Name: _____ Date: _____

Investigation 2-3: Sugar and Water

Investigation plan		✔
1	Gather materials for the group: € 1 Electronic scale € 1 Graduated cylinder € 2 Clear plastic cups (any size, approx. 10 oz) o 1 Water cup o 1 Sugar cup € 1 Water supply € 1 Spoon € Sugar (1 Spoonful) € 2 Permanent markers, different colors (Color 1 and Color 2)	
2	TARE the scale so that the weight of the cup reads as 0.0: € Weigh one of the empty cups on the electronic scale: o Place the scale on a flat surface. o Press the power button to turn on the scale.  o Make sure the scale unit is in grams (using the kg/lb button).  o Place the empty cup on the scale. o Calibrate the scale by pressing the “0.0 TARE” button.  After doing this, you will NOT press the “0.0 TARE” button again.	
3	Prepare the water cup: € Remember, do NOT press “0.0 TARE”. The scale will show a number even with nothing on it, and that is okay. € Carefully pour 50 mL of water from the water supply into the graduated cylinder.	

	€ Pour the 50 mL of water from the graduated cylinder into the water cup. Weigh the cup with water, and record the weight in the investigation table. Take the water cup off of the scale.  € Place the water cup on a flat surface. Look at the water cup at eye level, and draw a small line at the top of the water level with a permanent marker (Color 1). 	
4	Prepare the sugar cup: € Remember, do NOT press “0.0 TARE”. The scale will show a number even with nothing on it, and that is okay. € Measure 1 spoonful of sugar, and carefully pour the spoonful of sugar into the sugar cup. € Weigh the sugar cup, and record the weight in the investigation table.	
5	Carefully pour all the sugar from the sugar cup into the water cup. Use the spoon to help get all the sugar out. 	

6	Mix the sugar with the water: € Carefully pour the sugar into the water cup with the spoon and mix until the sugar is dissolved (can no longer see the sugar). € Weigh the cup with water and sugar after the sugar is dissolved. Record the weight in the investigation table. € Look at the cup of water and sugar at eye level, and mark the top of the liquid with a permanent marker (Color 2).	
7	Record your observations below.	

Name _____ Date _____

Investigation 2-3: Sugar and Water (Questions)

Data Table:

Material	Weight (grams)
Sugar	
Water	
Mixture of sugar and water	

1. What did you observe about the solid sugar as you mixed it with the liquid water?

_____

_____

_____

_____

2. Compare the weight of the sugar and water (before mixing) to the weight of the mixture of sugar and water (after mixing).

_____

_____

_____

_____

3. Compare the volume of water before mixing to the volume after mixing sugar and water.

_____

_____

_____

_____

4. Did the sugar disappear when you mixed it with the water? How do you know?

_____

_____

_____

_____

Name _____ Date _____

SEN Entry 2-3: Modeling Solid and Liquid Matter

Develop a model to describe both liquid and solid matter as they mix together.

Initial Model

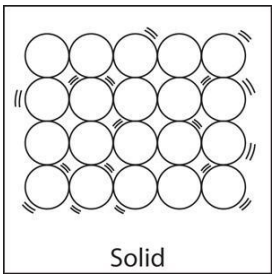
Revised Model

Name: _____ Date: _____

Article 2-3: What is Matter Made of?

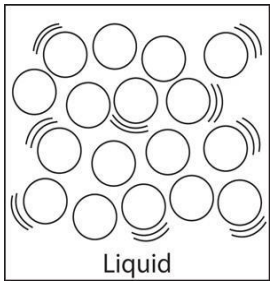
Scientists have studied matter for over 100 years! They tested their ideas using very complicated technology. Scientists developed and tested the model that all matter is made of very, very tiny pieces or particles.

These particles are too small to see with your eye, or even with a very powerful microscope. In fact, scientists have to use special tools to show that matter is made of these very small particles. It took a lot of evidence to develop this scientific idea that matter is made of particles, because when you look around, matter appears to be made of solids or liquids.



Take a look at your desk.[1] Looking just with your eyes, the desk looks like a solid that could not be broken down into smaller pieces. If you could use a very powerful microscope, you would see that the desk is made up of tiny particles.

A glass of water might look like a continuous blob, but it is also made of tiny particles. If you could use a very powerful microscope, you would see that liquids like water are made of particles that are too small to see.[2]



It's hard to believe that our world and everything in the universe are made of these little particles, everything from the sun to paper to orange juice.

[1] Desk image from https://www.globalindustrial.com/c/office/desks/school

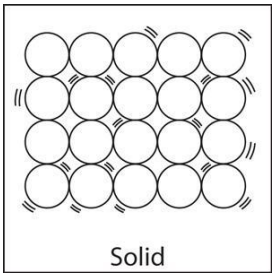
[2] http://2.bp.blogspot.com/-S0vzGF356FM/Vn-n_1RxifI/AAAAAAAAAxQ/Hmy_zRv3nsc/s1600/liquid.jpg

Nombre: _____ Fecha: _____

Artículo 2-3: ¿De qué consiste la materia?

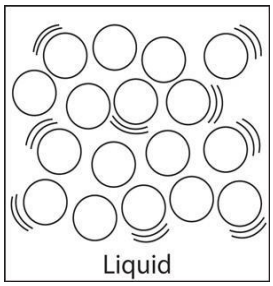
¡Los científicos han estudiado la materia durante más de 100 años! Probaron sus ideas utilizando tecnología muy complicada. Los científicos desarrollaron y probaron el modelo de que toda la materia está hecha de pedazos o partículas muy, muy pequeñas.

Estas partículas son demasiado pequeñas para verlas con el ojo, o incluso con un microscopio muy potente. De hecho, los científicos tienen que usar herramientas especiales para demostrar que la materia está hecha de estas partículas muy pequeñas. Se necesitó mucha evidencia para desarrollar esta idea científica de que la materia está hecha de partículas, porque cuando miras a tu alrededor, la materia parece estar hecha de sólidos o líquidos.



Mira tu escritorio. [3]Mirando solo con los ojos, el escritorio parece un sólido que no se puede dividir en pedazos más pequeños. Si pudieras usar un microscopio muy potente, verías que el escritorio está hecho de partículas muy pequeñas.

Un vaso de agua puede parecer una mancha continua, pero también está hecho de partículas muy pequeñas. Si pudieras usar un microscopio muy potente, verías que los líquidos como el agua están hechos de partículas que son demasiado pequeñas para ver.[4]



Es difícil creer que nuestro mundo y todas las cosas en el universo estén hechos de estas pequeñas partículas, desde el sol hasta el papel y el jugo de naranja.

[3] Imagen del escritorio de https://www.globalindustrial.com/c/office/desks/school

[4] http://2.bp.blogspot.com/-S0vzGF356FM/Vn-n_1RxifI/AAAAAAAAAxQ/Hmy_zRv3nsc/s1600/liquid.jpg