**![MC900436917[1]]()The Atom – Test Review Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**1.) History of the atom:** You should be able to summarize the major experimental evidence that led to the development of various atomic models. Also, you should be able to identify evidence supporting the idea that all matter in the universe is composed of the same elements. Answers for the example problems are at the end of this document.

1. **Construct a timeline of the scientists we read/wrote about in class and note their discovery and/or experiment (refer to pgs. 46-59 and 99-100, notes on yellow paper):**
2. **Recognize that all matter in the universe and on earth is composed of the same elements. Where did the elements come from (pgs. 43)?**
3. **List the four evidences of the Big Bang that you highlighted in your books (pgs. 41-43):**

**2.) Structure of the atom:** You should be able to discriminate between the relative size, charge and position of protons, neutrons and electrons. Understand the relationship between proton number and the element’s identity and use the periodic table to correlate the number of protons, neutrons and electrons in an element (including isotopes).

**a. Fill in the Table**

|  |  |  |  |
| --- | --- | --- | --- |
| **Particle** | **Relative Mass (amu)** | **Electric Charge** | **Location** |
| Electron |  |  |  |
| Proton |  |  |  |
| Neutron |  |  |  |

1. **Using your knowledge of the periodic table and the structure of the atom and isotopes, fill in the empty boxes with the appropriate information.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Element/Isotope** | **Atomic Number** | **Mass Number** | **Number of Protons** | **Number of Electrons** | **Number of Neutrons** |
| **Hydrogen-3** |  |  |  |  |  |
| **Iron- 56** |  |  |  |  |  |
| **Magnesium-25** |  |  |  |  |  |
| **Magnesium-26** |  |  |  |  |  |
| **Gold- 197** |  |  |  |  |  |

Example Questions:

1. What are the characteristics of a neutron?
2. They have no mass and a positive charge
3. They have a mass of 1 AMU and a negative charge
4. They have a mass of 1 AMU and a neutral charge
5. They have no mass and a neutral charge
6. What is the atomic number of an element that contains 9 protons, 9 electrons and 10 neutrons?
7. 9
8. 10
9. 19
10. Cannot tell from this information
11. For the element described in #2, it must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (give the element name and symbol).
12. Using the diagram to the right, and the periodic table, what is the atomic number of this element? What element must it be?



1. The elements on the periodic table are arranged according to their \_\_\_\_\_\_\_\_\_\_\_\_.
2. Atomic mass
3. Atomic number
4. Relative size
5. Reactivity
6. **Identify the physical and Chemical properties of an element based on its position on the Periodic Table.** You need to be able to identify properties such as classifying as metal, nonmetal, metalloid, the properties of the families/groups, period, valence electrons, electronegativity, atomic radius

Example Problems

1. For the following elements, indicate whether it is a metal (M), non-metal (NM), or Metalloid (MD): a) NE b) Mn c) Sb d) Si e) P f) Kr
2. Which element listed would behave most similar to magnesium?

a) Sodium b) aluminum c) argon d) calcium

1. The most reactive **metals** are located in the \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ corner of the periodic table.
2. Which of the following elements would have the largest atomic radius?

a) cesium b) sodium c) potassium d) iodine

1. Which of the following elements listed below would have the highest attraction for electrons (electronegativity)? a) calcium b) silver c) fluorine d) Ne