**VN 2.2 Atomic Number, Mass number, and Isotopes**

*Atomic Number*

* Atoms of different elements differ by the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in their nucleus
* All atoms of an element have the same number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The number of protons in an atom is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, z.

*Mass Number*

* The total number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the nucleus of an atom is the mass number, A.

*Atomic Notation (aka isotopic notation)*

* We use atomic notation to display the number of \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the nucleus of an atom

$$$$

Example:

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* The element is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ symbol \_\_\_\_\_\_\_\_
* The atomic number is \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has \_\_\_\_\_\_\_\_ protons
* The mass number is \_\_\_\_\_\_\_\_\_\_, the atom of silicon has \_\_\_\_\_\_\_\_\_ protons + neutrons
* The number of neutrons is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_ neutrons

*Isotopes*

* Isotopes have the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Many elements have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ isotopes
* There are isotopes of hydrogen



\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_

* We often refer to an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by stating the name of the element followed by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 Cobalt – 60 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Carbon – 14 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Examples*

* How many protons and neutrons does an atom of lead-206 have?
* What is the atomic number of B?
* What is the atomic number of silicon, Si?
* How many electrons does a neutral neon atom have?
* Will an atom with 27 protons, 32 neutrons, and 27 electrons be electrically neutral?
* Will a Na atom with 10 electrons be electrically neutral?