

NAME:

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## Atomic Facts Notes

Atomic structure starts out as a simple topic, but it becomes more difficult as ideas build off of other ideas and several simple things begin to blend with each other to become more complex. As a student it is important to remember the basics so that you can build on them. The following ideas are the building blocks you need to know.

**Atomic number** – is the number of protons  $+$  an atom has. The atomic number is useful since it tells what element (on the Periodic Table of the Elements) an atom is.

Example: An atom with 3 protons has an atomic number of 3. That means it is element number 3 on the Periodic table of the Elements, which means it is Lithium.

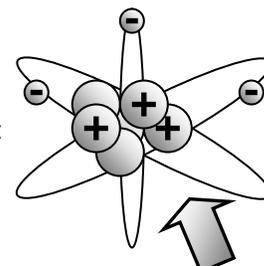
3
Li
Lithium
6.941

On the Periodic Table of the Elements, Lithium looks like this:

Most often the atomic number is in the upper left corner

**Chemical symbol** – is a capital letter followed by one or two lowercase letters which are used to represent the names of elements.

This is the chemical symbol

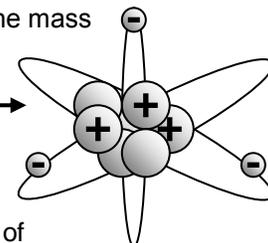


This is an atom of Lithium because it has 3 protons, and Lithium is the element with atomic number 3.

**Mass number** - is the number of protons  $+$  and neutrons  $\circ$  in an atom's nucleus. The mass number is useful since it tells what **isotope** an atom is.

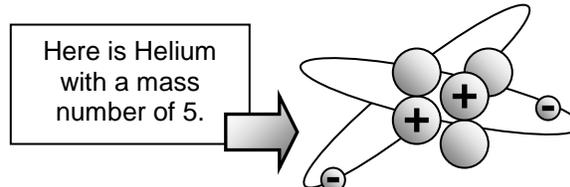
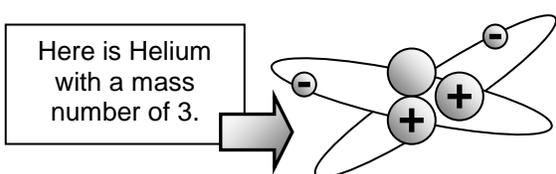
Example: An atom with 3 protons and 3 neutrons has a mass number of 6.

(The mass number of atoms is **NOT** on the Periodic Table of the Elements.)



**Isotope** – are atoms of the same element (same atomic number) with different numbers of neutrons (different mass numbers)

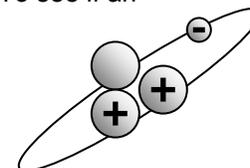
Example: A helium atom has two protons. If you had two different helium atoms, the first with 1 neutron and the second with 3 neutrons, they would be isotopes. Both are helium, but they have different mass numbers.



For an **isotope name**, put the chemical symbol then a dash, then the mass number. Ex. He-5

**Ion** – an ion is an atom that has an overall "+" (positive) or "-" (negative) charge. To see if an atom is an ion, compare how many protons and electrons it has.

- an atom with more protons  $+$  than electrons  $-$  is a "+" (positive) ion  $\rightarrow$



- an atom with more electrons  $-$  than protons  $+$  is a "-" (negative) ion  $\rightarrow$

