LAB PROCEDURES

Washing Hands

- Use hot water.
- Wet hands and add soap.
- Scrub hands for 20 seconds away from the running water. Thoroughly scrub wrists, under fingernails, around nail beds, and between fingers.
- Rinse hands under running water.
- Dry hands thoroughly with clean paper towels.
- Use the paper toweling to turn off the faucet.
- Dispose of used paper towels in the trash.

Note: If necessary, disposable alcohol wipes or gel hand sanitizers can be substituted for soap and water.

Disinfecting

Disinfecting Bleach Solution: 20 ml of liquid household bleach (chlorine bleach) in 1 L of tap water.

To Disinfect Countertops:

- Put solution in spray bottle and label the bottle, "Disinfecting Solution."
- Wipe off counters to remove any visible soil.
- Spray the disinfecting solution on counters and leave it on for 2 minutes.

Note: Use the solution within 24 hours, then dispose of remaining solution by pouring it down the drain. Solution will lose its effectiveness in 24 hours.

Sterilizing Equipment

(test tubes, pipettes, etc.)

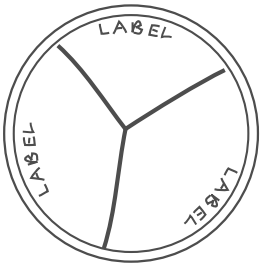
Options:

- Use an autoclave.
- Use dry heat — 160° F to 180° F (71° C to 82° C) for 3 to 4 hours.
- Use chemical agents, such as 5% bleach, ethyl or isopropyl alcohol, commercial disinfectants, or iodine solutions.

Inoculating a Petri Dish

1. Label

- Divide the Petri dish into sections (if applicable), and label the bottom (agar side) of the dish using a permanent marker.
- Label along the outer edges of the dish or the sections, so the labels don't interfere with viewing the colonies.



2. Inoculate

- Use a sterile cotton swab* to wipe the surface or liquid being tested. Hold the cotton swab at one end — do not touch the end that will be used to inoculate the agar.

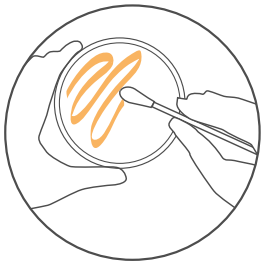
  ** If you use a control dish, new, untouched cotton swabs are good to use. Inoculate the control dish with a new swab to check for any microbial contamination.*

For a Dry Surface

- Wet the swab by dipping it in boiled or sterile water. Then, wring out the swab by wiping it against the inside of the container. (If the swab is too wet, the liquid will flow into other sections and the microbial colonies will run into each other.)
- Swab the dry surface.

For a Liquid

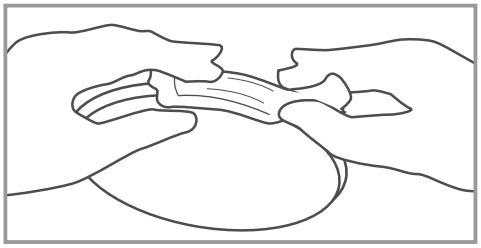
- Dip the sterile cotton swab in the liquid. Then, wring out the swab by wiping it against the inside of the container.
- Inoculate the nutrient agar using a back-and-forth motion, covering the entire area of the dish or section. Do not swab too close to the dividing lines for the next section.



3. Parafilm

Place the cover on the Petri dish and seal it closed using Parafilm.

- Cut a narrow strip and stretch it around the outside edge (along the full circle perimeter) of the covered dish.



4. Incubate

- Place dishes upside down (label side up) in an incubator set at 95° F (35° C) or let the dishes sit at room temperature (away from the sun) for the appropriate amount of time.

TIPS For Viewing Inoculated Petri Dishes

- Use a light box (ask a parent or shop class to make a light box for your class from plywood and Plexiglas®; or, borrow a light box from the photography class). Line up all the Petri dishes and compare the results.

or

- Use an overhead projector. Line up the Petri dishes on the projector and project onto a screen, so the entire class can view the results. This is very effective!
- If neither a light box nor overhead projector is available, simply view the dishes on a light-colored surface.