

MAKER EXCHANGE

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activity

ICE CREAM IN A BAG

THE CHALLENGE:

Learn how to make your very own ice cream at home with simple chemistry techniques!



RECOMMENDED AGE

Ages 8 and up

TIME NEEDED

15 - 30min

TOOLS & MATERIALS

- Measuring spoons and cups
- Sealable sandwich bags
- Sealable gallon-sized bags
- Oven mitt/towel
- Vanilla extract
- Milk or Half and Half
- Toppings of your choice
- Sugar
- Salt
- Ice



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GETTING STARTED-INSTRUCTIONS

STEP 1: PREPPING

- Place 4 cups of ice and 1/2 cup of salt in a gallon-size bag and set aside.
- In a smaller bag, combine 1/2 cup of milk (or half and half), 1/4 tsp of vanilla and 1 tbs of sugar. Make sure the bag is sealed tight.

STEP 2: SHAKE SHAKE SHAKE

Place the smaller bag inside the gallon-size bag and seal tightly since you will need to give it a good shake.

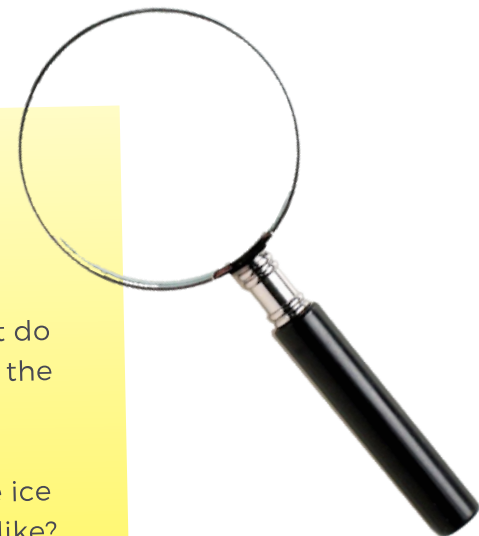
Notice the temperature of the bag as you shake. Put on oven mitts or wrap the bag in a small towel if the bag gets too cold to handle.

Shake for about 5 minutes.

MAKING OBSERVATIONS

As you shake the bag, what do you notice is happening to the ingredients?

What has happened to the ice cubes? What do they look like?



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QUESTIONS TO CONSIDER



Why do we add the salt to the ice bag and not the smaller bag?

Does your shaking method affect the outcome of the experiment? Why or why not?

KEY TERMS



- Freezing point
- Chemical solution
- Mixture

SIMPLIFY



If you have ice cream on hand, scoop a small amount into the smaller bag. Leave it inside the larger bag with salt/ice mixture and see how long it takes for it to melt!

EXTRA CHALLENGE



Experiment with adding toppings before shaking! Or, try making strawberry or chocolate ice cream!



RELATED RESOURCES



Click on the link below for more info:

[The Science Behind the Experiment](https://www.scientificamerican.com/article/scrumptious-science-making-ice-cream-in-a-bag/)
<https://www.scientificamerican.com/article/scrumptious-science-making-ice-cream-in-a-bag/>

INSTRUCTIONS CONTINUED...

STEP 3: ENJOY!

How did your chemistry experiment turn out? Did it turn into ice cream? If so, scoop the ice cream onto a cone or eat right from the bag!

STEP 4: EXTRA EXPERIMENTS

If you have extra ingredients and materials, repeat the process but with these minor changes:

Experiment 2: Don't use salt. Set up both bags the same way except leave the salt out of the ice bag.

Experiment 3: Use different types of salt. Use a different type of salt than the salt you used in the first experiment. This can be, table salt, kosher salt, sea salt, or Himalayan pink salt. .

Experiment 4: Swap out the whole milk for heavy cream or half and half. You can also try almond milk, oat milk, or soy milk.

Do these minor changes to the ingredients make major changes to the results?

