

Physical & Chemical Changes Lab

Name _____ Per: _____

Fill in the tables below by recording the kinds of observations requested at each station. **Please notice there are places where you have choice: choose either A or B, either D or E, either F or G.**

PICK ONE OF THESE	1. Station A – copper(II) sulfate and water		
	Record 3 physical properties of the copper(II) sulfate before adding water. 1) 2) 3)	Record 3 intensive properties after the change. 1) 2) 3)	What type of change? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical
PICK ONE OF THESE	2. Station B – aluminum foil and copper(II) chloride		
	Record 2 physical properties of copper(II) chloride before the change: 1) 2) Record 1 physical property of aluminum foil before the change: 3)	Record 3 observations of what you see happening in the test tube. 1) 2) 3)	What type of change? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical
3. Station C – drops of water on hot plate - EVERYBODY DOES THIS ONE			
PICK ONE OF THESE	In the space below, sketch a diagram of liquid water at the particle scale.	What state of matter is the water in after the change? _____ Sketch this state at the particle scale below:	What type of change? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical
PICK ONE OF THESE	4. Station D – post-1982 penny in Bunsen burner		
	Record 1 observation about the penny before heating. 1) Record 2 observations about the penny while heating. 2) 3)	Record 3 observations about the flame while heating the penny. 1) 2) 3)	What type of change occurred to the penny? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical What type of change occurred to the natural gas? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical

	5. Station E – magnesium ribbon in Bunsen burner		
	Record 2 physical properties of the magnesium ribbon before the change: 1) 2) Record 2 physical properties of the magnesium ribbon after the change: 3) 4)	Classify each of your observations as intensive or extensive: 1) 2) 3) 4)	What type of change occurred to the magnesium ribbon? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical What type of change occurred to the natural gas? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical
PICK ONE OF THESE	6. Station F – lead(II) nitrate and potassium iodide		
	Record 3 observations during the change: 1) 2) 3)	Classify each of your observations as intensive or extensive: 1) 2) 3)	What type of change occurred? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical
	7. Station G – cutting paper		
	Record 3 qualitative observations before the change: 1) 2) 3)	Record 3 quantitative observations after the change: 1) 2) 3)	What type of change occurred? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical
	8. Station H – baking soda and vinegar - EVERYBODY DOES THIS ONE		
	Record 3 observations as the baking soda reacts with the vinegar. 1) 2) 3)	What type of change occurred to the mixture? <input type="checkbox"/> Physical <input type="checkbox"/> Chemical	Use these observations to justify your decision on the type of change:
	9. Real World Application: You go down to Milk and Sugar and order your favorite (Zanzibar Chocolate) in a waffle cone. Describe the changes that occur from the moment you take the first bite until you have that pleasantly full feeling in your belly. (You must list at least 4 changes that occur either to the ice cream treat or to your body.) 1) 2)		
		3) 4)	

STATION A:

1. Select several small crystals of copper(II) sulfate.
2. Using a graduated cylinder, measure 10 mL of water and place it in a test tube.
3. Drop the copper(II) sulfate crystals into the water. Use a stopper to close the test tube and shake the contents to promote interaction of particles.

SAFETY ----- Safety glasses

CLEANUP --- Pour test tube contents in waste beaker. Place used test tube in “Dirty Test Tube” rack.

STATION B:

1. Obtain a small piece of aluminum (Al) foil.
2. Roll it into a VERY loose ball that can easily fit inside the test tube.
3. Measure 5-mL of copper(II) chloride
4. Pour the copper(II) chloride solution in a test tube.
5. Drop the aluminum foil into the solution. Wait for a few minutes and make your observations.

SAFETY ----- Safety glasses

CLEANUP --- Pour test tube contents in waste beaker. Place used test tube in “Dirty Test Tube” rack.

STATION C:

1. Turn hot plate to its highest marking.
2. Obtain a dropper of water.
3. Drip a few drops of water onto the pre-heated hot plate.
4. Make observations about what happened.

SAFETY ----- When the hot plate is HOT you CANNOT tell. Do not touch the hot plate with your bare hands!

STATION D:

1. Examine a **post 1982** penny.
2. Light a Bunsen burner and adjust the flame until it is blue where no yellow or orange appears and that you observe a small cone inside the flame. (Adjust the air intake).
3. Using tongs, hold the penny in the outer portion of the flame until you see a change occur.

SAFETY --- Have flame or striker handy before gas valve is opened. Light the burner immediately. Have all hair and loose clothing put back. Do NOT leave a lit burner unattended.

CLEANUP --- Turn off the gas. Once the penny is cool, place it in the waste beaker.

STATION E:

1. Examine a small piece of magnesium (Mg) ribbon.
2. Using the crucible tongs, hold the piece of magnesium ribbon in the outer portion of the Bunsen burner flame (CAUTION!)

SAFETY --- Have flame or striker handy before gas valve is opened. Light the burner immediately. Have all hair and loose clothing put back. Do NOT leave a lit burner unattended.

CLEANUP --- Turn off the gas. Once the material is cool, place it in the waste beaker.

STATION F:

1. Using the provided dropper, measure out 1 mL of lead(II) nitrate into a test tube.
2. Using the provided dropper, examine the potassium iodide (KI) or sodium iodide (NaI) solution inside the dropper.
3. Add 1 mL of potassium iodide solution to the lead(II) nitrate in the test tube.

SAFETY --- Safety glasses. If any of the solutions get on your skin, wash your skin immediately.

CLEANUP --- Pour contents of test tube in the waste beaker. Place test tube in the “Dirty Test Tube” rack.

STATION G:

1. Obtain one piece of 3" X 5" paper
2. Using a pair of scissors cut the paper in such a way that you end up with a hole large enough for you to slip it over your head.
 - You may NOT use tape.
 - You may NOT clasp the ends together.
 - The hole must be one continuous shape.
 - Yes! This can be done.

SAFETY --- Do not cut yourself

CLEANUP -- Place all trials in the recycle bin.

STATION H:

1. Measure out $\frac{1}{2}$ scoop of baking soda
2. Place the baking soda in a small beaker.
3. Place this beaker into the trench. (The trench is between the lab stations.)
4. Using a graduated cylinder, measure 10 mL of vinegar.
5. Pour the vinegar into the beaker.
6. Record observations

SAFETY --- Safety glasses

CLEANUP --- Pour contents of beaker into the waste beaker. Rinse out the small beaker and dry it off with a paper towel.