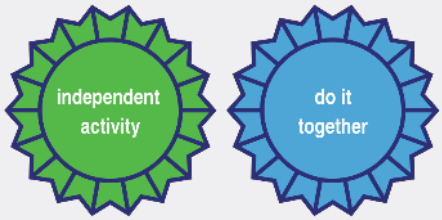
Project Exploration creates transformative learning opportunities for youth underrepresented in the sciences --particularly students of color and girls -- by equipping them with the skills, practices, and mindset needed for a lifelong pursuit of learning. STEM@Home makes activities around science, technology, 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 the different states of matter while enjoying a treat! You will use household pantry items to make your own ice cream. Do it together or on your own!



Supplies Required:

Set of measuring cups and spoons
Sugar
Salt
Vanilla extract or paste
Heavy whipping cream
Milk
8 cups of ice
Quart and gallon ziploc bags
Small towel or oven mitt
Timer
Thermometer

Video

Before you get started, learn about the three states of matter here: https://tinyurl.com/s3s9yur

Overview

States of matter are the forms that different phases of matter take on. The states of matter are solid, liquid, and gas. Different kinds of energy can cause matter to change states. You have probably experienced your ice cream melting on a hot day or ice cubes melting in a glass of water. When a substance melts, it goes from a solid to ao liquid. Heat causes the temperature of the substance to increase and the particles to gain more energy. They are able to move faster and flow, causing a solid to change into a liquid. When a substance goes from being a liquid to a solid, like when water becomes ice, we calling that freezing. When this occurs, we are removing heat energy, which causes the particles to slow down. Solids have very slow moving particles, liquid particles are able to move a a medium speed, and gas particles move very fast!

Instructions

1. Combine ¼ cup sugar, ½ cup milk, ½ cream, ¼ tsp vanilla in a quart size freezer zip bag
2. Place 2 cups of ice cubes in gallon size freezer bag (record temperature)
3. Add ½ to ¾ cup of salt to ice
4. Place quart sized bag inside the gallon sized bag
5. Put on the oven mitt
6. Shake bag for 10 to 15 minutes, or until the mixture starts to solidify
7. Open the gallon sized bag and record the temperature
8. Remove the quart sized bag and place contents into a bowl
9. Top with chocolate sauce, whipped cream, and a cherry! Enjoy!

Additional Resources

Think About It! How does this activity illustrate the concepts of melting and freezing? Look at your ingredients and identify their state of matter. What do you think would happen if you changed the amount of ice or salt? How does this experient apply to other cooking or baking activities?

1. Learn more about the chemistry of ice cream: https://tinyurl.com/yxb8mu9l
2. Cool facts about ice cream: https://tinyurl.com/yxd6kb9a

Share It Out

Share on social media: take a photo of the ice cream sundae you create and tag your favorite ice cream brands!

Share you culinary creation using the hashtags:

#IceCream
#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 203. 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.