

# States Of Matter

Did you know that **matter** is everywhere? Everything you can see and touch is made up of matter. Matter is anything that has weight and takes up space. Matter exists in three main forms: solids, liquids, and gases. Use these fun, at-home experiments to investigate states of matter with your child!

## SORT AND MATCH STATES OF MATTER

Build your child's understanding of the three states of matter through this sort and match activity.

**MATERIALS:** 3 notecards with the words "solid," "liquid," and "gas" written on them (for younger children, consider including a picture), materials from around your house or cut out from a newspaper/magazine or images found on the internet.

1. Review and discuss each state of matter with your child. See if you can come up with examples for each state.
2. Lay out the three cards.
3. Find items from around your house or cut out pictures from a newspaper/magazine or locate items on the internet to match with each state of matter. \*Please note gas may be difficult to find as an object. Consider using objects that contain gas such as a balloon. Have a discussion with your child about how gases are often invisible and do not have a shape so they need a container.

## ICE CREAM IN A BAG

Use this delicious experiment to observe how temperature can change matter from a liquid to a solid.

**MATERIALS:** 1 cup half-and-half, 2 Tbs. sugar, 1/2 tsp. vanilla extract, 3 cups ice, 1/3 cup rock salt or kosher salt, sandwich size Ziploc bag, 1 gallon size Ziploc bag



1. Mix the half-and-half, sugar, and vanilla extract together in the sandwich size Ziploc bag.
2. Fill a gallon size Ziploc bag about half full of ice. Add 1/3 cup of salt.
3. Place the sealed sandwich bag with the mixture into the large Ziploc bag. Seal the bag firmly.
4. Shake the bag vigorously for about 7-10 minutes, pausing to make observations about changes you notice.
5. As you are enjoying your ice cream, have a discussion with your child about what they noticed. How many minutes did it take to turn the liquid mixture into solid ice cream? Do you think the amount of shaking had any impact? Why or why not?

**THE SCIENCE BEHIND THE TREAT:** The ice cream mixture takes longer to freeze than water would (below 32 degrees F). Adding salt to ice lowers its melting point. The ice draws heat away from the bag of ice cream mixture which allows the ice cream mixture to freeze.

**ADDITIONAL RESOURCES:** Check out these books on Reading Is Fundamental's (RIF) Literacy Central at [RIF.org/Literacy-Central](http://RIF.org/Literacy-Central) to deepen your child's understanding of chemistry concepts!

*The Boy Who Invented the Popsicle: The Cool Science Behind Frank Epperson's Famous Frozen Treat* (2019) written by Anne Renaud and illustrated by Milan Pavlovic

*What Is the World Made Of?: All About Solids, Liquids, and Gases* (Let's-Read-and-Find-Out Science 2) (2015) written by Kathleen Weidner Zoehfeld and illustrated by Paul Meisel

*What's the Matter in Mr. Whiskers' Room?* (2007) written by Michael Elsohn Ross and illustrated by Paul Meisel