SciGirls Activity 2
Wacky Weather!

Icebreaker:
Make the wind blow exactly where you want!

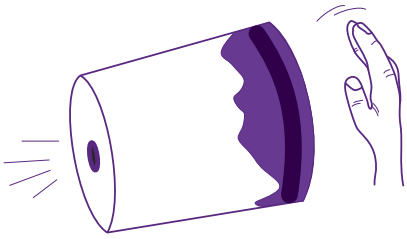
SciGirls Skill: Observing

You'll need:

- a large plastic bucket, such as 5 gallon
- heavy garbage bag
- duct tape

Guide your girls as they:

1) Cut a 3-inch diameter hole in the bottom of the bucket. If you have several buckets, try a different sized hole in each one.
2) Stretch the garbage bag over the top of the bucket. Tape it in place with duct tape.
3) Hold the bucket in one arm, with the hole pointing at your target.
4) With your free hand, give the plastic bag a whack!
5) Try to knock over a paper target. From how far away can you hit the target? Is a bigger or smaller hole more effective?



SciGirls Suggestion: Approximately four girls per cannon works well for this activity. If you have a larger number, help them determine special roles (e.g. three group members create the cannon, three group members devise a few different targets, one team members measures distance and collects data, etc.).

For more information on this experiment, breeze over to pbskids.org/dragonflytv/superdoit/air_cannon.html

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Investigation:

Weather Forecasting!

Just step outside (and step back in time) to explore traditional "folk" methods of forecasting the weather.

We're Mari and Lindsey, and we wondered how people predicted the weather in the days before Doppler radar and satellites. We've heard folklore about "homemade" or natural ways of predicting the weather and we were curious if some of those tales were actually true. Our question: **Can you use folklore to predict the weather?**

You'll need:

- homemade barometer (requires an empty coffee can (3 lb size), soda straw, plastic kitchen wrap, and tape)
- curling iron

See directions on page 20.

To learn more about this wild weather investigation, visit pbskids.org/dragonflytv/show/forecasting.html. Then surf to pbskids.org/dragonflytv/contact/index.html to tell us more about your own investigation!

Check out this investigation on Tape 1, Segment 2.

SciGirls Want to Know:

How accurate is folklore in predicting the weather?

Guide your girls as they:

Hit the library or surf the Web to research weather folklore, looking for old-fashioned ways of predicting the weather. Mari and Lindsey observed:

1) the appearance of clouds in western night sky;

2) whether hair holds its curl;

3) the "busy-ness" of bees;

4) the pain in Grandma's toe;

5) whether cows lie down or stand up;

6) the change in their homemade barometer indicator.

SciGirls Secret:

Today's girls are wired (to the Internet, that is). Encourage your girls to develop their technology skills by hopping online to research the weather. Check different weather sites. Do they all have the same information? Which is most accurate? With the click of a mouse, girls can increase their "techno-confidence" and learn more about national or international weather phenomena.

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Using Mari and Lindsey's research as a guide (see below), record observations of all six weather predictors in the evening. Use each to predict the next day's weather.

a) clouds: clear at night = clear next day,
cloudy at night = cloudy next day

b) hair: holds its curl = clear next day,
loses its curl = cloudy next day

c) bees: active = clear next day,
inactive = cloudy next day

d) Grandma's toe: no pain = clear next day,
pain = cloudy next day

e) cows: standing up = clear next day,
lying down = cloudy next day

f) barometer: moving up = clear next day,
moving down = cloudy next day

Make observations for at least a week.

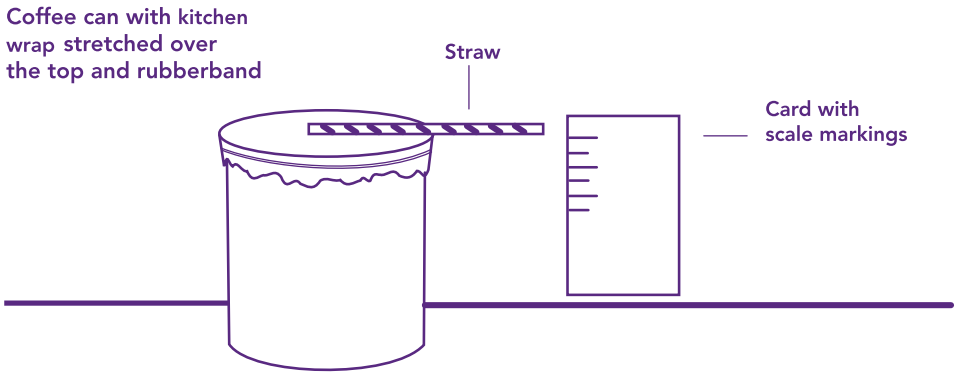
How to make your own barometer

1) Find an empty coffee can, 3 lb size.

2) Stretch a sheet of plastic over the top. Use tape or a strong rubber band to hold the plastic in place. Make a tight seal all the way around the rim of the can. There can't be any air leaks.

3) Use tape to secure one end of the straw to the center of the plastic sheet. Part of the straw should stick out over the edge of the can. The sheet should be very tight.

4) As the barometric pressure changes, the plastic sheet will either dip into the can slightly, or it may bulge. This moves the end of the straw up or down. Set the can on a table top, measure how high the end of the straw is above the table top. Tape a card with regular markings behind the straw. When the pressure is high, the end goes higher above the table. When the pressure is lower, the end goes down.



Try calibrating your barometer with the actual barometer reading each day.

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SciGirls Synthesize:
Data and Analysis

Guide your girls as they:

Count the number of correct predictions for each folklore indicator and determine the number of correct predictions over nine day span.

Here's Mari and Lindsay's data; how does yours compare?

Number of Correct Predictions out of Seven Days

clouds	hair	bees	Grandma's toe	cows	barometer
7	4	6	3	3	5

See Appendix A for a graphing example.

Keep Exploring!

1) Find other weather legends and test their ability to predict the next day's weather. Identify which legends are really predictors, and which just describe the current weather.

2) Make your own weather station, and use modern clues to predict the next day's weather. Compare the success of this method to using folk legends.