

Name: \_\_\_\_\_

Hour: \_\_\_\_\_

# A Sugar Cube Race!

If you drop a sugar cube into a glass of water, how long will it take to dissolve? Will it take 5 minutes, 10 minutes, or longer? What can you do to speed up the rate at which it dissolves? Should you change something about the water, the sugar cube, or the process? In other words, what variable should you change? Before reading further, make a list of all the variables that could be changed in this situation.

Variables:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_



## Make a Prediction

Choose 1 variable to test. Record your choice below. Predict how changing your variable will affect the rate of dissolving (*how long will it take to dissolve*).

\_\_\_\_\_

\_\_\_\_\_

## Conduct an Experiment

- A. Pour 200 mL of room temperature water into one of the beakers.
- B. Add 1 sugar cube and use a clock to measure how long it takes for the sugar cube to dissolve. You must not disturb the sugar cube in any way!! Record this time in the table. (*This may take several minutes, maybe the whole hour, so set the beaker aside and continue on*) If the cube doesn't dissolve by end of class period record, the amount of time it was in the water.
- C. Tell your teacher how you wish to test the variable you chose. Do not proceed without his approval. You may need additional equipment. He will let you know where to get the equipment.
- D. Prepare the materials to test the variable you have picked. When you are ready, start your procedure for speeding up the dissolving of the sugar cube. Use a stopwatch to measure the time. Record this time in the table.

Dissolve Time – Undisturbed Sugar Cube	Dissolve Time – Variable

## Analyze the Results

Compare your results (variable) with the results from Step B above. Was your prediction correct? Why or why not?

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\_\_\_\_\_



Why was it necessary to observe the sugar cube dissolving on its own before you tested the variable?

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Do you think that changing more than one variable would speed up the rate of dissolving even more? Explain your reasoning.

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Discuss your results with a group that tested a different variable. Which variable had a greater effect on the rate of dissolving? Explain.

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### **Display Results**

Construct a **bar graph** (Variable vs. Time) with the title *Rate of Dissolving Sugar*. Include data on the variable you tested and data on the variable from another group, as well as the data from the undisturbed sugar cube. Include labels and fill in bars on graph!

