

Ames Public Library @HOME Activities

Weather Matters!

Weather and climate have tremendous influence on us. It influences the kinds of crops we grow, how we dress, what we eat, and the activities we plan. See a related video on the Library's YouTube Channel at <http://bit.ly/APLvideos>.

Books and Media

Title	Author / Performer	Call Number
<i>Extreme Planet</i>	Peter, Carsten	J 551 PET
<i>Inside Weather</i>	Carson, Mary Kay	J 551.5 CAR
<i>Weather</i>	Clarke, Catriona	J 551.5 CLA
<i>The Magic School Bus Kicks Up a Storm</i>	Cole, Joanna	J 551.5 COL
<i>Little Kids First Big Book of Weather</i>	De Seve, Karen	J 551.5 DES
<i>Weather</i>	Cosgrove, Brian	e-book
<i>READAbout: WEATHER</i>	READAbout bag	J READABOUT WEA
<i>Weather (DVD)</i>	Eyewitness DVD series	J 551.5 (DVD) WEA
<i>All About Meteorology</i>	Schlessinger Science Library	J 551.6 (DVD) ALL

Vocabulary

Weather – is the daily state of the atmosphere, or air, in any given place. Weather is sunshine, rain, wind, snow, or storms. It's what is happening outside right now. Weather is temporary.

Climate – describes the typical weather conditions in a region for a long period of time, usually 30 years or more. Keeping track of Earth's sea level is one way that scientists track how quickly the climate is changing.

Climate Change – describes a change in the average conditions – such as temperature and rainfall – in a region over a long period of time. For example, 20,000 years ago, much of the United States was covered in glaciers. In the United States today, we have a warmer climate and fewer glaciers.



Global Climate Change - refers to the average long terms changes over the entire Earth. These include warming temperatures and changes in precipitation, as well as the effects of Earth's warming.

Air Pressure – refers to the force of air pushing against something.

Air Temperature – is expressed in Fahrenheit or Celsius.

Humidity – is the amount of water vapor in the atmosphere.

Precipitation – is rain, snow, sleet or hail – any kind of weather condition where there is something falling from the sky.

Meteorologist - is a scientist who studies weather. A meteorologist uses scientific principles to explain, understand, observe, or forecast how the earth's atmosphere affects the earth and everyone on it.



The weather outside determines many things we do including, what we eat, drink, and wear and the activities we want to do. There are many factors and science principles that affect and influence the weather. Technology including weather satellites help us keep track of the weather.

While weather is generally stable, there are also many extreme weather phenomena. In Iowa some examples of extreme weather are flash floods, tornados, and blizzards.

Flash Floods – A flash flood is a sudden local flood, typically due to heavy rain. Most flash floods occur within minutes or hours after an excessive rainfall, a dam or levee failure, or a slow moving thunderstorm. Flash floods can roll boulders, tear out trees, and destroy buildings and bridges. Rapidly rising water can reach heights of 30 feet or more.

Tornados – A tornado—also called a twister—is a violently rotating column of air extending from the base of a thunderstorm down to the ground. Thunderstorms create tornadoes. The biggest tornadoes are created in supercell thunderstorms. Although tornados are common in the Central plains they have been reported in all 50 states.

- **Tornado Watch** – “**Be Prepared**”, tornados are possible near the watch area.
- **Tornado Warning** – “**Take Action**”, a tornado has been sighted or indicated by weather radar



Image source: National Geographic

Blizzards – are severe winter storms that pack a combination of blowing snow and wind resulting in very low visibilities. A blizzard has wind speeds of more than 56 km (35 miles) per hour. A ground blizzard occurs when there is no falling snow, but snow is drifting and blowing near the ground.

One Breath Bernoulli Bag Kit

The kit contains

- One Breath Bernoulli Bag

The challenge this week is to blow this bag with just 1 (or 2) breaths. Can you do it?



Here is how you can be successful.

Unroll the bag. The bag is a tube that is open on both ends. Tie a tight knot at one end, and open the other end up. Have a family member hold up the knotted end of the windbag. Hold the open end of the bag approximately 10 inches away from your mouth, take a deep breath, and blow as hard as you can into the bag. As the bag inflates, quickly seal it so none of the air escapes.

You can decorate on the outside using permanent markers. You can play toss, catch or sail your windbag. If your bag should get a hole, simply seal it up with some clear tape. Have fun with your windbag!

How does it work?

The windbag quickly inflates because air from the atmosphere is being drawn into the bag along with the stream from your lungs. The pressure in a stream of air (or fluid) is reduced as the speed of the airflow is increased. The scientific principle at work here is called the **Bernoulli's Principle**.

This principle was formulated by Daniel Bernoulli, and it states that a fast moving stream of air is surrounded by an area of low atmospheric pressure. In fact, the faster the stream of air moves, the more the air pressure around the swiftly moving air drops. Therefore, when you blow into the windbag, higher pressure air in the atmosphere forces its way into the area of low pressure created by the stream of air from your lungs. So the air in the atmosphere is drawn into the windbag at the same time that the air from your lungs is entering the bag.