

PERIODIC TABLE INTRO MINI-LAB

OBJECTIVES

- To familiarize yourself with the layout of the periodic table.
- To examine general characteristics of the elements.

PROCEDURE

Directions: Using the periodic table, answer the questions and follow the coloring directions. You may write answers on loose leaf or on the back of the periodic table.

QUESTIONS

- 1) You knew some of the element symbols from previous years of school. List the ones you already knew before you took this class.
- 2) Give the names and chemical symbols of the three most important elements, in your opinion.
- 3) See #2. Why did you choose each of them?
- 4) Refer to the element chlorine on the periodic table.
 - a. What is its symbol?
 - b. What is its atomic number?
 - c. What is its atomic mass?
 - d. What state of matter is it most stable in at room temperature?
- 5) List one way that the periodic table is arranged in order.
- 6) Where are the Lanthanide and Actinide series elements located?

The periodic table is arranged into 18 vertical groups and 7 horizontal periods. The placement of each element is deliberate.

- 7) Give the *group* and *period* numbers of the following elements:
(Example-- Na: group 1 or I A, period 3)

	symbol	atomic number
a.	Rb	37
b.	W	74
c.	Zn	30
d.	B	5
e.	Ne	10

The atomic number corresponds to the number of protons in the nucleus of an atom.

- 8) What is the largest atomic number shown on the entire table?
- 9) How many *protons* do the following elements' atoms contain?
 - a. He
 - b. Ir
 - c. Cf
 - d. P
 - e. Rn
- 10) Give the *name* and *symbol* of the elements having these atomic numbers:
 - a. 19
 - b. 47
 - c. 54
 - d. 82
 - e. 92

Atoms can be identified by their state of matter.

- 11) Using the symbol key as a guide (use the wall or textbook periodic table), count *how many* elements are...
- gases
 - liquids
 - solids
 - synthetic (not naturally occurring)
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Element symbols only have one capital letter. Compounds are formed from more than one element, and they are easily identifiable by more than one capital letter in the formula.

- 12) Are the following *elements* or *compounds*?
- Na
 - NaCl
 - H₂SO₄
 - CO₂
 - C
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The “staircase” on the periodic table is a dividing line between metals and nonmetals. Those elements on the staircase (except Al) are called metalloids.

- 13) Are the following elements METALS or NONMETALS?

	symbol	atomic number
a.	Fr	87
b.	Ca	20
c.	S	16
d.	Xe	54
e.	Lr	103

- 14) List the symbols of the metalloids (semimetals, semiconductors).
15) How many nonmetals are there?
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Coloring and other directions...

You will need three light colors and three dark colors. Make a color key on your table.

- 16) On your periodic table, color the metal element boxes one light color of your choice.
17) Color the nonmetals another light color of your choice.
18) With a dark color, draw in the “staircase.” Color the metalloids another light color of your choice.
19) Using a different dark color, draw a colored border around each gas element box.
20) Using a different dark color, draw a colored border around each liquid element box.