

# Wonderful Weather



When we say *weather*, we mean an event or condition over hours or days. This is different from *climate*, which is the pattern of weather over many years. Familiar weather traits are wind, temperature, humidity, cloudiness, and precipitation (like rain or snow). Weather changes constantly, from day to day and through the seasons.

The study and observation of weather is called **meteorology** and it's one of the oldest sciences in human history! Some of our first *meteorologists* and weather forecasters were sailors, including early sailors on Georgian Bay! Their safety and livelihoods depended upon understanding and predicting weather.

Can you think of ways that weather affects what you do? How does weather affect what you wear? How does weather affect what you eat?

## 1. Homemade Rain Gauge

Scientists who study weather use a rain gauge to measure and compare the amount of rainfall in storms. Now you can be a *meteorologist* with your own easy-to-build rain gauge!

**Materials:** 1 Two-liter pop bottle, scissors, gravel, tape, ruler, permanent marker

1. Use a ruler to measure a line  $8\frac{3}{4}$  inches up from the bottom of the bottle. Use a marker to draw a line around the bottle and ask an adult to cut off the top of the bottle, cutting along the marked line.
2. Draw another line around the bottle 5cm up from the bottom. Label this line "0".
3. Use the ruler to mark lines up the side at one centimeter and half-centimeter intervals.
4. Fill below the "0" line with gravel. This will help keep the rain gauge from blowing away in the wind.
5. Insert the top of the bottle *upside down* so the spout points to the gravel and secure it in place with tape.
6. Add water to the rain gauge up to the 0 line.
7. Place your rain gauge in an open area, and be ready for rain!
8. Record rainfall for different storms. Can you guess how much rain will fall?
9. Don't forget to reset the gauge to zero after by pouring water out until it hits the "0" line.



## 2. Predicting the Rain

Pine cones can sometimes help predict rain! They open in dry weather to allow the wind to carry their seeds. But in humid and rainy weather they close to protect the seeds. Test this out with pine cones from your backyard!

**Materials:** pinecones, journal or notebook

1. Keep your pine cones outside and check them at least once daily.
2. Record what you see. How often are the pine cones right?



## 3. Scavenger Hunt for Clouds

There are three main cloud types. Often we see combinations of these clouds which have other names. You can find many free cloud charts online that help determine exactly what clouds you're seeing. Until then, can you find these main cloud types:

**Stratus**



Dark layers that hang low across the sky. Can bring rain, snow, or fog.

**Cirrus**



Thin and wispy, very high in the sky. Often seen a day before rain or snow.

**Cumulus**



Large, fluffy, seen on days with nice weather.

## 4. Create a Cloud

The ultimate weather experiment: create a cloud in your kitchen. Watch it take shape before your eyes, then release it to the skies!

**Materials:** A jar with lid, 1/2 cup hot water, ice cubes, bug spray

1. Swirl the hot water around in the jar.
2. Place the lid upside-down on the top of the jar, then place several ice cubes onto the lid. Allow it to rest for 20 seconds.
3. Remove the lid, quickly spray a little bug spray into the jar, then replace the lid with the ice still on top. Watch the cloud form!
4. When there is a lot of *condensation* in the jar, remove the lid to see the cloud escape.
5. Why did the cloud form? Make a *hypothesis* (scientific guess).



A cloud is made when water vapour (water in the air) condenses into droplets and attach to particles (ex. dust, pollen) in the air. When billions of water droplets join, they form a cloud. When you added warm water to the jar, some of it turned to vapor. The vapor rose to the top of the jar and contacted cold air next to the ice. The cool vapour condensed, and attached to bug spray particles, making a cloud!