

Using Micropipettors

Purpose: Learn how to use a micropipettor to transfer exact quantities of liquid solutions.

Micropipettors are the most frequently used tool in genetics and molecular biology. We will be using them repeatedly throughout the semester. Because your success in these lab activities depends so directly on your ability to use a pipettor, we will take a few minutes this week to develop your pipetting technique.

We will also be using some insidiously toxic materials during the semester, so it is also important that you learn how to transfer materials in a way that minimizes contamination of the micropipettor, lab furniture and equipment, your clothing, and most importantly your body. We will use food coloring today because any mistakes you make will be readily apparent!

Your TA will demonstrate how to use a micropipettor. You can also get this information at: http://biog-101-104.bio.cornell.edu/BioG101_104/tutorials/pipettor.html

After you have practiced pipetting water a few times try the following exercise.

Exercise: Prepare an aqueous solution of red and blue food coloring.

- 1) Put on a pair of gloves. Laboratory gloves are always worn when handling hazardous materials. There is nothing hazardous in lab today, but we want you to practice with them, so you will be comfortable with gloves when in matters.
- 2) Put 100 ml of RO water in a 250 ml beaker.
- 3) Locate a 1.5 ml microcentrifuge tube containing blue food coloring. Add 10 μ l of blue food coloring to the water in the beaker. Notice how easy it is to get food coloring everywhere when handling the microcentrifuge tube if you are not careful. Keep it mind that in coming weeks we will be handling toxic materials, not harmless food coloring!
- 4) Locate a 1.5 ml microcentrifuge tube containing red food coloring. Add 0.3 ml of red food coloring to the 100 ml water in the beaker.
- 5) Swirl the resulting solution to achieve a uniform mixture.
- 6) Fill a spectrophotometer cuvette with the solution. Fill another with RO water.
- 7) Set the spectrophotometer to 630 nm. Use the textbook near the spec to determine what color of light this is. Will this wavelength of light be absorbed more by the blue food coloring or the red food coloring? What color of light is absorbed by blue food coloring? What color of light is transmitted by blue food coloring?
- 8) Set the spectrophotometer to 520 nm. Use the textbook near the spec to determine what color of light this is. Will this wavelength of light be absorbed more by the blue food coloring or the red food coloring?
- 9) Record the following on the chalkboard and in your lab notebook: Micropipettor ID number, your name, absorbance at 630 nm, and absorbance at 520 nm.