

Periodic Table Lab:

You will be given a bag containing 20 items. As scientists, it's your job to group these items into families and periods, based on their observable properties. You may make as many families and periods as you like, but there should be some order to how they are arranged. Use the rest of this sheet to draw your periodic table, and make sure you use a ruler!

Postlab questions:

- . 1) What was the main property you used to classify the elements into groups? Explain why you chose this property and not another.

- . 2) Explain how you decided which element should go at the top of each column and which should go at the bottom.

- . 3) Look at the way another lab group arranged their elements. Is it the same as the way you arranged yours? Why or why not?

- . 4) Did you have disagreements within your group about how these elements should be arranged? If so, explain how these disagreements were resolved.

- . 5) Does this exercise give you any insight as to why it may have been difficult to invent the first periodic table? Explain.

Periodic Table Worksheet

For questions 1-4, fill in the blanks with the correct word or phrase:

- . 1) The _____ are reactive, light metals that form ions with a charge of +1.
- . 2) The _____ are dense, strong metals that have high melting and boiling points.
- . 3) _____ are unreactive, nonmetallic gases.
- . 4) _____ are mainly radioactive, manmade elements.

Answer the following questions:

- . 5) What are the properties of the alkaline earth metals?
- . 6) What are the properties of the halogens?
- . 7) What similarities to elements in the same family share?
- . 8) What similarities to elements in the same period share?

Make your own Periodic Table

You've heard how the periodic table was invented and had a chance to make one in class. Now that you're a pro at classifying elements, you get a chance to make your very own periodic table using real elements. If you do this correctly, your classification scheme should be the same as the actual periodic table.

Unfortunately, you're not going to be given the names of the elements or a complete list of their properties. Using partial information (such as scientists had in the old days), see if you can arrange these real elements into their proper periods and families. One hint: These elements should be arranged into a grid that's three boxes tall by four boxes wide, with no blank spaces.

In no particular order:

Element 1: Solid, metal, does not corrode in air, density = 1.85 g/mL.

Element 2: Yellow gas, highly dangerous to handle, toxic in low doses.

Element 3: White, shiny, metallic solid, reacts slightly in air, density = 1.55 g/mL

Element 4: Colorless gas, stable in air, forms very few chemical compounds.

Element 5: White, shiny metallic solid, unreactive, good electrical conductor, ductile, density = 10.5 g/mL.

Element 6: Orange-red metallic solid, ductile, density = 8.9 g/mL.

Element 7: White metallic solid, reacts easily in air, density = 3.5 g/mL.

Element8: Colorless gas, unreactive with any element.

Element9: Red nonmetallic liquid, irritates skin and lungs.

Element10: Colorless gas, denser than air, forms no chemical compounds.

Element 11: Radioactive metalloid, very little known about its properties.

Element 12: Yellow metallic solid, extremely malleable, unreactive with most chemicals, density = 19.3 g/mL.

Good luck!

Place the element numbers in the grid below.
