Exploring Solids and Liquids

Level H/I

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Illustrated by Travis Schaeffer

Bind This End

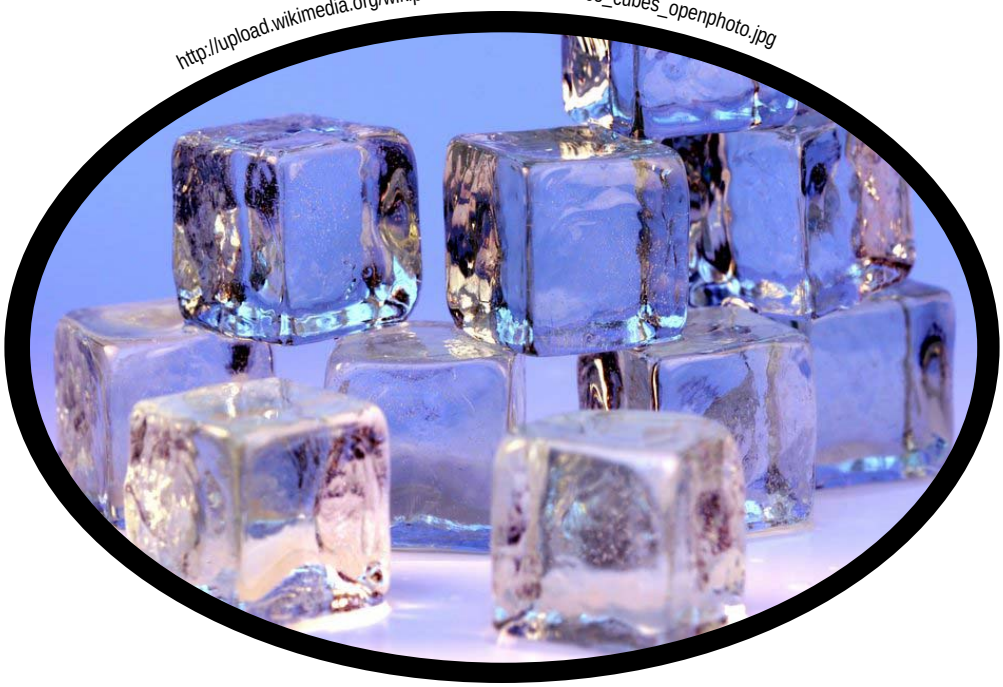
Matter is all around us. It makes up all things. Scientists classify **matter** into three main states: solids, liquids and gases. A **solid** is a kind of matter that has its own shape. A solid does not flow. A **liquid** is a kind of matter that does not have its own shape. Liquids take the shape of their containers. Liquids flow.

http://upload.wikimedia.org/wikipedia/commons/2/2f/Culinary_fruits_front_view.jpg

Many things around us are solids.

We are going to talk about foods that are solids. An apple or banana is a solid. They have their own shape. Can you think of other foods that are solids?

Many things we drink are liquids. Water and juice are both liquids. They are the shape of the bottle or cup that holds them. Can you think of other liquids?



Some solids and liquids can change when they are heated. Some solids and liquids can change when they get cold. Water is a liquid. If water freezes, it becomes ice. Ice is a solid. But if the ice gets warm, it will melt. Melted ice becomes water again. Water is a liquid.

Solids and liquids can change when we mix them together. A strawberry is a solid. Frozen ice cream is also a solid. Put the ice cream and strawberry in a blender. Pour in milk - that's a liquid. Mix it in the blender. Now it is a new liquid called a strawberry milkshake. The strawberry, ice cream and milk all change when we mix them.

When we cook, we can find many changes in matter. We use many solids and liquids when we cook. Some things we cook will get hot. Some things we cook will get cold. Hot and cold will make a change in matter. Mixing a solid and liquid together will make a change too.

Try this recipe for Microwave Fudge to see changes in matter. You will need:

- 3 C semi-sweet chocolate chips
- 1 (14 oz) can condensed milk
- ¼ C butter
- 1 t vanilla
- ¼ t salt
- microwaveable bowl
- 8-in x 8-in pan
- wooden spoon
- cooking spray

Which of these things are solids? Which are liquids?

1. Spray the pan with cooking spray.
2. Put the chocolate chips, milk and butter in the bowl.
3. Cook in the microwave about 2 - 3 minutes until melted.

4. Take out of the microwave. Stir.
5. Add vanilla and salt. Stir until smooth.
6. Pour the fudge into the pan.
7. Put the pan of fudge in the refrigerator for 2 hours.
8. Cut into squares. Eat.

Observe what happened to the fudge.

How did the ingredients change when cooked in the microwave? How did the fudge change when put in the refrigerator? Talk about the changes in matter when you made fudge.

Why did these changes happen?

yes

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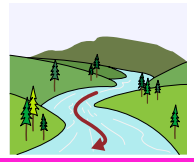
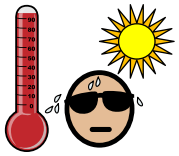
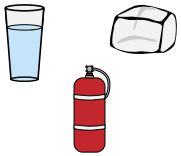
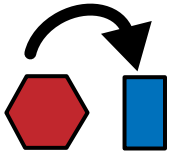
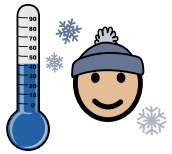
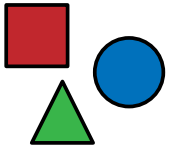
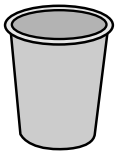
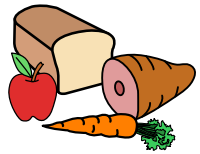
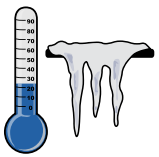
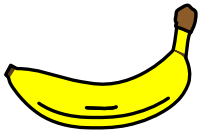
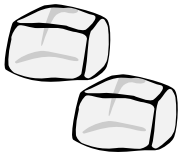
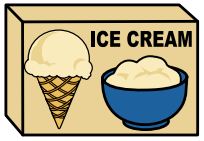
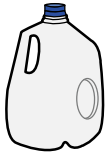
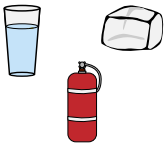
no

flow 	drink 	hot 	matter 	solid 	liquid / water 	gas 
hold 	change 	cold 	shape 	container 	food 	apple 
heat 	freeze 		banana 	juice 	ice 	strawberry 
melt 	mix 		ice cream 	blender 	milk 	strawberry milkshake 
cook 			recipe 	fudge 		

Glossary

liquid - can flow and hold the shape of the container it is in



matter - a solid, liquid or gas

solid - holds its own shape