



Scientific Method Lesson 1: “The Solve”

Student Handout

I. Watch the Mosa Mack Mystery

Either on your own, in a small group or as a class (your teacher will let you know), read Mosa Mack’s comic on Scientific Method. Then, fill out the questions below. Include a page number in your answer as evidence of where you found your answer.

Name: _____

Date: _____

Episode Questions

1. What is the scientific question Mosa is trying to answer and what is at stake?
2. Step 2 of the scientific process is research. What counts as research according to Mosa’s collaborator?
3. In step 3 of the scientific process, Mosa makes a hypothesis, or an educated guess, that hyperactivity is an effect of sugar. What is the independent and dependent variable in Mosa’s experiment?
4. What are some other examples of dependent and independent variables, either from the comic or from your own experience?



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5. Mosa figures out that there are a lot of other variables that could affect hyperactivity. Name at least three and explain what we can do to make sure it is sugar that is the cause.

6. Mosa comes up with a great plan: give one kid sugar and no sugar to the other kid, while controlling all other variables. What does the doctor point out is still a problem and what solution does she offer?

7. What did Mosa and her team do to conduct her experiment? Describe the two different camps.

8. What did Mosa figure out? Does sugar make kids hyper?



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II. Vocabulary Activity

Note: Your teacher will tell you whether you will complete this activity [online here](#), or offline by following the instructions below.

1. Using the materials at your table, cut out your vocabulary cards along the **solid lines**.

2. Write the definitions on the back of the cards. Then, match the vocabulary word with the correct picture on the “Scientific Method Mind Map.” When you’re ready to glue, raise your hand so you can check your Mind Map with your teacher.



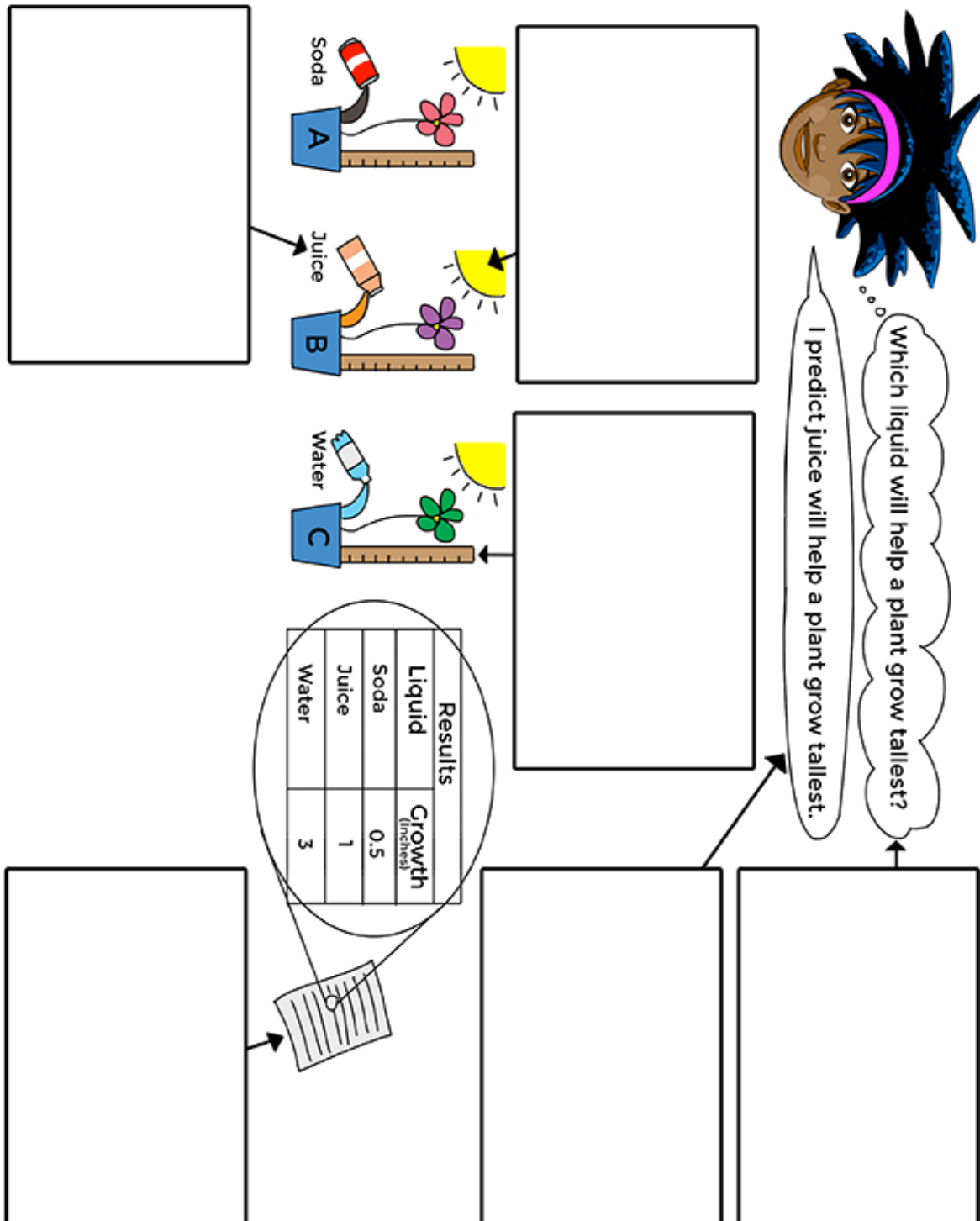
3. Fold along the dotted line on each vocabulary card to create a flap. Put glue **ONLY** on the hinge of your vocabulary cards (the word should be on top). **You should be able to open the flap to see the definition and the picture underneath.**
4. Discuss with your group:
 - a. What is the independent variable in the experiment shown? The dependent variable? What is the difference?
 - b. What are the controlled variables in the experiment shown? What does it mean for them to be controlled?
 - c. How are results different than analysis according to the mind map?



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Mind Map





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Vocabulary Cards

Controlled Variable	Question	Dependent Variable
Hypothesis	Independent Variable	Analysis

Vocabulary

- **Independent Variable:** a variable that the scientist changes
- **Dependent Variable:** a variable that depends on the independent variable
- **Controlled Variable:** factors that the scientist wants to remain constant
- **Question:** a query that a scientist will use an experiment to find an answer
- **Hypothesis:** an educated guess that predicts an answer to the experimental question
- **Analysis:** a detailed explanation of the results of an experiment



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III. Exit Ticket: Check for Understanding

Complete the exit ticket below or you can take the quiz online!

Name: _____

Date: _____

1. A _____ is an educated guess or prediction for an experiment.
 - a. Question
 - b. Hypothesis
 - c. Inference
 - d. Observation
2. Which of the following represents the “cause” of a phenomenon in an experiment?
 - a. Independent Variable
 - b. Dependent Variable
 - c. Controlled Variable
 - d. Question
3. Banging your head on the wall causes pain. What is the dependent variable in this situation?
 - a. Banging your head
 - b. The wall
 - c. Pain
 - d. Size of your head
4. The two camps have the same schedule, the same activities, even the same-looking food. What are all these factors called?
 - a. Independent Variables
 - b. Dependent Variables
 - c. Controlled Variables
 - d. Data
5. Which of the following experimental setups would be best for Mosa Mack?
 - a. 2 kids, one gets sugar and one does not
 - b. 2 groups of 5 kids, one gets sugar and one does not
 - c. 1 group of 50 kids, all get sugar
 - d. 2 groups of 50 kids, one gets sugar and one does not



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6. In the comic, Mosa needed to control all of the following EXCEPT:
- a. Anticipation before seeing the new Star Wars Movie
 - b. Drinking a caffeinated soda
 - c. Eating sugar-filled candy
 - d. Running around with other kids and getting excited