ATOMS AND IONS (Nelson text, pg. 188-190)

HOW DO ATOMS AND IONS DIFFER?

An atom is an electrically _____ particle with an equal number of _____ and _____. An ion is an atom that has become _____ by gaining or losing _____. For example, sodium atoms lose _____ electron when they react with other atoms. Each resulting sodium ion contains 11 _____ charges (on _____) and only 10 _____ charges (on _____). Since it has one more positive charge than negative, the sodium ion has an _____ charge of _____. The chemical symbol for a sodium ion is _____ or _____. The other _____ metals also form ions with a single _____ charge.

Fluorine is one of the most _____ elements. It tends to _____ an electron from another atom to form a stable ion called _____. Because it has one extra _____ charge, it has an ionic charge of _____. The chemical symbol is therefore _____. In fact, all of the _____ form ions with a single negative charge.

The noble gases are stable due their full outer _____. Sodium ions and fluoride ions are also _____. Why is this so? (keep reading below)

SODIUM

In the process of forming a sodium ____, a sodium _____ must react with another atom and lose one _____. The most likely electron to be lost is the one farthest from the _____: the single electron in the _____ orbit. This farthest electron is least _____ held to the nucleus. As a result, the sodium ion has the same _____ electron arrangement as a _____ atom: an outer orbit filled with _____ electrons.

FLUORINE

Flourine has one less electron than _____. Fluorine tends to react with other atoms to _____ one electron. This reaction gives it the same stable arrangement of _____ as neon. With this extra electron, the fluorine atom now has ____ electrons and only ____ protons. It therefore becomes a _____ ion with a single _____ ionic charge: ____.

ALUMINUM

The Bohr-Rutherford diagram of aluminum shows that aluminum has _____ outer electrons. To have a stable outer orbit (like a _____ gas) aluminum could either gain ____ electrons or lose ____. Metals tend to _____ electrons, while non-metals tend to _____ them. The result is an aluminum ion with ionic charge +3: _____.

SULFUR

Sulfur has ____ electrons in its _____ orbit. To achieve a stable electron arrangement, a sulfur atom reacts with other atoms and _____ two electrons. When it does, sulfur forms an ion with the chemical symbol _____. This is called a _____ ion.

NAMING IONS

We can classify ions as _____ - those that have positive charges and _____ - those that have negative charges. The name of a positive ion is the same as the name of the _____. The name of a negative ion is determined by adding "_____" to the stem of the name.

QUESTIONS (pg. 191, read pg. 188-190)

#5
#6
#7
#9

QUESTIONS (pg. 195, read pg. 192-194)

#1
#2
#3
#6