• Remember that an atom is an electrically neutral particle with the same number of protons and electrons
• Ion – a charged particle that results when an atom gains or loses one or more electrons
• Ionic charge – the positive charges + the negative charges in an ion
• E.g. sodium atoms lose one electron when they react with other atoms. The sodium ion has 11 positive charges (protons) and only 10 negative charges (electrons). This gives it a charge of +1. It now has a full outer shell and is stable, just like neon. Sodium ions have the chemical symbol Na⁺
  o The other alkali metals also form ions with 1 positive charge.
  o E.g. fluorine has one less electron than neon and reacts with other atoms to gain one electron to become stable like neon. This gives fluorine 10 electrons and 9 protons, which makes it a fluoride ion with a charge of -1. Fluoride ions have the chemical symbol F⁻

Other examples:
  o Aluminum ion – Al³⁺
  o Sulfide ion – S²⁻
Naming Ions

- **Cations** are ions with positive charges
  - Same name as the element, e.g. aluminum ion
- **Anions** are ions with negative charges
  - Named by adding “ide” to the element name, e.g. sulfide ion

Ions in the Human Body

- Dissolved ions are very important for body functions
- Ions of iron in red blood cells help carry inhaled oxygen through the body
- Bones and teeth are made of compounds that contain calcium ions
- The nervous system uses ions to carry impulses through the nerve cells
- A normal diet gives you all the ions your body needs, but a diet high in sodium ions can raise your blood pressure
  - This increases the risk for stroke, heart attack, and kidney failure

Homework
- Read 5.5 Atoms and Ions, Pg. 188 – 191
- Worksheet – Try This: Ions and the Periodic Table

Applied
- Read 5.5 Atoms and Ions, Pg. 174 – 177