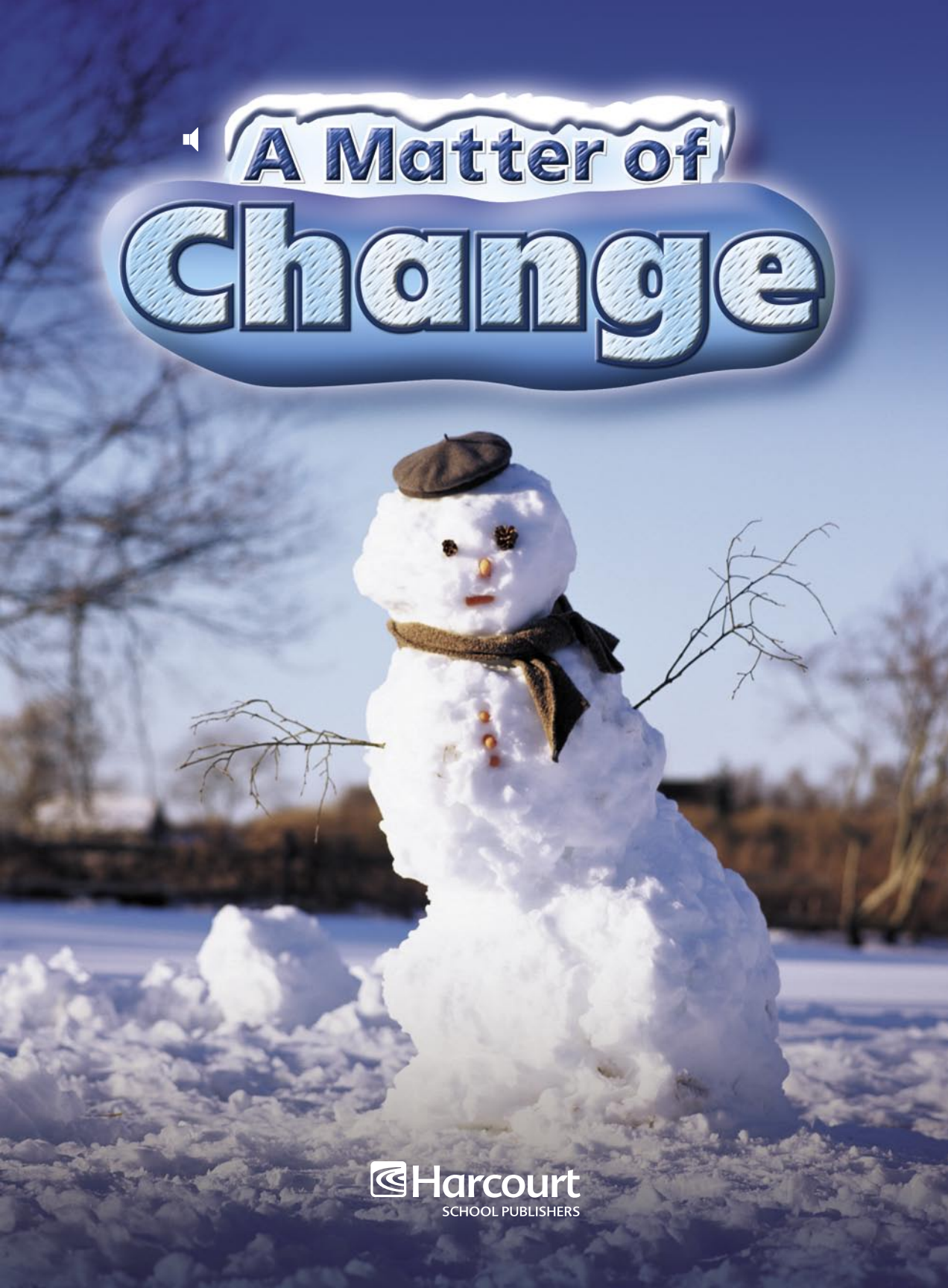
A Matter of
Change
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A Matter of Change

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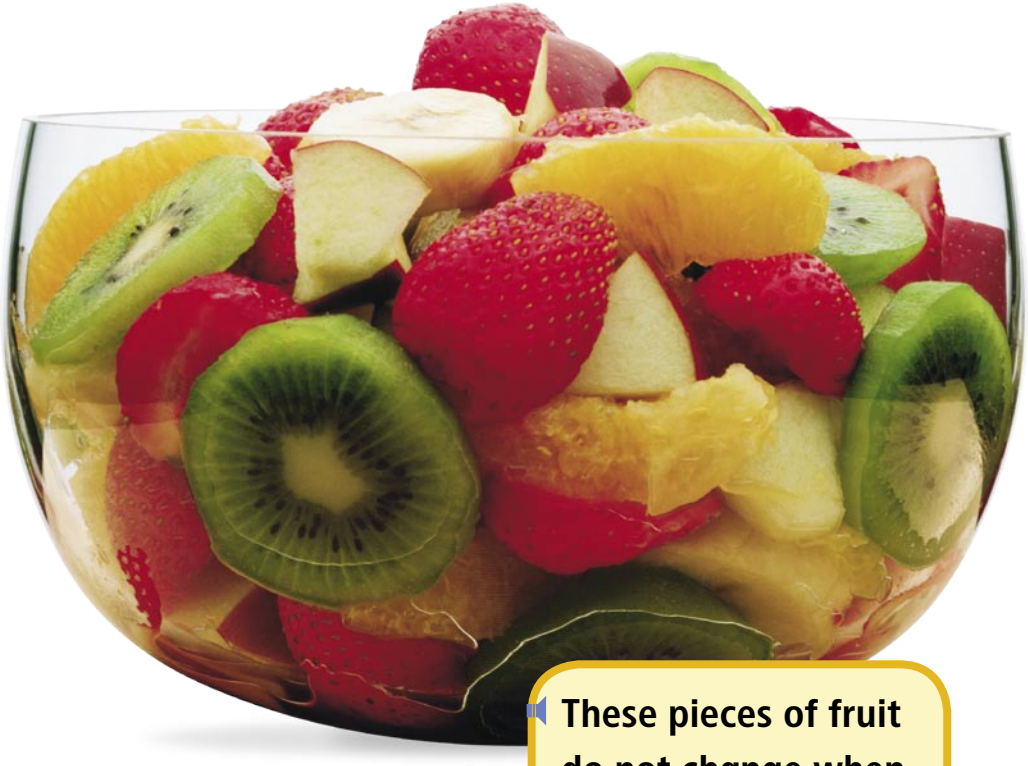
Mix It Up!

You make a **mixture** when you mix together kinds of matter. Fruit salad is a mixture of solids.

Substances in a mixture do not become other substances. In fruit salad, pieces of apples are still apples. Pieces of oranges are still oranges.



These pieces of fruit do not change when they are mixed.

Mixtures can have pieces of things in different sizes and amounts.

You can make a mixture from two liquids. Chocolate syrup and milk make chocolate milk. You can also make a mixture from different gases.

Fast Fact

Properties of substances can change in a mixture. Salt can dissolve in salt water. We no longer see it.

Mixtures can mix matter from different states, too. Salt water is a mixture of a liquid and a solid—water and salt. Bubbly drinks mix liquids and gases.

Focus Skill

CAUSE AND EFFECT What happens to oranges when they become part of fruit salad?

Three Forms of Water

Water is the only matter that is naturally found in three forms—solid, liquid, or gas.

Water changes from a liquid to a solid when enough heat is taken away. Think about putting water into the freezer. When water becomes very cold, it changes to ice!

Can you see two forms of water in the glass?

Ice is water in its solid form. When water is a solid, it has its own shape.

Ice melts when its temperature is high enough. Think about an ice cube in the sun. It turns from a solid to a liquid. It does not have its own shape anymore.

Fast Fact

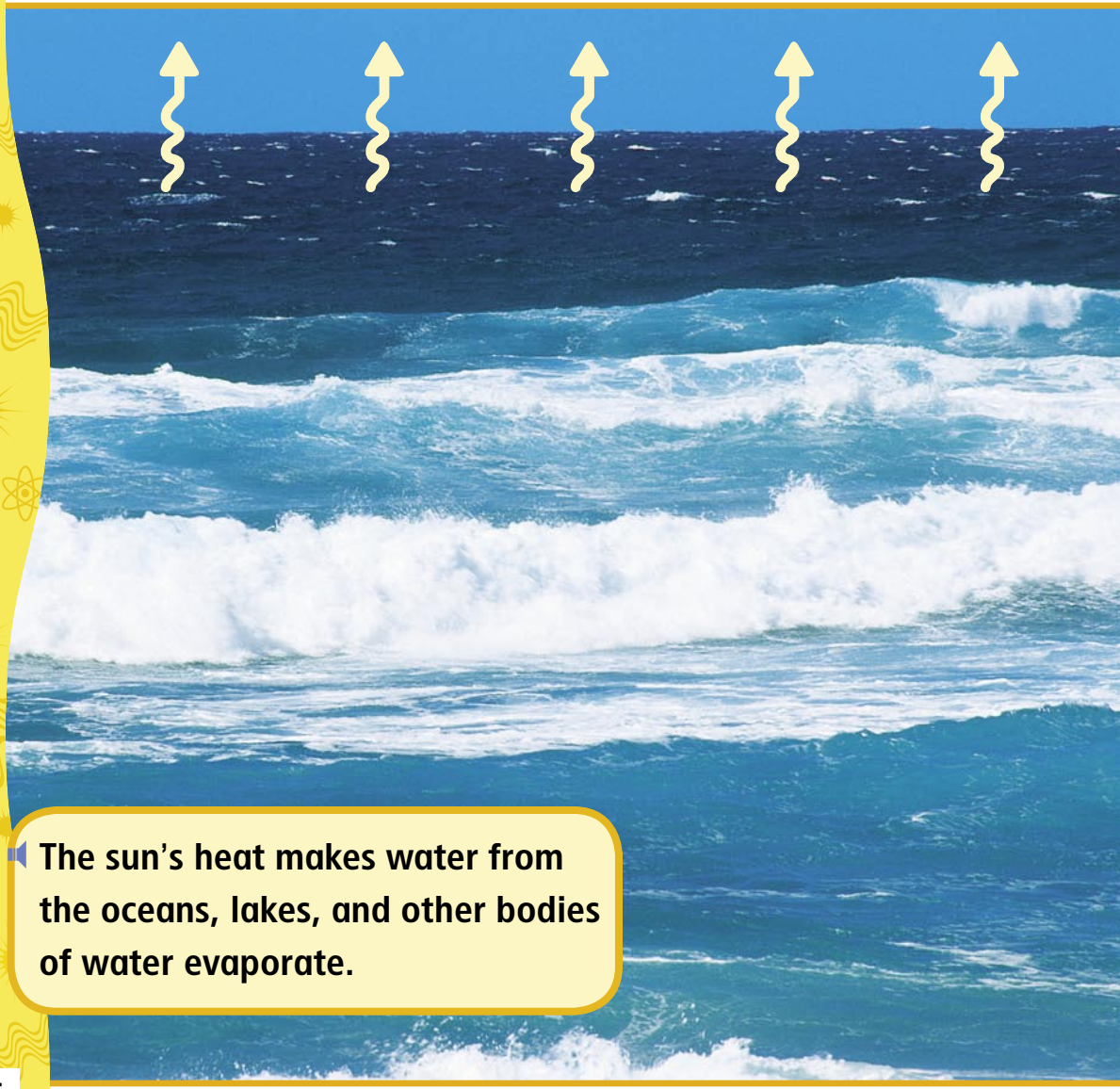
When it is very cold outside, drops of water in clouds become snow!

Focus Skill **CAUSE AND EFFECT** **How does the solid form of water change when enough heat is added?**

As a solid, water has a shape. As a liquid, it does not.

Evaporation

Water can be a gas. The liquid can turn to a gas when enough heat is added to it. This change from liquid to gas is called **evaporation**.



The sun's heat makes water from the oceans, lakes, and other bodies of water evaporate.

You can see evaporation happen. Have you ever seen water boiling in a pot? The water seems to go away. The water is turning into a gas that mixes with the air. You are watching evaporation.

The water that evaporates becomes water vapor. It is in the air. You cannot see it.

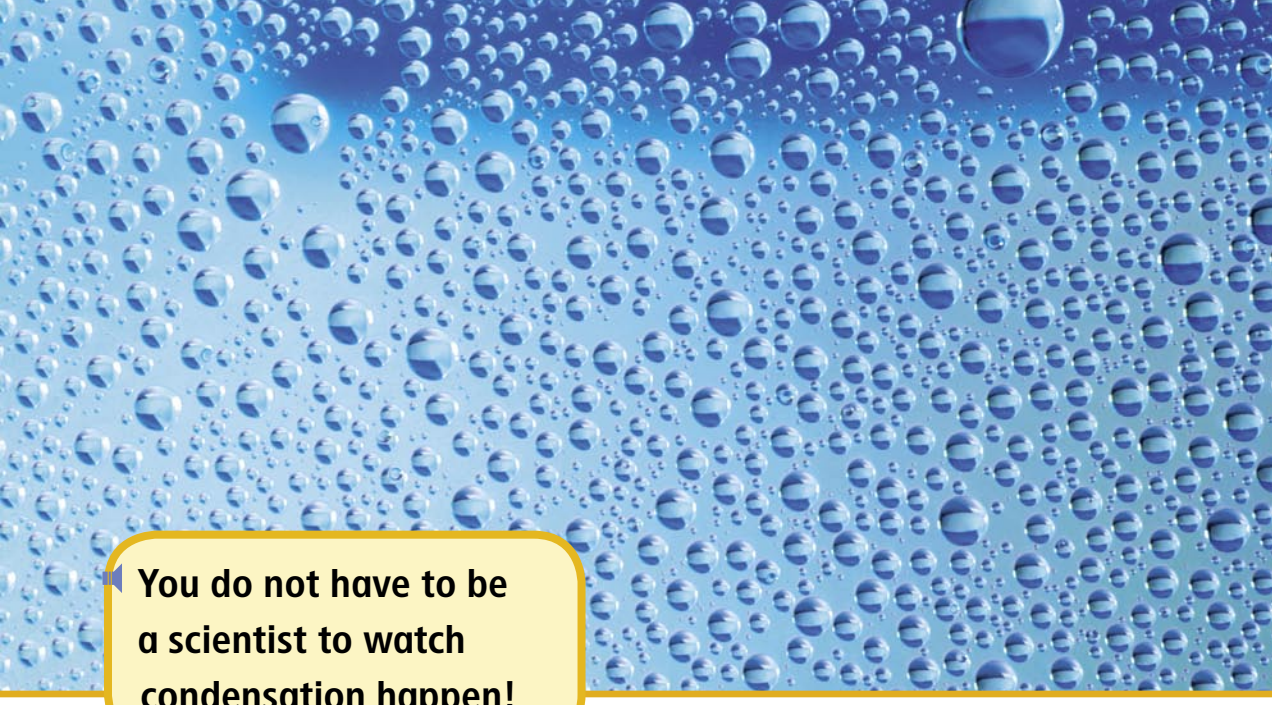
When water is a gas, it is called **water vapor**.

Focus Skill **CAUSE AND EFFECT** **What happens to boiling water so that you no longer see it?**

Condensation

Water can change from a gas back to a liquid. This change is called **condensation**. When enough heat is taken away from water vapor, it changes to water.

Condensation happens when a gas cools and changes to a liquid.



You do not have to be a scientist to watch condensation happen!

You can see condensation happen. Have you ever seen tiny drops of water on the outside of a cold glass? The cold glass takes heat from the air around it. This changes the water vapor into a liquid.

The tiny drops of water on the outside of the glass were water vapor only seconds ago.

Fast Fact

Water evaporates from Earth and then condenses as rain or snow. The amount of water on Earth stays about the same!

Focus Skill **CAUSE AND EFFECT** **What happens to water vapor when it gets very cold?**

Changing Properties

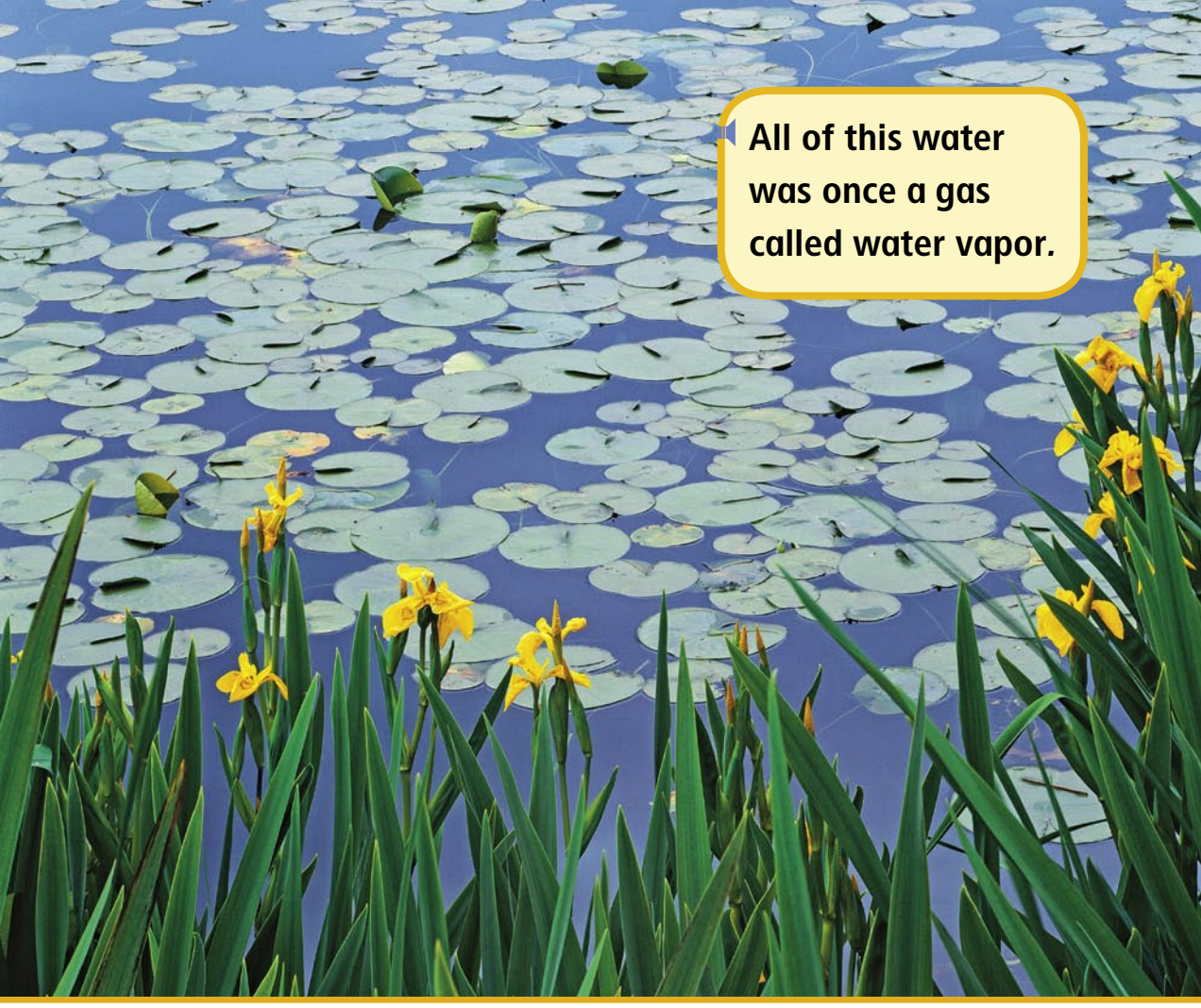
Properties of things can change when they are heated or cooled. Water can be a solid, a liquid, or a gas. These states depend on water's temperature. Water can even change so we can not see it when it becomes a gas.

Focus Skill **CAUSE AND EFFECT** **An ice cube is taken from the freezer and placed outdoors. It does not melt. Why?**

If this hot water is made very cold, it will become ice.

Fast Fact

A drop of water may travel thousands of miles between the time it evaporates and the time it falls to Earth again.



Summary

You can put different kinds of matter together to make mixtures. Water can be a solid, a liquid, or a gas. Water's properties depend on how much heat is taken from it or added to it.

Glossary

- **condensation** The change of water from a gas to a liquid. Condensation happens when heat is taken away from water vapor. (8, 9)
- **evaporation** The change of water from a liquid to a gas. Evaporation happens when heat is added to liquid water. (6, 7)
- **mixture** A mix of different kinds of matter. Substances in a mixture do not become other substances when they are mixed. (2, 3, 11)
- **water vapor** Water that is in the form of a gas (7, 8, 9, 11)

Think and Write

1. Describe a mixture you eat or drink.
2. **CAUSE AND EFFECT** What must happen to make water become water vapor?
3. **CAUSE AND EFFECT** What happens when we see drops of water on a cold glass?
4. Write a letter to tell a friend how to make lemonade.

Hands-On Activity

With a partner, make a list of mixtures you see every day.

School-Home Connection

With a family member, describe all the forms of water you have seen outdoors.