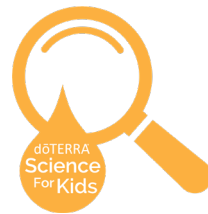


# States of Matter



## What You'll Need:

- 1 empty, clear bottle (Note: Make sure the bottle opening is small enough to fit a balloon on it.)
- 1 balloon
- 2 oz. baking soda
- 4 oz. vinegar
- 1 funnel (optional)

## What You'll Do:

1. Before beginning the experiment, take a moment to answer questions 1 and 2 on your "What You Discovered" worksheet. Be sure to get your parent's help and permission before gathering the experiment supplies.
2. With the help of an adult, pour 2 ounces of baking soda into the balloon. You may want to use the funnel. Note: 1 ounce is equal to 2 US teaspoons.
3. Next, pour 4 ounces of vinegar into the clear bottle. Take a moment to answer question 3 on your "What You Discovered" worksheet.
4. Fasten the balloon to the opening of the bottle. Note: Be careful not to let the baking soda drop into the vinegar before you're ready.
5. Lift the balloon so the baking soda pours into the bottle. As the baking soda (solid) mixes with the vinegar (liquid), it will create the third state of matter: gas. As you watch the reaction, answer question 4 on your "What You Discovered" worksheet.
6. Take a moment to finish your "What You Discovered" worksheet.

## What Does It Mean?

Like many concepts in chemistry, the states of matter are all around us! Solids, liquids, and gases are constantly undergoing phase changes. These changes can be brought on by a couple of things, such as differences in pressure or temperature, which is what happens with freezing or boiling water. Now that you can identify the different states of matter, what phase changes do you see in your day-to-day experiences?



## What You Discovered:

*As part of your states of matter experiment, answer the questions below.*

1. Review the characteristics of the different states of matter in the states of matter module. What makes each state of matter different?
2. Before you begin the experiment, observe all of the substances you gathered. What do you see? Solids? Liquids? Gases? What do you think will happen when you mix the baking soda and vinegar?
3. As you pour the vinegar into the plastic bottle, what characteristics do you notice? Does it take the shape of the bottle? Which state of matter is it?
4. Why do you think the balloon expands?
5. Why do you think the balloon stops expanding?
6. What is one thing you learned about the states of matter through this experiment?



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## What to Do Next:

- The next time you put ice cubes in your drink or make homemade popsicles, think about the different states of matter and how they undergo phase changes.
- Revisit the dōTERRA® Science for Kids tab on the dōTERRA Science Blog for more fun science experiments and activities.
- With your parent's permission, post a picture of your experiment on Facebook or Instagram. Make sure to tag @doterrascience and to use the hashtags **#doterrascienceforkids** and **#featureme** for a chance to be featured on the dōTERRA Science Facebook page.