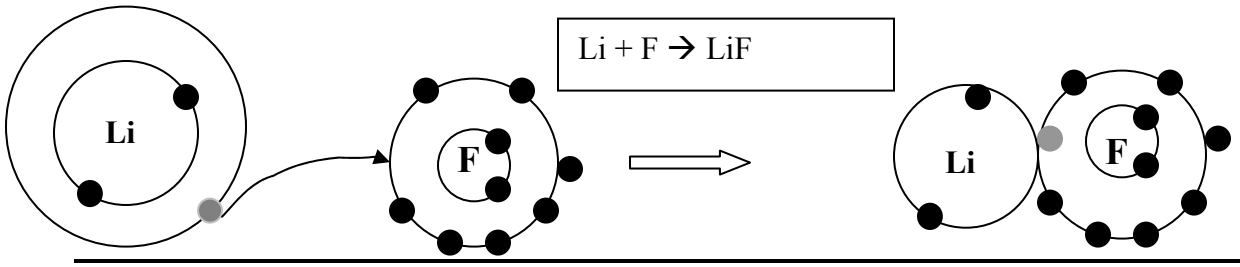
Name _____ Date _____ Period _____

# Ionic Bonding Worksheet

For each pair of elements below draw an atomic diagram showing electrons in different energy levels. Draw arrows to show where the outer electrons will go during a chemical reaction, then draw the resulting compound. Finally, fill in the table below each reaction. Refer to the sample shown.




Atoms Valence electrons Electron transfer from/to each atom Ions formed in the product

Li

F

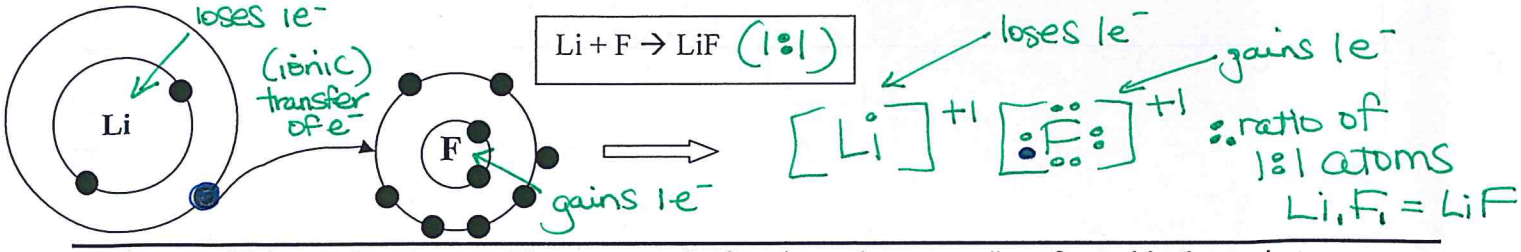
| Reactions | Atoms | Valence electrons | Electron transfer from/to each atom | Ions formed in the product |
|---|---|---|---|---|
| 1) Li + Cl => LiCl | | | | |
| | | | | |
| 2) Ca + O => CaO | | | | |
| | | | | |
| 3) Be + F => $BeF_2$ | | | | |
| | | | | |
| 4) Mg + S => MgS | | | | |
| | | | | |
| 5) K + F => KF | | | | |
| | | | | |

| Reactions | Atoms | Valence electrons | Electron transfer from/to each atom | Ions formed in the product |
|---|---|---|---|---|
| 6) $Al + Cl \Rightarrow AlCl_3$ | | | | |
| | | | | |
| 7) $Na + O \Rightarrow Na_2O$ | | | | |
| | | | | |
| 8) Li + N = | | | | |
| | | | | |
| 9) Mg + F= | | | | |
| | | | | |
| 10) Na + F => | | | | |
| | | | | |
| 11) Al + O => | | | | |
| | | | | |
| 12) Li + O => | | | | |
| | | | | |
| 13) K + S => | | | | |
| | | | | |
| 14) Mg + O => | | | | |
| | | | | |

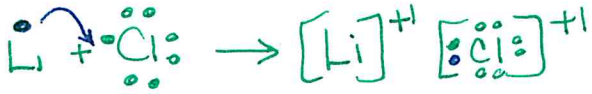
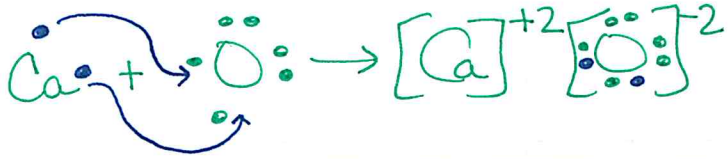
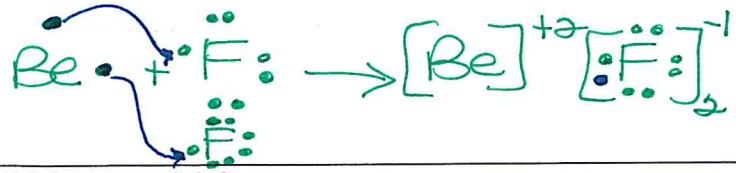
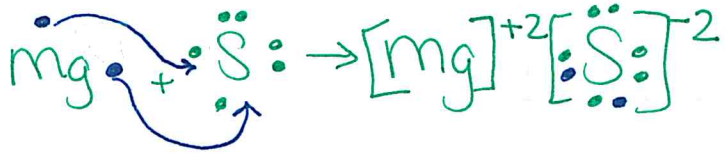
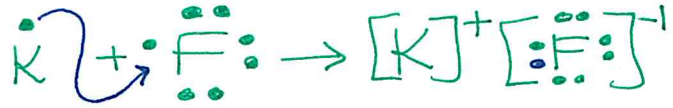
Name Solutions Date _____ Period _____

# Ionic Bonding Worksheet

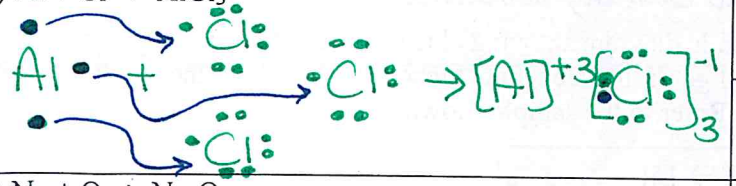
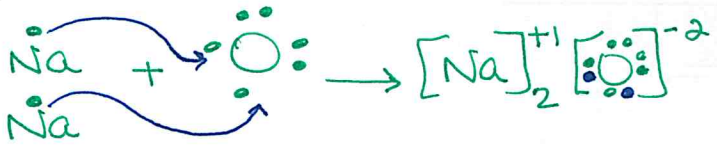
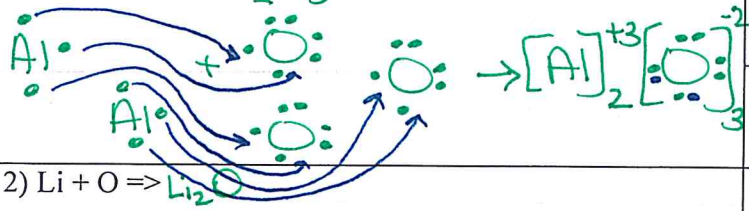
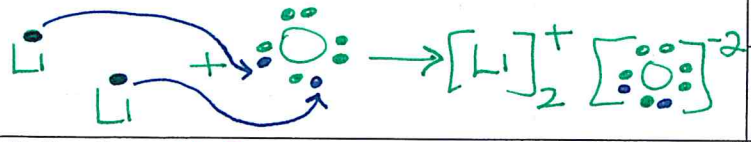
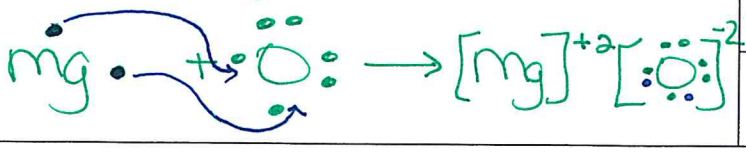
For each pair of elements below draw an atomic diagram showing electrons in different energy levels. Draw arrows to show where the outer electrons will go during a chemical reaction, then draw the resulting compound. Finally, fill in the table below each reaction. Refer to the sample shown.




| Atoms | Valence electrons | Electron transfer from/to each atom | Ions formed in the product |
|---|---|---|---|
| Li | 1 ve | transfers 1 ve⁻ to F. | $Li^+$ |
| F | 7 ve | accepts 1 ve⁻ from Li | $F^-$ |

| Reactions | Atoms | Valence electrons | Electron transfer from/to each atom | Ions formed in the product |
|---|---|---|---|---|
| 1) Li + Cl => LiCl  | Li | 1 ve | donate 1e⁻ | $Li^{+1}$ |
| | Cl | 1 ve | accepts 1e⁻ | $Cl^{-1}$ |
| 2) Ca + O => CaO  | Ca | 2 ve | donates 2e⁻ | $Ca^{+2}$ |
| | O | 6 ve | accepts 2e⁻ | $O^{-2}$ |
| 3) Be + F => $BeF_2$  | Be | 2 ve | donates 2e⁻ to each F. | $Be^{+2}$ |
| | F | 7 ve | each F accepts 1 ve each | $F^{-1}$ |
| 4) Mg + S => MgS  | Mg | 2 ve | donates 2e to S | $Mg^{+2}$ |
| | S | 6 ve | accepts 2 e⁻ | $S^{-2}$ |
| 5) K + F => KF  | K | 1 ve⁻ | donates 1 ve⁻ | $K^{+1}$ |
| | F | 7 ve⁻ | accepts 1 ve⁻ | $F^{-1}$ |

Solutions (continued)

| Reactions | Atoms | Valence electrons | Electron transfer from/to each atom | Ions formed in the product |
|---|---|---|---|---|
| 6) $Al + Cl \Rightarrow AlCl_3$  | Al | $3ve^-$ | donates $3e^-$ to each Cl. | $Al^{+3}$ |
| | Cl | $1ve^-$ | accepts $1ve^-$ | $Cl^{-1}$ |
| 7) $Na + O \Rightarrow Na_2O$  | Na | $1ve^-$ | each Na donates $1ve^-$ | $Na^{+1}$ |
| | O | $2ve^-$ | accepts $2ve^-$ | $O^{-2}$ |
| 8) $Li + N \Rightarrow Li_3N$  | Li | $1ve^-$ | each Li donates $1ve^-$ | $Li^{+1}$ |
| | N | $3ve^-$ | accepts $3ve^-$ | $N^{-3}$ |
| 9) $Mg + F = MgF_2$  | Mg | $2ve^-$ | donates $2ve^-$ | $Mg^{+2}$ |
| | F | $7ve^-$ | each F accepts $1ve^-$ | $F^{-1}$ |
| 10) $Na + F \Rightarrow NaF$  | Na | $1ve^-$ | donates $1ve^-$ | $Na^+$ |
| | F | $7ve^-$ | accepts $1ve^-$ | $F^-$ |
| 11) $Al + O \Rightarrow Al_2O_3$  | Al | $3ve^-$ | each Al donates $3ve^-$ | $Al^{+3}$ |
| | O | $6ve^-$ | each O accepts $2ve^-$. | $O^{-2}$ |
| 12) $Li + O \Rightarrow Li_2O$  | Li | $1ve^-$ | donates $1e^-$ (each Li) | $Li^+$ |
| | O | $2ve^-$ | accepts $2ve^-$ | $O^{-2}$ |
| 13) $K + S \Rightarrow K_2S$  | K | $1ve^-$ | each K donates $1ve$ | $K^+$ |
| | S | $2ve^-$ | accepts $2ve$ | $S^{-2}$ |
| 14) $Mg + O \Rightarrow MgO$  | Mg | $2ve^-$ | donates $2ve^-$ | $Mg^{+2}$ |
| | O | $6ve^-$ | accepts $2ve^-$ | $O^{-2}$ |