



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:

Learn about how solids melt and the superpowers of salt! Make observations and follow the steps of the scientific method to develop a conclusion.

Supplies Required:

- Graphic organizer (page in your STEMkit)
- 1 Bowl of ice cubes
- 1 Bowl of crushed ice
- 1 box of iodized salt
- 1 spoon
- Stopwatch

Video

Watch the video and learn how snow plows are made: <https://tinyurl.com/y3nxaak6>

Overview

We are all familiar with ice since we live in Chicago. We experience many months where there is lots of ice and snow on the streets and sidewalks. Ice forms when water freezes. Have you ever been travelling behind a snowplow in a car or on the bus? What do you see coming out the back of the snowplows? Salt! Here's why... Water has a freezing temperature of 32 degrees Fahrenheit or 0 degrees Celsius. When water reaches this temperature, or colder, it will begin to freeze and turn to a solid. When ice reaches this temperature or warmer, it will begin to melt. Temperature is not the only thing that affects how liquids freeze and melt. When salt comes into contact with water it doesn't allow the water molecules to get close enough to freeze. Salt helps to lower the freezing temperature of water, so it actually has to be colder than 32 degree Fahrenheit to freeze water if there's salt involved. We put salt on the sidewalks and streets to help melt the ice, and prevent ice from forming, so it's safer to travel.



Instructions

1. Walk through the graphic organizer as you complete the activity
2. STEP 1 Problem: Will ice cubes or crushed ice cubes melt faster when combined with salt?
3. STEP 2 Hypothesis: What do you think the salt will do to the types of ice?
4. STEP 3 Experiment: Test it out and make observations
5. Place ice in the bowls - one bowl of ice cubes and one bowl of crushed ice.
6. Label your bags: 1. Salt 2. Crushed ice 3. ice cubes
7. Add 2 tbsp of salt to bag #1, seal the bag.
8. Next add crushed ice to bad #2, seal the bag.
9. Add some ice ice cubes to bag #3, seal the bag.
10. Now add the ice cubes to bag #1 and shake/mix well. Seal the bag.
11. Lay bags on a table or counter top and set your timer for 5 minutes
12. Observe! What happened to the ice in the bag with salt? Without salt?
13. STEP 4 Analysis: Based on your observations what do we now know? What happened to each bag of ice?
14. STEP 5 Conclusion: Was your hypothesis correct or incorrect?

Additional Resources

1. How does salt melt ice? <https://tinyurl.com/obtmfs5>
2. Salt and ice melting explained: <https://tinyurl.com/obtmfs5>

Share It Out

Share on social media: Share the results of your experiment with your friends and family on social media! Explain the steps of the scientific method in a video! Use the hashtags:

#ScientificMethod
#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 202. Learn more at www.projectexploration.org/explore-store



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