

## Molecular Structures – Compare and Contrast

Use the Molecular Model kit to make a model of each of the compounds that will be studied in Investigation 1 and answer the questions that compare/contrast structures.

Name	Molecular Formula	Structural Formula
Methanol	CH <sub>4</sub> O	CH <sub>3</sub> OH
Ethanol	C <sub>2</sub> H <sub>6</sub> O	CH <sub>3</sub> CH <sub>2</sub> OH
Propanol	C <sub>3</sub> H <sub>8</sub> O	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> OH
Butanol	C <sub>4</sub> H <sub>10</sub> O	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> OH
Water	H <sub>2</sub> O	HOH
Pentane	C <sub>5</sub> H <sub>12</sub>	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>
Acetone	C <sub>3</sub> H <sub>6</sub> O	$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_3\text{CCH}_3 \end{array}$

Table 1

1. Which molecule is the most similar to water? Draw the expanded structures. How are they similar? How are they different?
  
2. Which molecule is the most similar to pentane? Draw the expanded structures. How are they similar? How are they different?

3. Which molecule is the most similar to acetone? Draw the expanded structures. How are they similar? How are they different?
4. Compare the four alcohols (methanol, ethanol, propanol, butanol). Draw the expanded structures. How are they similar? How do they differ, and what trend do you observe?