



Weather - Grades K-2

Nebraska Science Standards

2.4.3.b Observe and describe simple daily changes in weather

5.4.3.c Recognize the difference between weather, climate, and seasons

Objective: The objective of this lesson is to learn the importance of understanding the weather and its' effects on the earth.

Materials (provided by CSM):

- Rain cloud demonstration:
 - Clear cups
 - Shaving cream
 - Food coloring
 - Water
- Tornado activity:
 - Plastic bottles and caps
 - Water
 - Food coloring
 - Vinegar
 - Soap
 - Funnel
 - Glitter

Discussion:

- Why is it important for scientists to study weather?
 - So we can predict it. Planning events and weather safety.
- What types of weather are there?
 - Tornadoes
 - Hurricanes/tsunamis
 - Earthquakes
 - Precipitation

**** Elaborate on thunderstorms and tornadoes as you go through the activity**

Activity Description:

There are many types of clouds, but the main clouds that cause rain are cumulus clouds. They look white and puffy. These clouds are made up of tiny water droplets. Once there becomes too many water droplets the cloud gets too heavy and it rains.

Raincloud Demonstration:

Procedure:

1. Give each group of students a plastic cup and fill it with water.
2. Add shaving cream and a **few** drops of food coloring. ***please just put a thin layer of shaving cream or the food coloring will not drip through***
3. The shaving cream will slowly weight down and rain will form.
4. This will take several minutes, so have the students set aside their raincloud and continue on with the next activities.
5. They can observe the raincloud throughout the duration of your visit.

Although we do not have an activity for thunder, it is a good idea to briefly talk about it. Thunder is caused by lightning. When a lightning bolt travels from the cloud to the ground it actually opens up a little hole in the air, called a channel. Once then light is gone the air collapses back in and creates a sound wave that we hear as thunder. The reason we see lightning before we hear thunder is because light travels faster than sound!

Tornado activity:

Tornadoes form when warm, moist air mixes with cool, dry air. When they mix it creates instability in the atmosphere. They can destroy large buildings, uproot trees and hurl vehicles hundreds of yards. They can also drive straw into trees. Damage paths can be in excess of one mile wide to 50 miles long. In an average year, 1000 tornadoes are reported nationwide. They can spin up to 300 miles per hour!

Things to remember: Tell the students to not touch anything on their desk until the very end. The cap should be off the bottle.

Procedure:

1. Hand out the bottles and caps.
2. Use the funnel to fill the bottle with water a little before the point where the neck narrows. Tell the students the water represents the sky.
3. Add 2-3 drops of dish soap.
 1. The soap represents the cool, dry air.
4. Add a few drops of vinegar.
 1. The vinegar represents the warm, moist air.
5. Then add no more than 2 drops of food coloring.
 1. The food coloring is to help see the tornado better.
 2. If it is too dark, the students will not be able to see the tornado.

3. You can always add more food coloring later if needed.
6. Lastly, add glitter to the bottles.
 1. The glitter represent the debris that tornados pick up.
 2. **Have the students list off what might be considered debris in a tornado.**
7. Now, the students may screw the cap on and shake their bottles.
 1. Feel free to walk around the room to see how they are doing.
 2. Some may need you to show them how to shake/swirl the bottle.
 3. The students will take their bottles home to show their parents.