a living organism and needs food to survive and grow like we do.

Infection

- Be mindful of how to prevent a mess during this lesson.
- Each person should spread lotion on their hands. Have the students line up next to each other.
- One person will be “infected” with germs by having glitter sprinkled on their hands.
- Have the shake the hand of the student to their right. That student will shake the next student’s hand and so on.
- Ask the students if they are “infected” with glitter on their hands.
- Give the students paper towels to see if they can wipe the germs off.
- Have the kids wash their hands until all the glitter is off.
- Repeat the experiment, but have the first student wash their hands before shaking anyone’s hands.
- Ask the students who’s sick again and explain how washing hands prevents the spread of germs.

The Sneeze Zone

- Add a few drops of food coloring to spray bottle and fill with water.
- Spray the colored water at a white paper towel.
- Explain how the spray represents our sneezes and coughs. When we sneeze, we release germs from our bodies, into our air, where they can infect others.
- When we sneeze or cough we should cover our mouths with our elbows or (preferably) a tissue to prevent the spread of germs.

Volunteer Notes

- Return the supplies to their respective locations at the Chemistry LEAD bench
- Take a quick inventory of what you used to be sure there is an adequate supply for another member to conduct this lesson
 - If a certain supply is low, be sure to email the Lab Bench Manager so we can replenish the stock

Thank you so much for your time and energy! We hope you had fun!