

# Testing for Bacteria

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Did you know that 80 percent of all infectious diseases are passed by **human contact**, either direct or indirect? It's estimated that fewer than 50 percent of people wash their hands after using the facilities. And of those who do, very few do it correctly.

Germs are found all over the world, in all kinds of places. They can invade plants, animals, and people, and sometimes they make us sick.

The four major types of germs are:

- bacteria
- viruses
- fungi
- protozoa

In this lab we will find out just what disgusting things you are carrying around by swabbing your hand and putting it on a petrie dish. After a week you may be surprised at what shows up...

## LAB

### Materials:

Part 1:

- Lab Partner
- Prepared petri dish with agar
- 2 cotton swabs
- one regular hand surface

Part 2:

- Petrie dishes after one week
- magnifying glass

### Procedure:

1. Make a team of four people. Two will volunteer their hand for swabbing and the other two document the observations and swab the petri dishes.
2. With a sharpie pen, draw an X on the agar to divide the plate into four equal sections.
3. Using a sterile swab, collect bacteria from the dominant hand of your partner. Run the swab across the palm, across the back of the hand, and in between the fingers. Remove the cover of a petri dish and **lightly** rub the swab across the surface of the agar in a zigzag pattern. Cover the dish again immediately.
4. Now put a drop of soap in your helper's palm. Time them as they wash their hands thoroughly (rubbing front, back, and in between fingers) in warm water for 30 seconds. Let the hands air dry, and use a new swab to collect and transfer bacteria as you did in step one.
5. Put all the petri dishes in a warm, dark place. Check on them in a couple of days.

**Observations:**

The rate of bacteria growth in your dishes will depend on temperature and other factors. Check your cultures after a couple of days, but you'll probably want to wait 5-7 days before recording your data. You will see multiple round dots of growth; these are bacteria colonies. There may be several types of bacteria growing in the dishes. Different types of colonies will have different colors and textures.

Count and record the number of bacteria colonies in each dish. To see how effective each soap is, divide the number of colonies in the test dish by the number of colonies in the control dish, then subtract the result from 1 and write the answer as a percentage. For example, if your control dish had 100 colonies and your soap test dish had 30, the soap eliminated 70% of the bacteria:  $1 - (30 \div 100) = .7 = 70\%$

**Conclusions:**

Video about bacteria

<https://www.brainpop.com/science/diversityoflife/bacteria/>

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