

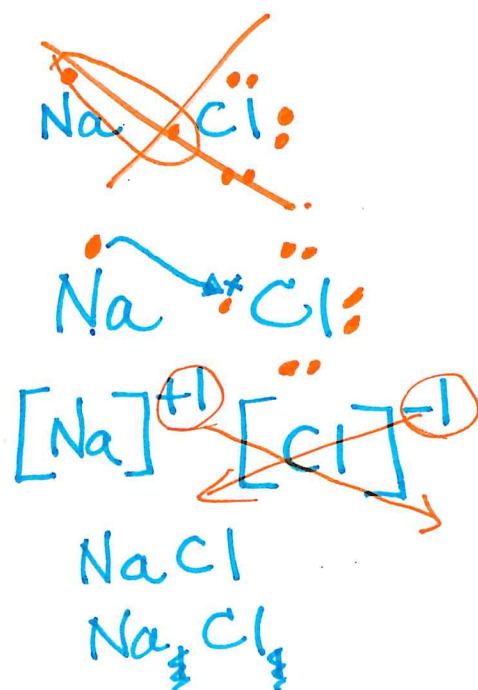
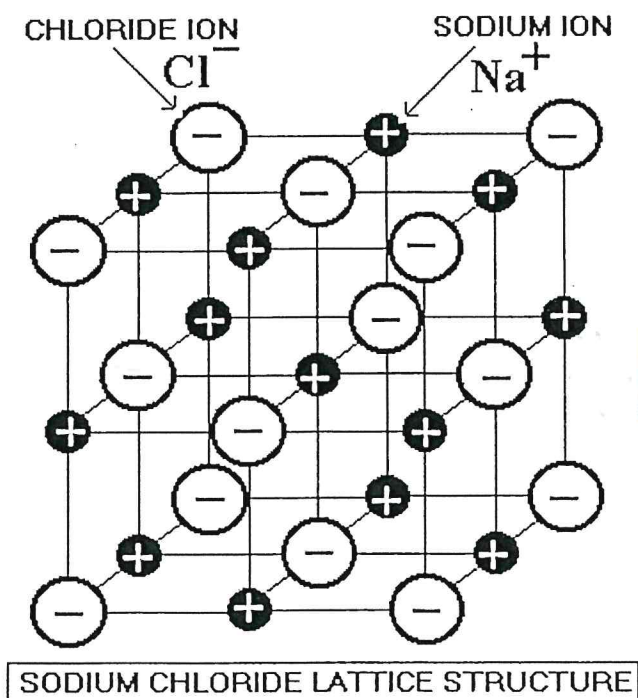
HOOKING STUFF TOGETHER: BONDING

Chemical bonds are formed when the electrons in an atom interact with the electrons in another atom. This allows for the formation of more complex molecules.

Ionic

There is a transfer of electrons from a metal to a non-metal. The metal become a cation and the non-metal becomes an anion. The difference in charge creates an electrostatic attraction between the ions that holds them together.

A crystal lattice structure is created when the ions bond together.







Making Ions – Ionic Bonds are made of Ions. A strong understanding of Ions is needed.

Notes: Remember that Metals tend to lose their electrons, falling back to their inner octet, becoming smaller, forming positive "cations". Nonmetals tend to gain electrons, filling up their current energy levels, becoming larger, forming negative "anions". *Complete the chart below.*

| Element | Lewis Dot | # of Valance e- | Gain/Lose ___ e- | Valance Charge |
|---------|-----------|-----------------|------------------|----------------|
| Na | Na | 1 | L 1 | +1 |
| Be | | | | |
| Cl | | | | |
| S | | | | |
| Al | | | | |
| Ne | | | | |
| K | | | | |
| N | | | | |
| O | | | | |
| Ca | | | | |
| P | | | | |
| B | | | | |
| Mg | | | | |

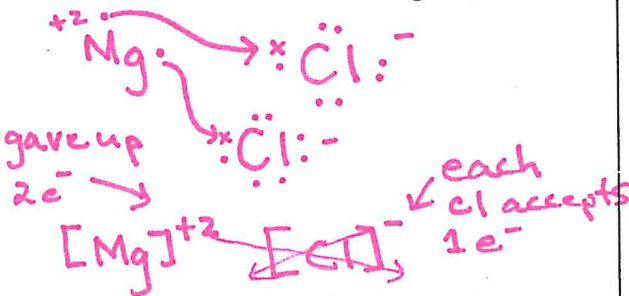
1. Draw the Lewis dot structures of the following **atoms** and their respective **ions**:

| | | | |
|--|--|--|--|
| calcium  | calcium ion  | fluorine | fluoride |
| sodium | sodium ion | sulfur  | sulfide  |
| aluminum | aluminum ion | oxygen | oxide |
| barium | barium ion | nitrogen | nitride |
| potassium | potassium ion | chlorine | chloride |
| magnesium | magnesium ion | selenium | selenide |
| cesium | cesium ion | iodine | iodide |
| lithium | lithium ion | phosphorous | phosphide |

Lewis Dot, Formula Unit & Naming Practice Sheet

Notes:

1. An **ionic bond** is an attraction of a *cation* for an *anion* resulting from the transfer of electrons. Remember, the smaller nonmetals are more electronegative and pull the electrons close, away from the larger, less electronegative metals.
2. When naming ionic compounds, the Metal is named first, followed by the nonmetal with an *-ide* ending. Ex. *Sodium Fluorine becomes Sodium Fluoride*.
3. **Formula Unit:** Lowest whole number ratio of elements in the compound. Ex. Ca_3N_2

| | |
|--|---|
| <p>1. Draw the Lewis Structure for Mg & Cl</p>  <p>Formula Unit: <u>MgCl_2</u></p> <p>Name of Compound: <u>Magnesium chloride</u></p> | <p>2. Draw the Lewis Structure for Mg & S</p> <p>Formula Unit: _____</p> <p>Name of Compound: _____</p> |
| <p>3. Draw the Lewis Structure for K & F</p> <p>Formula Unit: _____</p> <p>Name of Compound: _____</p> | <p>4. Draw the Lewis Structure for K & O</p> <p>Formula Unit: _____</p> <p>Name of Compound: _____</p> |
| <p>5. Draw the Lewis Structure for Be & N</p> <p>Formula Unit: _____</p> <p>Name of Compound: _____</p> | <p>6. Draw the Lewis Structure for Ca & P</p> <p>Formula Unit: _____</p> <p>Name of Compound: _____</p> |

| | |
|---|--|
| <p>7. Draw the Lewis Structure for Al & F</p> <p>Formula Unit: _____</p> <p>Name of Compound:</p> | <p>8. Draw the Lewis Structure for Ca & I</p> <p>Formula Unit: _____</p> <p>Name of Compound:</p> |
| <p>9. Draw the Lewis Structure for Rb & O</p> <p>Formula Unit: _____</p> <p>Name of Compound:</p> | <p>10. Draw the Lewis Structure for Sr & F</p> <p>Formula Unit: _____</p> <p>Name of Compound:</p> |
| <p>11. Draw the Lewis Structure for Al & Cl</p> <p>Formula Unit: _____</p> <p>Name of Compound:</p> | <p>12. Draw the Lewis Structure for Mg & P</p> <p>Formula Unit: _____</p> <p>Name of Compound:</p> |
| <p>13. Draw the Lewis Structure for B & O</p> <p>Formula Unit: _____</p> <p>Name of Compound:</p> | <p>14. Draw the Lewis Structure for Be & S</p> <p>Formula Unit: _____</p> <p>Name of Compound:</p> |