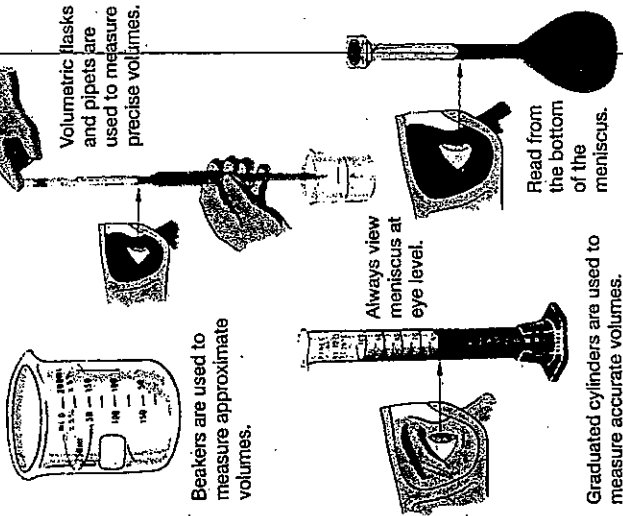
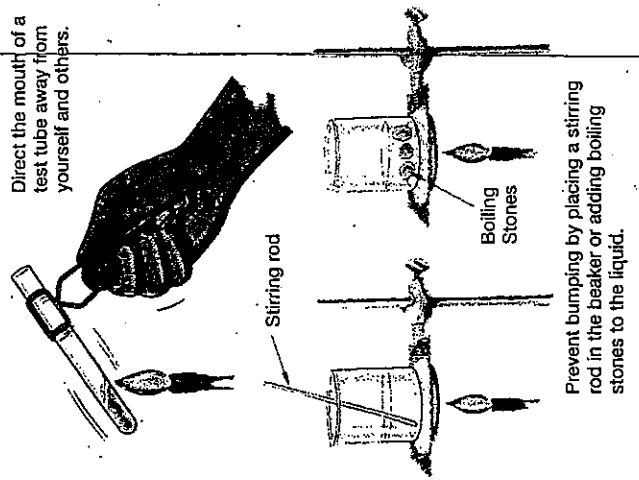


# FLINN Laboratory Techniques Guide

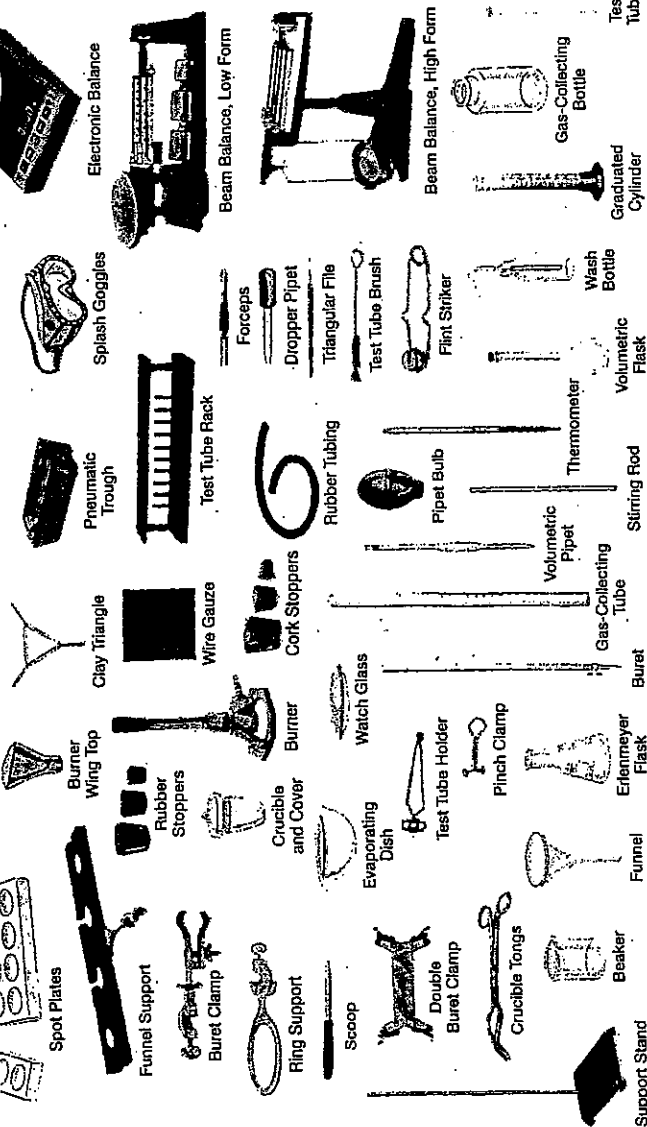
## MEASURING LIQUID VOLUMES



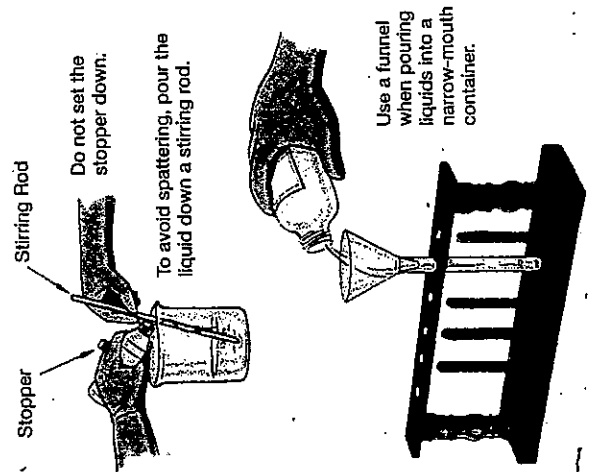
## HEATING A LIQUID



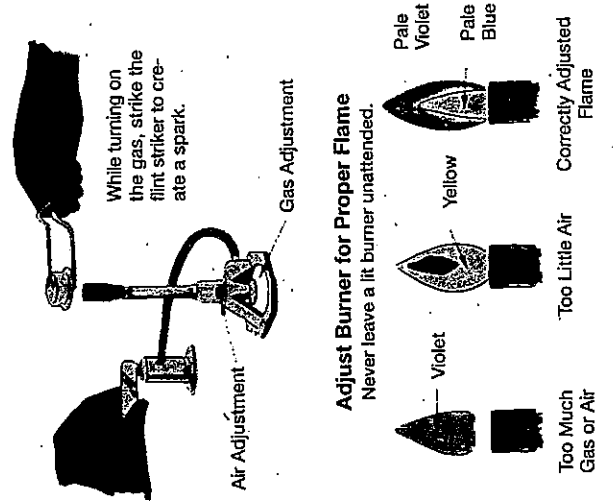
## LABORATORY EQUIPMENT



## TRANSFERRING LIQUIDS

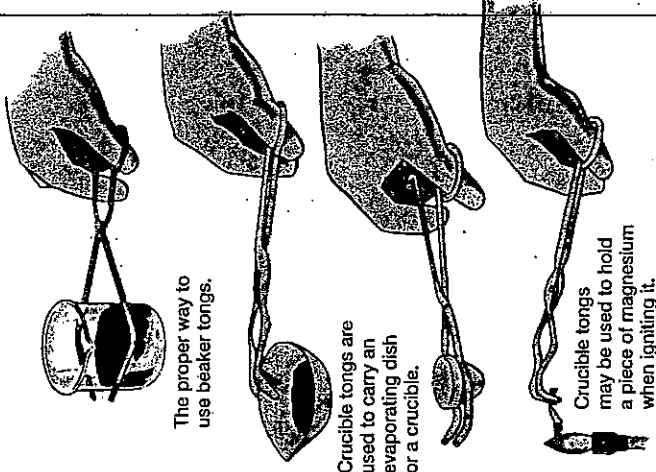


## LIGHTING A LABORATORY BURNER



# Flinn Scientific Labora

## USING TONGS

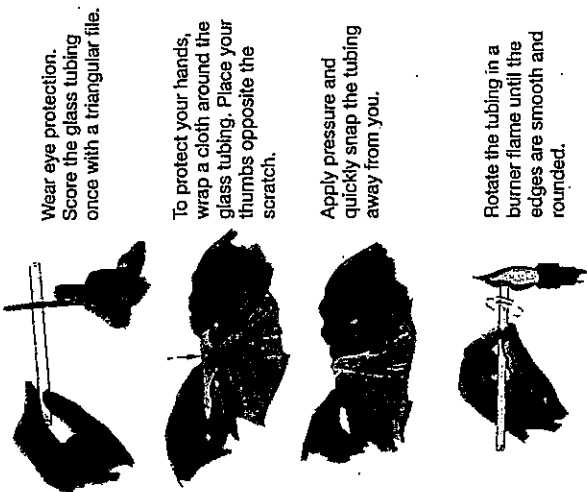


The proper way to use beaker tongs.

Crucible tongs are used to carry an evaporating dish or a crucible.

Crucible tongs may be used to hold a piece of magnesium when igniting it.

## CUTTING AND FIRE POLISHING GLASS TUBING



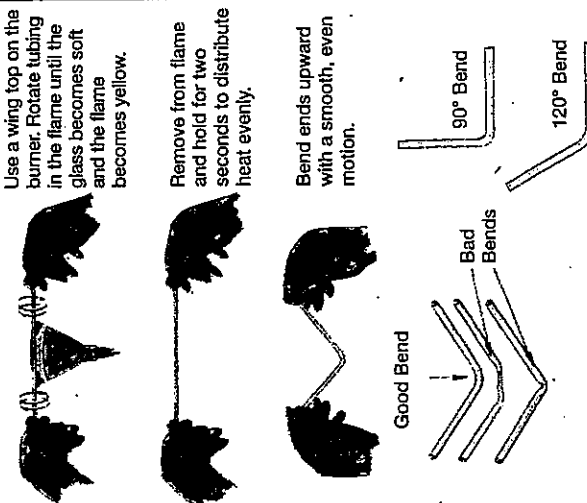
Wear eye protection. Score the glass tubing once with a triangular file.

To protect your hands, wrap a cloth around the glass tubing. Place your thumbs opposite the scratch.

Apply pressure and quickly snap the tubing away from you.

Rotate the tubing in a burner flame until the edges are smooth and rounded.

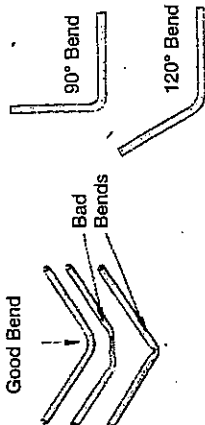
## BENDING GLASS TUBING



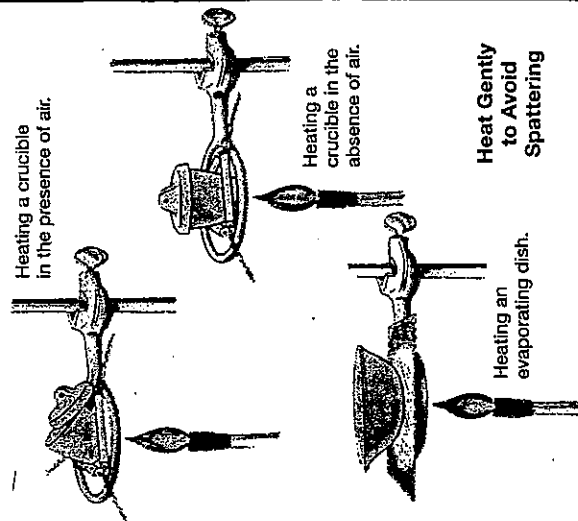
Use a wing top on the burner. Rotate tubing in the flame until the glass becomes soft and the flame becomes yellow.

Remove from flame and hold for two seconds to distribute heat evenly.

Bend ends upward with a smooth, even motion.



## HEATING A CRUCIBLE AND EVAPORATING DISH



Heating a crucible in the presence of air.

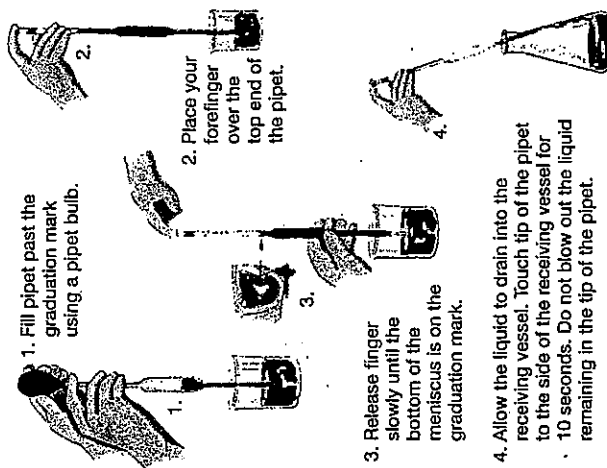
Heating a crucible in the absence of air.

Heat Gently to Avoid Spattering

Heating an evaporating dish.

## PIPETING

Never Pipet by Mouth



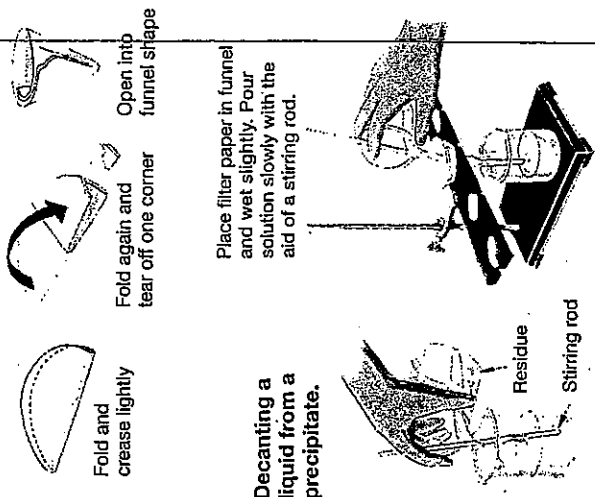
1. Fill pipet past the graduation mark using a pipet bulb.

2. Place your forefinger over the top end of the pipet.

3. Release finger slowly until the bottom of the meniscus is on the graduation mark.

4. Allow the liquid to drain into the receiving vessel. Touch tip of the pipet to the side of the receiving vessel for 10 seconds. Do not blow out the liquid remaining in the tip of the pipet.

## FILTERING AND DECANTING



Fold and crease lightly

Open into funnel shape

Decanting a liquid from a precipitate.

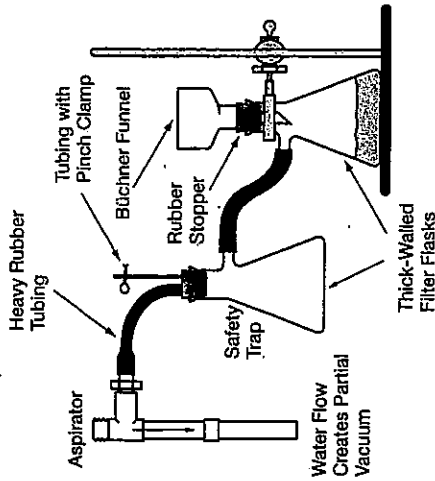
Place filter paper in funnel and wet slightly. Pour solution slowly with the aid of a stirring rod.

Residue

Stirring rod

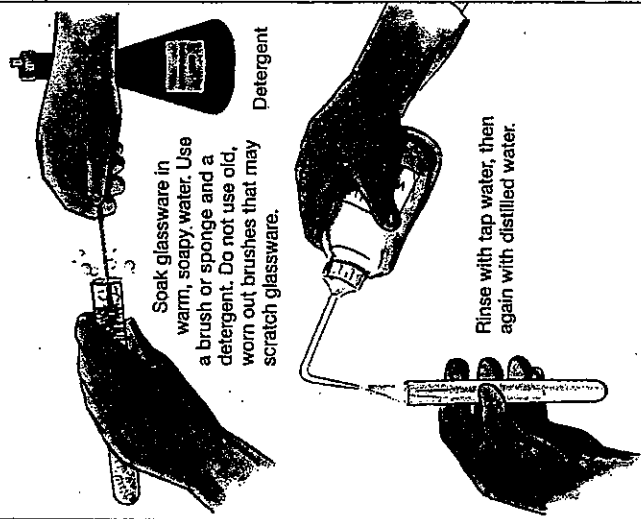
# Laboratory Techniques Guide

## SETTING UP A VACUUM FILTRATION

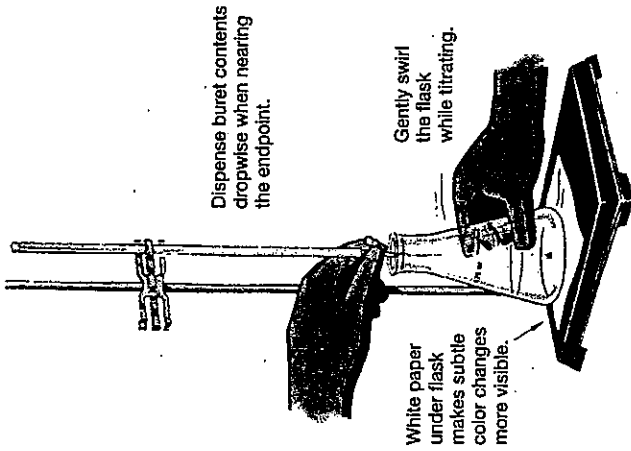


A safety trap is recommended to prevent water from backing up into filter flask. Both the filter flask and safety trap should be clamped to ring stands.

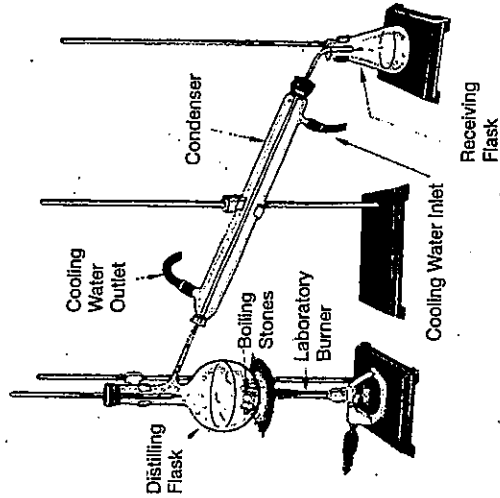
## CLEANING GLASSWARE



## USING A BURET

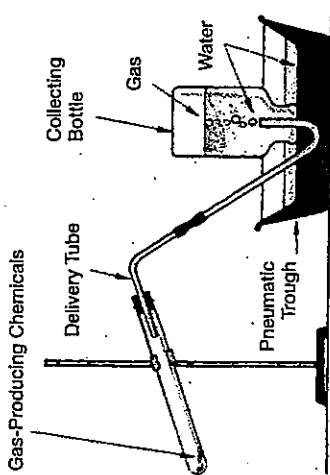


## DISTILLING LIQUIDS

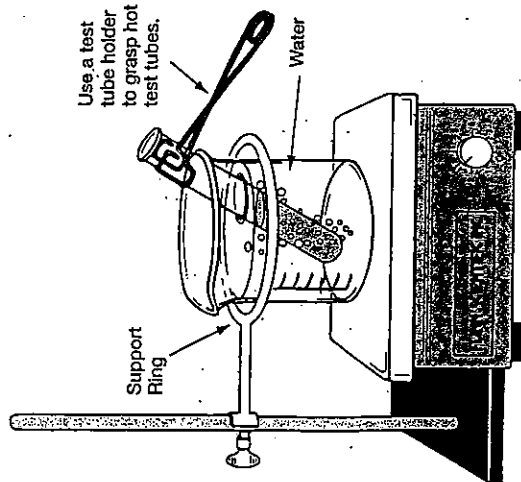


Do not distill to dryness. Use extreme caution when distilling mixtures containing flammable liquids.

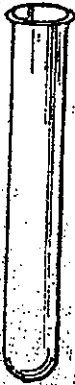
## COLLECTING GAS BY WATER DISPLACEMENT



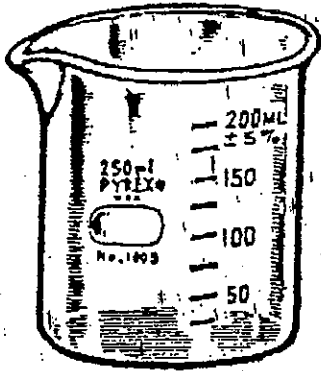
## USING A HOT WATER BATH



SOME COMMON CHEMISTRY LABORATORY EQUIPMENT

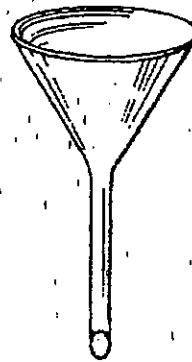
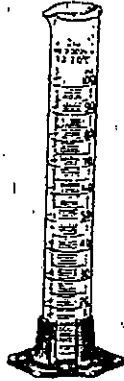


Test Tube

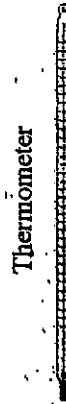


Beaker

Graduated Cylinder



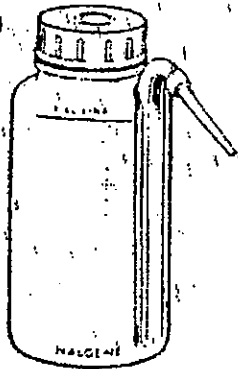
Funnel



Thermometer



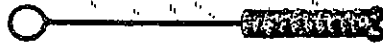
Wash Bottle



Wash Bottle

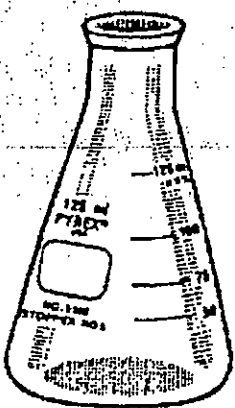


Test Tube Holder

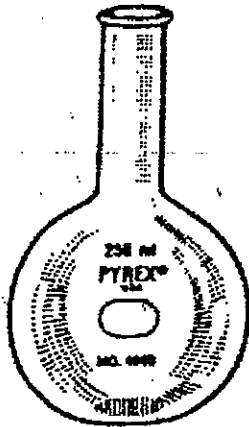


Test Tube Brush

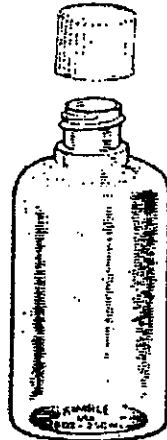
Volumetric Flask



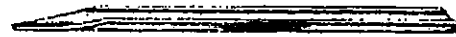
Erlenmeyer Flask



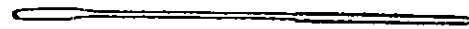
Florence Flask



Storage Bottle



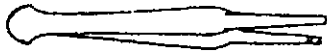
Chem Scoop



Spatula



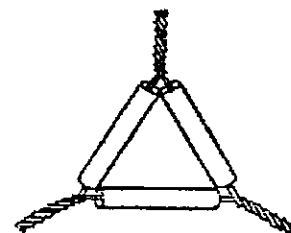
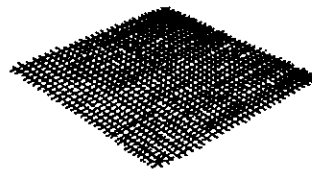
Crucible Tongs



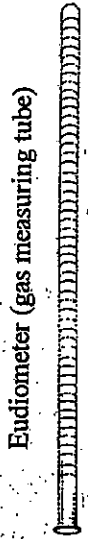
Forceps



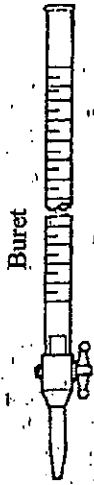
Rubber Policeman



# SOME COMMON CHEMISTRY LABORATORY EQUIPMENT



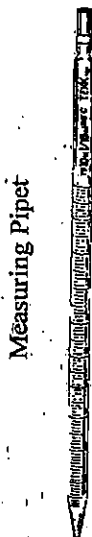
Eudiometer (gas measuring tube)



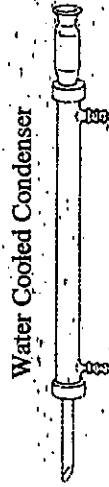
Buret



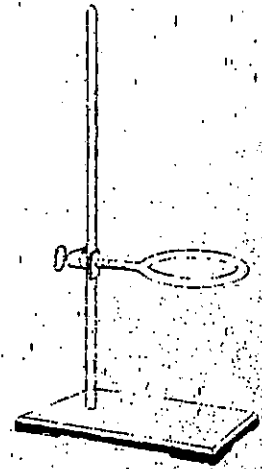
Transfer Pipet



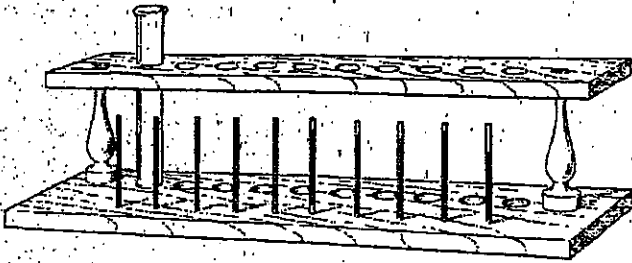
Measuring Pipet



Water Cooled Condenser



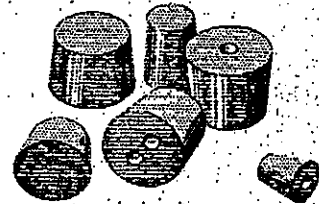
Ringstand and Ring



Test Tube Rack with a Test Tube



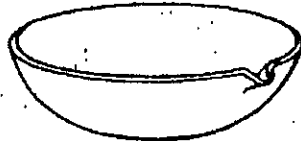
Medicine Dropper



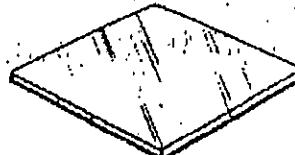
Rubber Stoppers



Crucible and Cover



Evaporating Dish



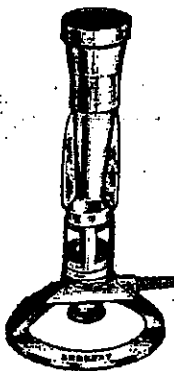
Glass Plate



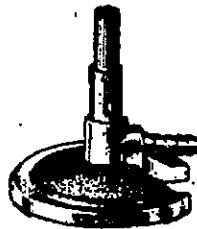
Mortar and Pestle  
(The Mortar has the bowl)



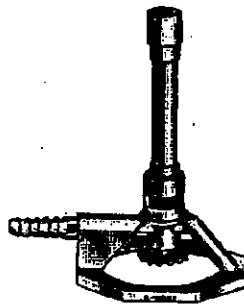
Triangular File



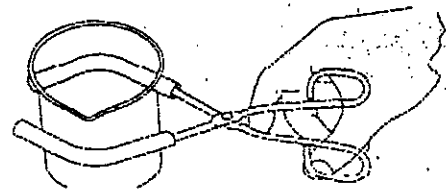
Meker Burner



Microburner



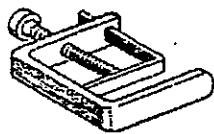
Tirrel Burner



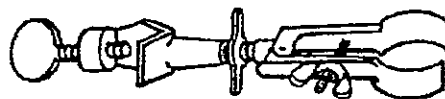
Beaker Clamp



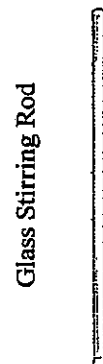
Pinch  
Clamp



Hoffman Clamp

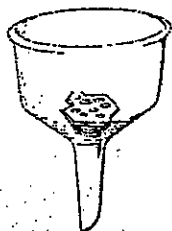


Buret or Test Tube Clamp

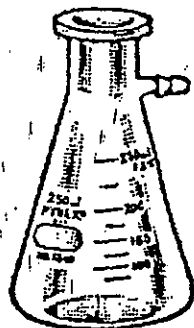


Glass Stirring Rod

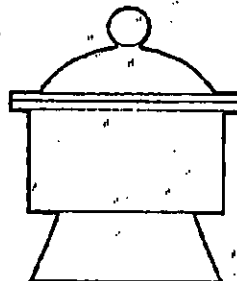
SOME SPECIAL AP CHEMISTRY LABORATORY EQUIPMENT



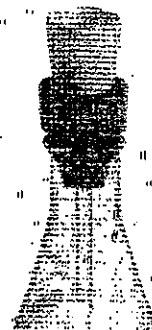
Büchner Funnel



Filtration Flask  
Side Arm Flask



Desiccator



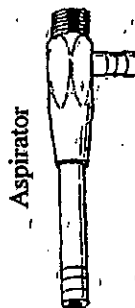
Gooch Crucible  
Holder



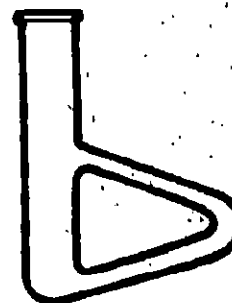
Gooch Crucible



2 mL  
Rubber  
Bulb



Aspirator



Thiele Melting Point Tube