

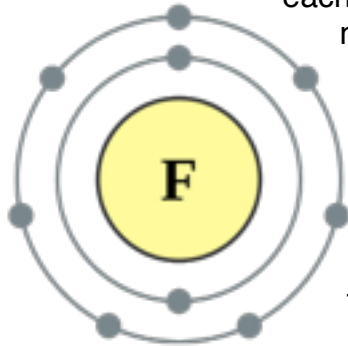
Name: _____

Date: _____

Electrons Review! The electrons are the subatomic particles that move around the nucleus of all atoms. These electrons are generally described as being in particular shells around the nucleus.

Important info about electrons:

- The number of electrons in a NEUTRAL atom is always equal to the atomic number.
- The configuration of the electrons can be found on the periodic table. On each element square, the electron configuration is the bottom numbers on the left-hand side.

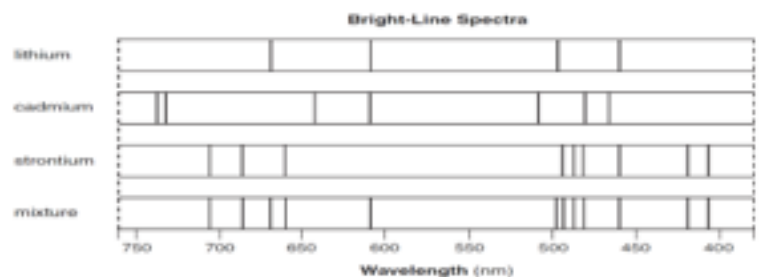


- Electrons can be shared or transferred between elements in order to create bonds.

- The first electron shell is able to hold 2 electrons. Every shell after that can hold 8 electrons. An electron shell must be full before another shell is added. For example, in the fluorine atom to the left, there only need to be two shells because there are a total of 9 electrons. This means that 2 electrons will fill in the first shell and 7 electrons will be in the second shell.

Excited Electrons: Electrons can absorb energy from their surroundings which may lead to an electron becoming excited. When an electron is excited, it will jump from its normal energy shell (also called an "energy level") and move to the next highest energy shell. When this happens, the electron configuration changes. For example, in fluorine the GROUND state (on periodic table) is 2-7. When it becomes excited, an electron can move from the first to the second shell (1-8) or from the second to a third energy shell (2-6-1).

Bright Line Spectra: When electrons are excited, they jump up to a higher energy shell. When these electrons move BACK DOWN to a lower energy shell, they release energy in the form of a PHOTON. This photon lets off a light that can be captured and filtered to create a BRIGHT LINE SPECTRA. These spectra (seen above) show the wavelengths of the lights that are produced by the electron. We can use these spectra to identify different elements. In the example above, you could determine what elements from the spectra by comparing the mixtures line spectra to the elements spectra above it.



Valence Electrons: The electrons in the outermost energy level of each atom are called the valence electrons. You can find this on the periodic table by looking at the last number of the electron configuration. For example, fluorine has 7 valence electrons. **Atoms are most stable when they have 8 valence electrons (according to the OCTET RULE)** and as such, they may form bonds in order to achieve a full valence shell.

Lewis Dot Diagrams: You can demonstrate how many valence electrons an atom or compound has by drawing a Lewis Dot Diagram. The Lewis Dot Diagram is simply composed for the element or compounds symbol surrounded by the number of dots that correspond to the number of valence electrons. For example, the lewis dot diagram for fluorine would be:

