

Name: _____

Date: _____

Gummy Bears Lab

Pre-Lab Questions

Answer the following questions, in complete sentences, prior to participating in the lab activity.



1. What process will we be using to solve the activity's problem?

2. Why is it important to be able to construct an explanation ?

3. How will you use mathematical and computational thinking?

4. After what practice will eating the gummy bears be permitted?

A scientific practice is a behavior that scientists use to seek and explain answers to questions they have about the world around them. By focusing on these behaviors you can relate scientific ideas to real world situations and apply it in everyday life.

The **8 Practices** can be broken down into the following parts:

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

INTRODUCTION

In this activity, you will use the 8 Practices to discover what will happen when we put a Gummy Bear into water, salt water, vinegar, and baking soda water. We will also learn how scientists record **data** on charts, make graphs, and draw **conclusions**. Do **NOT** eat any of the gummy bears until you are given permission.

OBJECTIVES

1. Name and describe the 8 Practices of Science and Engineering.
2. Follow the steps needed to solve a problem.
3. Record data in a table or chart.
4. Construct a graph that shows the results of the investigation.

Materials:

- Four different colored gummy bears
- Four plastic containers with tops
- One beaker
- Water
- $\frac{1}{4}$ tsp (1 white scoop) of baking soda
- $\frac{1}{4}$ tsp (1 white scoop) of salt
- 1 tsp (1 blue scoop) of Vinegar
- Ruler
- Pencil
- This packet 😊

1. **Ask questions and define the problem:** (*Hint - What are you trying to find out?*)

2. **Develop and use a model.** Draw a model of what the experiment will look like.

3. **Planning and carrying out investigation.** Follow procedure

Part 1:

1. Get 4 gummy bears from your teacher
2. Using a ruler measure one of your gummy bears in millimeters and record the data in the chart for Day 1.

Measurements:

- A. The length of your gummy bear should be measured from the top of its head to the bottom of its feet to the nearest Millimeter.
- B. Measure the width at the widest point across the back of the bear to the nearest Millimeter.

4. **Obtaining, evaluating and communicating information.** Report your measurements and what you have observed about size of gummy bears.

Part 2:

1. In each of the four plastic containers:

Container 1	Container 2	Container 3	Container 4
- Pour 1 tsp of Vinegar (1 blue scoop) -Fill with water leaving room for the gummy bear	- scoop one $\frac{1}{4}$ tsp (white scoop) of salt into container -Fill with water leaving room for the gummy bear	- scoop one $\frac{1}{4}$ tsp (white scoop) of baking soda into container -Fill with water leaving room for the gummy bear	-Fill with water leaving room for the gummy bear

2. Gently place a Gummy Bear into each of your prepared containers, seal with the top, and place the container onto the labelled sheet of paper under the correct heading. Let sit overnight.

BREAK

3. **On Day 2**, remove the Gummy Bears from each mixture and use a paper towel to dry it off to prevent it from dripping all over the place.
4. Repeat the measurements from Part 1 for each Gummy Bear and record your data in the correct portion of the chart.
5. Determine the difference for each measurement, for each Gummy Bear and record in the chart.

Name: _____

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Frequency Table:

5. Using mathematical and computational thinking

Water

Day	Color	Length	Width
1			
2			
Difference			

Water and Salt

Day	Color	Length	Width
1			
2			
Difference			

Vinegar

Day	Color	Length	Width
1			
2			
Difference			

Water and Baking Soda

Day	Color	Length	Width
1			
2			
Difference			

6. Analyzing and interpreting data. Look at the data that was collected and explain what you notice about the difference in length and width between day 1 and day 2.

7. Constructing explanations and designing solutions. Report about why you think the changes happened with each kind of gummy bear.

8. Engaging in arguments from data. Talk with another group and compare your explanations. Do you think their findings are accurate?

