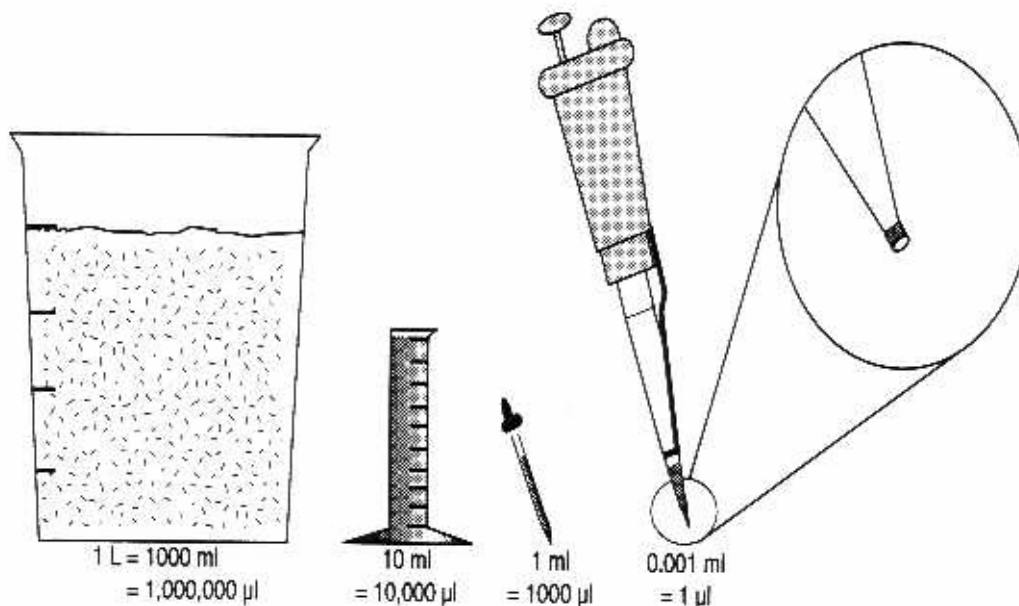


Instructions for Using Micropipettes

A micropipet is a kind of fancy, accurate eyedropper—one that comes in many different models and volume ranges. But while an eyedropper dispenses *drops*, micropipets transfer **microliters** of fluid. Recall that “micro-“ is a prefix in the metric system which means “one-millionth” of the base unit (in this case, a liter, “L” or “l”). It may be easier for you to picture one milliliter (mL or ml) of water. If you mentally subdivide that milliliter into 1000 tiny equal-sized volumes, each volume is one microliter (abbreviated μL or μl).



Cautions for using micropipets:

1. Set pipette volume **ONLY** within the range specified for that micropipet. Do not attempt to set a volume beyond the pipette's minimum or maximum values. If the dial is getting close to the top or bottom, or if it is difficult to move, STOP and check that you have the correct size pipette, or ask for help.
2. Always apply a plastic tip before using the micropipet. If liquid gets into the nose cone of the pipette, it will be contaminated and no longer function properly. Since a micropipet works by air displacement, its internal mechanism must remain dry.
3. Always keep the micropipet in a vertical position when there is fluid in the tip. Do not allow liquid to run back into the nose cone.
4. Use your thumb to control the speed at which the plunger rises after taking up or ejecting fluid. Releasing the plunger too quickly will cause inaccurate measurement, or air bubbles, or liquid to contaminate the nose cone.

Setting and Preparing the Micropipet:

1. Check to see that you have the right size micropipet for the volume you want to measure. There may be several sizes in the lab at one time. The p20 measures from 2 to 20 μl , the p200 measures from 20-200 μl and the p1000 measures from 200-1000 μl .
2. Dial the desired volume. (see worksheet for review) If you don't know how to read the scale, please ask for assistance.
3. Push the end of the pipet into the proper sized tip. The yellow tips are for both p 20's and p200's; the larger blue tips are for the p1000's.

How to Take up Liquid with a Micropipet:

1. Open the cap or lid of the tube from which you are taking fluid.
2. Hold the micropipet in one hand, almost vertical. Hold the tube in your other hand. Both should be at almost eye level.
3. Depress the plunger of the micropipet to the **FIRST** stop, and hold it in this position.
4. Dip the plastic tip into the solution to be pipetted.
5. Draw fluid into the tip by **SLOWLY** releasing the plunger.

How to Expel a Sample from the Micropipet:

1. Open the cap or lid of the tube into which you are ejecting the fluid.
2. Hold the micropipet in one hand, almost vertical. Hold the tube in your other hand. Both should be at about eye-level.
3. Touch the micropipet tip to the inside wall of the reaction tube into which you want to expel the sample. This creates a tiny surface-tension effect which helps coax fluid out to the tip.
4. Slowly depress the plunger of the micropipet to the first stop. Then, continue to the second stop to expel the last bit of fluid, and **HOLD THE PLUNGER IN THIS POSITION** WHILE REMOVING YOUR PIPETTE FROM THE TUBE. Do not move your thumb, or you will suck the liquid back into the tip.
5. Always change tips for each new reagent you need to pipet. To eject a tip, depress the button on the back of the micropipet.
6. **When adding liquid to an existing liquid, always pipet up and down at least 5 times** (i.e. mix the two liquids by depressing the plunger to the first stop several times) to be sure the new liquid is actually added to the mix.