



Minds in Motion

“Cool” Chemistry: DIY Ice Cream!

Activity Rundown:

What’s better on a warm, sunny day than ice cream? In this activity, you’ll be tasked with making your own frozen treat using just a few simple ingredients. Not only will you have ice cream, but hopefully you’ll learn more about some “cool” chemistry concepts along the way!

You will need:

- + 1 cup of milk (You can use any kind of milk you prefer! The higher the fat percentage, the creamier your resulting ice cream. Half and half and 2% milk worked great in the past! Milk alternatives such as soy, almond, and others can also be used.)
- + 2 tablespoons of sugar
- + ½ teaspoon of vanilla extract
- + Flavoured syrup to taste!
- + Ice cubes
- + ½ cup of salt
- + One large freezer ziploc bag
- + One medium freezer ziploc bag
- + Spoon for eating!

Let’s do it!

1. In the medium ziploc bag, combine your milk, sugar, vanilla extract, and any flavour syrup you want!
2. Tightly seal the medium bag shut.
3. Fill your large ziploc bag halfway full with ice. Sprinkle the salt over the ice layer.
4. Place your sealed medium sized ziploc bag into the large ziploc bag. Once inside, tightly seal the large ziploc bag.
5. Double check to make sure your bags are both tightly sealed! It may be no use crying over spilled milk, but it’s a different story with spilled ice cream!
6. Vigorously shake your bags until the milk mixture is transformed into ice cream. (This may take a while, maybe find a partner that’s willing to take turns shaking the ice cream!)
7. Enjoy!

Background:

The salt added to the ice lowers the **melting point** of the ice, just like it does when we add salt to roads in the winter! In order for the ice to melt, it has to absorb heat from its



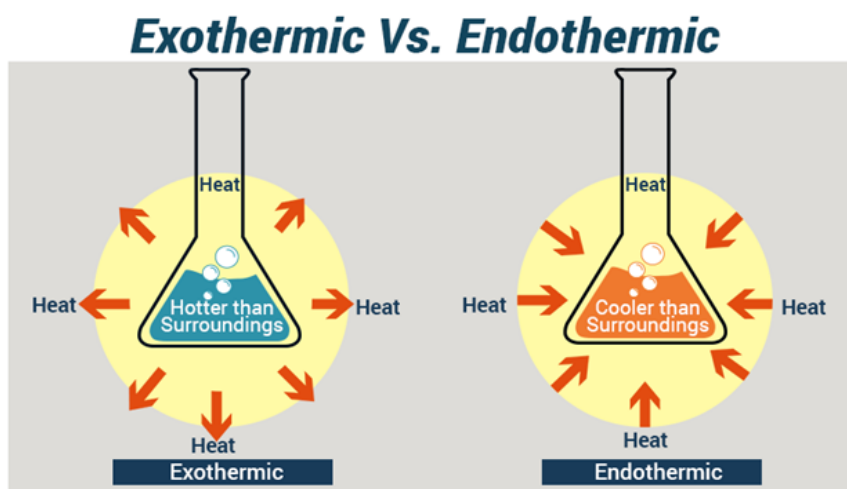
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surroundings, just like the ice cream in the bag. The ice pulls the heat away from the ice cream to melt which allows the ice cream to freeze.

This is an example of an **exothermic reaction**. An exothermic reaction is a chemical reaction that **releases** light or heat, otherwise known as **energy**. In this case, heat is released from molecules moving around, freezing cream into ice cream! More exothermic reactions include the burning of materials and explosions.

The opposite of an exothermic reaction is an **endothermic reaction**. In these kinds of reactions, **energy** (light or heat) is **absorbed**. Examples of an endothermic reaction include cooking eggs and melting ice cubes.

In any chemical reaction, **chemical bonds are either broken or formed**. And the rule of thumb is "*When chemical bonds are formed, heat is released, and when chemical bonds are broken, heat is absorbed.*" Molecules really want to stay together, so formation of chemical bonds between molecules requires less energy as compared to breaking bonds between molecules, which requires more energy and results in heat being absorbed from the surroundings.



Resources:

<https://www.inthekidskitchen.com/kitchen-activities/ice-cream-in-a-bag/>



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Reach out!

We would love to hear from you about all the amazing STEM projects you are doing at home! Show us your finished products on any of the following social media platforms by tagging us or by using the following hashtags. We hope these projects have brought some excitement to your day during these difficult times.

Let us know how we did! Please [click here](#) to fill out a short survey on how well we did and what you would like to see more of in the future. Thank you!

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