

# Growing Bacteria/ Agar Lab

*Recommended Grade Level:* K-12th Grade

*Objective:* Students learn about agar plates and bacteria growth; the complexity of this experiment will vary based on the student's grade level.

## What is agar?

Agar is found on the cell wall of some species. It is a gelatinous substance closely similar to Jell-O; of course agar is much stronger and firmer and by all means less tasty! Agar provides the perfect environment with nutrients and the right humidity for bacteria to grow.

## Materials Needed:

- Agar
- Petri Dish with Lid
- Water
- Container (Microwavable)
- Cotton Swabs
- Hand Sanitizer (Optional)

## Activity:

### *Preparing the Agar Plate*

1. In order to make two petri dishes, you will need to mix 3 grams of agar with 60ml of water.
2. Warm (using microwave or heating plate) the agar and water solution until the agar is completely dissolved.
3. Let the solution cool down for 3-5 minutes before pouring it in the petri dish.
4. The agar will take about an hour to harden.

### *Growing bacteria*

5. Swab an object or surface (a door handle, remote control, pencil, etc) using a cotton swab.
6. Once you've collected the bacteria on your cotton swab, gently wipe it on the hardened agar
7. Let the agar sit for about an hour or until you see the formation of bacteria/mold
8. (Optional): In one of the petri dishes that you swabbed, add a drop or two of hand sanitizer to see if you will get different results!

## What just happened?

Bacteria colonies will begin to form within a few hours because the agar allows the bacteria to grow exponentially. This means that if they are given the optimal temperature/nutrient/environment, they can grow from one bacterium to a whole colony very quickly. The most common growth media for microorganisms are nutrient broths and agar plates. Nutrient agar is a general purpose medium supporting growth of a wide range of organisms.



If you used hand sanitizer then you should notice that the antibacterial chemical in hand sanitizer will keep any bacteria from growing in that area.

**\*\*Please discard the agar plates after 24 hours. Make sure they stay sealed!\*\***