



rock by rock 

Sugar, Sugar Everywhere

Name: _____

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1.1 Fact Finder Notes

Your mission is to find out how sugar impacts our lives, and then take action by reducing the harmful effects of sugar on our health. You will do this by creating a picture book to educate others and help them take action.

Your mission is to collect information that will help you with your final project. Every time you watch a video, read a text, or do an activity, you should write down new information that you think will help you with your project.

Here are some questions to think about. Anytime you learn new information about one of these questions, write it down.

What are the properties of sugar and how does it compare to other substances?

Where does sugar come from?

How does sugar affect the look and taste of food?

How does sugar affect the human body?

What can be done to reduce the harmful effects of sugar on our health?



1.2 Graph Sugar Data

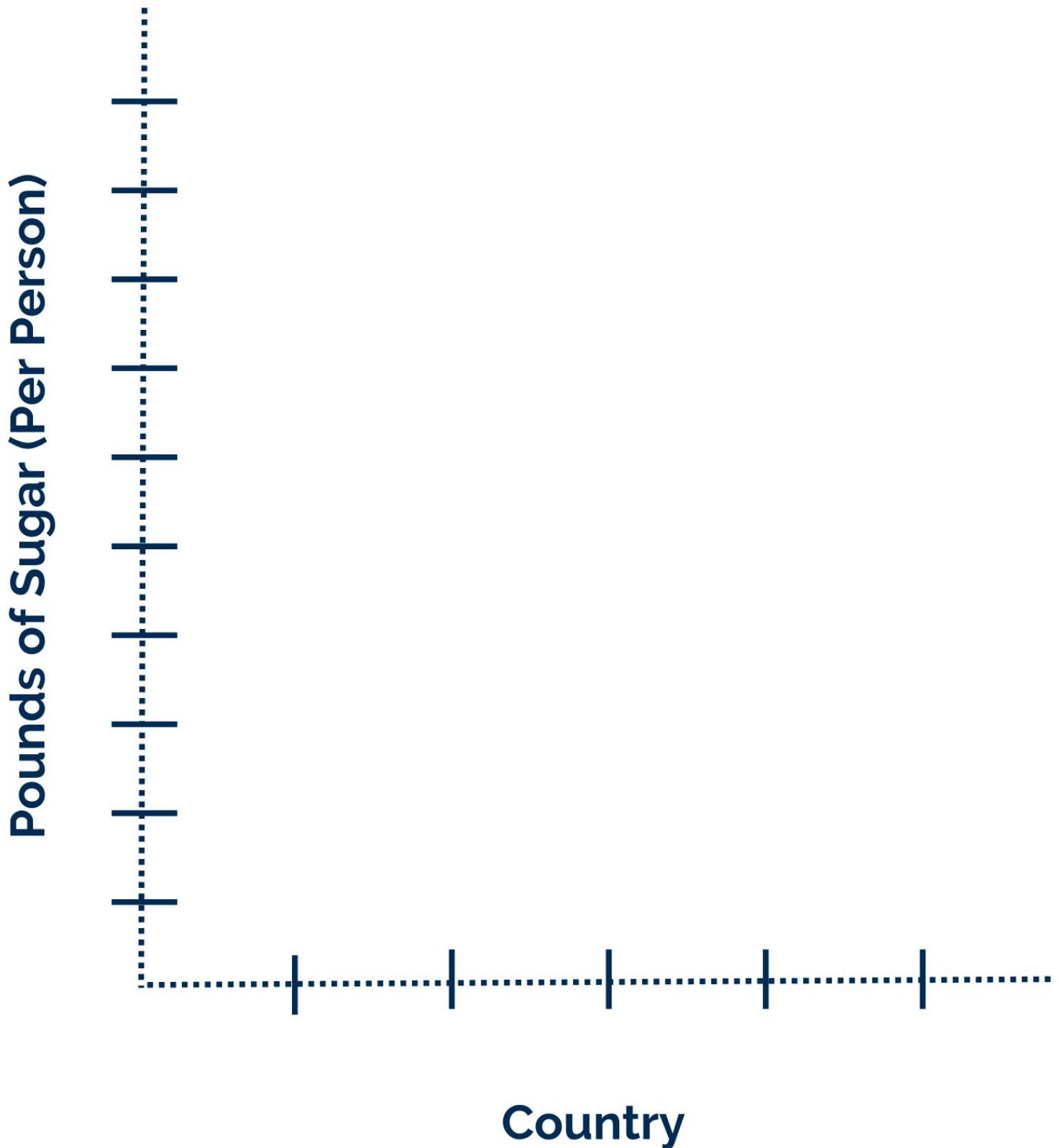
Directions: Follow the steps below to create a bar graph.

1. Choose 5 different countries from the "Sugar Around the World" map.
2. Use the information on the map to fill in the data table.
3. Use your data table to create a bar graph on the next page.

Country	Pounds of Sugar Eaten Each Year (Per Person)



Amount of Sugar Eaten Per Year





2.2 Curiosity Questions

Directions: Time to practice asking curious questions. Review what you learned about on the surface and under the surface questions

On-the-surface questions are meant to gather basic information about a topic. Answers to surface level questions are usually short and easy to find.

Under-the-surface questions allow us to get a deeper understanding about something. Answers to under-the-surface questions are detailed or complex. Under-the-surface questions may have more than one answer. Many people, including scientists, ask meaningful questions that no one knows the answer to. This is how new things are discovered!

Now it's your turn. What questions do you have about sugar. Write at least 5 questions. It can be about:

- Things you learned in Module 1
- The sugar discoveries you read about in this lesson
- Things you've heard about sugar from friends, family, or the news
- Any other sugar-inspired questions that come to mind.

Sugar Questions:



2.3 Create a Curiosity Challenge

Directions: Curiosity is like a muscle—it gets stronger when we use it! We are going to create a curiosity challenge in order to build our curiosity muscles and experience the benefits of curiosity.

1. Review the list of curiosity habits below.
2. Choose one curiosity habit for each day of the week. You can choose a different habit for each day, or you can repeat some during the week.
3. Record your curiosity habits on the next two pages.
4. Think about when, where, or with whom you will practice these curiosity habits. Record this information on the next two pages.
5. Invite friends and family to participate in your 7-Day Curiosity Challenge.
6. At the end of each day, reflect on what went well and how you can improve. Record your reflections on the next two pages.

BONUS: At the end of the 7-Day Challenge, consider planning a new curiosity challenge for the following week. The more you use your curiosity muscles, the stronger they will become!

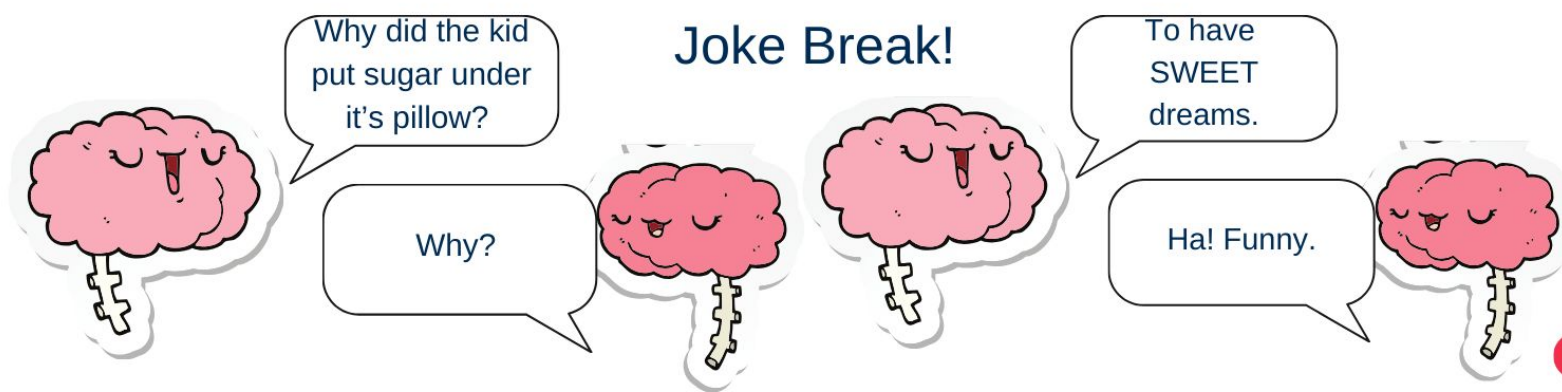
Curiosity Habits

- Get so absorbed in learning about something that I lose track of time.
- Spend time learning new things about myself (likes, dislikes, feelings, goals, etc.).
- Learn something new from talking to someone.
- Listen carefully when other people are talking.
- Learn new things just for the fun of it.
- Try new things, including new foods.
- Ask under-the-surface questions.
- Get excited when I figure out something new.
- Be comfortable admitting that I don't know everything.
- Spend time getting to know other people.
- Write about things that I have learned (stories, poems, articles, etc.).
- Be willing to change my mind about an idea after learning more about it.



7-Day Curiosity Challenge

Day	What curiosity habit will I practice today?	When, where, or with whom will I practice this curiosity habit?	What went well? What can I do better next time?
Monday			
Tuesday			
Wednesday			





7-Day Curiosity Challenge

Day	What curiosity habit will I practice today?	When, where, or with whom will I practice this curiosity habit?	What went well? What can I do better next time?
Thursday			
Friday			
Saturday			
Sunday			

3.1 Sugar Words

Directions: Pick three words you think will be hardest to remember. Draw a picture for each word, label your picture with the word, then use that word in a sentence. **Bonus points** if you can use the word **fluffy**, **art**, or **dolphin** in one of your sentences. Just for fun.



3.2 Science Investigation

Sugar,, flour, and cornstarch are just a few of the ingredients you might find in a kitchen. How are these kitchen ingredients similar? How are they different? Make sure to record detailed observations during your investigation. Once you have completed the investigation and observation form, use the reflection questions to reflect on your observations.

Materials



9 clear cups
or glasses



masking tape



pen



1-teaspoon
measuring spoon



sugar



salt



cornstarch



flour



baking soda



baking powder



vinegar



vegetable oil



observation
form



1/2-cup
measuring cup



warm water



digital scale

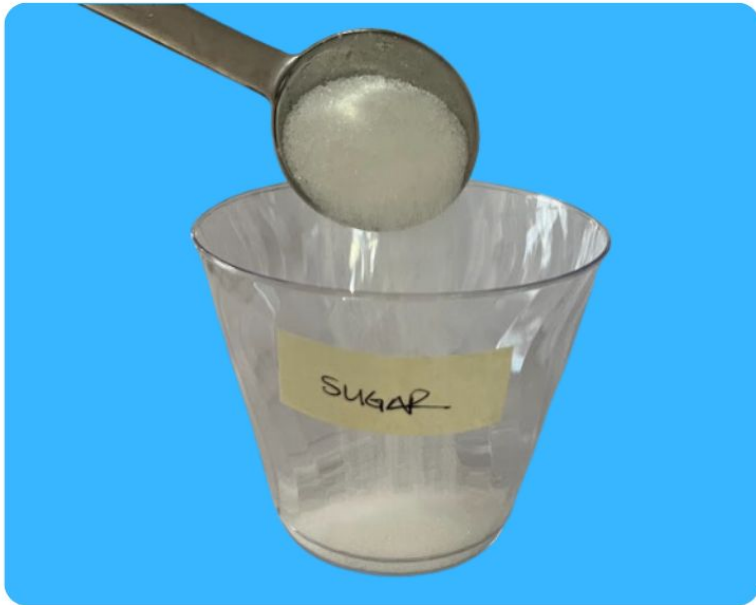


Directions:

Step 1: Use masking tape and a pen to make the following labels for the cups: Sugar, Salt, Cornstarch, Flour, Baking Soda, Baking Powder, Vinegar, and Vegetable Oil. Place one label on each cup.



Step 2: Measure one teaspoon of each kitchen ingredient into the labeled cups. Wipe off the spoon after measuring each ingredient.



Step 3: Use your senses of sight, touch, and smell to observe each kitchen ingredient. **(Do not taste the ingredients!)** Record your observations on the observation form.

Investigation Observation Form				
Ingredient	Before Mixing With Water		After Mixing With Water	
	Observations	Total Weight	Observations	Total Weight
Sugar				
Salt				
Cornstarch				
Flour				
Baking Soda				
Baking Powder				
Vinegar				
Vegetable Oil				

Step 4: Use the measuring cup to measure out 1/2 cup of warm water. Pour the water into the empty cup.





Pro Tips for Measuring:

- Remember to record your units when measuring weight. Your digital scale may use pounds/ounces or kilograms/grams. You may also have a button to switch from one set of units to the other. Measure using grams if this is an option on your scale.
- Use the same units each time you measure.

Step 5: Put the 1/2 cup of water, the cup with sugar, and the clean measuring spoon next to each other on the digital scale. Record the total weight of the two cups and measuring spoon.



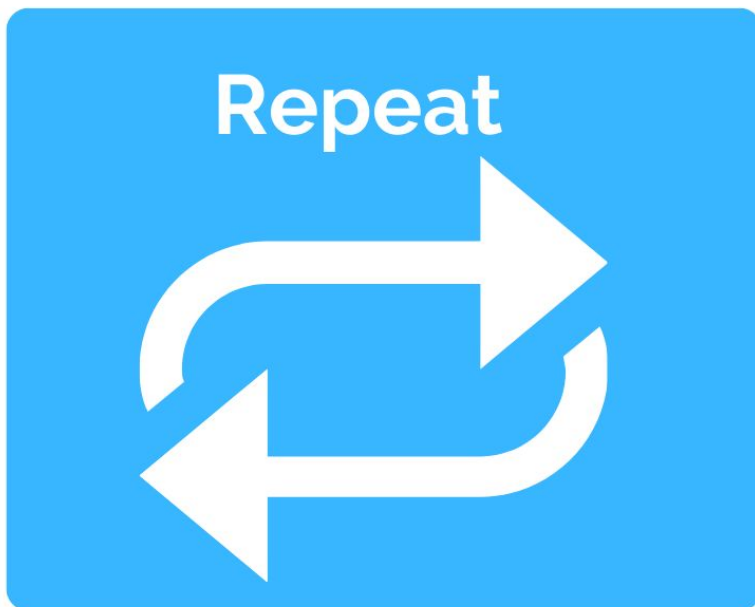
Step 6: Pour the warm water into the cup of sugar and stir with the clean measuring spoon for about 30 seconds. Take a close look at the liquid in the cup. Record your observations on the observation form.

Ingredient	Before Mixing With Water		After Mixing With Water	
	Observations	Total Weight	Observations	Total Weight
Sugar				
Salt				
Cornstarch				
Flour				
Baking Soda				
Baking Powder				
Vinegar				
Vegetable Oil				

Step 7: Use the digital scale to measure the total weight of the two cups and the measuring spoon after you have stirred the sugar and water together. Record the total weight of the two cups.



Step 8: Repeat Steps 4-6 for the remaining kitchen ingredients.





Investigation Observation Form

	Before Mixing With Water		After Mixing With Water	
Ingredient	Observations	Total Weight	Observations	Total Weight
Sugar				
Salt				
Cornstarch				
Flour				
Baking Soda				
Baking Powder				
Vinegar				
Vegetable Oil				



Investigation Reflection

Compare the properties of sugar to the properties of one other kitchen ingredient. How are they similar? How are they different?

Some kitchen ingredients dissolve, or seem to disappear, when mixed with water. Record which ingredients dissolve and which do not dissolve.

Ingredients That Dissolve	Ingredients That Do Not Dissolve

Did the total weight change after any of the ingredients dissolved in water? Did this surprise you? Why or why not?



3.3 Record Ideas About Dissolving

One way to build your curiosity muscles is to draw and write your ideas about something before you learn about it. This can help you figure out what you may already know and what questions you have. Let's try out this curiosity strategy.

Draw what you think happens to sugar crystals when they dissolve, or seem to disappear, in water. Label your drawing.

What questions do you have about dissolving?



3.3 Improve Your Explanation

Directions: Use what you learned from the reading to help you answer the questions below.

Draw and label a new diagram to explain what happens when sugar dissolves in water.

Explain how your thinking has changed by describing the differences between your original diagram and your new diagram (if any).

BONUS: Draw and label a diagram to show why a piece of hard candy does not change shape when it is moved from one container to another.