Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period \_\_\_\_\_\_\_

Teacher \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Lesson 2.1** **Lab TEKS:**  **6.1(A); 6.2(A), (E); 6.3(B); 6.4(B); 6.5(C)**

50 minutes

***Balloon Molecules***

Knowing how atoms join to form the smallest parts of a compound can be useful. It can sometimes help you predict properties of compounds. It also can help you understand how compounds combine to form mixtures. In this lab, you will connect small balloons to make models of molecules.

**Ask a Question**

How do atoms combine to make molecules?

**Materials**

small balloons

black marker

tape iPad

2 - ½ sheets of paper PicCollage or Keynote App on your iPad

**Safety**

**Lab Tips**

* When making your models, it is best to have all the balloons inflated to the same size, but keep in mind that real atoms have different diameters.
* Press down lightly when writing the chemical symbols on the model atoms to avoid popping the balloons.

**Make Observations**

1. Look at the molecule models in the table below. Each molecule is made of two or more atoms. Each type of atom is drawn in a different color.



4.

3.

2.

1.

5.

8.

6.

7.

***Table 2.1***

1. Notice that a water molecule—H2O—consists of two hydrogen atoms and one oxygen atom.

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**Lesson 2.1** Lab

**Lesson 2.1 Lab Continued**

1. Inflate three balloons as models of the three atoms that make up a water molecule. Choose one color for the two hydrogen atoms and a different color for the oxygen atom. Inflate each balloon until it is about 4 cm wide. About the size of this line **[----------------------------]**
2. Look at the shape of the water molecule in the table. Use tape to connect your model atoms in that shape.
3. Use a black marker to write *H* on each hydrogen balloon and *O* on the oxygen balloon.
4. Tape your molecule onto one ½ sheet of paper and write *Water H2O* on it next to your model.
5. Look at the molecules in the table. Choose one more molecule from the ones pictured in the table above (according to teacher directions) to model.

Notice the types of atoms that make up the molecules you have chosen to model.

1. Choose a different color balloon for each type (element) of atom. If possible, use the same colors for hydrogen and oxygen that you used for your water molecule.
2. Use tape to connect the atoms in the same arrangements shown in the table. Then use a marker to write the chemical symbol of each element on the balloon for that type of atom.
3. Label the paper ½ sheet for your second molecule, just as you did for the water molecule. Display each of your models together.

**Analyze and Conclude**

1. **Analyze** Which, if any, of the molecules you modeled represent the smallest particles of a substance? Which, if any, represent the smallest particles of an element? Explain.

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1. **Describe** how the molecules you modeled depend on atoms.

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1. **Explain** what type of lab investigation this was? (Descriptive, Comparative, or Experimental) and how you know? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Communicate Your Results**

1. Use your iPad to take digital photographs of each type of the models made in class (see table 2.1). Then, use the photos to make a PicCollage poster with captions or a Keynote presentation that explain the atoms that join to make each molecule modeled.
2. Print 2 copies of your poster/presentation. One copy will be attached to this lab sheet, and the 2nd copy will be submitted to be graded.

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**Lesson 2.1** Lab