Phet Simulator: Build a Molecule!

Name: _____

Date: _____ Period: _____

1) Go to the following: http://phet.colorado.edu/en/simulation/legacy/build-a-molecule and click **Play**.

2) Use the kits below to create the molecules and complete the collections! (Notice there are several kits you can use and that all kits can be refilled). But first, answer the following:

3) Think back you your lab from yesterday: How would you explain the difference between an **element** and an **atom**? (Think about water or H_2O, for example)

_____
_____

Collection 1				
Chemical Formula	**Name of Molecule**	**# of elements**	**# of atoms**	**Sketch (3D or Ball & Stick)**

Collection 2				
Chemical Formula	**Name of Molecule**	**# of elements**	**# of atoms**	**Sketch (3D or Ball & Stick)**

Collection 3				
Chemical Formula	**Name of Molecule**	**# of elements**	**# of atoms**	**Sketch (3D or Ball & Stick)**

4) Have you noticed some molecules only work in certain arrangements? (If not, complete another collection and pay attention to this.) Choose one molecule and give examples of arrangements that do not work and ones that do:

   Molecule chosen: _____

   Unaccepted arrangement (sketch):   Accepted arrangement (sketch):

5) Click on the **Collect Multiple** Tab on the top of the Simulator window and complete the tables below:

Collection 1					
Chemical Formula	**Name of Molecule**	**# of molecules**	**# of TOTAL elements**	**# of TOTAL atoms**	**Sketch**

Collection 2					
Chemical Formula	Name of Molecule	# of molecules	# of TOTAL elements	# of TOTAL atoms	Sketch

6) By now, you should be able to answer the following questions. If not, do another collection and pay attention to the following.

a) What does the big 2 in $2CO_2$ mean? _____

b) What does the little 2 in $2CO_2$ mean? _____

7) Click on the **Larger Molecules** tab at the top of the simulator window. Use the atoms available to try and build the *largest* molecules you can!

a)   Name of Molecule: _____

        Chemical Formula: _____

        # of total elements: _____

        # of total atoms: _____

Sketch:

b)   Name of Molecule: _____

        Chemical Formula: _____

        # of total elements: _____

        # of total atoms: _____

Sketch: