



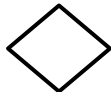




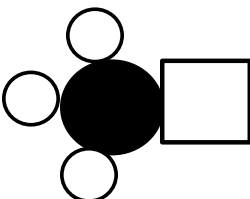
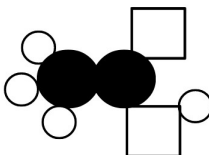
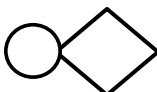
Drawing Small Molecules

Name: _____

Use the following key to draw and interpret models of elements and compounds containing hydrogen, carbon, nitrogen, oxygen and chlorine.

Model:					
Atom:	H	C	N	O	Cl

Draw and interpret the following. The first two are completed for you.

<p>1) Draw a particulate model of carbon dioxide (CO_2). Carbon is in the middle. Pic:</p> <div style="text-align: center;"></div> <p>Formula: CO_2</p>	<p>2) Write the chemical formula for the element represented by this particulate level model:</p> <div style="text-align: center;"></div> <p>Formula: N_2</p>	<p>3) Ammonia solution is mixed with vinegar solution. Draw a molecular-level model of ammonia, which has the chemical formula NH_3. Nitrogen is at the center of the molecule.</p> <p>Formula: NH_3</p>
<p>4) Methoxide: an organic colorless solid salt used in industries as a reagent.</p> <div style="text-align: center;"></div> <p>Formula:</p>	<p>5) Draw methane (CH_4): the primary component of natural gas. Carbon is in the center of the molecule.</p> <p>Formula: CH_4</p>	<p>6) The substance in vinegar solution that reacted with ammonia is called acetic acid. Below is the molecular formula of acetic acid. Write its chemical formula, starting with carbon.</p> <div style="text-align: center;"></div> <p>Formula:</p>
<p>7) Elemental chlorine: Poisonous gas used to make plastics and disinfect water.</p> <p>Formula: Cl_2</p>	<p>8) Hydrogen Chloride: important industrial chemical also sometimes used in pure form to etch semiconductor crystals.</p> <div style="text-align: center;"></div> <p>Formula:</p>	<p>9) Carbon monoxide: toxic gas used in many industrial processes, including purifying nickel.</p> <p>Formula: CO</p>

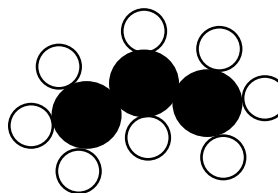
10) Nitrous acid: a weak acid found only in solutions

Formula: HNO_2

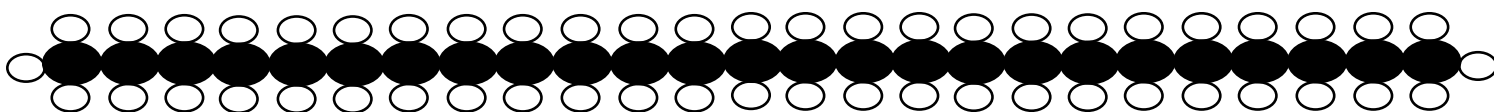
11) Hydrogen peroxide: a mild antiseptic. Each hydrogen atom can only touch one other atom.

Formula: H_2O_2

12) Propane: a fuel



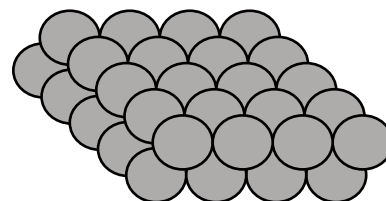
Formula:



13) You melted and burned paraffin wax. Write the chemical formula to paraffin wax given its model above.

14) The picture to the right represents a metal. Specifically, it is aluminum foil. This model only shows a small portion of aluminum foil. We use the single symbol, Al, without any subscripts to represent an entire collection of aluminum atoms.

One property of metals is that they can be pounded into thin sheets. Considering the model of aluminum foil above, why do you think this is?



15) Using the atoms on the front of the page, construct models for each of the following molecules:

Water: H_2O (Oxygen is in the center)	Carbonyl chloride: COCl_2 (Carbon is in the center).	Chloric Acid: HClO_3 (Chlorine is in the center)
Formaldehyde: CH_3Cl (Carbon is in the center)	Cyanic Acid: HCNO (Carbon is in the center)	Nitrogen Dioxide: NO_2 (Nitrogen is in the center)