

Weather Activity Bag

Weather Predictor: Student Activity Guide

Have you ever wondered how a meteorologist, a scientist who studies the weather, is able to predict the weather? While filling out your weather log, you collected weather data. This can be used to predict the weather. In this activity, you will use a weather prediction wheel and weather data to predict the weather.

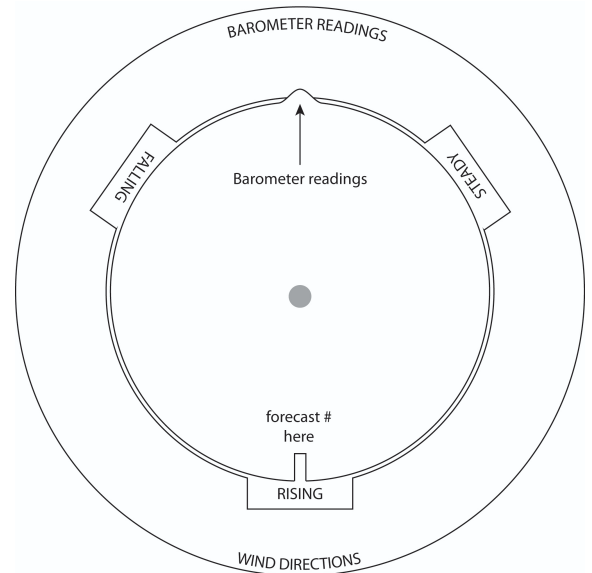
These directions will get you started. Your teacher will be in contact to guide you and provide information.

Materials From The Bag

- Weather Prediction Wheel
- Brass Fastener

Make Your Predictor Wheel

1. Carefully punch out both wheels of the Weather Prediction Wheel.
2. Stack the pieces of the Weather Prediction Wheel in the correct order. They are labeled.
3. Carefully punch the brass fastener through all three pieces of the Weather Prediction Wheel. The top and middle wheels should be able to spin.



Part 1: Exploration - Forecast Numbers

The device you created is called a weather prediction wheel. The wheel is designed to predict the upcoming weather.

1. Look at the numbers at the bottom of the wheel. There are 27 numbers that describe 27 different forecasts that are possible. Read the 27 forecast descriptions.
2. Look at your wheel and find the **forecast # here**. Make sure there is a number in the window. That number is the forecast number at the bottom. Record your forecast number and what the forecast is.
3. Spin the wheel and notice that the forecast number changes.

Part 2: Exploration - Reading Barometric Pressure

In this activity we will look at how weather data changes the forecast number.

1. Look at the Weather Prediction Wheel and record what weather data you think you will need to make a forecast.
2. Let's focus on reading barometric pressure. To practice using the wheel, point the **STEADY** arrow on the middle wheel to the **West (W)** wind direction. Keep it there throughout this part of the lesson.
3. Look at the forecast numbers at the bottom of the predictor wheel to find a forecast number that would predict rain. Move **ONLY the TOP wheel** until you find that number. Is your **barometric reading arrow** in the **barometric reading zone**? If not, choose another rainy forecast where the barometric reading arrow is in the barometric reading zone. Write down the barometer reading. Repeat two more times. *What do you notice about the barometer readings?*

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- Again, look at the forecast numbers at the bottom of the predictor wheel to find a forecast number that would predict clear weather. Move **ONLY the TOP wheel** until you find a prediction that would predict clear weather. Write down the barometer reading. Make sure the **barometric reading arrow** $\hat{\cup}$ is in the **barometric reading zone**. Repeat two more times. *What do you notice about the barometer readings?*

What's happening...

A barometer is a tool that measures atmospheric pressure, also known as barometric pressure. Barometric pressure is useful in predicting the weather. You may have noticed lower barometric pressure readings often result in rainy or unstable weather, and high barometric pressure readings often result in clear weather. It is also important to know if the barometric pressure is rising, falling, or staying the same (steady.)

Part 3: Exploration - Change in Barometric Pressure

Changes in barometric pressure, the season, and wind direction are important factors when predicting the weather. The middle wheel has tabs that indicate the barometric pressure is rising, falling, or remaining steady.

- Move the top wheel to get forecast number 14.
- Move both wheels together so that the barometric reading arrow $\hat{\cup}$ is in the **barometric reading zone**.
- Locate the pressure rising, falling, and remaining steady tabs on the middle wheel. Keeping the forecast number at 14, move both wheels so that the **rising barometric pressure tab** is to the **wind direction zone**. Make sure the barometric reading arrow $\hat{\cup}$ is still in the barometric reading zone.
- Record the barometric pressure on the chart below.
- The pressure tab in the wind direction tells you if the pressure is rising, falling, or steady. Record whether the pressure is rising, falling, or steady.
- Locate the small arrow to the right of the word summer on the rising tab. This arrow will point to the direction of the wind. Record the direction of the wind.

Weather Forecast	Forecast Number	Season	Barometric Pressure	Rising ($\hat{\cup}$), Falling ($\hat{\cup}$), or Steady (S)	Direction of the Wind
Very unstable, slightly improving	#14	Summer			

Part 4: What's Up With the Weather? Challenge

- Your challenge is to find a forecast number that indicates that the weather will get worse or rainy. For your challenge to be successful, the **barometric reading arrow** $\hat{\cup}$ must be in the **barometric reading zone**, and **ONE of the barometric pressure tabs** (rising, falling, or steady) must be in the **wind direction zone**.
- Once you have successfully completed the challenge record your weather data on the chart on **page 3**.
- Repeat steps 1 and 2 where the predictions are as follows:
 - The weather will clear this afternoon
 - Changeable weather with rain.
 - It will get snowy this afternoon.

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Weather Forecast	Forecast Number	Season	Barometric Pressure	Rising (↑), Falling (↓), or Steady (S)	Direction of the Wind
The weather will get worse or rainy.					
The weather will clear this afternoon.					
Changeable weather with rain.					
It will get snowy this afternoon.					

Part 5: Weather Prediction

Now it's time to put this tool to the test. Let's see how accurate the Weather Prediction Wheel is. The Weather Prediction Wheel is designed to predict the afternoon/evening weather based on the morning weather data. You will gather local weather data and use the weather prediction wheel to predict the afternoon weather where you live.

- In the morning before 9 am**, go to www.weather.com, place your zip code or city/state in the search button, and press enter. This will give you the local weather data. Local weather data is also available on your local tv station.
- Record the direction of the wind, barometric pressure, and whether the barometric pressure is rising, falling, or steady. Look for arrows to indicate rising ↑, falling ↓, or steady (no arrow).
- If today's date is between April 1 and September 30, it is "summer." If it is between October 1 and March 31, it is "winter." *What season is it?*
- Find the **STEADY, RISING, and FALLING** tabs on the middle wheel. Using your data from above move the correct tab to the **wind directions zone** at the bottom of the page.
- Place the correct winter or summer arrow on the current wind direction. There is only one arrow on the STEADY tab.
- Point the **barometer readings arrow** ↑ on the top wheel to the current barometer reading. **Do not move the middle wheel.** Record the number you find in the "Forecast # here" slot.
What is the weather prediction for the forecast number? Observe the local afternoon weather. Compare to the forecast.