

# AP Chemistry Daily Videos

## 3.10 Solubility

### Daily Video #1

1. Outline the beginning of the video

a. Ionic Compounds

b. Molecular Compounds

2. Elaborate on "Like dissolves like"

3. Pause the video @ 3:07 and answer the MC question below, include a drawing for each choice.

Sodium chloride is LEAST soluble in which of the following liquids?

A H<sub>2</sub>O

B CCl<sub>4</sub>

C HF

D CH<sub>3</sub>OH

E CH<sub>3</sub>COOH

4. Pause the video @ 4:54 and answer the MC question below.

Of the following organic compounds, which is LEAST soluble in water at 298 K?

A CH<sub>3</sub>OH, methanol

B CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>OH, 1-propanol

C C<sub>6</sub>H<sub>14</sub>, hexane

D C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>, glucose

E CH<sub>3</sub>COOH, ethanoic (acetic) acid

- Ⓜ Pause @ 6:01, answer the Free Response questions #6 and #7 using the data table below:

Use the information in the table below to respond to the statements and questions below. Your answers should be in terms of principles of molecular structure and intermolecular forces.

Compound	Formula	Lewis Electron-Dot Diagram
Ethanethiol	$\text{CH}_3\text{CH}_2\text{SH}$	$\begin{array}{c} \text{H} \quad \text{H} \\   \quad   \\ \text{H}:\ddot{\text{C}}:\ddot{\text{C}}:\ddot{\text{S}}:\text{H} \\   \quad   \\ \text{H} \quad \text{H} \end{array}$
Ethane	$\text{CH}_3\text{CH}_3$	$\begin{array}{c} \text{H} \quad \text{H} \\   \quad   \\ \text{H}:\ddot{\text{C}}:\ddot{\text{C}}:\text{H} \\   \quad   \\ \text{H} \quad \text{H} \end{array}$
Ethanol	$\text{CH}_3\text{CH}_2\text{OH}$	$\begin{array}{c} \text{H} \quad \text{H} \\   \quad   \\ \text{H}:\ddot{\text{C}}:\ddot{\text{C}}:\ddot{\text{O}}:\text{H} \\   \quad   \\ \text{H} \quad \text{H} \end{array}$
Ethyne	$\text{C}_2\text{H}_2$	

- Identify a compound from the table that is nonpolar. Justify your answer.
- Ethanol is completely soluble in water, whereas ethanethiol has limited solubility. Account for the difference in solubilities between the two compounds in terms of intermolecular forces.
- According to the scoring guidelines presented, what would you score yourself? How can you improve your score?
- What did the teacher provide as the take away from this video?