Name_____Date_____Hour__

WebQuest: **When Atoms Bond**

You will use 2 video segments and 3 websites to learn more about why and how atoms form bonds. Pay close attention to **bold** terms and always use complete sentences.

Before you begin, consider what you already know:

1. Fill in the chart below with some of what you already know about **substances** and **particles**:

	In your own words, define each term	Draw an image that shows your definition visually.	Give at least 3 examples
Element			
Compound			
Ion			
Chemical Bond			

There are 3 main types of chemical bonding that we will focus on: **ionic** bonding, **covalent** bonding, and **metallic** bonding.

Go to the first weblink and follow the interactive explanations and directions. As you go through the online activity, answer these questions about ionic bonding.

http://www.teachersdomain.org/asset/lsps07_int_ionicbonding/

2. Slide 1 gives an over-simplified explanation of ionic bonding. Complete the following sentences:

Ionic bonds are formed between_____.
Ionic bonding involves the_____of_____.

3. Slides 2 – 4 show you how the charges of ions interact with each other. Use phrases or diagrams to show how ions interact with one another in the following chart:

2 ions with…	Like charges	Opposite charges
At **large** distances from one another		
At **medium** distances from one another		
At **short** distances from one another		

4. Explain the difference between **cations** and **anions**. (You may need to use and cite some resources.)

5. Slide 5 states that "you'll need a positive ion and a negative ion" in order to form an ionic bond. What does this mean for the types of elements that can form ionic bonds with one another? Where are these groups of elements located on the Periodic Table?

6. Slides 9 – 13 show you how an ionic bond between sodium and chlorine would form. Draw a diagram of this new compound including its correct name, positive and negative charges, and the terms "cation" and "anion."

7. What did you observe happened to the size of the two atoms when an electron was transferred? Can you explain this?

8. What is the difference between “chlorine” and “chloride”?

9. Draw a diagram of a “crystal” of salt at the molecular level.

10. The first slide of the tutorial gives you an over-simplified explanation of ionic bonding. In your words, explain how ionic bonds form based on the slides and questions you’ve answered. (Stop at slide 19; you do not need to finish the rest of this online tutorial.)

Go to the second weblink and follow the interactive explanations and directions. As you go through the online activity, answer these questions about covalent bonding.

http://www.teachersdomain.org/asset/lsps07_int_covalentbond/

11. Slide 1 gives an over-simplified explanation of covalent bonding. Complete the following sentences:

Covalent bonds form when atoms are_____.

12. Slide 2 shows two hydrogen atoms.

What happens when their electrons clouds overlap?

What happens when the nuclei get too close?

What happens when you try to separate the two atoms again?

13. What type of elements can form covalent bonds with one another? Where are these elements located on the Periodic Table?

Go to the third weblink to see a different explanation of the 3 major types of bonding.
http://www.teachersdomain.org/asset/lsps07_int_chembonds/

14. Describe what is happening to the electrons within a metallic bond.

15. What types of elements form metallic bonds?

16. Fill in the chart below to compare and contrast 3 major types of chemical bonds:

Type of bond	Ionic bonds	Covalent bonds	Metallic
Type of elements			
Role of electrons			
Diagram of how bonding occurs			
Example compound			