STEM 101
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Name: _____
Period: _____

BACTERIA ARE EVERYWHERE

UNIT: MEDICAL TECHNOLOGIES_LEVEL 1

THE PROBLEM:

In this activity, you will study three different conditions under which bacteria are found and compare the growth of the individual bacteria from each source.

The conditions are:

1. an unwashed hand
2. a hand that has been hand sanitized
3. a hand washed with soap and water

You will take swab samples of one of your team member's hands under each of those conditions and streak the swabs on Petri dishes containing agar gel, which supports bacterial growth. After a week, the three samples in petri dishes will grow, giving you the opportunity to record their growth over time.

REQUIREMENTS:

1. All 3 swabs must be from the same person's hands.
2. One group member will be the subject, one will be the swabber, one will be the washer, and one person will be the supervisor.

MATERIALS:

- Petri Dishes with Tryptic Soy Agar
- Cotton Swabs

TOOLS:

- ✓ Digital Camera
- ✓ Computer

DIRECTIONS:

- Assign people in your group to the different roles. The swabber collects the samples from the subject, the washer washes the subject's hands, and the supervisor makes sure the correct petri dish is being used.
- Notice how each petri dish is already labeled for you.

- Swabbers: Make sure you're not applying too much pressure when streaking the plate, and make sure not to let the cotton swab touch anything except for the subject's hand and the dish. Gently rub the swab back and forth on the subject's hand, then again on the petri dish.
- Begin with the unwashed dish. Then, have the washer wash both of the subject's hands, one with soap and water, one with antibacterial gel.
- Apply tape to keep the lids closed but be careful not to make it airtight. Bacteria need oxygen to grow.

DATA COLLECTION:

- If computing/photographing resources are limited, your teacher will do this part.
- If, however, resources are adequate, you will be analyzing your own data.
- Take a photo of each plate four days after initial swabbing, then again six days after.
- Print out your photos, six to a page, and color in where the bacteria colonies are.

REFLECTIONS:

- Under which circumstances was the highest growth of bacteria?

- Why do you think this is?

- In a hospital, what are the implications of too much bacteria on a caregiver's hands?

- What would be the best way to combat this problem?