



Program: Under the Weather
Pre-Visit Activities
Grades 3-5

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The following Standards of Learning are addressed in the Under the Weather program.

Science

3.9b- Student will investigate and understand the water cycle and its relationship to life on Earth. Key concepts include processes involved in the water cycle (evaporation, condensation, and precipitation).

4.6- Student will investigate and understand how weather conditions and phenomena occur and can be predicted. Key concepts include (a) weather measurements and meteorological tools (air pressure- barometer, wind speed- anemometer, rainfall- rain gauge, and temperature- thermometer): and (b) weather phenomena (fronts, clouds, and storms).

Activities

These activities are intended for use before your visit to the Virginia Air and Space Center. It is beneficial for the students to have some prior knowledge about the content area covered in the program. All of the activities can be tailored to your specific classroom needs and the procedures listed are suggestions for teaching.

Activity 1: Meteorologist Training

Materials: You will need an anemometer, barometer, rain gauge (3 to 4 if you have them available), thermometer, 3 plastic containers you can fill half way up with water, paper, pencils, and activity stations (you can use groupings of desks or large tables). This list is just the basics. If you are going to have your students make their own weather instruments, they will need more materials. There is a list of materials needed for each instrument on the websites you will find listed below. It may be easier to have the students bring in the materials they need. Most of the materials can be made from recycled sources.

Set Up- For this activity you will need to set up your classroom with 6 different weather stations. Four of the stations will be set up to teach the students how to operate and use the four basic weather instruments: anemometer, barometer, rain gauge, and thermometer. The other two Weather stations will be directed towards weather words and types of weather. Depending on your students and the size of your class room, you can set up the different weather stations and break your students into groups that rotate around the room or you can do each station as a class. You can make up your own worksheets for each station or you can place questions up on the board that students have to answer on a piece of paper.

Station 1- Rain Gauge

For this station you will want to have the rain gauge available for the students to practice reading one. If you have more than one that you can place on the table, that would be better as you could have different levels of water in each one. Allow the students to practice reading the gauges properly. Have the students answer the following questions: a) What is a rain gauge used to measure? b) Why is it an important instrument in weather measurement? c) Why might it be a good idea to keep a log of the amount of rainfall? d) How do you read a rain gauge? Have your students discuss the questions and answers. For this station you can also have each student make their own rain gauge. Here is a website with the instructions and materials needed to make a rain gauge:

<http://www.mcwa.com/kids.htm#gauge>

Station 2- Barometer

For this station you will want to set up your barometer. Have the students practice reading it. Have your students answer the following questions: a) What does a barometer measure? b) Why is it important to keep track of air pressure? c) What is air pressure? d)

How does air pressure affect our weather? e) How do you read a barometer? Have your students discuss each question and answer.

You can also have your students make their own barometers. Here is a list of websites you can use for instructions on how to make a barometer and the materials needed.

1. <http://www.dnr.sc.gov/climate/serce/education/barometer.pdf>
2. <http://www.fi.edu/weather/todo/barometer.html>
3. <http://www.scholastic.com/schoolage/activities/3up/barometer.htm>

Station 3- Anemometer

For this station you will want to set up your anemometer for the students to practice using one. Obviously you will not have a whole lot of wind swirling through your classroom so if you have one available on hand you may want to set up a small fan. Have your students answer the following questions: a) What is an anemometer used to measure? b) How do you read an anemometer? c) Why is it important or helpful to measure wind speed? d) What effects can wind speed have on our weather? Have your students discuss each question.

You can also have your students make their own anemometer. Here is a website with the list of instructions and materials needed:

<http://www.weatherwizkids.com/anemometer.htm>

Station 4- Thermometer

For this station you will want to set up three different containers filled half way up with water (of different temperatures). Put ice in one, luke warm water in one, and hot tap water in the other. Be sure to make sure that the water is not too hot that it will burn you or your students. Make sure to place a large thermometer on the table for the students to use, as well as some paper towels for spills. Have the students measure the temperature of the water in each container. Have your students answer the following questions: a) What does a thermometer measure and why? b) Why is it important to measure temperature? c) What kind of effect does temperature have on our daily lives? d) Is it important to keep and log a record of the temperature? e) Why is temperature measured in Fahrenheit and Celsius? Have your students discuss and examine each question.

You can also have your students make their own thermometer. Here are two websites with a list of instructions and materials needed:

1. <http://www.energyquest.ca.gov/projects/thermometer.html>
2. <http://www.weatherwizkids.com/thermometer.htm>

Station 5- Weather Lingo

For this station you may want to put together a worksheet for your students to write out definitions. Have your students define the following weather words: air pressure, atmosphere, front, cold front, condensation, evaporation, heat index, humidity, low pressure system, relative humidity, meteorology, meteorologist, and warm front. You can find a list of weather words on weatherwizkids.com. Have your students try to define the words on their own first. Have them discuss each word as a group and then have them use the words in a sentence as if they were reporting the weather.

Station 6- Types of Weather

This station can be worked just like station 5. You can create a worksheet for your students to define the words on. Have them define the following types of weather: rain storms, hurricanes, blizzards, tornadoes, thunder, lightening, fog, drought, hail, monsoon, and tropical storm. These words can also be found on weatherwizkids.com. Have them try to define all the words before using the list. For this station, instead of having the students use each word in a sentence, have them list what areas of the world these types of weather are most common in.

Extension: Now that the students know how to read each instrument, have them try out measuring the actual weather. If you catch a day where it is raining or going to rain, sit the rain gauge outside to measure the amount of rain collected in the gauge. Do the same with the other instruments. Measure the wind speed, air pressure, and temperature.

Activity 2- Weather Safety

Materials- For this activity you will need a couple of pieces of poster board and markers.

Discuss the different types of weather that your students had to define in Activity one. Are all types of weather dangerous? No, but many types of weather can be dangerous. What types of weather are dangerous? List them on the board. So what are some ways we can stay safe during a storm? Have each student list a different safety tip. Once you have a list of all of their ideas, you can make a safety procedure list with your poster board. Hang it up in your classroom.

Here is a list of helpful websites concerning weather safety tips:

1. <http://www.weatherwizkids.com/WxSafety.htm>
2. <http://eo.ucar.edu/webweather/safety.html>
3. <http://www.weather.com/safeside/>
4. <http://www.crh.noaa.gov/oax/safety/safety.php>
5. <http://www.stormfax.com/safepage.htm>

Resources

WEBSITES

<http://www.teach-nology.com/themes/science/weather/>

<http://www.weatherwizkids.com/>

<http://www.proteacher.net/>

http://www.picadome.fcps.net/lab/currl/water_cycle/

<http://teacher.scholastic.com/>

<http://eo.ucar.edu/webweather/>

BOOKS

How Weather Works. Micheal Allaby. 1999.

The Magic School Bus Inside a Hurricane. Joanne Cole .1996.

The Weather Detectivs. Mark Eubank. 2004.

Weather Report: Poems. Jane Yolen. 1995.

Winter Eyes. Douglas Florian. 1999.

World's Weather. David C. Flint. 1993.

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