The Cat in the Hat Knows a Lot About That!™

ACTIVITY

EXPLORING WEATHER

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Overview

Does your child like to splash in rain puddles or watch the clouds as they float across the sky? You can help your child learn about weather by making a simple weather chart together. Your child can investigate cold-weather phenomena by freezing water and observing ice melt.

The Science Idea

Weather refers to atmospheric conditions at a particular time. These include precipitation like rain, snow, sleet, and freezing rain; cloudiness; windiness; and temperature. Some parts of the world have four distinct seasons, including cold, freezing winters. Change of state is an important weather-related science concept that children everywhere can explore by doing freezing and melting explorations. Water freezes and becomes a solid (ice) at 32 degrees F, and ice begins to melt when the temperature rises above 32 degrees.

Skills: Predicting; planning and carrying out investigations; making observations
Age: 3–6 year olds

What to Do

Getting Ready

When you are getting ready to go outside, encourage your child to think about the weather by asking “What do you think the weather is like out today?” Encourage her to think about how the weather influences her by making comments like “It’s really warm out today so you can wear shorts and sandals” or “The sky looks cloudy. We’d better take our umbrellas.”

Exploring Weather

What You Need:

- Empty jar (for measuring rainfall)
- Mittens, black construction paper, magnifying glass (for looking at snowflakes)
- Construction paper, ribbon, and string (for small kite)

You can help your child observe the weather by using all her senses, and encourage her to notice and describe many kinds of weather, including clouds, rain, snow, wind, and the temperature. You can also focus her attention on specific aspects of weather:

Clouds: There are many different types of clouds, including puffy cumulus clouds, feathery cirrus clouds, and long, low stratus clouds. Invite your child to lie down outside and look for familiar shapes in the clouds. Encourage her to describe the shapes. Invite her to notice whether or not the clouds are moving and how they are moving. Ask her to make predictions like "Do you think the clouds will cover the sun, or do you think the clouds will move and the sun will come out of hiding?"

Rain: When you are inside during a rainstorm, invite your child to think about how hard it's raining by listening to the sounds of raindrops on the roof or windows. If you are out and about, encourage her to observe and describe the rain. "How hard is the rain coming down? Are the drops really big or small?" She can make her own rain gauge to measure how much rain comes down during a storm, by putting an empty jar outside right before it rains and checking it when the rain stops.

Snow: If you live in an area where it snows, encourage your child to make a snowman, a snowwoman, or a snow creature just as Sally and Nick do in *The Cat in the Hat Knows a Lot About That!*™. Ask questions like "How well does the snow stick together?" and "How big of a snowball can you make?" Suggest that she collect snowflakes on her mitten or on a piece of black construction paper and look at them with a magnifying glass. "What sizes and shapes are the snowflakes?"

Wind: Encourage your child to listen to the wind and look for evidence of its effects on trees and other things like paper blowing in the street. Invite her to make a small kite by using construction paper, ribbon, and string. Can she notice the effects of wind when she tosses the kite up in the air? Can she tell which direction the wind is blowing? How does the wind feel on her body when it is blowing gently compared to when it is blowing hard? What does it feel like when there is no wind at all?

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Temperature: Depending on where you live, your child may experience variable temperatures within relatively short periods; for example, it may be very warm during the day but cold at night. Draw her attention to how her body responds when it's hot or cold outside: "It looks like you're sweating from the heat" or "I see goose-bumps on your arms from the cold; it's time to put on a sweater." Draw her attention to freezing or melting when it occurs outdoors: for example, a puddle turning to ice. Even if you live in an area with consistent temperatures year-round, you can take opportunities to notice things melting as a result of changes in temperature. For example, as your child is eating ice cream on a hot summer day, you can ask "Why do you think your ice cream is melting?"

Recording the Weather

Using the ***My Weather Chart*** (below) you can help your child record the weather, just like weather people, or meteorologists, do. You can also help her begin to see patterns in weather over time by counting the number of sunny, rainy, or windy days. Make connections for her between the weather chart and typical weather in your area at that time of year by saying, for example, "We had four days of rain this week. Spring is a very rainy season."

Talking About Weather: If you live in a temperate area with warm summers and freezing cold winters, share stories about family activities during different seasons. For example, maybe some family members fish at a local pond during the summer and other family members go ice skating during the winter.

Take It Further

What You Need:

- ***My Ice Observation*** (below)
- Newspaper or towels
- Ice cube trays
- Food coloring, small cup of water, wooden craft sticks
- Aluminum foil
- White paper
- Crayons or colored pencils for drawing

Exploring Freezing and Melting

1. Freezing and melting ice cubes are enjoyable activities at any time of year. Before you begin, remind your child of her weather explorations. What happened to water outdoors when it was really cold, or to her ice cream on a warm day?

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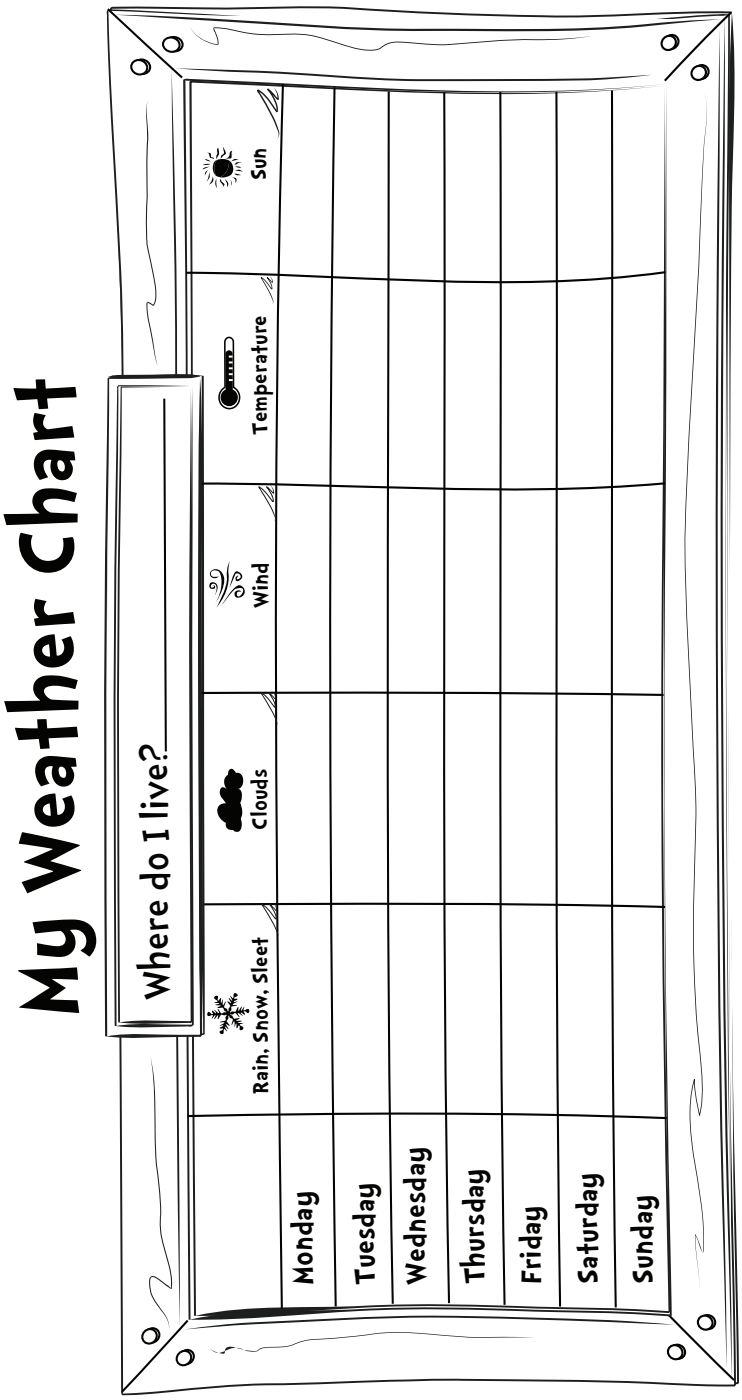

Encourage your child to observe each weather type and talk about it using descriptive words. Help by asking questions like "What do the clouds look like?" "How windy is it?" "Can you see the sun or is it hidden by the clouds?" Then write down his words in the corresponding box.

2. If necessary, protect the work surface with toweling. Place an ice cube tray, food coloring, and a small cup of water on the table. Invite your child to fill the ice cube tray with water, drop a few drops of food coloring into each section, and gently mix it in with a wooden craft stick. Gently wrap aluminum foil over the tray. Then poke a small hole over each section, and put 1 wooden craft stick into each section. The foil will help support the craft sticks.

3. Invite your child to predict what will happen to the colored water when you put it in the freezer. Take out the frozen tray, release the ice cube "pops," and draw your child's attention to the change. Invite her to pick up an ice cube pop and look at it. "How does it look?" Invite her to feel it with her fingers and rub it against her skin. Ask "What does it feel like?" and "How has it changed from how it was before we put it in the freezer?"

4. Spread white paper on the protected surface and invite your child to pick up an ice cube pop and rub it over the paper. Ask "What do you notice happening?" As the ice cube melts, encourage her to notice and describe how its shape and size changes. Invite her to use ***My Ice Observation*** (below) to draw the ice cube at different intervals as it melts.

Freezing Juice Pops: Try freezing different flavors of juice to make juice pops in the same way as the ice pops. Invite your child to enjoy the juice pop. What does she notice happening to the pop when she puts it in her mouth?

Making Ice Cream: Try making ice cream in a coffee can. Recipe: **http://www.makeicecream.com/makicecreami1.html**. Encourage your child to notice how the liquid in the small can freezes as it gets cold.

More Ways to Discover and Learn

Go on an Adventure!

If you live in an area with freezing cold winters, go on a family ice-skating adventure. Remember to stay in safe areas for outdoor skating or use an ice rink. Very young children can use upside-down plastic crates for support on the ice or simply slide along on their feet. Encourage your child to notice the characteristics of the ice, especially its texture and temperature.

Literacy Connection

Make a small recipe book for making ice pops or juice pops. Fold several pieces of paper in half. Invite your child to recall and describe the steps to making the pops. Write down 1 step on each page and invite her to illustrate. Keep the recipe book for the next time you make the pops!

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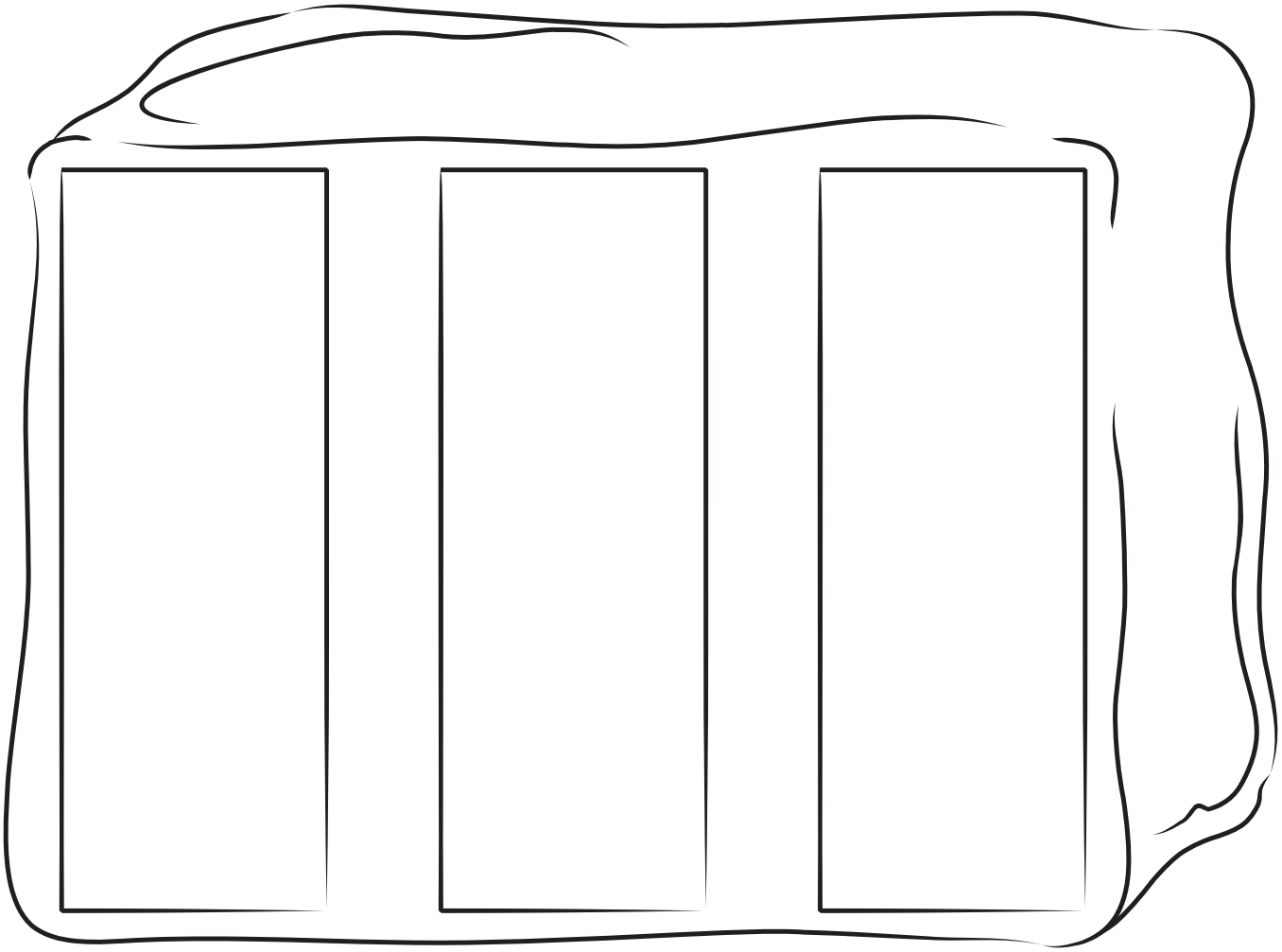
My Ice Observation

Here's what happened to my ice cube!



Provide drawing materials and invite your child to draw an ice cube at different intervals as it melts. For example, you could ask your child to draw what it looks like when it comes out of the freezer, then after it starts to melt, and then after it's almost all melted. Talk together about the changes in the ice cube.

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Look in a Book

Ice Is Nice! All About the North and South Poles (The Cat in the Hat's Learning Library™) by Bonnie Worth, illustrated by Aristides Ruiz and Joe Mathieu. Random House, 2010.

Oh Say Can You Say What's the Weather Today? All About Weather (The Cat in the Hat's Learning Library™) by Tish Rabe, illustrated by Aristides Ruiz. Random House, 2004.

The Snowy Day by Ezra Jack Keats. Puffin Books, 1976.

More Information About Weather:

National Weather Service: **http://www.nws.noaa.gov/**
National Weather Service site for children: **http://www.weather.gov/os/edures.shtml**
National Science Foundation site "Web Weather for Kids": **http://eo.ucar.edu/webweather/**

New Word

Meteorologist: A person who studies weather and weather conditions

Video

Watch the related video clip at PBS Parents (**www.pbsparents.org/catinthehat/**)

Related Game

Play the game "Thing 1 and Thing 2's Weather Transformer" at PBS KIDS (**www.pbskids.org/catinthehat/games/weather-transformer.html**)