

**Purpose:**

- Participant will:
  - Practice proper microbiology laboratory safety practices
  - Compare petri dish results
  - Conclude, from observed evidence, that hand washing is important

Reference: <http://www.sciencea2z.com/etomite>.

**Activity 1: Collecting Microbes**

Supplies for each youth participating:

- 2 nutrient agar Petri dishes (to locate supplies, search internet “nutrient agar kits”)
- Paper and pencil
- 1 permanent marker (dark color)
- 1 piece clear duct tape 12”
- 1 squirt bottle of hand soap for group
- Paper towels

Introduction:

- Introduce bacteria
  - Benign, mutualist, and pathanogenic
  - Focus on the pathanogenic bacteria, talking about how these spread from person to person.
  - What are the methods we can employ to reduce the spread of disease?

Collect Microbes:

- Distribute supplies. Write name and date on the **EDGE** of the Petir dish with the permanent marker. Draw a line through the middle of each dish, to make a total of 4 sections, 2 on each plate.
- On the **EDGE** in the first section, write “Control,” in the second section, write “Rinse,” in the third section write “30 Sec,” and in the fourth section write 30 more Sec.”
- Discuss what might happen. Write down predic-tions. Which plate will grow the most microbes? Which plate will grow the least microbes?
- Start with “Control.” Take cover off Petri dish and touch “Control” side with fingertips. Put on cover.
- Rinse your fingers in water. Shake water off hands and dry. Do NOT touch anything. With one hand, remove the cover and with the other hand, touch fingertips to the “Rinse” side. Put on cover.

- Wash hands for 30 seconds, using warm water and soap. Be sure to scrub around your fingernails, palms, and between fingers. Rinse. Shake water off hands and dry. Do NOT touch anything. With one hand, remove the cover and with the other hand, touch fingertips to the “30 Sec” side. Put on cover.
- Wash hands for an additional 30 seconds, using warm water and soap. Be sure to scrub around your fingernails, palms, and between fingers. Rinse. Shake water off hands and dry. Do NOT touch any-thing. With one hand, remove the cover and with the other hand, touch fingertips to the “30 Sec” side. Put on cover.
- Take clear duct tape and tear down the length of the tape, so that you have 2 pieces of duct tape 12” x 1.” Seal the edge of each Petri dish. (Why?)
- Turn upside down, so that the agar is on the top. During incubation, condensation will form can col-lect on the top of the plant, not on top of the mi-crobes as they grow.

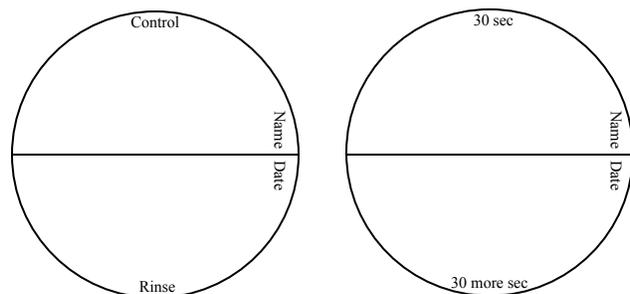
**Activity 2: Analyzing Microbes**

Supplies for each youth participating:

- 2 nutrient agar Petri dishes
- Predictions and pencil
- Optional: hand lens

Analyze Microbes

- Lay out the two Petri dishes and examine them. On your predictions paper, write down the order of least to most growth of microbes.
- Each growth is called a colony. How many differ-ent kinds of colonies can you identify? Look care-fully at the color, the edge of the colony, the overall shape of the colony.
- Sketch the colony with the most growth.
- Write a paragraph about your results, answering the question, Why is it important to wash your hands?



2 activities for youth grades 3-8 over two week period. Allow 60 minutes for week 1, and 15 minutes for week 2.  
Science Standard 2 Life Science: 8th-2, 7th-3, 6th-1, 5th-1, 4th-1, 3rd-1