

# Science in the Kitchen

## Overview

With patience and creativity, children can learn more about the science behind food and nutrition by experimenting in the kitchen. Explore answers to questions such as, “what is baking soda and why is it important?” “how do our taste buds work?” and “how can we make simple recipes even healthier by using ingredients of similar consistency?”. Experimenting in the kitchen provides children with the opportunity to practice problem solving skills while naturally becoming more in-tune with their food!

## Take Action

### Bubble Up with Baking Soda

If you’ve ever made banana bread or a birthday cake, you’ve probably used baking soda. Have you ever forgotten to include the baking soda and found your bread or cake flat, deflated, and looking more like a pancake? Baking soda adds fluff and volume to cakes and breads through a chemical reaction by interacting with acidic ingredients to produce carbon dioxide gas - creating tiny bubbles of CO<sub>2</sub>! Bubble up with a baking soda science experiment to explore the properties and importance of using baking soda as a rising agent.

### Rainbow POP

Materials:

- Water
- Vinegar
- Baking Soda
- Muffin tin

- Food coloring

Steps:

1. Place a tiny drop of food coloring at the bottom of each muffin spot in the muffin tin. If you want to surprise children with the colors, keep this step a secret!
2. Cover the food coloring spot with a spoonful of baking soda.
3. Give children cups of water/vinegar mixture (  $\frac{1}{2}$  water and  $\frac{1}{2}$  vinegar) and allow them to slowly pour into each muffin tin to see the reaction unfold with it's surprise color!

### ***Start a Conversation:***

Ask children to think about how the reaction takes place. Work together to think through what ingredients had to interact to cause the reaction. Encourage children to think about how this reaction may take place when baking muffins, bread or other baked goods. What would they taste like without this reaction (soft and fluffy or dense and chewy)? What would they look like (round and bouncy or flat and heavy)?

## **Switch Up Ingredients to Explore Viscosity**

Viscosity describes the property of how fast or slow a liquid will flow. For example, if you pour a cup of water into the sink, the water will quickly flow out of the cup down the drain. But what if you poured maple syrup out of the bottle into the sink? You'll notice that the maple syrup will flow much slower because it has a much higher viscosity than water. Let's explore the viscosity of different ingredients we often use in cooking and baking.

Materials:

- Honey
- Olive Oil
- Vegetable Oil
- Syrup
- Water

- Small round object (can be a grape, a marble, etc.)
- Plate

### Steps:

1. Pour enough liquid on the plate to cover half of the circular object (marble, grape, etc).
2. Tilt the plate back and forth to observe how fast or slow the object moves.
3. Repeat for each round of the experiment, using a different liquid.

### ***Start a Conversation:***

Invite children to share what they observed with the different liquids. What types of liquid flowed faster or slower? Think about these liquids and how they are used in cooking and baking and explore healthy swaps with similar viscosity.

- Apple Sauce for Butter
- Honey for Syrups and Sweeteners
- Coconut Oil or Olive Oil for Canola Oil

## **Tricky Taste Buds**

Have you ever noticed that when you lose your sense of smell due to a temporary cold or allergies, that your sense of taste is also affected? That's because our sense of smell and taste work together to determine flavor. [Check out this video](#) and try out a blind taste test to explore how smell and taste are deeply intertwined. Looking for ideas? Try out a simple [fresh fruit and veggie taste test](#) or [get creative with a twist](#).

### Materials:

- 3-7 healthy and flavorful vegetables, fruits, and other foods

### Steps:

1. Lay out the foods on a paper towel for all to see.
2. Ask the "taste tester" to close their eyes and plug their nose.

3. Have the “experimenter” choose the order of the foods as they place a piece of the food in the hands of the taste tester to taste while plugging their nose.
4. Once the first bite is taken without the senses of sight or smell, ask the taste tester to guess what they ate. Do not tell them the correct answer quite yet!
5. Next, ask them to unplug their nose and taste the SAME food they tasted previously. Ask them if their guess has changes and reveal the correct answer.

### ***Start a Conversation:***

After each round, ask the taste tester to describe the differences in when they were able to when they plugged their nose. Was it more difficult to determine the flavor when one sense was isolated? Did anything come as a surprise once your nose was unplugged? Encourage children to try out a few new foods and note the flavors they find the most enjoyment in.

## **Tips**



Don't worry about having the exact materials for these experiments! Put your own twist on these simple science activities by using different materials available on-hand.



Use these experiments as a way to begin discussions around health and nutrition. Be patient and give children some time to soak in new information and begin to make the connections on their own.



Include children in the planning and preparing. Getting kids in the kitchen not only empowers them to challenge their thinking and creativity, it also helps grow nutrition knowledge and create healthy dietary habits.

For more activities and ideas like this one, be sure to [sign up for our news and updates](#). And if you like what you see, please [donate to support our work](#) creating more ways to help build a healthier future for kids.

## Resources

[Experimenting with Fat \(Children's Museum of Houston\)](#)

[Explore Nutrition Science Projects \(Science Buddies\)](#)

[Science of Healthy Living \(Science Buddies\)](#)

[Health Science: Food Activities \(Education.com\)](#)

### **Taste Tests With a Twist**

Make taste tests interesting by putting a sweet or savory spin on a food that's traditionally the opposite. Don't be afraid to mix unique flavors!

### **Host a Taste Test**

Expose your students to a variety of healthy food items so they'll eat better!

### **Easy Nutrition Education Activities**

Use digital learning resources to take nutrition education at home to the next level.

### **How to Read Nutrition Facts Labels**

Help kids make better choices by simplifying the information on nutrition labels to teach them to identify key nutrients that are common in healthy foods.

