

Study Guide - Unit 3 Bonding

Name KL

hour _____

1. Vocabulary

- a. chemical bond mutual attraction between nuclei + valence electron of dif. atoms
- b. ionic bond bond between cation (metals) and anions (nonmetals), transferred electrons
- c. covalent bond bond between 2 nonmetals, shared electrons
- d. cation (include 2 examples) positive ion, (e⁻ lost) K⁺ Al³⁺ NH₄⁺
- e. anion (include 2 examples) negative ion (e⁻ gained) S²⁻ F⁻ N³⁻ NO₃⁻
- f. valence electrons outer shell electrons
- g. diatomic _____
- h. polyatomic ion ion with more than 1 element (ex: NH₄⁺, SO₄²⁻, PO₄³⁻)
- i. multi-valent (charge) metals metals with more than 1 poss. charge (Roman numerals)
- j. oxidation number charge
- k. ~~superscript~~ _____
- l. subscript Na₂SO₄ (NH₄)₂CO₃
Number that multiple element or right before it (or polyatomic ion)

2. Students will be able to write and identify ionic, and covalent compounds and in name/formula.

- a. Write the rules for naming ionic compounds:

(Name both elements, 2nd has -ide ending)
(Use prefix and never use "mono" on first element)

- b. Write the rules for naming binary covalent compounds:

Ionic
Find ions that fit the balanced

3. Write the name or formula of each and identify the type of naming system used - Ionic or Covalent. Circle the ionic compound formulas that contain a covalent compound.

Name	Formula	Type (C or I)
1. <u>Iron (III) phosphate</u>	FePO ₄	<u>I</u>
3. <u>sodium bromide</u>	HBr NaBr	<u>I</u>
4. <u>potassium nitride</u>	K ₃ N	<u>I</u>
5. <u>diboron tetrabromide</u>	B ₂ Br ₄	<u>C</u>
6. <u>aluminum hydroxide</u>	Al(OH) ₃	<u>I</u>
7. <u>nitrogen trihydride</u>	NH ₃	<u>C</u>
10. <u>disilicon hexabromide</u>	Si ₂ Br ₆	<u>C</u>
11. <u>calcium acetate</u>	Ca(C ₂ H ₃ O ₂) ₂	<u>I</u>
12. <u>ammonium oxide</u>	(NH ₄) ₂ O	<u>I</u>
13. <u>sulfur dioxide</u>	SO ₂	<u>C</u>
14. <u>lithium sulfite</u>	Li ₂ SO ₃	<u>I</u>
15. <u>potassium perchlorate</u>	KClO ₄	<u>I</u>
16. <u>diphosphorus pentoxide</u>	P ₂ O ₅	<u>C</u>
17. <u>Iodine pentafluoride</u>	IF ₅	<u>C</u>
18. <u>manganese (II) phosphate</u>	Mn ₃ (PO ₄) ₂	<u>I</u>
19. <u>zinc nitrite</u>	Zn(NO ₂) ₂	<u>I</u>
20. <u>copper (II) nitrite</u>	Cu(NO ₂) ₂	<u>I</u>

4. Common charges: alkali metals +1, alkaline earth metals +2, halogens -1, noble gases 0