

# **Sugar Rush**

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**Note: Please identify students with food allergy before conducting these experiments.**

## What is Sugar?

### Definition

Sugar -- **Sugar** is naturally found in a variety of foods. Some foods have a higher content of sugar than others. While we need a certain amount of sugar to survive, too much can result in different reactions in the body. For example, too much sugar at one time can give a person a sugar rush.

### Example

Oranges have sugar but not nearly as much as a pixie stick or a chocolate bar

Orange (1 standard size): ~9g sugar

Pixie Stick (7 mini straws) : 19g sugar

Snickers Bar (1 normal bar): 29g sugar

## Why is Sugar Rush important?

This experiment shows the different rates of sugar being absorbed in the blood and opens discussion for the results of having a sugar rush and why it's not a good idea for energy and what are better options instead.

### Goal of experiment

This experiment shows how the blood can absorb sugar and carbohydrates at different rates.

### Items needed for the experiment

- 2 glasses
- Corn Syrup
- Red food color
- Measuring spoon
- Sugar
- Flour

### Instructions for the demonstration

Step 1: Fill two glasses halfway with corn syrup.

Step 2: Add two drops of red food color to each glass to make artificial blood.

Step 3: Place 1 teaspoon of sugar on top of the liquid in one glass and 1 teaspoon of flour on top of the liquid in the other glass.

Step 4: Watch how long it takes for the liquid to absorb the sugar and flour.

### Conclusions

Sugar is made of small molecules that dissolve faster than the large starch molecules in flour, so sugar is absorbed faster than the flour. When we eat sugar, these small molecules quickly pass into our blood. When we eat starches (such as something made from flour) the molecules take longer to pass into our blood.

### Applications

This experiment directly ties into daily nutrition and the consequences of eating sugary or starchy foods. Because our blood absorbs sugar so quickly, sugar quickly enters and leaves the blood. Normally, when a body needs energy, it needs a supply that is more long lasting. Thus, eating carbohydrates, especially complex carbs is a better idea if we want our body to have a long lasting supply of energy.

Name \_\_\_\_\_

## Sugar Rush Activity Sheet

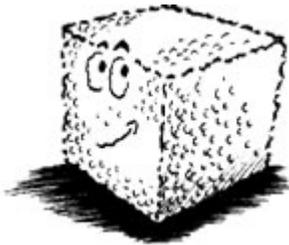
### SUGAR RUSH INTRODUCTION

Have you ever noticed that if you eat a lot of candy or other food that contains sugar, your head feels a bit odd or achy? Some people call this a sugar buzz. When you get a sugar buzz, it puts your body to work, removing the sugar from your blood. And when all of the sugar is removed, you feel hungry again.

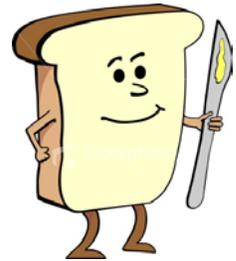
Carbohydrates, like the bread we eat, is also absorbed by the blood but at a different rate. Which do you think absorbs the blood faster? Sugar or carbohydrates?

**GUESS (circle one) :**

**SUGAR**



**CARBOHYDRATES**



### EXPERIMENT RESULTS

Watch to see which the “blood” absorbs faster. What was the result? \_\_\_\_\_

### CONCLUSION

Was your guess correct? \_\_\_\_\_

Why do you think one was absorbed faster? \_\_\_\_\_

### REFLECTION

Which do you think will give you more energy for a longer period of time, sugar or carbohydrates?  
\_\_\_\_\_

Knowing this, how would you change your eating habits? \_\_\_\_\_

Complex carbohydrates (like wheat bread) are carbohydrates that are even harder to break down than simple carbohydrates (like white bread). Which do you think the blood will absorb faster? Why?  
\_\_\_\_\_

### SUGAR RUSH

This activity can be used during a living environment unit on the human body and nutrition or during a chemistry unit on matter. Best yet it can help to show how the two work together; “We are what we eat.”

## NYS Standard 4: The Living Environment

**Key Idea 1:** Living things are both similar to and different from each other and from nonliving things.

P.I. - 1.1 Describe the characteristics of and variations between living and nonliving things.

1.1a

P.I. – 1.2 Describe the life processes common to all living things.

1.2a

**Key Idea 5:** Organisms maintain a dynamic equilibrium that sustains life.

P.I. – 5.1 Describe basic life functions of common living specimens.

5.1a

P.I. – 5.2 Describe some survival behaviors of common living specimens.

5.2c

5.2g

P.I. - 5.3 Describe the factors that help promote health and growth in humans.

5.3a

5.3b

## NYS Standard 4: The Physical Setting

**Key Idea 3:** Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.

P.I. – 3.1 Observe and describe properties of materials, using appropriate tools.

3.1b

3.1c

3.1d

3.1f

P.I. – 3.2 Describe chemical and physical changes, including changes in states of matter.

3.2c

**Key Idea 4:** Energy exists in many forms, and when these forms change energy is conserved.

P.I. – 4.2 Observe the way one form of energy can be transferred into another form of energy present in common situations.

4.2a