

## POST ACTIVITY EXTENSION – IONS

**Post-activity Reading:** - Read and “mark-up” the following reading. Circle key terms, underline important facts/statements/claims

In chemical reactions, atoms tend to gain or lose their electrons. If an atom loses or gains electrons and now has an unequal number of protons and electrons, it is called an *ion*. If an atom contains 17 protons, 18 neutrons, and 18 electrons then the atom is a chloride ion because it has an atomic number of 17, but does not have 17 electrons.

Ions are written using the element symbol, with the net number of electrons gained or lost at the top and right corner of the symbol. If the ion has lost electrons, a + sign is put after the number, if the ion has gained electrons a – sign is used. If the ion has lost or gained only one electron, the number 1 is omitted from the ion symbol. The chloride ion, with one extra electron is written  $\text{Cl}^-$

If an atom has 20 protons and 18 electrons then the atom has lost two electrons, then the ion is a calcium atom (atomic number 20) and the electrical charge is 2+ (20 protons – 18 electrons = 2+). The ion is written as  $\text{Ca}^{2+}$

**Post-activity Questions:** - Write the ion symbols given the following information

1) 23 protons, 27 neutrons and 19 electrons.	3) 37 protons, 48 neutrons, and 36 electrons	5) How many protons, neutrons and electrons does the following have? $\text{Sb}^{3-}$ Protons: Neutrons: Electrons:
2) 5 protons, 6 neutrons, and 2 electrons	4) 16 protons, 16 neutrons, and 18 electrons	

### Extension Activity

- Grab three bags from the basket on my desk. The white beans represent protons, the black beans represent neutrons, and the popcorn kernels represent electrons.
- For each bag, record the number of protons and neutron and electrons in the Data Table.
- Using these values and the periodic table, deduce the information needed to complete the Data Table.

Bag #	# Protons	# Neutrons	# Electrons	Mass #	Ion Symbol	Isotope Name