

Why are Electrons Important?

- *Valence electrons* are found in the outer shell of an atom.
- Each atom **WANTS** to have a **FULL** outer shell.

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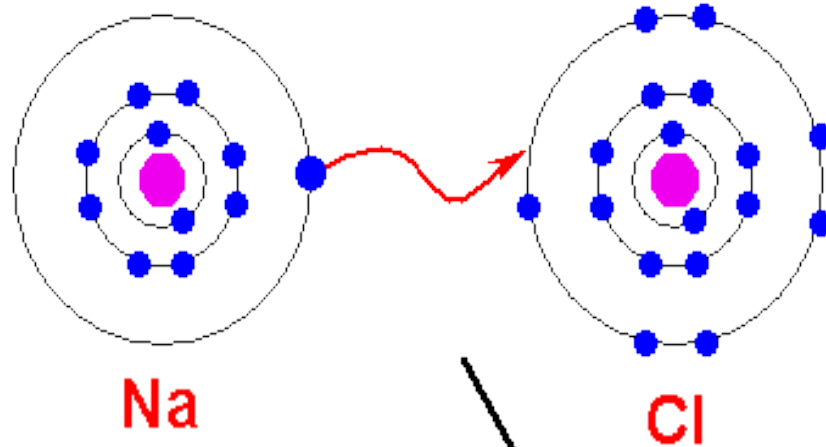
1. Look on your electron diagram in column 1 (farthest left). How many valence electrons does each element in the first column have?

2. Look in the second column. How many valence electrons does each element in the second column have? _____

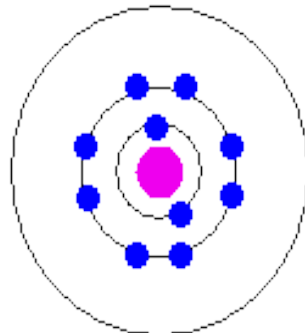
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VALENCE ELECTRONS determine how elements will BOND with each other. Atoms that want to lose one electron to have a full outer energy level will bond with atoms that want to gain one electron. These create ionic bonds. (see below)

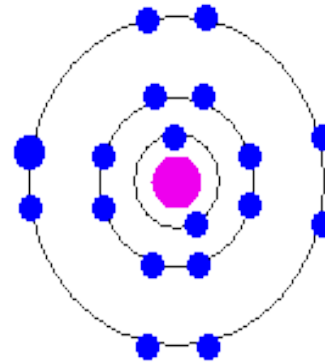
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Lost an
electron



Gained an
electron



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3. In order to have a full outer energy level, do the elements in the first column want to **gain** an electron or **lose** an electron? _____

4. Look at the column that has Chlorine. How many valence electrons does each element in that group have? _____ Do they want to **gain** an electron or **lose** an electron in order to be full? _____

Why are Electrons Important?

- If an element *gains* an electron it will pick up a *negative* charge.
- We call a particle with a charge an ***ION***.
- If it *loses* an electron, the atom will now be *positive* charge.
- Atoms that are no longer neutral (where electrons and protons balance) are called ***IONS***.

Why are Electrons Important?

- The **oxidation number** comes from the number of electrons gained or lost. If an element gains an electron, it will have an oxidation number of 1-. If it gains two electrons it will have an oxidation number of 2-. If an element loses one electron it will have an oxidation number of 1+, etc...

Follow- Up Questions

1. An atom that gains one or more electrons will have a _____ charge.
2. An atom that loses one or more electrons will have a _____ charge.
3. An atom that gains or loses one or more electrons is called an _____.