Lab Management Suggestions

Unit IA

Preparation:

One station needs 30 ml of each alcohol dilution (450 ml for one section of 15 stations.) Make what you need in the bottles provided.

In order to be ready for the next station:

Have departing students do the following task:

--Empty all glass test tubes containing alcohol samples into the sink.

--Dispose of any broken or cracked glass test tubes.

--Place reusable test tubes in holding cup (invert tubes so they will drain completely.)

--Arrange alcohol beakers in a row, in the order you prescribe, with labels facing front.

(Other supplies could be lined up too, if necessary, to facilitate checking to see that everything is accounted for.)

Before the next section convenes:

--Refill alcohol beakers as required. (If the beakers are lined up in order with labels showing, refilling is relatively quick and easy to do.)

When the next section checks their list of supplies:

--Have students come to you for test tubes if they have fewer than the prescribed number.

--Have extra syringes, Sep-paks, tubes of Kool-aid, etc., readily available in case any of these have disappeared.

Returning materials:

Please return all equipment and supplies with the following exceptions:

--Dispose of any alcohol samples that have been at student stations. Return containers, and return unused bulk alcohol solutions if you are confident of their purity and concentration.

--Dispose of Kool-aid and Kool-aid tubes.

Lab 1: Recipes and set up suggestions for teachers.

A. The Kool-Aid works best at five times its normal strength. Add the packet to 400 ml of water. Tap water is said to work fine in this experiment (and deionized water is fine as well). Put about 10 ml in a tube for each station. This much Kool-Aid will last for many sections.

B. Alcohol's: You will receive one liter of methanol per section and an additional liter of isopropanol per section if you are using Version A. There is lots more than you will need.

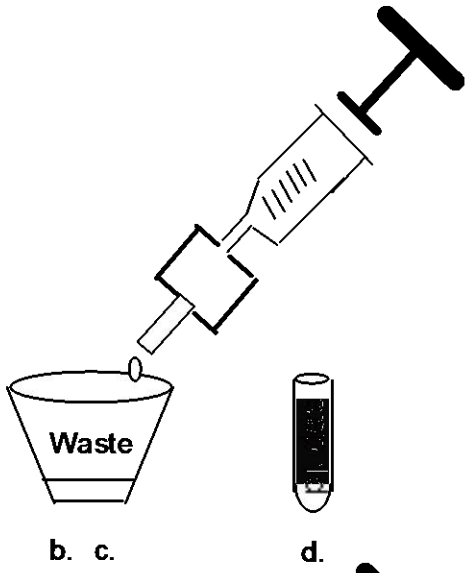
100%: Use full strength.
Dilutions: (for one section)
5%: 50 ml alcohol and 950 ml water
20%: 200 ml alcohol and 800 ml water
60%: 300 ml alcohol and 200 ml water

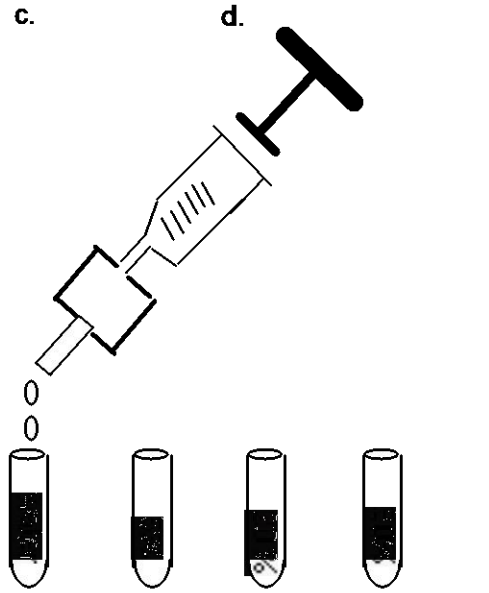
Each Version B lab station needs 20-30 ml of each solution.
Each Version B lab station needs either a set of methanol solutions or a set of isopropanol solutions. When Version A students finish with one alcohol series they trade sets with their neighbor station. Their beakers need 40-50 ml each.

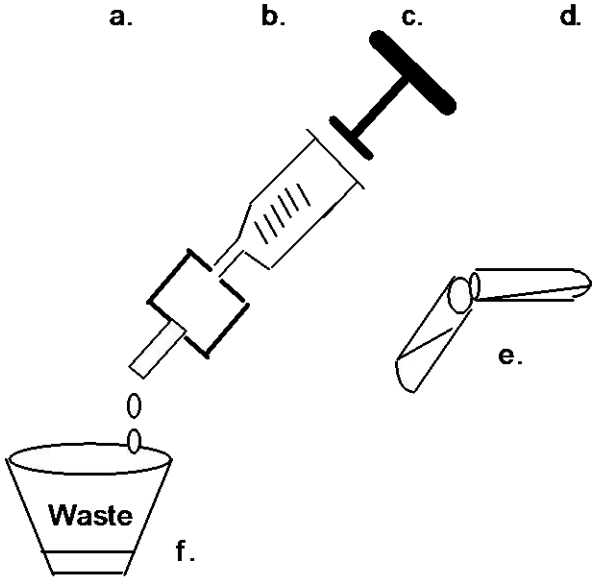
In addition to four alcohol solutions, each lab station needs a beaker containing water. (See note above on water.)

Plastic "tri-pour" beakers are provided for the solutions. Solutions pour easily if students pour down one of the "points" on the beaker lip.

Version A: Kool-Aid Chromatography







1. *Preliminary steps:*

    a. Attach cartridge

    b. Prewet with 100% alcohol.

    c. Flush with water.

    d. Push Kool-Aid through, observe.

2. *Separation steps:*

    a. Pump 10 ml water through, observe.

    b. Pump 10 ml 5% alcohol through, observe.

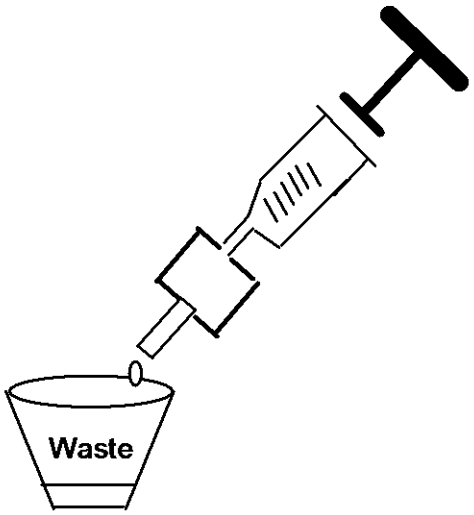
    c. Pump 10 ml 20% alcohol through, observe.

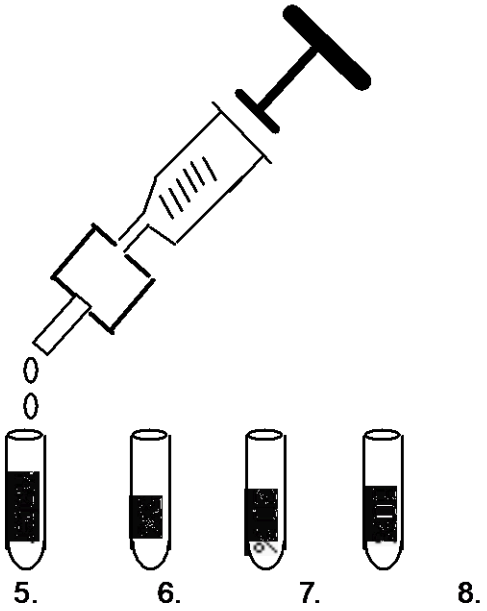
    d. Pump 10 ml 60% alcohol through, observe.

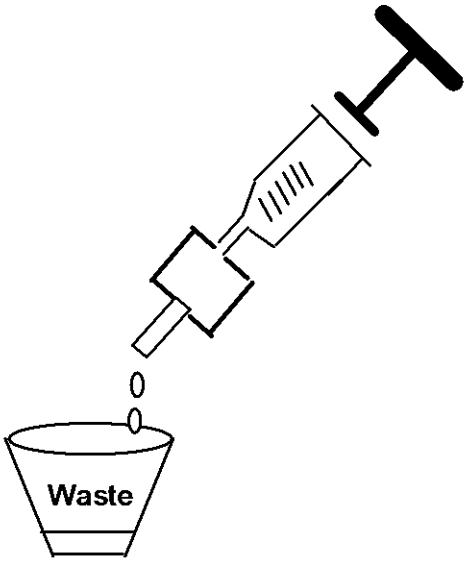
    e. Gently combine two samples containing color and observe.

    f. Pump 10 ml of 100% alcohol through.

3. *Repeat steps with other alcohol*







Version B: Kool-Aid Chromatography

1. Attach cartridge.
2. Prewet with 10 ml of 100% Methanol.
3. Flush with 10 ml of water.
4. Add 1 ml Kool-Aid and pump it into cartridge.

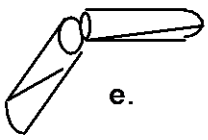
   Make observations. a and b.
5. Pump 10 ml water into test tube.

   Make observations a- d.
6. Pump 10 ml of 5% Methanol through.

   Make observations a and b.
7. Pump 10 ml of 20% Methanol through.

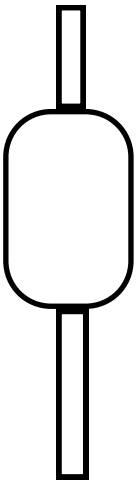
   Make observations a and b. (Pump 5 ml more if necessary.)
8. Pump 10 ml of 60% Methanol through.

   Make observation.
9. Pump 10 ml 100% Methanol through.
10. Gently combine two samples., observe.

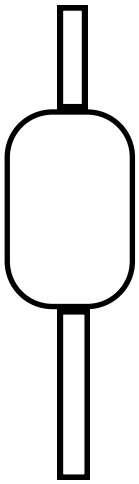


e.

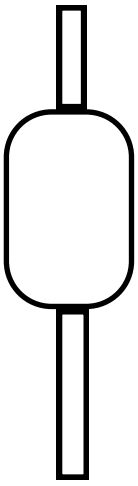
KOOL AID CHROMATOGRAPHY



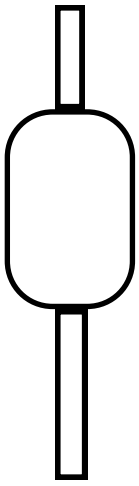
1. Cartridge before chromatography



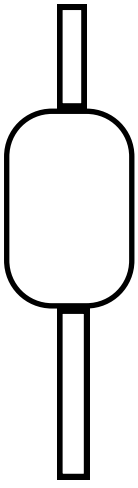
2. Cartridge after water



3. Cartridge after 5% methanol



4. Cartridge after 20 % methanol



5. Cartridge after 60 % methanol