TECH QUEST

ACTIVITY: STOP THE SPREAD

For Grades 3-9

Challenge Based Learning, or CBL, is a flexible framework that empowers learners to co-own and co-author learning experiences. CBL provides a simple way for anyone to address personal, community, and global challenges while acquiring content knowledge in areas such as literacy, math, science, technology, and the arts.

These resources are designed as a “quick start” for out-of-school time educators looking to bring CBL into their learning environment through a health & life sciences lens. Through these activities, youth develop foundational STEM and durable skills while building career awareness in the health and life sciences. All activities are suitable for grades 3-9.



STEM NEXT
OPPORTUNITY FUND

Activity: Stop the Spread

In this lesson, youth will be able to:

- Explain how common germs can be transmitted from one person to another.
- Identify factors that can increase or decrease the spread of illness and describe ways to prevent transmission.
- Use critical thinking and problem-solving to develop a strategy for reducing the spread of germs.
- Communicate and collaborate with others to develop and explain a solution.



Big Idea: Disease and prevention
Essential Questions: How do diseases spread? What steps can be taken to stop germ transmission?

Preparation

Materials	• Baby Wipes (for use with younger youth) • Hand Sanitizer (for use with older youth) • Glitter (for use with older youth) • Soap • Water • Digital device with internet access (1 digital device per youth group)
Setup	• Combine hand sanitizer with glitter
Presentation	Slides Keynote

Facilitation

Overview:

In this challenge based learning activity, youth investigate how germs spread and simple precautions to reduce transmission. Youth develop a solution to help limit the spread of seasonal illness within their afterschool program.

Engage:

1. Ask youth: *How many of you have been sick since school has started? Why do you think so many students and teachers get sick right after they go back to school? What makes people sick?*

2. Explain what germs are and how they make people sick (Slide 2-3).

3. Today we are going to investigate how germs that make us sick spread.

    a. For younger youth (K-2): Ask: *Look at your hands. Are your hands clean?* Remind them that the germs that make us sick are microscopic, meaning that we can not see them with our eyes. We need to use a microscope because they are so small. Have youth move around the program area for a few minutes and touch different objects such as toys, door handles, desks, etc. Bring the groups back together and once again have them look at their hands and ask again if they think their hands are clean. Distribute a baby wipe to each child and have them gently wipe their hands. Say: *Look at your wipe. Is it clean?* Have youth describe what they see. You will notice the wipe will turn brown. As youth are looking at their wipes, explain that the dirt they see are the germs that are sticking to their hands. Ask: *What would happen if you touch someone else with germs on your hands? What if you put your hands in your mouth or touch food?*

    b. For older youth (3-8): Ask: *How do the germs that make us sick spread?* Add different colors of glitter to hand sanitizer bottles (one color per bottle) and have students rub the sanitizer on their hands. Instruct youth to shake hands with others to "exchange" glitter. After a minute or two of shaking hands, have them examine their hands and describe what they see. Notice that they may have more glitter or different colors of glitter coming from others. Have them try to remove the glitter by first using a dry paper towel, then washing their hands with water, and last washing with soap and water. After each trial, discuss the effectiveness of each step. Ask:

Other than shaking hands, how else are germs spread? *What are some ways that you know to stop germs from spreading?* Write any suggestions on the board or large paper to refer to in the next section.

4. Share: *The challenge is to keep everyone in our program healthy. We are going to learn about how germs spread and how to reduce germ transmission and then educate others on what we learned* (Slide 4).

Investigate:

1. Allow time for research.
    a. For younger youth, you may need to provide additional support during research. You may want to provide stories, books or pictures to assist. Some suggestions are provided below:
        i. Sick Simon by Dan Krall (Read Aloud)
        ii. Germs are Not for Sharing by Elizabeth Verdick & Marieka Heinlen (Read Aloud)
        iii. Germs Make Me Sick (Read Aloud)
    b. For older youth, allow 20-30 minutes to research on the internet about ways that germs spread and simple preventative measures. It may be helpful to assign half the group to research how germs spread and half to research preventative measures. Have the groups share their findings and to combine information. Encourage youth to utilize Freeform to organize their research and findings and to record the source where they found their information.

Act:

1. Have the group decide the best way to communicate the information to the other youth in the program. Some suggestions may include:
    a. Posters created by youth and hung around the program site.
    b. Visits to the other age levels to educate and demonstrate preventative measures.
    c. Create a video using iMovie that could be shared with other grade levels, leadership, and families.

Implementation

Career Connection:

- Epidemiologist: I am a Scientist, Noor Al-Alusi
- Biological Technician:
    - CareerXplorer

    - Advancing Research Through Experimentation (Simulation): Explore this virtual career simulation to learn about one of the many tasks that a biological lab technician could perform.

- Thinking Beyond
    - Engage youth to consider other careers or skills that would be valuable in this challenge. Have them explain why they chose those careers and/or skills. *These conversations may incite ideas on careers that are yet to exist in the health and life sciences industry!*