

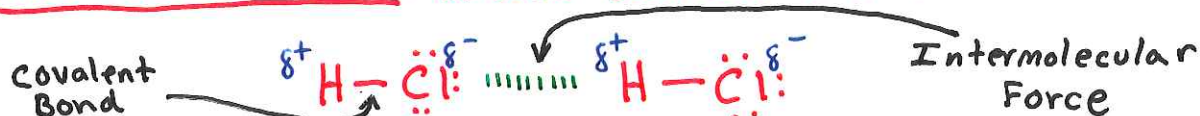
# Understanding Intermolecular Forces

(Honors Chemistry)

1) What is the difference between a covalent bond and intermolecular forces? Give an example of each.

Covalent bond: a bond between atoms within a molecule

Intermolecular Force: a bond between molecules



2) Is an intermolecular force more similar to an ionic bond or a covalent bond? Justify your answer.

\* Answer = Ionic Bond

Ionic bonds are electrostatic forces between oppositely charged ions

Intermolecular forces are also electrostatic forces, but they can be between molecules and/or ions.

For each of the following, determine the intermolecular force and draw a picture to demonstrate the intermolecular force.

|    | Molecules                           | Intermolecular Force(s)          | Picture |
|----|-------------------------------------|----------------------------------|---------|
| 3) | H <sub>2</sub> O & H <sub>2</sub> O | Hydrogen Bonding                 |         |
| 4) | H <sub>2</sub> O & Ca <sup>2+</sup> | Ion - Dipole                     |         |
| 5) | CCl <sub>4</sub> & CCl <sub>4</sub> | Dispersion<br>(must be movement) |         |

|     | Molecules                             | Intermolecular Force(s)          | Picture |
|-----|---------------------------------------|----------------------------------|---------|
| 6)  | NF <sub>3</sub> & NF <sub>3</sub>     | Dipole - Dipole                  |         |
| 7)  | CH <sub>3</sub> OH & H <sub>2</sub> O | Hydrogen Bonding                 |         |
| 8)  | H <sub>2</sub> O & NaCl               | Ion - Dipole                     |         |
| 9)  | OF <sub>2</sub> + SCl <sub>2</sub>    | Dipole - Dipole                  |         |
| 10) | N <sub>2</sub> & O <sub>2</sub>       | Dispersion<br>(must be movement) |         |
| 11) | H <sub>2</sub> O & CO                 | Dipole - Dipole                  |         |
| 12) | H <sub>2</sub> O & CO <sub>2</sub>    | Dispersion<br>(must be movement) |         |