

Title of Activity: Ionic Bonding Puzzle and Periodic Table **Coloring**

TAKS Student Expectation: 7 (D) relate the chemical behavior of an element including bonding, to its place on the periodic table.

Procedure:

Step one: Color all of the puzzle pieces according to the following rules:

1. Color all puzzle pieces with a +1 charge red.
2. Color all puzzle pieces with a +2 charge orange.
3. Color all puzzle pieces with a +3 charge pink.
4. Color all puzzle pieces with a -1 charge blue.
5. Color all puzzle pieces with a -2 charge purple.
6. Color all puzzle pieces with a -3 charge green.

Step two:

Cut out each of the puzzle pieces.

Step Three:

Look at the attached worksheet (titled Ionic Bonding Cut-Outs and Periodic Table Coloring Worksheet) and use the “puzzle pieces” to show the various compounds.

Step Four:

Once you have finished putting together all of your pieces and you don't have any left over, glue the pieces together on a poster board or large sheet of paper to form the completed compounds. Record the chemical formulas of all the completed compounds on your worksheet and next to the puzzle pieces on the poster board.

Step Five:

Color a periodic table (print one from the internet or ask Ms. Johnson for one) to match the color of your puzzle pieces. Locate the square on the periodic table by the symbol on your puzzle piece. Color the square the same color as the puzzle piece. Ex: K +1 is colored red, so I will color the periodic table square for K red.

Step Six:

Complete the worksheet. Glue the periodic table on the poster board with the completed puzzle pieces. Turn the worksheet and poster board into Ms. Johnson.

Ionic Bonding Cut-Outs and Periodic Table Coloring Worksheet

1. Use your puzzle pieces to combine the following ions to show how they make a compound. Write down the chemical formula for the final compound.

Remember: Positive ion is written first, negative ion is second! Include subscripts to show the number of atoms!

H + F _____

Be + O _____

Be + I _____

Al + N _____

Al + P _____

Li + P _____

Li + F _____

Li + Br _____

Ca + O _____

Ca + S _____

H + O _____

Al + N _____

Al + Br _____

K + Cl _____

K + I _____

Mg + S _____

K + S _____

Rb + I _____

Rb + Br _____

H + Cl _____

2. What happens to the total charge of the compound after the ions bond together? (Hint: add together the charges of the ions in the compound).

3. How many lithium ions are required to bond with one nitrogen ion? Why?

4. How many chlorine ions are required to bond with one aluminum ion? Why?

5. After coloring the periodic table, describe the pattern of colors. How do charges relate to the pattern of colors in the periodic table?

6. Predict the charges for the following: (include the "+" or "-" sign)

Cs _____

Sr _____

In _____

Ra _____

As _____

Se _____

At _____

Fr _____

Ba _____







