Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**UNIT 3: Test Review**

**Objective 1: SWBAT read the periodic table.**

1. Which has more neutrons: Rubidium or Zinc?

2. Rank the following elements from **largest** to **smallest** atomic mass.

**Element: Rank:**

Magnesium \_\_\_\_\_\_\_

Potassium \_\_\_\_\_\_\_

Krypton ­­­­­­\_\_\_\_\_\_\_

Copper \_\_\_\_\_\_\_

Indium \_\_\_\_\_\_\_

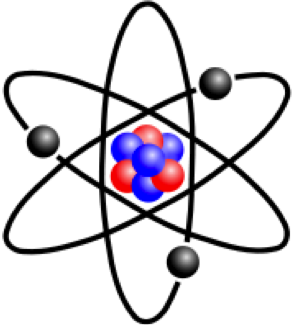
3. Ms. Ingham has identified an atom with an atomic mass of 48, 22 protons, 26 neutrons, and 22 electrons. She thinks it is iron, because iron’s atomic matches the number of neutrons she has found. Is she correct?

**Objective 2: Students will be able to describe structure of the atom.**

4. Label the diagram below with the particles name and charges.

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

Charge:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



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

Charge:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

Charge:\_\_\_Neutral\_\_\_\_\_\_\_\_

5. If an atom is neutral, what does that tell us about the number of protons and electrons the atom has?

6. Which two particles contribute to an atom’s mass? Where are those particles found?

**Objective 3: Students will be able to describe isotopes of an atom and calculate average**

7. Why do isotopes form?

8. List the protons, neutrons, and electrons of each of the three isotopes of oxygen: 16O, 17O, and 18O.

9. Calculate the average atomic mass of an unknown element X that has two stable isotopes, 50X and 80X of equal abundance.

10. Iodine is 80% 127I, 17% 126I, and 3% 128I. Calculate the average atomic mass of iodine.

11. All isotopes will have the same number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but a

different number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Objective 4: Differentiate between element, compound and mixture**

11. What is an element? List **three** examples.

12. What is a compound? List **three** examples.

13. What is a mixture? List **three** examples.

14. What is the difference between a homogenous mixture and a heterogenous mixture?

**Objective 5: Define energy levels in an atom and create Bohr models for common elements.**

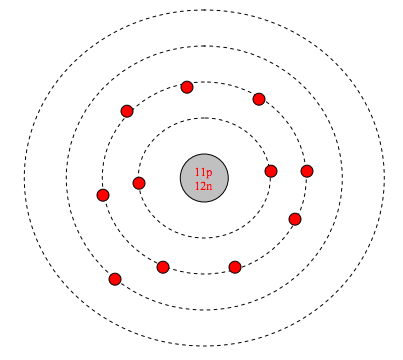
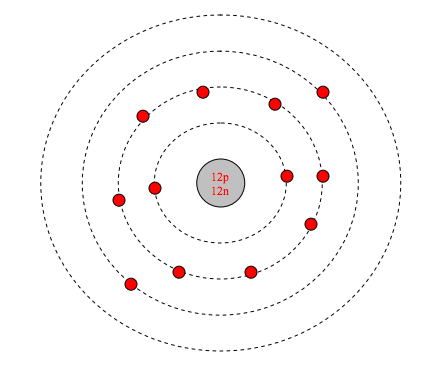
15. How many electrons are in the:

1st level of the Bohr Model:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

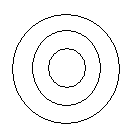
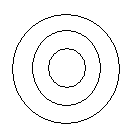
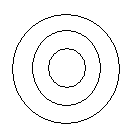
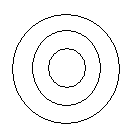
2nd level of the Bohr Model:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3rd level of the Bohr Model:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. Label the following Bohr Models:



17. Draw the correct Bohr Models for the following atoms:

Neon Argon Oxygen Lithium

**Objective 6: Students will be able to define valence electrons.**

18. Fill in the table below with the correct number of electrons in each shell:

|  |  |
| --- | --- |
| **Shell** | **Number of Electrons** |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |

19. Fill in the table below with the correct number of valance electrons for each element:

|  |  |
| --- | --- |
| **Element** | **Valence Electrons** |
| C |  |
| Se |  |
| Rb |  |
| Ne |  |

20. Oxygen forms three stable isotopes of 16O, 17O, and 18O. Do all three isotopes have the same number of valance electrons? Explain.

21. If an atom has 57 electrons, how many are valance electrons? How do you know?

**Objective 6: Students will be able to define an ion and explain the formation of positive and negative ions.**

22. Ions from when an atom gains or loses \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

23. Fill in the table below with the appropriate charges of each atom:

|  |  |  |
| --- | --- | --- |
| **Element** | **Change** | **Charge** |
| Potassium | Lost 1 electron |  |
| Chlorine | Gained 1 electron |  |
| Copper | Lost 2 electrons |  |
| Sulfur | Gained 2 electrons |  |
| Calcium |  | +2 |
| Lead |  | +2 |
| Iron |  | +3 |
| Oxygen |  | -2 |

24. Why do ions form?

**Objective 6: Students will be able to convert among atoms, molar mass, and moles.**

1. How many moles are in 3.5 grams of Tellerium?

2. How many atoms are in 4.7 moles of water?

3. How many atoms are in 17.2 grams of Iodine?

4. How many moles are in 6.5 x 1032 atoms of Strontium?

5. How many grams are in 7.7 x 1077 atoms of NaCl?

6. How many grams are in 0.57 moles of MgS?