



of Greater Indianapolis

WEATHER OBSERVATION & TRACKING

Ages:

12 -18

Description:

Hello future meteorologists! It's time to start weather tracking. We are going to explore clouds, wind direction, humidity, precipitation, & temperature. We also are going to look at some weather words and weather sayings to help you understand and report the weather. So, grab a notebook and pen and let's get started!

This activity is inspired by the Girls Inc. [Eureka! program](#), a STEM focused program that exposes girls to career opportunities in STEM through hands-on activities taught by professionals in the field. The Eureka! [application](#) is open now for rising 8th and 9th grade girls.

Time:

60 minutes

Materials Needed:

- Pencil
- Paper
- Colored pencils, markers, crayons (optional)

Instructions:

Before we begin, take a minute to clear your mind. Check in with your five senses. What do you see, hear, feel, taste, & smell? During this activity you will want to use all of your senses! Take a minute to take a few deep breaths this will help sharpen your focus.

During this activity, you will analyze and record the weather. You will learn some old-fashioned ways to predict the weather based on your recordings and observations.

Today, we are meteorologists! A [meteorologist](#) is an expert in or student of meteorology. Meteorology is the scientific study of the atmosphere that focuses on weather processes and forecasting. They create weather maps based on observations and report them to local areas. Want to learn more about becoming a meteorologist? Find more info [here!](#)

Inspiring all girls to be strong, smart, and bold

Let's get started:

We are going to check the following areas:

1. Clouds
2. Wind Direction
3. Humidity
4. Precipitation
5. Temperature
6. Weather Words
7. Weather Sayings

1. Clouds

Clouds are a good place to start when checking the weather because they can help indicate if you should expect precipitation. So, take a look at the sky and decide which type of clouds are above.



Cirrus Clouds

Cirrus clouds are thin, wispy clouds that are seen high in the sky. They resemble pulled apart cotton. They are made up of ice crystals instead of water droplets. A blue sky and a few cirrus clouds high in the sky means it is going to be a nice day.

Cumulus Clouds

Cumulus clouds are puffy clouds scattered through the sky. It's named from the word "accumulate" or pile up. This type forms when water vapors evaporate. They can be white or gray. If they are gray, then it is going to rain.

Stratus Clouds

Stratus clouds are a huge thick blanket covering the sky. If they are near the ground, they form like fog. Stratus clouds form when the weather has been cold and warmer moist air blows in.



Nimbus Clouds

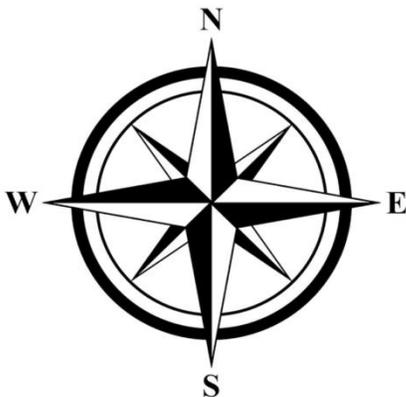
Nimbus clouds mean there is already rain or snow falling from it. They can be a combination of two clouds cumulonimbus (cumulus-nimbus), which means a puffy black cloud with rain falling out of it, or a stratonimbus (stratus-nimbus), which is a dark blanket with rain falling out of it.



Thunderheads

Cumulus clouds are dense and puffy vertical cloud formations that extend high in the atmosphere. Although cumulus clouds are common on sunny, fair-weather days, they are called thunderheads because they produce thunderstorms. A cumulus cloud becomes a cumulonimbus cloud capable of severe thunderstorms when sufficient heat, updraft and moisture combine in the cloud to produce lightning, thunder and heavy rains.

2. Prevailing Wind



We call the wind direction the “prevailing wind”. When the wind is from the prevailing direction then the weather is generally typical. When the wind shifts away from the prevailing direction then it often indicates atypical or changing weather. Winds are named for the direction from which they come, followed by the suffix *-erly*. For example, winds from the north are called “northerly winds” (*north + -erly*)

3. Humidity

Humidity is invisible to the eye but can be felt. It can make it feel hotter than it is outside. You might recognize it by a sticky feeling the moment you step outside. Humidity measures the amount of water vapor in the air and can predict dew and fog.

Check out your local [weather](#) report and compare the way it feels outside to the current humidity.

4. Precipitation

Precipitation is rain, snow, sleet, or hail — any kind of weather condition where something's falling from the sky. Want to know how much precipitation is falling in your backyard? Follow along with this video to create your own. [Make Your Own Rain Gauge](#)

Rain

Falling drops of liquid water

Snow

Falls when the temperature in the clouds is below freezing

Sleet

Rain that freezes as it falls

Hail

Forms when drops of rain freeze and strong winds carry them higher into a cloud

5. Temperature

Temperature is a degree of hotness or coldness they can be measured using a thermometer. It's also a measure of how fast the atoms and molecules of a substance are moving. When tracking the temperature, you may want to use a thermometer in your own yard. This will give you the most accurate measurement of your local temperature. You should always use the same source so that you can notice any changes. Each temperature source could vary by a few degrees. Find out the temperature for today [here](#).

6. Weather Words

Check out these weather words and use them when creating your weather forecast.

Arctic, cold, freezing, baking, balmy, blistering blustery, breezy, bright, clammy, clear, cloudy, damp, dewy, drizzly, dry, dull, foggy, freezing, fresh, hazy, hot, humid, icy, mild, misty, muggy, nippy, overcast, rainy, scorching, showery, sticky, stormy, snowy, sunny, thundery, tropical, wet, windy, & wintry

7. Weather Sayings

Finally let's discuss weather sayings. Even before we understood why patterns were noticed and sayings were formed to help us predict the weather. Check out these weather sayings from the Farmers' Almanac an annual North American periodical that has been in continuous publication since 1818. Published by Geiger of Lewiston, Maine, the Farmers' Almanac provides long-range weather predictions for both the U.S. and Canada.

“RING AROUND THE MOON? RAIN REAL SOON.”

A ring around the moon usually indicates an advancing warm front, which means precipitation. Under those conditions, high, thin clouds get lower and thicker as they pass over the moon. Ice crystals are reflected by the moon's light, causing a halo to appear.

“RAIN FORETOLD, LONG LAST. SHORT NOTICE, SOON WILL PASS.”

If you find yourself toting an umbrella around for days “just in case,” rain will stick around for several hours when it finally comes. The gray overcast dominating the horizon means a large area is affected. Conversely, if you get caught in a surprise shower, it's likely to be short-lived.

Time to Observe!

Now that we know what to look for let's step outside and observe what the weather is for today. One of the best tools to indicate weather is your own senses. So, don't forget to report what you see, hear, smell, & feel. Use these words to write out or record yourself describing the weather. Gather all the information you need to report the daily weather and fill in this chart. Put some weather words, or weather sayings that apply to today to help add some pop to your forecast. Find your local forecast [here](#).

Daily Weather Chart

Weather Item	Observation Notes
Clouds	
Prevailing Wind	
Humidity	
Precipitation	
Temperature	
Weather Words	
Weather Sayings	
Your Own Senses	

ACTIVITY RECAP

Discovery Questions:

- What did you notice for the first time when you started tracking the weather? What other tools could be useful to help you weather track?
- Does weather forecasting as a career interest you, what other careers or lifestyles involve knowing the weather?
- What impact does the weather have on our daily lives? How can predicting it help you be prepared? Can you think of a time when you weren't prepared for the weather?
- With a parent/guardian's permission, share with us your story on our Instagram page with the tag @girlsincindy.