

Science

Science

Physical Science

Properties of Matter

Genre	Comprehension Skill	Text Features	Science Content
Nonfiction	Draw Conclusions	<ul style="list-style-type: none">• Captions• Call Outs• Labels• Glossary	Matter

Scott Foresman Science 2.8

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Properties of Matter

by Ann J. Jacobs

Vocabulary

gas

liquid

mass

mixture

property

solid

states of matter

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What is matter?

Everything is made of matter.

Matter is anything that takes up space and has mass.

Mass is how much matter is in something.

All things made of matter have mass.

Everything you see is made of matter.



Matter is made of small parts.

A hand lens helps you see small parts up close.

Some things you cannot see are made of matter.

Air has matter!





Properties of Matter

Different kinds of matter have different properties.

A **property** is something you can observe about an object.

Color is a property of matter.

Shape is a property of matter.

Size is a property of matter too.



What colors are the pipe cleaners? Are they big or small?



How much something weighs is a property of matter.

How something feels is a property of matter.



Do you think the sponge weighs a lot?



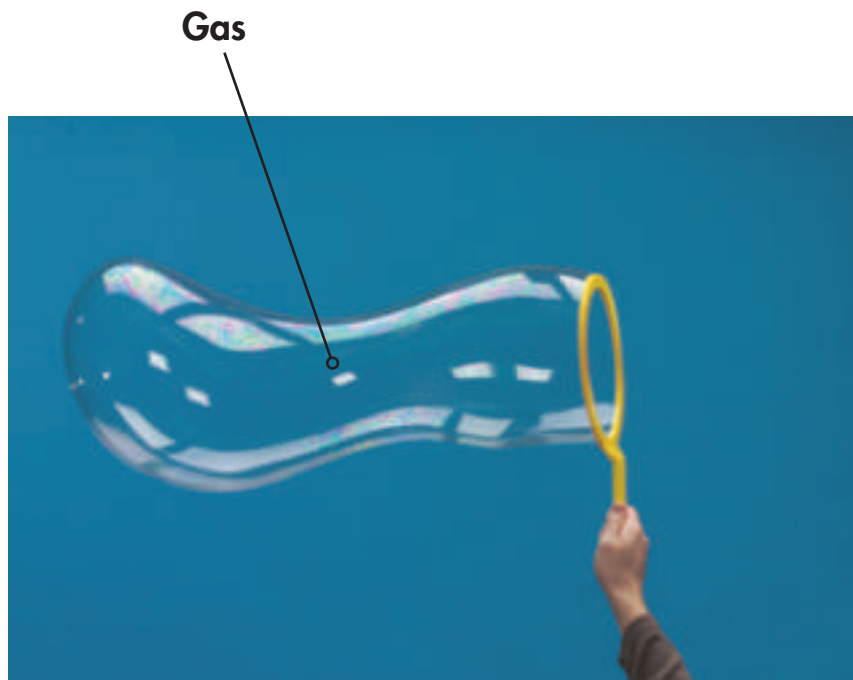
Is the brush hard or soft? How does the cup feel?





What are the states of matter?

There are three **states of matter**.
The states of matter are solids, liquids, and gases.





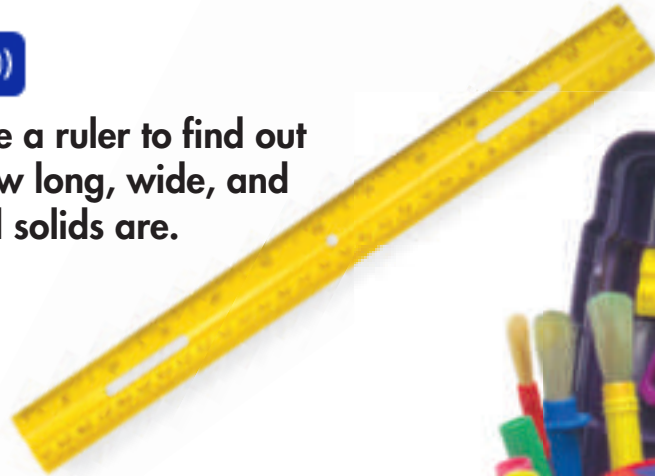
A **solid** is matter that has its own size and shape.
Solids take up space.
Solids have mass.



Crayons are solids.
Each crayon has a color.



Use a ruler to find out how long, wide, and tall solids are.



Notebooks are solids.
Notebooks have a shape.



You can use a balance to find the mass of a solid.





Liquids

Liquid is matter that does not have its own shape.

Liquids take the shape of what they are in.

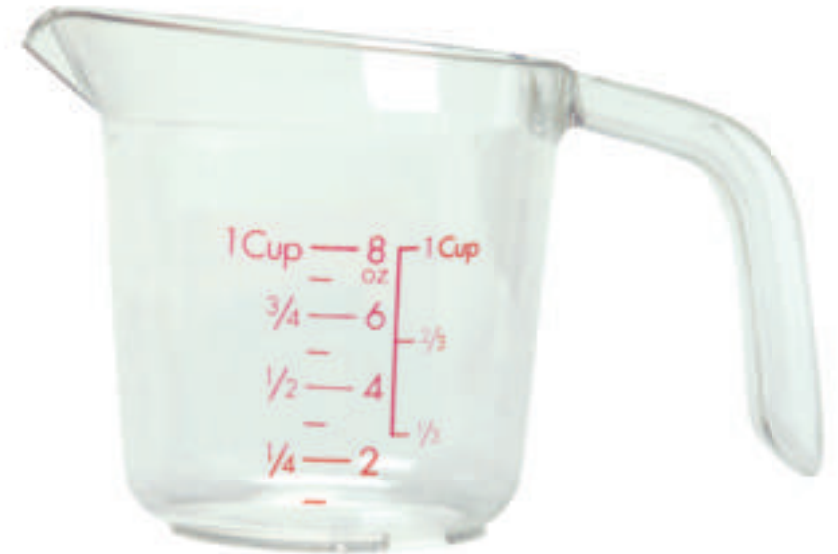
Liquids take up space and have mass.



Water is a liquid.

Put water in a jar.

The water will take the shape of the jar.



Liquids can be measured.
Use a cup such as this one.
Volume is the amount of
space a liquid takes up.





Gases

Gas does not have its own shape.

Gas is matter that takes the size and shape of what it is in.

Gas takes up all the space inside what it is in.



Gas can change size and shape.

Gas has mass.

You breathe air.

Air is made of gases.



Gas fills the balloons. Gas takes the size and shape of the balloons.



Gas fills the bubble. Gas takes the size and shape of the bubble.





How can matter be changed?

Matter can be changed in many ways.
You can change the size of matter.
You can change the shape of matter.



 Fold paper into a new shape.



 Rip paper to change its size.



 Press clay into a new shape.



 Bend a pipe cleaner to change its shape.





Mixing and Separating Matter

You can put different kinds of matter together.
This makes a mixture.

A **mixture** is made up of two or more things.
These things do not change.



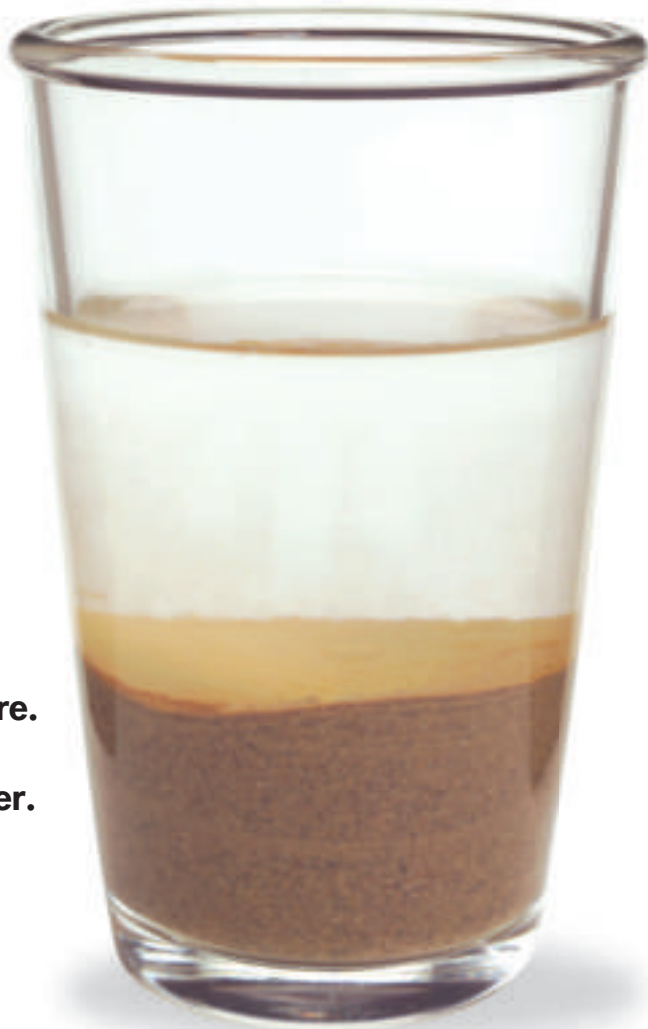
This is a mixture of fruits.
You can see each part.
You can separate a mixture.
The parts stay the same.





Mixing with Water

Some mixtures are made with water.
This mixture is made with sand and water.



Look at this mixture.
You can see the
sand and the water.



This mixture is made with salt and water.
There are different ways to separate
mixtures.
The matter can sink.
The water can evaporate.



Look at this mixture. What do
you think will happen when
the water evaporates?



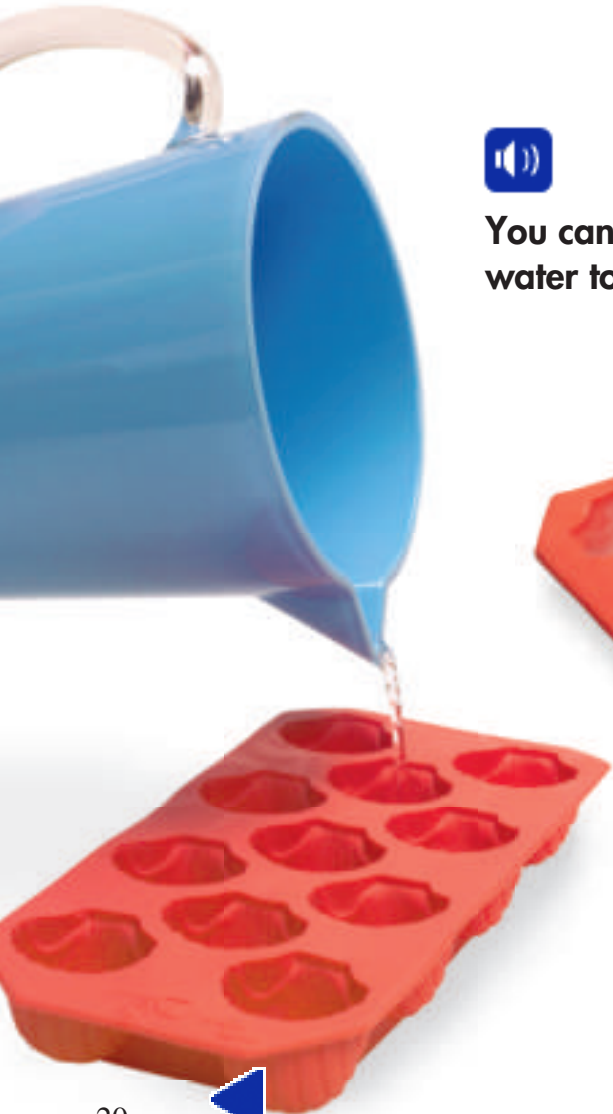


How can cooling and heating change matter?

Water is matter.

Water can change.

Water will freeze when it is very cold.



You can freeze liquid water to make ice.



The water will change to ice.
Ice is solid water.



Rain will freeze when it is cold. Water on the leaves changed from a liquid to a solid.



Water as a gas is water vapor. It changes to a liquid when it meets a cold glass. See the water drops.





Heating Matter

Heating can change the state of matter.

Heat can change solids to liquids.

Heat can change liquids to gases.

Ice and snow melt when it is warm.

Solid water changes to a liquid.

Heat from the Sun makes water evaporate.



Heat can change other matter from solids to liquids.

Wax melts when you burn a candle.

Look at the matter around you.

What will stay the same?

What can change?



Glossary

gas	matter that has mass and can change size and shape
liquid	matter that takes up space and has mass, but does not have its own shape
mass	the amount of matter in an object
mixture	something made up of two or more things that do not change
property	something about an object that you can find out with your senses
solid	matter that has its own mass, shape, and size
states of matter	solids, liquids, and gases

What did you learn?

1. What are the three states of matter?
2. What is one way solids are different from liquids and gases?
3. **Writing in Science** Heating can change matter. Write to explain how heating can change the state of matter. Use words from the book as you write.
4. **Draw Conclusions** You put a glass of ice cubes outside on a very hot day and returned later to find the glass had only water in it. What happened to cause the change?

