Science 10 Lab Introduction

Part A: Safety Questions

Using whatever resources (friends, google, teacher, etc.) answer the following questions to the best of your ability:

1. Where is the broken glass container in this room?

2. Your lab partner accidentally lights their sleeve on fire while using a Bunsen burner. What do you do?
   a) Continue with the experiment
   b) Yell and start running around frantically
   c) Bring them to the eyewash station
   d) Grab the fire blanket and put it on them

3. When should the safety shower be used? Give two different examples.

4. If you get a chemical in your eye you should:
   a) Not worry about it and continue with the experiment
   b) Walk to the eye wash station and rinse for 15 minutes
   c) Rub your eyes and wipe them with paper towel
   d) Use a fire extinguisher

5. Where is the fire extinguisher in the classroom?

6. Circle at least three safety precautions you should take when using a Bunsen burner.

Papers everywhere near the burner	Run into the person lighting the burner	Wear goggles	Eat near the burner
Wear high heels	Tie hair back	Keep the hair looking good	Wear closed toed shoes
Have the gas on high	Leave your bag on the lab counter	Have the gas low	Keep the gas off
Ensure clothing is not in the way	Use a proper flint	Use a lighter	Clear the desk of clutter

Part B: Lab Equipment

You are expected to know the names and functions of the equipment found in the lab. *Please cut out the picture of each piece of equipment described in this chart (from the back page) and glue it in the appropriate spot!*

Name	Function	Picture
Bunsen burner	Lab equipment which produces a single open gas flame, that is used for heating, sterilization, and combustion	
Graduated cylinder	Used to accurately measure the volume of liquids	
Beaker	Probably the most common vessel for holding liquids in the lab	
Support stand	Used in many lab activities as the support for another apparatus	
Mortar & pestle	Tool used to crush, grind, and mix solid substances	
Safety goggles	Must be worn for lab activities to protect the eyes	
Watch glass	Used in chemistry as a surface to evaporate a liquid, to hold solids while being weighed, or as a cover for a beaker	
Rubber stoppers & Corks	Used to contain liquids in test tubes and flasks	
Pipets, Micropipettes & Droppers	A pipette (also called a pipet, pipettor or eye dropper) is a laboratory instrument used to transport a small, measured volume of liquid	
Wash bottle	A squeeze bottle with a nozzle, used to rinse various pieces of laboratory glassware, such as test tubes and round bottom flasks	

Spatula & Scoopula	A spatula is used to take and handle small quantities of solid chemicals. It serves as a spoon	
Test-tube rack	Used to holds many test tubes.	
Clay triangle	Can be placed on an iron ring to provide a stage for a crucible	
Test tubes	Used for many activities which requires multiple chemicals or solutions	
Test tube clamp	May be attached to a ring stand and be made to hold a test tube or thermometer	
Ring clamp	Often attached to a support stand to use as support for a beaker	
Funnel	May be placed in a ring clamp. Used for filtration or the delivery of liquids.	
Wire gauze pad	Often placed over the ring clamp, to provide a “stage” for a beaker	
Erlenmeyer flask	May be used to hold liquids instead of beakers, when a smaller opening is preferred.	
Test tube tongs	Used to handle hot beakers and other glassware	

Part C: Use of Lab Equipment

Explain which piece of lab equipment (from your chart) would be <u>most</u> useful for each of the following tasks:

1) Holding 50 mL of boiling water: _____

2) Measuring exactly 43.0 mL of water: _____

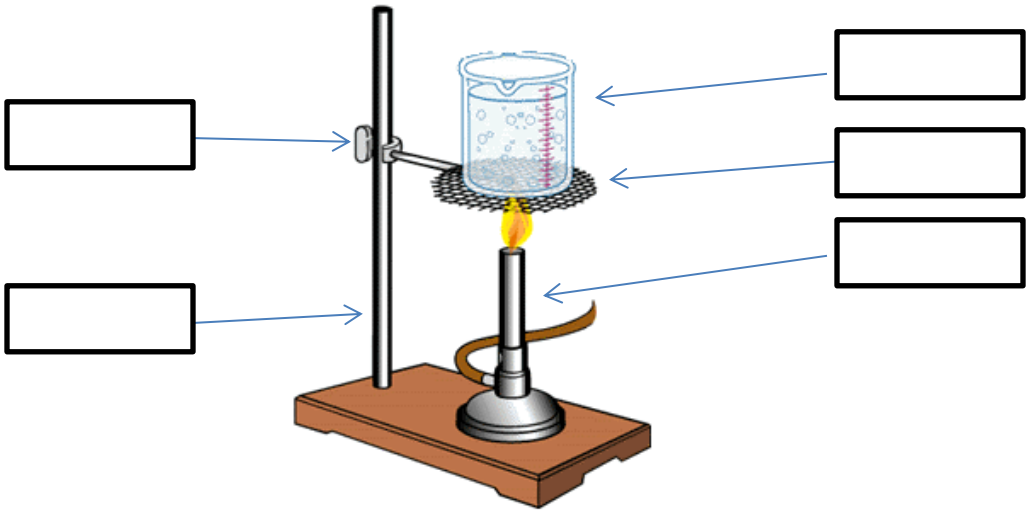
3) Crushing large chunks of sodium chloride:_____

4) Adding 10 drops of iodine to a solution:_____

5) Suspending a test tube over a Bunsen burner:_____

6) Keeping the contents of a boiling beaker from splattering:_____

7) The picture below shows a typical setup for boiling a liquid. In the boxes provided, name the five items used:



Part D: Bunsen Burner Demonstration

Watch as your teacher goes through the proper procedure for safely lighting a Bunsen burner.

Part E:

Generating and Burning Hydrogen Gas

Purpose: To react zinc metal with hydrochloric acid and test whether the gas produced is hydrogen.

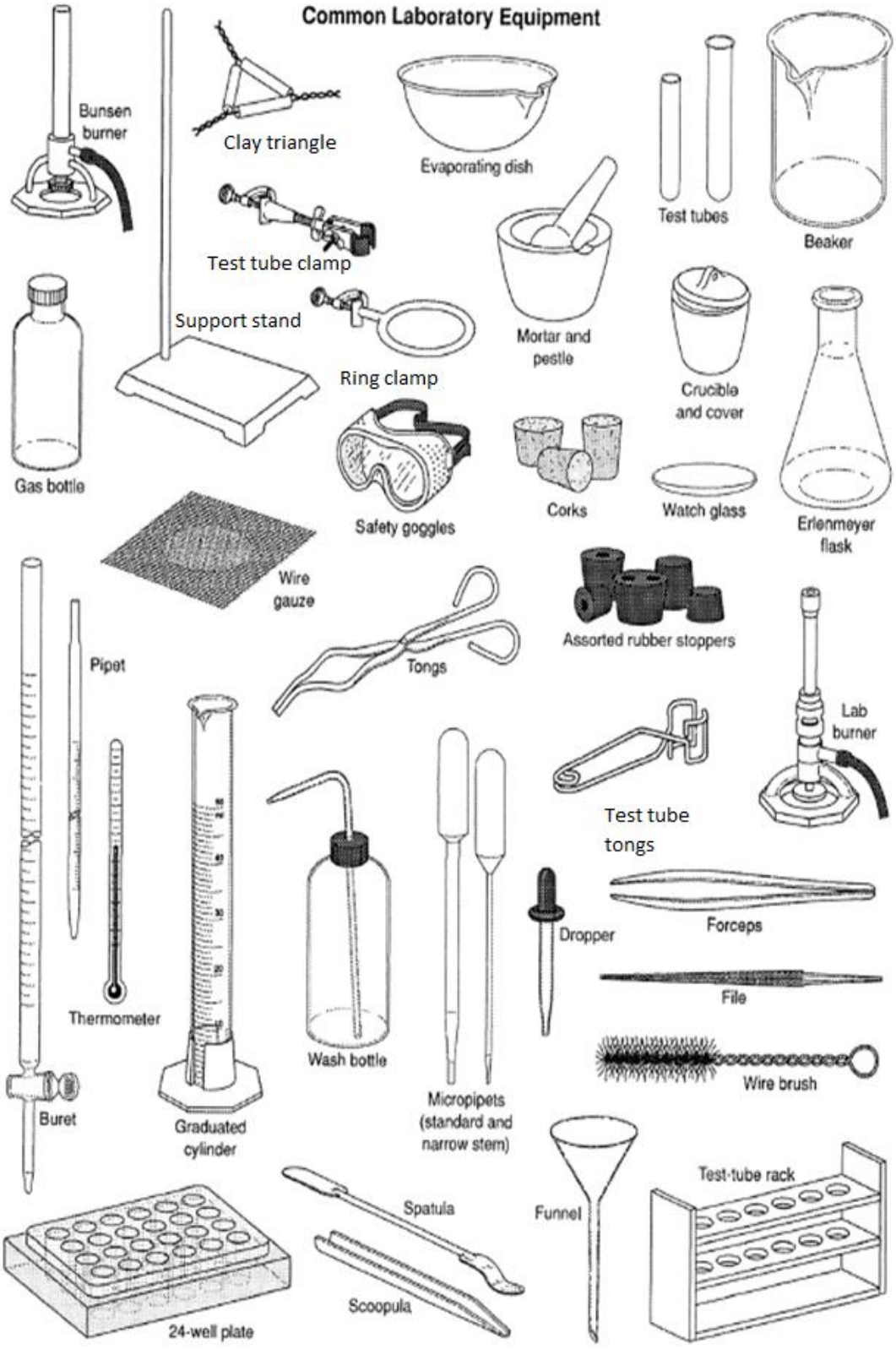
Materials:

- Bunsen burner
- Striker
- Wooden splint
- Medium diameter test tube
- Large diameter test tube
- Test tube tongs
- 100mL beaker (to use as a holding container for the test tube)
- Dilute hydrochloric acid (HCl) solution
- Mossy zinc metal

Procedure:

1. Rinse both test tubes out with water and "flick dry". Place the dry test tubes in the 100mL beaker.
2. Set up a Bunsen burner and light it. Have a wooden splint nearby. ***DO NOT LEAVE A LIT BUNSEN BURNER UNATTENDED!!***
3. Carefully pour HCl into the medium test tube until it is no more than 1/3 full. ***DO NOT OVERFILL THE TEST TUBE!***
4. Rub your piece of mossy zinc with paper towel, being sure not to touch it with your hands (it won't hurt you but the oils from your hands will impede the reaction).
5. Carefully drop the mossy zinc into the medium test tube then quickly invert the large test tube over it, holding onto the large test tube with the test tube tongs.
6. Wait for approximately **1 minute** for the gas to generate.
7. Light the wooden splint and allow it to burn for about **5 seconds** to ensure the flame won't immediately go out.
8. Lift the large test tube away from the medium one, keeping it inverted.
9. Angle the large test tube approximately 45 degrees and quickly place the burning splint in the mouth of the test tube.

Clean-up: Any unreacted zinc goes in the waste container in the fume hood. Clean all other equipment and return it to where you found it. The remaining acid can go down the sink with lots of running water. ☺


Common Laboratory Equipment
Bunsen burner
Clay triangle
Evaporating dish
Test tubes
Beaker
Test tube clamp
Support stand
Mortar and pestle
Ring clamp
Crucible and cover
Gas bottle
Safety goggles
Corks
Watch glass
Erlenmeyer flask
Wire gauze
Assorted rubber stoppers
Tongs
Pipet
Lab burner
Test tube tongs
Dropper
Forceps
Thermometer
Wash bottle
File
Micropipets (standard and narrow stem)
Wire brush
Buret
Graduated cylinder
Funnel
Test-tube rack
Spatula
Scoopula
24-well plate