# **Comparing Physical Properties**

# Example One

Which compound has a greater viscosity:  $C_6H_{14}$  or  $C_8H_{18}$ 

**Example Two** Which compound has a greater boiling point:  $CH_4$  or  $H_2O$ 

**Example Three** Which compound has a greater volatility:  $CH_3OH$  or  $C_2H_5OH$ 

## **Example Four**

Which compound has a greater melting point: NaCl or CaCl<sub>2</sub>?

## Example Five

Which compound has a greater vapor pressure: HCl or HF?

#### Example Six

Which compound has a greater melting point: MgO or NaCl?

#### Example Seven

Based on the intermolecular forces present, rank the following molecules in order from lowest to highest vapor pressure.



## **Example Eight**

Rank the following substances from lowest to highest boiling point. Justify your answer.

Ne Kr Xe Ar

# Example Nine

Examine the table below.

Substance	Boiling Point (°C)
C <sub>6</sub> H <sub>12</sub>	80.8
C <sub>2</sub> H <sub>5</sub> OH	78.4

Based on the boiling points, determine which substance must have the lower vapor pressure at 25 °C and the rationale behind this selection.

a. C<sub>6</sub>H<sub>12</sub> has a lower vapor pressure because it has a more polarizable electron cloud.

b.  $C_6H_{12}$  has a higher vapor pressure because it has a more polarizable electron cloud.

c.  $C_2H_5OH$  has a lower vapor pressure due to hydrogen bonding between molecules.

d.  $C_2H_5OH$  has a lower vapor pressure due to hydrogen bonding between molecules.