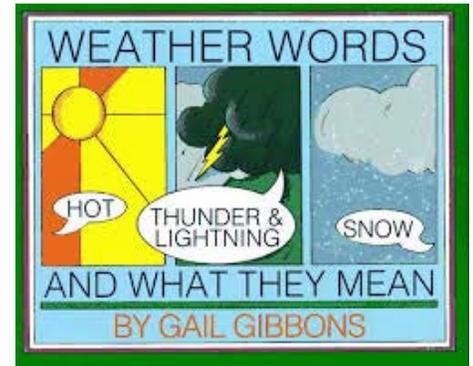


July 2016 Book of the Month  
*Weather Words and What They Mean*  
By: Gail Gibbons



Weather, it's what makes the flowers bloom and our crops flourish! Farmers depend on weather to provide water, nutrients, and adequate seasonal conditions for producing many types of food we eat. Gail Gibbons uses her style of writing to introduce weather terms to young readers and future meteorologists in an exciting manner. Weather can cause conditions that are scary and sometimes can destroy homes and city buildings; however her scientific approach eases those fears and communicates the necessity for various weather elements to create four distinctive seasons. Take a picture walk through the unique illustrations that supports Gibbon's well-written text found in *Weather Words and What They Mean*.<sup>1</sup>

### Weather Fun Facts:

- You can tell the temperature by counting a cricket's chirps!<sup>2</sup>
- Sandstorms can swallow up entire cities.
- Dirt mixed with wind can create a dust storm called **Black Blizzards**.
- A mudslide can move rocks, trees, vehicles and entire buildings!
- The coldest temperature ever officially recorded was  $-89.2^{\circ}\text{C}$ . *Brrrr!*
- Mild autumn weather often means bigger spiders in our homes.<sup>3</sup>
- A heatwave can make train tracks bend.
- About 2,000 thunderstorms rain down on Earth every minute.
- Blizzards can make snowflakes feel like pellets hitting your face.
- A hurricane in Florida caused 900 captive pythons to escape.
- Worms wriggle up from underground when a flood is coming.
- A thunderstorm can produce 160kmph winds!
- In Antarctica, snow can fall so hard you can't see your hand in front of your face.
- Wildfires sometimes create tornadoes made of fire called **Fire Whirls**.
- The most damage ever caused by a thunderstorm was in 1995, when hailstones bigger than baseballs fell in Texas.
- In 1684, it was so cold that the River Thames in England, UK froze solid for two months.
- Cats and dogs have been known to sense when a tornado is approaching.

- In 1972, a blizzard dumped 8m of snowfall on Iran, burying 200 villages.
- Some tornadoes can be faster than formula one racing cars!
- **Black ice**, a transparent coating of ice on a surface, can make pavements super-slippery.
- Some frogs get noisier just before it rains.
- **Waterspouts**, or rotating columns of air over water, can make sea creatures rain down from the sky.

## Activities

### Shaving Cream Rain Clouds Experiment <sup>4</sup>

You'll need:

- A couple of clear glasses, vases, or bowls (it's fun to switch up the shapes and sizes!)
- Food coloring
- Shaving cream
- Small bowls or containers that hold 1 to 2 ounces
- Water
- An eye dropper, syringe or 1/4 teaspoon measuring spoon



Begin by filling the small containers with water. The less water you use (so the more concentrated the food coloring), the faster your “rain” will drop. But on the other hand, the more water you use, the more rain you’ll be able to make. So keep that in mind as you fill them up. Add different colors of food coloring to each of the small containers. A container that holds about 1 ounce of water should need about 10 drops of food coloring. (Blues and purples may need less, as they tend to get dark more quickly). Fill a clear glass with water about 2/3 full. Top it with a generous amount of shaving cream. Use the eye dropper (or syringe, or 1/4 tsp measuring spoon) to drop the different colors of water onto the shaving cream cloud. The closer you squirt to the edges, the faster it will go through the shaving cream and come down as rain. You can tell your students that the water is similar to the air, and the shaving cream represents the clouds. And as the clouds get saturated with water, they produce rain.

### Hot Air, Cold Air Experiment <sup>5</sup>

You will need two containers, one filled with hot tap water and the other with ice and cold water. You will also need 1 balloon and a 2 liter plastic soft drink bottle. The larger

the bottle the more room the air has to push up and expand. Do not use boiling hot water for this activity. Hot water from the tap will effectively work for this activity. During the following steps of the activity, provide students with the opportunity to predict, ask questions and discuss ideas.

1. Blow the balloon up to stretch it and help make it more flexible and let the air out.
2. Place the balloon over the mouth of the empty plastic bottle.
3. Stand the bottle in the center of the container filled with hot water. Wait a few minutes and notice the balloon start to inflate and expand.
4. Remove the bottle from the hot water and place it in the container with cold water and ice. Wait a few moments and notice that the balloon starts to deflate and contract.
5. Repeat step 3 and 4 again....it's amazing!

What happened? When the air inside the plastic bottle is warmed, it expands and needs more space, therefore it stretches out the balloon. The warm water causes the motion of the air molecules to increase their motion. When the bottle is transferred to the icy cold water, the air is cooled; it contracts causing air molecules to slow down their motion and needing less space, so the balloon deflates. The mass of air remains constant inside the bottle, so this shows that the warm air requires more space and is less dense than cool air.

### **Weather for Kids:**

<http://www.weatherforkids.org/>

Students can visit this website for fascinating facts and information about different types of weather that affects us from day to day. Simply click on the weather picture for interesting facts and pictures of things related to that type of weather. There is also a weather quiz on the website and students can click on the link to live weather cams across the US. Assign students a type of weather. Have them use this website to obtain information. The students can create a poster, video or other type of visual aid to teach the class about the topic. <sup>6</sup>

### **Links:**

- Our World: What is Weather? A video about weather for kids from NASA.  
<https://youtu.be/UtgFHHhm1xU>
- A collection of weather videos for kids.  
<http://www.primarythemepark.com/2016/03/weather-videos-for-kids/>

**Sources:**

1. <http://www.scholastic.com/teachers/book/weather-words-and-what-they-mean#cart/cleanup>
2. <http://www.almanac.com/content/cricket-chirps-natures-thermometer>
3. <http://www.bbc.co.uk/newsround/29299758>
4. <http://onelittleproject.com/shaving-cream-rain-clouds/>
5. <http://www.learning4kids.net/2015/01/15/hot-air-cold-air-science-activity/>
6. <http://www.weatherforkids.org/>

**Other Sources:**

<http://www.ngkids.co.uk/science-and-nature/30-freaky-facts-about-weather>