Periodic Table Basics

Step 1: Complete the square for each element by filling in the atomic number, name, & atomic mass.

Step 2: Determine the number of protons, neutrons, and electrons in an atom of each element.

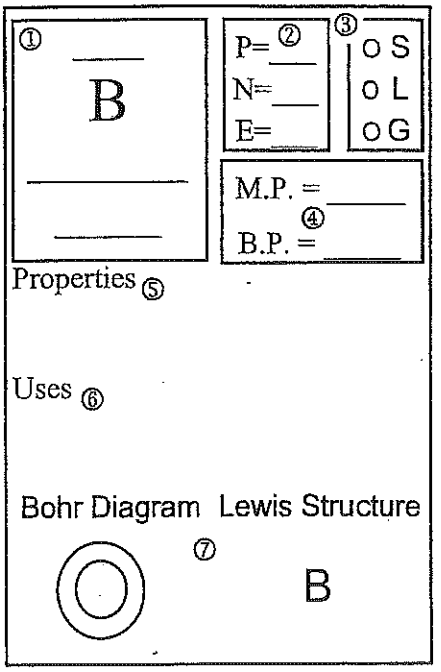
Step 3: Identify if the element is a solid, liquid, or gas at room temperature.

Step 4: Give the melting (M.P.) and boiling points (B.P.) in degrees Celsius.

Step 5: List at least three physical or chemical properties for each element.

Step 6: List at least three uses for each element.

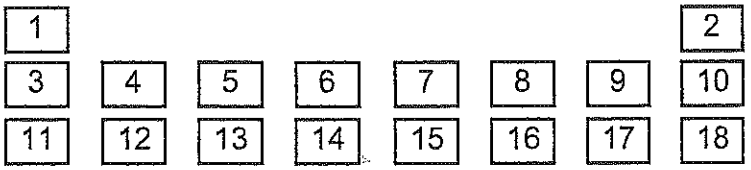
Step 7: Draw a Bohr diagram and Lewis Structure to show the arrangement of electrons and the number of valence electrons.



Step 8: Use the following colors to shade in the square for each element. You should ONLY color the small square in the upper left-hand corner and not the entire card.

Green = Li & Na	Pink = O & S	Blue = Be & Mg	Purple = F & Cl
Orange = B & Al	Red = C & Si	Tan = N & P	Yellow = He, Ne, & Ar

Step 9: Cut the cards apart and arrange <u>according to atomic number</u> in the pattern shown. Once you have the cards arranged in the correct order, glue them to a large sheet of construction paper.



Done? Answer the questions on the worksheet using the information on your Periodic Table!

The Science Spot

Need information? Visit the Periodic Table links on the <u>Chemistry</u> page of the <u>Kid Zone</u>!

Go to http://sciencespot.net/
and click the Kid Zone graphic!

Al

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram

Lewis Structure

Al

N

P=___
N=___
E=___

o S
o L
o G

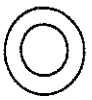
M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram



Lewis Structure

N

S

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram

Lewis Structure

S

Li

P=___
N=___
E=___

o S
o L
o G

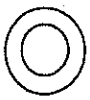
M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram



Lewis Structure

Li

Si

P=___
N=___
E=___

o S
o L
o G

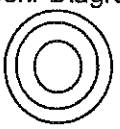
M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram



Lewis Structure

Si

Be

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram

Lewis Structure

Be

Na

P=___
N=___
E=___

o S
o L
o G

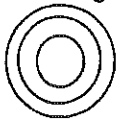
M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram



Lewis Structure

Na

Ne

P=___
N=___
E=___

o S
o L
o G

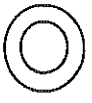
M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram



Lewis Structure

Ne

Cl

P=___
N=___
E=___

o S
o L
o G

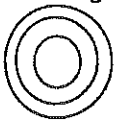
M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram



Lewis Structure

Cl

B

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram Lewis Structure

B

H

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram Lewis Structure

H

O

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram Lewis Structure

O

P

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram Lewis Structure

P

C

P=___
N=___
E=___

o S
o L
o G

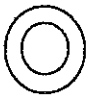
M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram Lewis Structure



C

Mg

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram Lewis Structure

Mg

F

P=___
N=___
E=___

o S
o L
o G

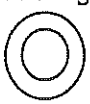
M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram Lewis Structure



F

Ar

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram Lewis Structure

Ar

He

P=___
N=___
E=___

o S
o L
o G

M.P. = _____

B.P. = _____

Properties

Uses

Bohr Diagram Lewis Structure

He

Periodic Table Basics Name _____

Use your periodic table to answer each question.

1. How many elements in your table were:

   (a) solids? _____ (b) liquids? _____ (c) gases? _____

2. Which elements had complete outer shells? Give the name and symbol for each.

   _____ _____ _____ _____ _____ _____

3. What do you notice about the location of the elements in Question #2?

4. Which elements had only one valence electron? Give the name and symbol for each.

   _____ _____ _____ _____ _____ _____

5. What do you notice about the location of the elements in Question #4?

6. What do you notice about the number of valence electrons as you move from left to right across a period (or row) in the periodic table? (Example: Na → Ar)

7. What do you notice about the number of valence electrons as you move down a group or column in the periodic table? (Example: H → Li → Na)

8. What do you notice about the number of energy levels or shells as you move down a group or column in the periodic table? (Example: H → Li → Na)

9. What do you notice about the melting points as you move from left to right across a period (or row) in the periodic table? (Example: Li → Ne)

10. What do you notice about the boiling points as you move from left to right across a period (or row) in the periodic table? (Example: Li → Ne)

11. Each column or group in the periodic table is called a family. Elements are organized into families according to their physical and chemical properties. Identify the elements that belong to each family based on the number of valence electrons. Give the name and symbol for each element.

HINT: You will only use the elements you colored in Step 8!

Alkali Metals - 1 valence electron _____ _____ _____ _____

Alkaline Earth Metals - 2 valence electrons _____ _____ _____ _____

Boron Family - 3 valence electrons _____ _____ _____ _____

Carbon Family - 4 valence electrons _____ _____ _____ _____

Nitrogen Family - 5 valence electrons _____ _____ _____ _____

Oxygen Family - 6 valence electrons _____ _____ _____ _____

Halides - 7 valence electrons _____ _____ _____ _____

Noble Gases - Complete outermost shell

_____ _____ _____ _____ _____ _____

12. What do you notice about the location of the elements in each family?

13. How would you classify hydrogen? Give at least one reason.

14. Do any of the elements have similar properties? If yes, list the names of the elements and the properties they have in common.

15. Do any of the elements have similar uses? If yes, list the names of the elements and the uses they have in common.

Challenge: Predict the number of valence electrons for each element based on its location in the Periodic Table of Elements. You will need to use the periodic table in your textbook.

Barium = _____ Lead = _____ Xenon = _____ Potassium = _____