

# Causes of Wind

Directions – Complete the following activities to learn what causes and influences the movement of the air around us.

## Activity 1 – The Coriolis Effect

Earth's surface does not heat evenly and it is spinning on its axis. As air around is converging and diverging, we feel it as wind. Follow the procedures to learn **how** wind moves.

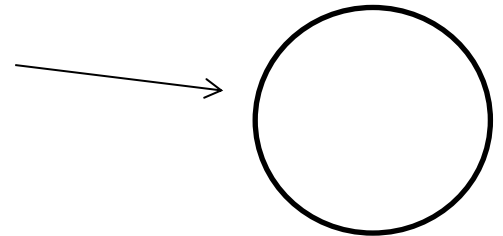
### Materials

Balloon, Marker

### Procedures

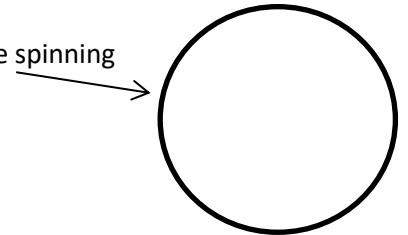
1. Have one person fill the balloon with carbon dioxide gas (remember, that is the air you exhale) and tie it.
2. One person from the table will hold the balloon while another student attempts to draw a straight line with the marker from **the top** of the balloon **to the bottom**. (Markers are to mark the balloons only, not other group members)

- a. Draw the path of the marker as it moved across the balloon



3. Repeat step 2, only this time, have the team member holding the balloon slowly spin it counterclockwise while the other team member attempts to draw a straight line with the marker.

- a. Draw the path of the marker as it moved across the counterclockwise spinning balloon

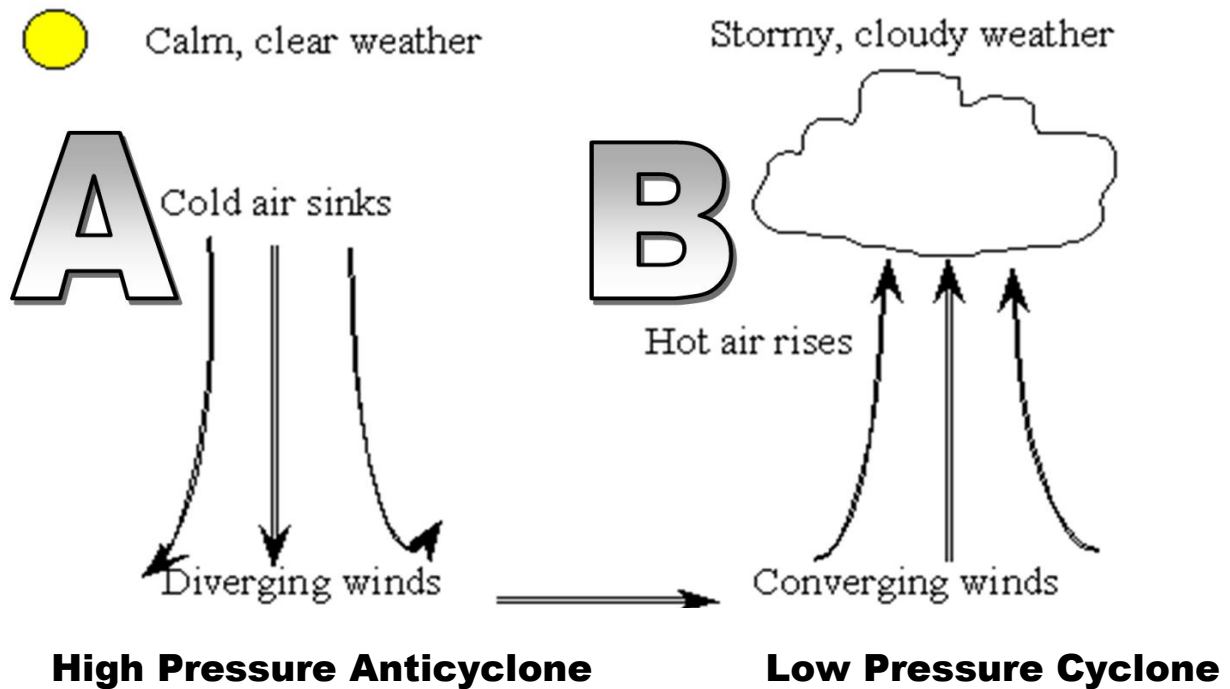


4. Describe the difference in path of the marker between steps 2 and 3.

5. After observing the motion of the marker on the balloon, how do you think the wind moves across Earth's surface?

## Activity 2 – Air Pressure Diagram

Use the diagram to help describe **why** air moves and the weather it can create.

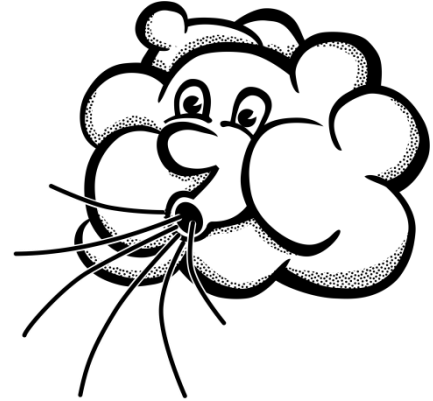


1. What direction does air move at an anticyclone?
2. Would the air be more or less dense at an anticyclone? Explain your answer.
3. What type of weather comes with anticyclone?
4. Why do you think there is high pressure at an anticyclone?
5. What direction does air move at a cyclone?
6. Would the air be more or less dense at a cyclone? Explain your answer.
7. What type of weather comes with a cyclone?
8. Why do you think cyclones and anticyclones create different types of weather?

### Activity 3 – More About Wind

Go to [dixiemiddlescience.weebly.com](http://dixiemiddlescience.weebly.com) to open the “More About Wind” link. Use the website to answer the following questions.

1. What is Wind?
2. How is wind produced?
3. What causes the wind to blow?
4. When is a derecho most likely to form?
5. How is a dust devil different than a tornado?
6. What is the jet stream?



Scroll back to the top of the website and click on **Types of Wind**

7. What is a monsoon?
8. Draw a diagram of a sea breeze. Make sure to include arrows and describe how the air moves.

A large empty rectangular box with a black border, intended for drawing a diagram of a sea breeze. The box is empty and contains no text or images.

9. Draw a diagram of a land breeze. Make sure to include arrows and describe how the air moves.

A large empty rectangular box with a black border, intended for drawing a diagram of a land breeze. The box is empty and contains no text or images.

10. Complete the data table below to help identify different local wind systems.

Type of Local Wind	Description of local wind
Chinook	
Santa Ana	
Scirocco	
Mistral	
Marin	
Bora	
Gregale	
Estesian	
Libeccio	

### Analysis Questions

11. Where does wind form?
12. How is a Bora wind different than a Santa Ana wind?
13. Why would a low pressure cyclone create stormy or cloudy weather?
14. How does the spin of the Earth effect how wind moves across Earth's surface?
15. How are land breezes and sea breezes different?