Summer Science: Weather Report!

Find lots more activities + fiction & nonfiction booklists + cool apps & websites at www.startwithabook.org

How Rainy?

Make a simple rain gauge to measure daily rainfall.

Supplies: plastic bottle, scissors, permanent marker, ruler. Optional: pebbles or marbles (to keep your gauge from blowing away!).

See PDF for instructions.

Listen to the Rain

Listen to the calming sound of a rainstorm anytime, anywhere with your own DIY rainstick.

Supplies: cardboard tube, dried beans, packing tape. Optional: markers, ribbon, nails or foil.

See PDF for instructions.

Weather Diary

Track sunny days, rainfall, outside temperature, wind, clouds, storms, rainbow sightings and more!

See PDF for log sheets.

With support from the Park Foundation, Inc.

Start with a Book: Read. Talk. Explore.

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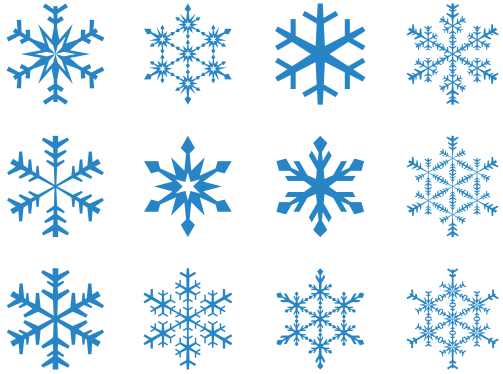
How Fast Is the Wind?

Build a simple anemometer — what metereologists use to measure the speed of wind.

Supplies: plastic or paper cups, plastic straws, pencil with fresh eraser, hole puncher, scissors, tape, push pin, permanent marker.

See PDF for instructions.



Summer Snowflakes

Here's a simple way to make a "snowflake crystal" right in your kitchen, any time of year.

Supplies: wide-mouthed jar, white pipe cleaners, string, scissors, pencil, spoon, 20 Mule Team Borax Laundry Booster™

See PDF for instructions.

Your Weather Page

Use these hot afternoons and the weather section from your newspaper for some literacy and math fun.

Supplies: pencil and paper, your local or city newspaper (or sites like accuweather.com and weather.com

See PDF for instructions.

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Fiction Books

The Blizzard by Betty Ren Wright

Bringing the Rain to Kapiti Plain by Verna Aardema

Cloudy with a Chance of Meatballs by Judi Barrett

Come On, Rain by Karen Hesse

Hurricane by David Wiesner

Kissimmee Pete and the Hurricane by Jan Day

The Legend of Lightning and Thunder by Paula Ikuutaq Rumbolt

Like a Windy Day by Frank Asch

Otis and the Tornado by Loren Long

Rain Play by Cynthia Cotten

Thunder Cake by Patricia Polacco

Waiting Out the Storm by JoAnn Early Macken

Weather: Poems for All Seasons by Lee Bennett Hopkins

Nonfiction Books

The Big Storm by Bruce Hisock

Clouds by Anne Rockwell

Down Comes the Rain by Franklyn Branley

Hurricanes by Seymour Simon

The Kid's Book of Weather Forecasting by Mark Breen and Kathleen Friestad

On the Same Day in March: A Tour of the World's Weather by Marilyn Singer

Snow Is Falling by Franklyn Branley

Snowflake Bentley by Jacqueline Martin Briggs

Tornado! The Story Behind these Twisting, Turning, Spinning and Spiraling Storms by Judith Fradin

Weather by Seymour Simon

Weather Words and What They Mean by Gail Gibbons

The Wild Weather Book by Fiona Danks

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Making a Rain gauge

The weather has been so bad now for so long, I must admit I am struggling to come up with more inventive ways to get the children engaged with outdoor play. This week however, I decided to embrace the weather and make a rain gauge so we can talk about the weather together and measure the rain fall.

Making a rain gauge

You need:

- A bottle
- Scissors
- Permenant marker
- Ruler

1. First, you need to cut the top off the bottle, approximately 5 cm down, turn it over and insert it back into the bottom part of the bottle, so it acts as a funnel for the rain to be collected.

2. Next, use the ruler to mark the measurements up the side, so it's easy to check the rainfall.

3. Place it outside in an open area. You may need to wedge it between something, like I did between 2 pots to stop it blowing away.

4. Take measurements each day and record it on a chart. We printed a chart off the internet, but a homemade one would work just as well.

The children enjoyed making their rain gauge. We check and record the rainfall now everyday after school. It's the first thing they do when we walk in the door, "can we go and check our rain gauge, see how much rain we have had?". I admit, it doesn't get them outside for long, but at least 5 mins is a bonus in this weather and it is getting them thinking about the outside and the weather etc.

Make Your Own Rainstick

Although the origins of the rainstick are in dispute, they've certainly caught on in the United States. Invented by the native peoples of South America or Mexico, they're hollow tubes traditionally filled with thorns and pebbles to create a musical sound like raindrops when turned upside down. Luckily, there's no need to hunt down a cactus to make this rainstick. In fact, you can recycle items you probably already have on hand.

What You Need:

- A long cardboard tube from a roll of gift wrap, or a poster shipping tube
- Dried beans
- Tan packing tape
- Brown magic marker
- Optional: ribbon
- Optional: nails or aluminum foil

What You Do:

1. Make a pad of tape by taping a few pieces together, sticky side in. Tape over one end of the tube so it is completely covered, but won't cause the contents of the tube to stick once your child starts using it.
2. Have your child add a few handfuls of beans to the tube. You can cover one end with your hand to test the effect. Would your child like to add more beans or take some away to create the perfect sound?
3. Want to change the sound? Kids can crumple a long "rope" of aluminum foil and insert it into the tube to slow the beans down. Or parents (not kids!) can hammer a few nails into the side of the tube to slow the beans.
4. Tape over the other end as in Step 1.
5. Help your child to draw patterns over the tube to make it look like wood, or just let her use her imagination to make colorful designs.
6. Optional: tie a decorative ribbon around one end.
7. Now the fun begins! Encourage your child to experiment with her rainstick. What does it sound like when she turns it over slowly? How about quickly? Listening is a skill, and this craft will give her a lot of practice!

Weather diary

Woodland Trust
nature detectives

	 sun	 rain	 temperature	 wind	 cloud	tomorrow it will be...
Mon						
Tues						
Wed						
Thur						
Fri						
Sat						
Sun						

learning through the seasons

The weather

Woodland Trust
nature detectives

What weather do you experience on your holidays:

sunshine & blue skies ☐

how many sunny days? .....

clouds ☐

what types?

.....

light showers ☐

a heatwave ☐

how hot? .....°C

Have a go at filming your own weather report

wind ☐

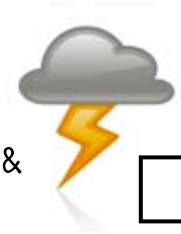
heavy downpours ☐

how much rain in the heaviest downpour?

..... mm

a cold spell ☐

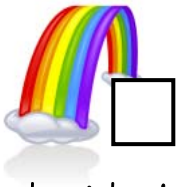
how cold? .....°C



thunder & lightning ☐

how many storms? .....
how close did they get?

..... seconds away



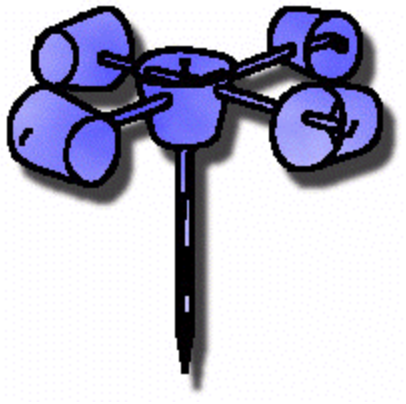
a colourful rainbow ☐

how many? .....

bursts of sunshine ☐

Anything else? .....

How to Make an Anemometer



Materials Needed:

- **five 3 oz. plastic cups**
- **two plastic soda straws**
- **one pencil (with unused eraser)**
- **single-hole paper punch**
- **scissors**
- **tape**
- **one push-pin**
- **permanent magic marker**

Step 1

Take four of the plastic cups and punch one hole in each, about ½ inch (1.5 cm) below the rim.

Step 2

Take the fifth cup and punch two holes in it, directly opposite from each other, about ½ inch (1.5 cm) below the rim. Now punch two more holes in the cup, each ¼ inch (1 cm) below the rim that are equally-spaced between the first two holes.

Step 3

Using the push-pin and the scissors, make a hole in the center of the bottom of the cup with four holes in it. The hole should be large enough that the pencil can fit easily through it.

Step 4

Slide one of the straws through the hole in one of the cups that has only one hole in it. Bend the end of the straw that is inside the cup about ½ inches (1.5 cm) and tape it to the inside of the cup.

Step 5

Place the other end of the straw through two of the holes in the fifth cup and then trough the hole in one of the other cups. Tape the end of the straw to the inside of the cup as you did earlier, making sure that the openings of the two cups face opposite directions.

Step 6

Repeat steps 4 and 5 with the remaining two cups, sliding the straw through the remaining two holes in the fifth cup. Make sure that the opening of each cup faces the bottom of the cup next to it (in other words, no two openings should be facing each other). Each of the four cups should be facing sideways.

Step 7

Insert the pencil with the eraser facing up through the bottom of the fifth cup. Carefully push the pin through the two straws and into the eraser on the pencil.

Step 8

Take the permanent magic marker and draw a large **X** on the bottom of one of the cups.

Your anemometer is now ready to use! Take it outside and hold it in front of you in an open area where the wind is blowing.

Look at the **X** on the bottom of the cup as it spins around. Count the number of times it spins around (revolutions) in 10 seconds. Use the table below to estimate the wind speed.

Revolutions in 10 seconds	Wind Speed in Miles per Hour (mph)	Wind Speed in Kilometers per Hour (kph)
2 - 4	1	2
5 - 7	2	3
8 - 9	3	5
10 - 12	4	6
13 - 15	5	8
16 - 18	6	10
19 - 21	7	11
22 - 23	8	13
24 - 26	9	14
27 - 29	10	16
30 - 32	11	18
33 - 35	12	19
36 - 37	13	21
38 - 40	14	23
41 - 43	15	24
44 - 46	16	26
47 - 49	17	27
50 - 51	18	29
52 - 54	19	31
55 - 57	20	32

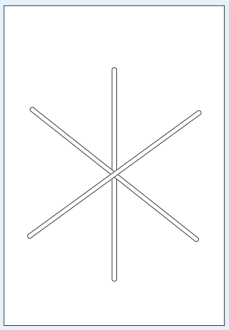
2: kitchen snowflakes

Have you ever really looked at snow up close? A handful of snow is made up of thousands of tiny snowflakes. Each snowflake is made up of as many as 200 tiny ice crystals — frozen water that has formed around tiny bits of dirt. So snowflakes are really soil particles wearing a pretty coat of ice! Most snow crystals have 6 sides or points, but each one looks a little bit different.

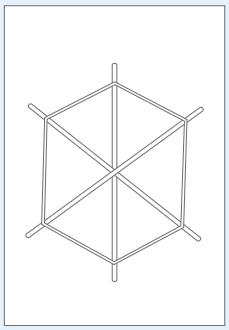
Here's a simple way to make a "snowflake crystal" right in your kitchen, any time of year.

Supplies needed:

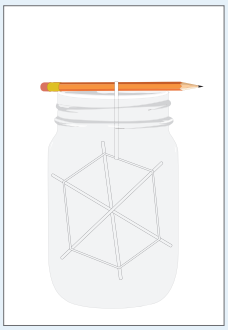
- >> Wide-mouthed jar
- >> 3 white pipe cleaners
- >> String
- >> Scissors
- >> Pencil
- >> Boiling water (have an adult do this part)
- >> Spoon
- >> Borax (buy **20 Mule Team Borax Laundry Booster** at the grocery store in the laundry detergent section.)



Make 6-pointed shape with pipe cleaners

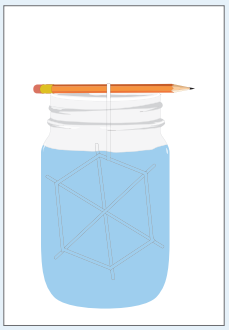


Wrap string around the pipe cleaners



Be sure the "snowflake" fits in the jar

Mix Borax and hot water



Hang snowflake in water overnight

1. Make a giant snowflake frame from 3 white pipe cleaners and string. Twist the 3 pipe cleaners together in the center to make a 6-sided, spiky figure. Be sure the pipe cleaners can fit inside the wide-mouthed jar.
2. Tie the string around the pipe cleaners to look like a snowflake shape. Cut off the extra string.
3. Tie a few inches of string to one of the pipe cleaners. Tie the other end of the string to a pencil, so that the snowflake will hang from the pencil and dangle inside the jar. Take the snowflake out of the jar.
4. Pour boiling water into the jar (have an adult do this part) and gradually add 3 tablespoons of Borax to the hot water in the jar. You will see undissolved Borax at the bottom of the jar).
5. Hang the snowflake in the jar and wait at least overnight. In the morning, your snowflake will be covered with beautiful crystals!

To learn more about snowflakes, read the true story of Snowflake Bentley who devoted his life to taking beautiful photographs of snowflake crystals: http://www.amazon.com/exec/obidos/ASIN/0547248296/readingrocket-20

And you can explore even more at the Snowflake Bentley website: http://snowflakebentley.com/

Ed Extras

Helpful information about learning brought to you by Reading Rockets, Colorin Colorado, and LD OnLine

Beat the Heat with Your Weather Page

Some days are just too hot to be outside! Summer's temperatures often send kids and parents inside to cooler air. Use these hot afternoons and the weather section from your newspaper for some literacy and math fun. Don't get the paper? Websites like accuweather.com and weather.com provide the same information to get you started.

Graphs

Most weather pages offer at least one or two different types of graphs. Take some time to talk with your child about how to "read" graphs. There is often a graph title, at least two axis, and the graph information to interpret. Ask your child to "read" the information from the graphs. Then, make your own graph to track the heat. How many lemonades did it take to keep cool? How many minutes did it take your dog to cool off from her walk?

The big picture

Most weather pages include temperature information from around your region and around the country. The temperatures provide an opportunity to use vocabulary words like highest, lowest, coolest, and weather extreme. Discuss why certain parts of the country may experience cooler temperatures than other parts. Why might some areas have more humidity than others? See if your child can put five cities in order by temperature from hottest to coolest.

Maps

Most weather pages include a map of the area and a map of the country. Talk about the key, the legend used on the map, and the compass rose that indicates North, South, East and West. Then, create a map of a familiar area together. You may want to map out your favorite park, your child's bedroom, or an imaginary "dream playhouse." Encourage your child to include his own key or legend on the map. What symbols will he choose? Why?

Take a virtual trip

Use the information from the weather page to choose one city or country to visit on a virtual vacation. Use the Internet or books from the library to research the weather there this time of year. What type of clothing will you need to pack? Will you need a passport? What currency does your destination use? Spend some time researching your vacation spot.

No matter the weather, spending some time with the weather page provides some cool and fun relief for you and your child.

For ideas on selecting good children's books about weather, see "Mother Nature shows off: shake, rumble, and roll" at www.ReadingRockets.org/blog/24618

Reading Rockets, Colorín Colorado, and LD OnLine are services of public television station WETA, Washington, D.C. Reading Rockets is funded by the U.S. Department of Education, Office of Special Education Programs. Colorín Colorado, a web service to help English language learners become better readers, receives major funding from the American Federation of Teachers. Additional funding is provided by the National Institute for Literacy and the U.S. Department of Education, Office of Special Education Programs. LD OnLine is the world's leading website on learning disabilities and ADHD, with major funding from Lindamood-Bell Learning Processes.