



Project Exploration creates transformative learning opportunities for youth underrepresented in the sciences –particularly students of color and girls – by equipping them with the skills, practices, and mindset needed for a lifelong pursuit of learning. STEM@Home makes activities around science, technology, engineering, and math accessible and fun to do at home. This STEMbook activity, resources, and more are available at www.projectexploration.org/stemathome.

In this activity, you will:

Explore chemistry with pancakes!



Supplies Required:

Dry ingredients: all purpose flour, baking soda, baking powder, salt, sugar

Wet ingredients: buttermilk, eggs, vanilla extracts

Optional: add ons & in's- fruit, chocolate chips, cinnamon, sprinkles, syrup, butter

Utensils: 2 large bowl, spoon, spatula, knife, measuring spoon & cups, plate, Skillet or griddle

Non stick cooking spray or cooking oil

Video

Follow the recipe to make pancakes: <https://tinyurl.com/y82s998x>

Overview

Every recipe is a chemical reaction! A pancake is the result of a pretty incredible reaction. The magic begins when you mix the flour with the wet stuff. If you look through a microscope, flour contains two different kinds of proteins called glutenin and gliadin. When moistened and mixed, these proteins link together to form a sticky molecular mesh known as gluten. Next, you need to add a leavening agent. This is something that fills the gluten with air. Without it, leavened breads like cakes, muffins and loaves of breads would be pretty inedible. Traditionally, people used biological agents like yeast for this purpose. The yeast munches on sugars, and excretes carbon dioxide, making thousands of little air pockets in the gluten. Put the dough in the oven, and these air pockets expand. The gluten transforms from a gooey mess into a dry and spongy substance that we call bread.



Instructions

1. Find an adult to assist you!
2. In a large bowl combine dry ingredients: 2 cups of flour, 2 tsp baking powder, 1 tsp baking soda, 1/2 tsp salt, 2 tbsp sugar, and mix together
3. In a separate large bowl combine wet ingredients: 2 eggs beaten, 2 cups buttermilk, 1-2 tsp vanilla extract, and mix well
4. Pour wet ingredients into the dry ingredients and mix—do not over mix, lumps are good!
5. Have an adult to heat up skillet or griddle
6. Use non-stick spray or cooking oil
7. Pour 1/3 cup of pancake batter onto skillet or griddle
8. When bubbles completely form on top flip pancakes over with spatula
9. Once the other side brown, remove from skillet or griddle
10. Serve with your favorite toppings and enjoy!

Additional Resources

Think About It! What happened to the pancake as you added heat? How would the consistency change if you didn't add baking soda? What do you think would happen if you used flour that didn't have the proteins? Explain your thinking.

1. 9 scientific cooking techniques: <https://tinyurl.com/ybhqv23d>
2. The science behind cooking: <https://tinyurl.com/y7835ygo>

Share It Out

Share on social media: Pancakes can be a dessert by adding ice cream or fruit and whip cream. Share your creation and what you learned on social media using the hashtags:

#PancakeChemistry
#ProjectExploration
#StemAtHome

Share via PE's website: Students who complete STEM@home activities and share what they learned with the PE team via our website will earn points which can be traded in for cash prizes at the Explore Store. Your project number is 225. Learn more at www.projectexploration.org/explore-store

Join PE's character contest!

Design a STEM character who will lead kids through activities and be featured on our website and in our STEMbooks. Cash prizes will be awarded to the top 3 finalists. Learn more at: www.projectexploration.org/character-contest.



Call or text us for help: 312-772-6634

www.projectexploration.org