Unit 3 Review

1. Describe the shape and volume for a solid, a liquid, and a gas.
2. Describe the arrangement and energy of the particles inside a solid, liquid, and gas.
3. Label the following diagram:

L

6

1

2

5

G

S

3

4

1.

2.

3.

4.

5.

6.

1. What happens to the temperature during a phase change?
2. How can you tell if a substance is a metal, nonmetal, or metalloid?
3. What does it mean if a substance is malleable? Ductile?
4. Where are the metals, nonmetals, and metalloids located on the periodic table?
5. By what number is the periodic table arranged?
6. What are the rows (left to right) on the periodic table called?
7. How many periods are there on the periodic table?
8. What are the columns (up and down) on the periodic table called?
9. What happens to the size of atoms as you move down a family or group? Why?
10. Describe the alkali metals. What is the most reactive element in this family?
11. Describe the halogens. What is the most reactive element in this family?
12. Describe the noble gases.
13. Why are the noble gases unreactive?
14. Why do elements in the same family have similar properties?
15. How many valence electrons does each of the families have?
16. Alkali Metals
17. Alkaline Earth Metals
18. Boron Group
19. Carbon Group
20. Nitrogen Group
21. Oxygen Group
22. Halogens
23. Noble Gases
24. What is the charge for each of the families?
25. Alkali Metals
26. Alkaline Earth Metals
27. Boron Group
28. Carbon Group
29. Nitrogen Group
30. Oxygen Group
31. Halogens
32. Noble Gases
33. Where are the transition metals and rare earth metals located on the periodic table?
34. What is the most abundant metal on Earth? What is the most abundant element on Earth?
35. Which element is in all living things?
36. What element makes up 78% of the air we breathe?
37. Which elements are liquids on the periodic table? Which elements are gases on the periodic table? (11 gases)

Unit 3 Review - Answers

1. Describe the shape and volume for a solid, a liquid, and a gas.

**Solid – definite shape and definite volume**

**Liquid – definite volume, takes the shape of its container**

**Gas – no definite shape, no definite volume**

1. Describe the arrangement and energy of the particles inside a solid, liquid, and gas.

**Solid – Particles and nicely arranged and close to each other, low energy**

**Liquid – Particles are spread out inside the container, medium energy**

**Gas – Particles are as far away from each other as possible, high energy**

1. Label the following diagram:

L

6

1

2

5

G

S

3

4

1.**Melting**

2.**Freezing**

3.**Sublimation**

4.**Deposition**

5.**Condensation**

6.**Vaporization**

1. What happens to the temperature during a phase change?

**Stays the same**

1. How can you tell if a substance is a metal, nonmetal, or metalloid?

**Metals – shiny (luster), malleable, ductile, good conductors of electricity & heat**

**Nonmetals – dull, brittle, poor conductors of electricity & heat**

**Metalloids – good semiconductors**

1. What does it mean if a substance is malleable? Ductile?

**Malleable – can be hammered or shaped without shattering**

**Ductile – can be made into wire**

1. Where are the metals, nonmetals, and metalloids located on the periodic table?

**Metals to the left**

**Nonmetals to the right + hydrogen**

**Metalloids – zigzag line**

1. By what number is the periodic table arranged?

**Atomic number**

1. What are the rows (left to right) on the periodic table called?

**Periods**

1. How many periods are there on the periodic table?

**7**

1. What are the columns (up and down) on the periodic table called?

**Families or Groups**

1. What happens to the size of atoms as you move down a family or group? Why?

**Elements get larger because you are adding energy levels around the nucleus**

1. Describe the alkali metals. What is the most reactive element in this family?

**Highly reactive metals**

**Francium**

1. Describe the halogens. What is the most reactive element in this family?

**Highly reactive nonmetals**

**Fluorine**

1. Describe the noble gases.

**Colorless, Odorless, unreactive gases**

1. Why are the noble gases unreactive?

**Filled outer energy level**

1. Why do elements in the same family have similar properties?

**Same number of electrons in the outer shell (valence electrons)**

1. How many valence electrons does each of the families have?
2. Alkali Metals **1**
3. Alkaline Earth Metals **2**
4. Boron Group **3**
5. Carbon Group **4**
6. Nitrogen Group **5**
7. Oxygen Group **6**
8. Halogens **7**
9. Noble Gases **8 (except Helium – 2)**
10. What is the charge for each of the families?
11. Alkali Metals **+1**
12. Alkaline Earth Metals **+2**
13. Boron Group **+3**
14. Carbon Group **+/- 4**
15. Nitrogen Group **-3**
16. Oxygen Group **-2**
17. Halogens **-1**
18. Noble Gases **no charge**
19. Where are the transition metals and rare earth metals located?

**Transition metals – middle of the table (columns 3 – 12)**

**Rare Earth – bottom rows below the table**

1. What is the most abundant metal on Earth? What is the most abundant element on Earth?

**Metal – Aluminum**

**Element - Oxygen**

1. Which element is in all living things?

**Carbon**

1. What element makes up 78% of the air we breathe?

**Nitrogen**

1. Which elements are liquids on the periodic table? Which elements are gases on the periodic table?

**Liquids – Mercury, Bromine**

**Gases – Hydrogen, Helium, Neon, Xenon, Argon, Krypton, Radon, Nitrogen, Oxygen, Chlorine, Fluorine,**