

## EXPERIMENT 4 LABORATORY TECHNIQUES

### I. INTRODUCTION

Laboratory work is basic to any scientific pursuit. For good lab results, it is important to learn the names of scientific glassware and equipment and correct laboratory techniques. Today's exercise will cover these topics and in addition you will check into your locker.

#### Locker Check-in

Your instructor will give you a locker check-in sheet and a yellow "lab and stockroom regulation" sheet. Read the regulation sheet, you are responsible for it. Fill in the locker check-in sheet. Your instructor will assign you a locker and give you a key to your locker. Do not lose the key and bring it each lab period. Open your locker and inspect each item and mark it off on the checklist. Report missing equipment to your instructor, who will initial that item on your sheet. Take any cracked or broken equipment to the stockroom and your sheet with missing items initialed to the stockroom. The stockroom will give you the needed items.

#### The Chemistry Stockroom

The Chemistry stockroom is located in NS-4, halfway down the hall. The stockroom will be open during your assigned lab time as well as other times. Stockroom hours are posted outside the door. To obtain equipment for your experiments you will need to fill out a lab slip (Bring your own pencil):

Let's say you need two 500 mL beakers and one 50 mL graduated cylinder for your experiment.....

Name <u>      <b>Jane Doe</b>      </u>
Room No <u>      <b>NS- 2</b>      </u>
Section: <u>  <b>0355</b>  </u> Date
<u>  <b>6/3/04</b>  </u>
ITEMS:
<b>2</b> 500 mL beaker
<b>1</b> 50 mL graduated cylinder

NOTES: **Fill the lab slip out completely before ringing the bell.  
STUDENTS ARE NOT ALLOWED IN THE STOCKROOM.**

## II Laboratory Techniques

A. Look up the following techniques in your safety manual and fill in the following:

1. To carry a solid chemical, I will use \_\_\_\_\_

or \_\_\_\_\_

2. To carry a liquid chemical, I will use \_\_\_\_\_, and **not** a graduated cylinder.

Why? \_\_\_\_\_

3. Explain how you would weigh a liquid sample. (Use complete sentences):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Explain how you would weigh out a solid sample (Use complete sentences):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. What should you do with leftover solids?

\_\_\_\_\_

or \_\_\_\_\_

6. What should you do with leftover liquids?

\_\_\_\_\_

or \_\_\_\_\_

7. What is the soap solution located above the large sinks used for? What is it not used for?

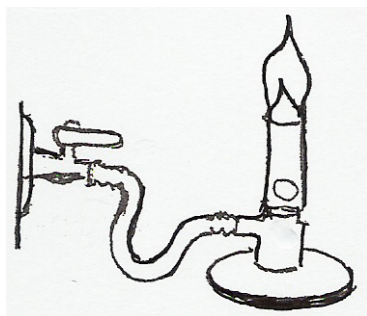
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\_\_\_\_\_

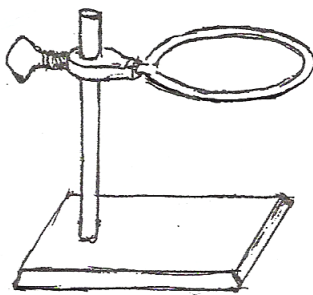
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B. Perform the following lab techniques with your instructor.

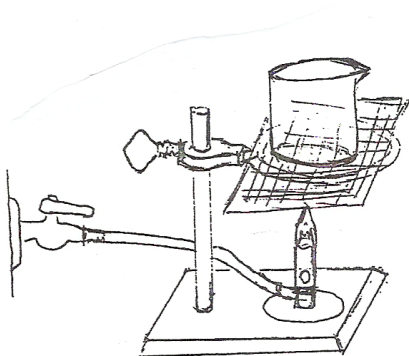
1. Light and adjust the flame on a Bunsen burner:



2. Set-up a ring stand with an iron ring:



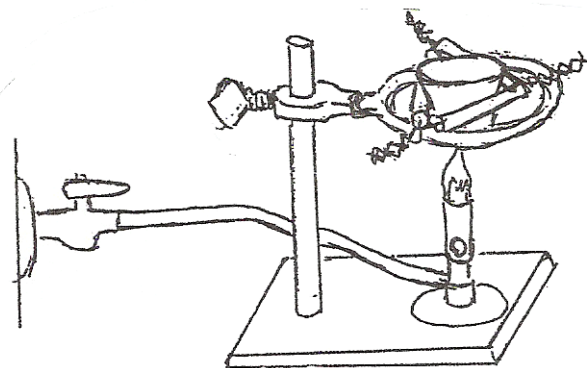
3. Heat 100 mL of water



4. Use beaker tongs to remove the hot water above:



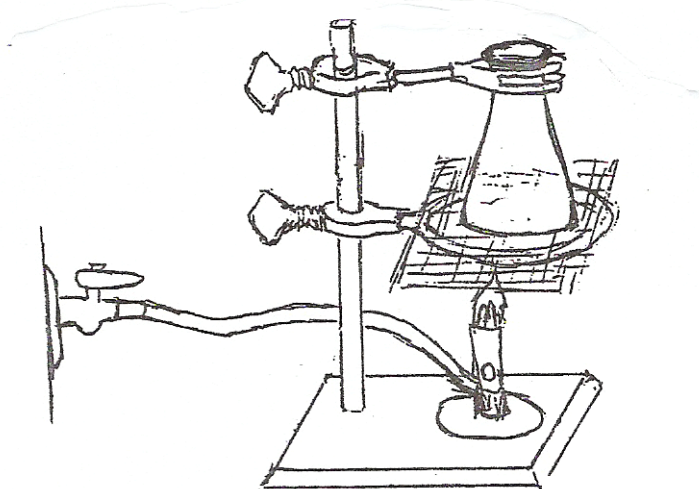
5. Heat sodium chloride crystals in a crucible (Use about a teaspoonful of sodium chloride).



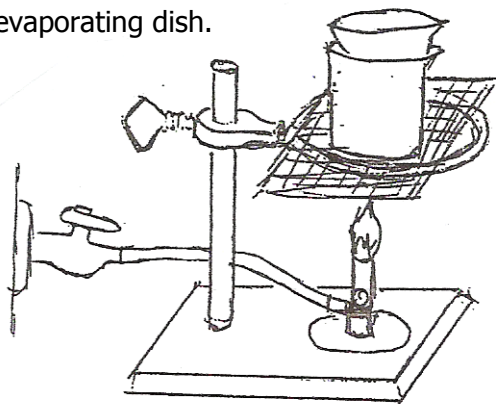
6. Use crucible tongs to set the hot crucible (in #5) on your wire gauze or the base of the ring stand.



7. Heat 50 mL of water in an Erlenmeyer flask, using a utility clamp:



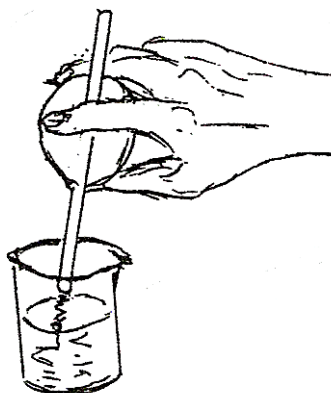
8. Set-up a steam bath, using a 250 mL beaker and an evaporating dish.



9. Use evaporating dish tongs to remove the evaporating dish from the water bath on the previous page:

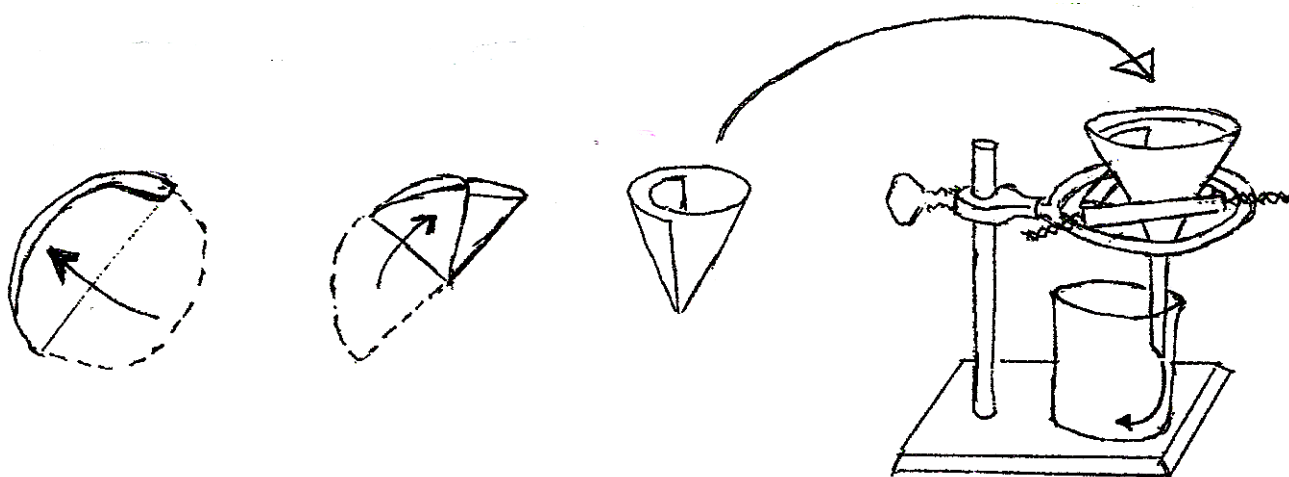


10. Place your sample of sand in a 50 mL beaker and add approximately 50 mL of water. Stir and decant into another beaker.



11. Use a rubber policeman to transfer the sand to an evaporating dish.

12. Mix the sand and water and filter the mixture through filter paper. The filtrate is the liquid that comes through the filter paper.

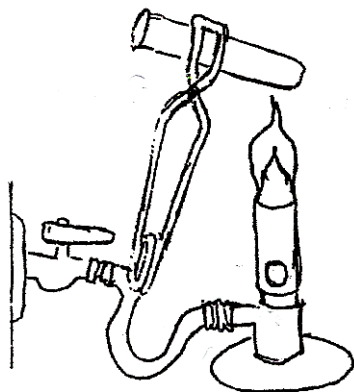


13. Measure 1 mL of deionized water in your 10 mL graduated cylinder. Pour the water into a small test tube. One mL is approximately how many inches in your test tube?

\_\_\_\_\_ inches

Remember this and when your experiment calls for approximately 1 mL of liquid you can estimate the amount without using your graduated cylinder.

Heat the test tube with the water.



14. Your instructor will demonstrate the correct way to remove and hold a stopper from a liquid reagent bottle without contaminating the stopper and liquid:

# REPORT EXPERIMENT 4

# LABORATORY TECHNIQUES

Chem 110 Lab

Name \_\_\_\_\_

Date \_\_\_\_\_

Lab Section # \_\_\_\_\_

Instructor's Initials \_\_\_\_\_

1. Explain the steps you go through to light a laboratory burner.

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2. What is the purpose of a steam bath?

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3. Explain how you would weigh a liquid sample. (Use complete sentences):

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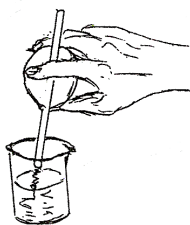
4. Explain how you would weigh out a solid sample (Use complete sentences):

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5. Give the name of processes a and b, pictured below, and explain what is being done in each picture.

a.

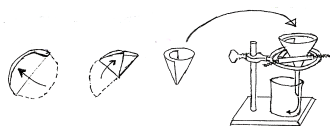


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b.



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