

Name: _____

Section: _____

Building Models

Directions: Below you will find compounds/molecules that are composed of atoms. Your objective is to **first build** the compounds/molecules using the provided molecular model kits and **then you must analyze** the model to complete the table.

Compound/ Molecule Name	Structure	Different # of atoms	Total # of atoms	Formula Weight (AMU)
Water (H ₂ O)	H—O—H			
Methane (CH ₄)	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{H} \\ \\ \text{H} \end{array}$			
Propane (C ₃ H ₈)	$\begin{array}{ccccccc} & \text{H} & \text{H} & \text{H} & & & \\ & & & & & & \\ \text{H} & -\text{C} & -\text{C} & -\text{C} & -\text{H} & & \\ & & & & & & \\ & \text{H} & \text{H} & \text{H} & & & \end{array}$			
Butane (C ₄ H ₁₀)	$\begin{array}{cccccccc} & \text{H} & \text{H} & \text{H} & \text{H} & & & \\ & & & & & & & \\ \text{H} & -\text{C} & -\text{C} & -\text{C} & -\text{C} & -\text{H} & & \\ & & & & & & & \\ & \text{H} & \text{H} & \text{H} & \text{H} & & & \end{array}$			
Carbon Dioxide (CO ₂)	O=C=O			
Ammonia (NH ₃)	$\begin{array}{c} \text{H}-\ddot{\text{N}}-\text{H} \\ \\ \text{H} \end{array}$			
Sulfuric Acid ? (H ₂ SO ₄)	$\begin{array}{c} \text{:O:} \\ \\ \text{H}-\ddot{\text{O}}-\text{S}-\ddot{\text{O}}-\text{H} \\ \\ \text{:O:} \end{array}$			
Pentanol (C ₅ H ₁₁ OH) *O—H	$\begin{array}{cccccc} & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} \\ & & & & & \\ \text{H} & -\text{C} & -\text{C} & -\text{C} & -\text{C} & -\text{C}-\text{OH} \\ & & & & & \\ & \text{H} & \text{H} & \text{H} & \text{H} & \text{H} \end{array}$			
Glucose (C ₆ H ₁₂ O ₆)	$\begin{array}{cccccc} & & \text{OH} & \text{H} & \text{OH} & \text{OH} & \text{OH} \\ & & & & & & \\ \text{O} & =\text{C} & -\text{C} & -\text{C} & -\text{C} & -\text{C} & -\text{C}-\text{H} \\ & & & & & & \\ \text{H} & & \text{H} & \text{OH} & \text{H} & \text{H} & \text{H} \end{array}$			

Questions:

1. How would you define a compound/molecule?
2. Did all atoms have the same number of holes in them? Why do you think this is the case?
3. Why did Sulfuric Acid have a question mark next to it?
4. How was it possible to calculate the Formula Weight of Sulfuric Acid without building the compound/molecule?
5. What do you think the dots on Ammonia and Sulfuric Acid represent? *(It may be helpful to rebuild Ammonia for this)*
6. If the atoms in this activity represent the alphabet of matter, then what do the compounds/molecules represent?