

Name: \_\_\_\_\_ Block: \_\_\_\_\_

### Unit 3 Study Guide Worksheet

**Learning Target 1: I can explain how ionic compounds are formed, and use the periodic table to identify the number of protons and electrons in an ion.** For help, see pgs. 47-51 and also the packet on ionic naming (not taped into notebook).

1. Explain the difference between an ion and an atom (See pg. \_\_\_\_)
2. Explain how an ion is formed.
3. Explain how an ionic bond is created.

4. Fill out the table below.

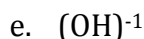
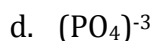
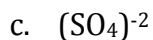
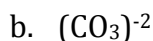
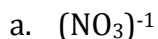
Symbol	Name of ION	Protons	Electrons
K <sup>+1</sup>		16	18
P <sup>-3</sup>			
O <sup>-2</sup>		12	10
	Bromide		36

5. How do we change the name of a negative ion from the atom's name?

Name: \_\_\_\_\_ Block: \_\_\_\_\_

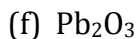
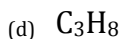
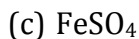
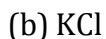
**Learning Target 2: I can write the formula for ionic compounds when given the name.** For help, see page 51 or the Review Worksheet on Page 80. You need to memorize these names and their charges for the test.

- Write the name of the polyatomic ions below.



**Learning Target 3: I can name ionic compounds when given the formula.** For help, see the packet on ionic naming (not taped into notebook).

- Identify if the following compounds are ionic. If so, write the name of the compounds. Use the list of polyatomic ions above if necessary.



**Check your work above. Are there any ions from transition the elements? Do they need polyatomic ions to show the charge?**

- **Write the formula for the following compounds**

6. Iron (III) chloride

7. Lithium oxide

8. Ammonium nitrate

9. Aluminum bromide

Name: \_\_\_\_\_ Block: \_\_\_\_\_

10. Magnesium sulfate

11. Aluminum Sulfide

12. Silver (I) nitrate

13. Calcium nitride

**Using the Mole to find out how much stuff we have**

**Learning Target 4: I can calculate the molar mass of a compound.** For help, see pages 70-74 and mole infographic on page 67.

12. Define molar mass.

13. Calculate the molar mass of  $\text{PbSO}_4$ .

14. Calculate the molar mass  $\text{MgBr}_2$ .

15. Calculate the molar mass of  $\text{Al}_2(\text{SO}_4)_3$

**Learning Target 5: I can use the mass of moles (groups of atoms or molecules) to find out how much of some element or compound I have.** For help, see pages 70-74 and mole infographic on page 67.

**11.** How many moles are in 346 grams of  $\text{PbSO}_4$ ?

**12.** How many moles are in 462 grams of  $\text{Li}_2\text{O}$ ?

Name: \_\_\_\_\_ Block: \_\_\_\_\_

**13.**How many grams are in 4.8 moles of  $\text{Al}(\text{NO}_3)_3$ ?

**14.**How many moles are in 48 grams of  $\text{CaCO}_3$ ?

**15.**How many grams are in 17 moles of  $\text{CaO}$ ?

**16.**How many grams are in 467 moles of  $\text{Zn}_3(\text{PO}_4)_2$ ?

**Using percent composition by mass to find out how much stuff we have**

**Learning Target 6: I can calculate the percent composition of each element in a compound.** For help see page 86 ( I think).

**17.** What percent of magnesium bromide is magnesium?

Name: \_\_\_\_\_ Block: \_\_\_\_\_

18. What percent of aluminum oxide is oxygen?

19. What percent of  $\text{Ca}(\text{NO}_3)_2$  is nitrogen?

20. What percent of  $\text{PbSO}_4$  is Pb?

**Getting information from molecular formulas**

**Learning Target 7: I can determine the molecular formula of a compound.** For help see page 81-84.

21. The empirical formula of the anticancer drug atremanine is  $\text{C}_3\text{H}_6\text{N}_2$ . The experimental molar mass is 210 g/mol. What is its molecular formula?

22. Benzene has the empirical formula CH and an experimental molar mass of 78 g/mol. What is its molecular formula?

23. Oleic acid has the empirical formula  $\text{C}_9\text{H}_{17}\text{O}$ . If the experimental molecular mass is 282 g/mol, what is the molecular formula of oleic acid?

Name: \_\_\_\_\_ Block: \_\_\_\_\_

- **Learning Target 8: I can name the groups on the periodic table**
- **Learning Target 9: I can interpret the organization of the periodic table to distinguish metals from nonmetals.**
- **Learning Target 10: I can describe general properties of some groups on the periodic table**
- **Learning Target 11: I can define a period and identify elements in the same period**

24. Who created the first periodic table?

25. Identify the following groups on the periodic table below:

- Alkali metals
- Alkaline Earth metals
- Transition metals
- Halogens
- Noble Gases

Group

1

1A

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2A

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3B

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4B

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5B

6

6B

7

7B

8

8B

9

9B

10

10B

11

11B

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12B

13

3A

14

4A

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5A

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6A

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7A

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8A

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1A

1.008

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2A

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4B

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Name: \_\_\_\_\_ Block: \_\_\_\_\_

**26.** Name two elements in the Alkali metal group.

**27.** When atoms from the alkali metal group form ions, what charge do they have?

**28.** Name three elements in the halogen group

**29.** When atoms in the alkaline earth group form ions, what charge do those ions have?

**30.** Name 3 elements in period 3.

**31.** Name 3 elements in period 2

**32.** Write three properties of metals

**33.** Write three properties of nonmetals.