JSD 3D Learning Activity Template

Grade: 6th	**Title:** ***Making Molecules***

Utah Science with Engineering Education Standard (SEEd): 6.2.1 **Develop models** to show that molecules are made of different kinds, proportions and quantities of atoms. Emphasize understanding that there are differences between atoms and molecules, and that certain combinations of atoms form specific molecules. Examples of simple molecules could include water (H2O), atmospheric oxygen (O2), and carbon dioxide (CO2).

Key crosscutting concept(s) (CCC): Scale, proportion, and quantity

Key science and engineering practice(s) (SEP): Develop models

Materials:
http://www.dhmo.org/ , toothpicks, gumdrops, iPad, laptop or printed copy of website

Time:
30-45 minutes

Teacher background, key content information and hints: Have students go to that website and take a position as to whether or not it should be banned. Then explain the meaning of the prefixes dihydrogen and monoxide. Then you can have them do any of the activities you can find at this link https://goo.gl/k1JHv2

Prior knowledge that students need: In 5th grade students learned that matter cannot be created nor destroyed, only changed. Many students understand that H2O means water, but they do not know that it means two hydrogen atoms and one oxygen.

Learning Activity Plan

These three aspects of a lesson should be identified in your learning activity.

Gathering: *(Obtain Information)*	***Reasoning:*** *(Evaluate Information, Construct Explanations)*	***Communicating:*** *(Use Models to Communicate).*
Using the Molecule Activity (Appendix C), students will begin to understand different molecules and the different elements that make it.	They should understand that the abbreviation of the molecule represents the number and type of atoms.	Use their models to explain how they think the atoms are organized to form molecules, compare their model to Appendix D.

Phenomenon: Matter cannot be created nor destroyed, only changed.

Learning Activity: After reading about dihydrogen monoxide and discussing whether it should be banned or not, they will learn about the prefixes di (2) and mono (1).

Assessment of student learning: Compare the gumdrop models to pictures of molecules (Appendix D). They should have a fairly good idea as to why they created the model the way they did.

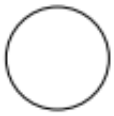
Student Page Name _____

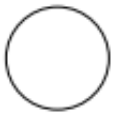
Title: **Molecules**

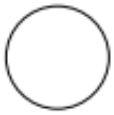
1. Color in the Molecule Color Key molecules with colored pencils as indicated.
2. Determine the number of elements in each molecule, and write it down.
3. Draw and color the molecule with the correct number of elements.
4. Make each molecule model using appropriately colored gumdrops and toothpicks.

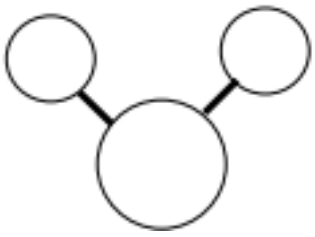
Molecule Color Key

Hydrogen (yellow) 

Oxygen (red) 

Nitrogen (green) 

Carbon (black) 

Molecule	Elements	Draw It!
Water H2O	H = _____ O = _____ N = _____ C = _____	
Carbon Dioxide CO2	H = _____ O = _____ N = _____ C = _____	

Ammonia NH3	H = _____ O = _____ N = _____ C = _____	
Methane CH4	H = _____ O = _____ N = _____ C = _____	
	H = _____ O = _____ N = _____ C = _____	