

## Basic Atomic Structure Worksheet

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

- The 3 particles of the atom are:
  - Protons**
  - Neutrons**
  - Electrons**

Their respective charges are:

  - positive +**
  - neutral 0**
  - negative -**
- The number of protons in one atom of an element determines the atom's **identity**, and the number of electrons determines the **charge** of the element.
- The atomic number tells you the number of **protons** in one atom of an element. It also tells you the number of **electrons** in a neutral atom of that element. The atomic number gives the "identity" of an element as well as its location on the periodic table. No two different elements will have the **same** atomic number.
- The **atomic mass** of an element is the average mass of an element's naturally occurring atom, or isotopes, taking into account the **mass** of each isotope.
- The **mass number** of an element is the total number of protons and neutrons in the **nucleus** of the atom.
- The mass number is used to calculate the number of **neutrons** in one atom of an element. In order to calculate the number of neutrons you must subtract the **protons** from the **mass number**.
- Give the symbol of and the number of protons in one atom of:

Lithium      **Li, 3**  
 Iron          **Fe, 26**  
 Oxygen      **O, 8**  
 Krypton     **Kr, 36**  
 Bromine     **Br, 35**  
 Copper      **Cu, 29**  
 Mercury     **Hg, 80**  
 Helium      **He, 2**

- Give the symbol of and the number of electrons in a neutral atom of:

Uranium      **U, 92**  
 Boron        **B, 5**  
 Chlorine     **Cl, 17**  
 Iodine        **I, 53**  
 Xenon        **Xe, 54**

- Give the symbol of and the number of neutrons in one atom of:  
 (Mass numbers are ALWAYS whole numbers...show your calculations)

	Symbol	Calculation	# neutrons		Symbol	Calculation	# neutrons
Barium	<b>Ba</b>	<b><math>n^0 = 137 - 56</math></b>	<b>81</b>	Bismuth	<b>Bi</b>	<b><math>n^0 = 209 - 83</math></b>	<b>126</b>
Carbon	<b>C</b>	<b><math>n^0 = 12 - 6</math></b>	<b>6</b>	Hydrogen	<b>H</b>	<b><math>n^0 = 1 - 1</math></b>	<b>0</b>
Fluorine	<b>F</b>	<b><math>n^0 = 19 - 9</math></b>	<b>10</b>	Magnesium	<b>Mg</b>	<b><math>n^0 = 24 - 12</math></b>	<b>12</b>
Europium	<b>Eu</b>	<b><math>n^0 = 152 - 63</math></b>	<b>89</b>	Mercury	<b>Hg</b>	<b><math>n^0 = 201 - 80</math></b>	<b>121</b>

### Word Bank for questions 2-6

mass number
mass number
neutrons
electrons
nucleus
identity
charge
protons
protons
same
mass
atomic mass