**Chemistry Unit 3 Atoms and the Periodic Table Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Atoms, Ions and Mass Worksheet**

**Use a Periodic Table to fill in the chart and then answer the questions below.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Element Name** | **Element Symbol** | **Atomic Number** | **Mass****Number** | **# of****Protons** | **# of****Neutrons** | **# of****Electrons** | **Charge** |
| **boron** | **11B** | **5** | **11** | **5** | **6** | **5** | **0** |
|  |  | **8** |  |  | **8** |  | **2-** |
| **hydrogen** |  |  | **1** |  |  |  | **0** |
| **hydrogen** |  |  |  |  | **2** |  | **+** |
|  |  |  | **14** | **6** |  |  | **0** |
| **carbon** |  |  | **12** |  |  |  |  |
| **zinc** |  |  |  |  | **35** |  |  |
|  | **39K+** |  |  |  |  |  |  |
|  |  | **22** |  |  | **26** |  | **2+** |
|  |  |  | **122** |  |  | **51** |  |
|  |  |  |  | **92** | **146** | **92** |  |
|  |  | **47** |  |  | **61** |  | **0** |
|  | **257Fm** |  |  |  |  |  |  |
|  |  | **78** |  |  | **117** | **78** |  |
|  | **Kr** |  | **84** |  |  |  | **0** |

1. How are the atomic number and the number of protons related to one another?

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1. How do the number of protons, the number of neutrons and the mass number relate to one another?

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1. What one thing determines the identity of an atom (that is, whether it is a lead atom or a gold atom)?

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1. What is the relationship between the number of protons, the number of electrons and charge?

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1. Find the atomic mass of Lithium

 Lithium-6 6.015121 amu 7.500 %

 Lithium-7 7.016003 amu 92.500%

1. Find the average atomic mass of Argon

 Argon-36 35.968 amu 0.337%

 Argon-38 37.963 amu 0.063%

 Argon-40 39.962 amu 99.600%

1. A 105.99 g sample of sodium carbonate contains 45.98 g of sodium. What is the percent by mass of sodium?
2. An aluminum oxide sample contains 10.58 g of aluminum and 9.42 g of oxygen. What is the percent by mass of each element?
3. When burning 180 g of glucose, 192 g of oxygen are consumed. Water and carbon dioxide are produced. If 108 g of water is produced, how many grams of carbon dioxide are produced?