

# Air Pressure & Weather

## What are we learning?

We will be learning how air pressure affects the weather around us and how tornadoes form.



## What is air pressure?

Have you ever heard a weather broadcaster talk about an area of high or low air pressure?

What kind of weather is coming if the broadcaster talks about low pressure?

If you don't know, watch some weather forecasts online and then try to answer the question.

## High and low pressure

Air feels like it doesn't weigh anything, but there is a huge amount of air in the atmosphere which is being pulled down by gravity, so it is like we have a huge weight pushing us down.

**Earth's atmosphere weighs 5,500,000,000,000,000 tons (5.5 Quadrillion Tons)!!!**

This air is pushing on everything it touches and we call this pushing **air pressure**. We measure air pressure with a tool called a **barometer** (the word "baro" means weight) with the unit **millibars**. The higher the millibars the higher the air pressure.

# So why do we refer to “low” and “high” pressure when we talk about weather?

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## Low pressure air systems.

A **low-pressure** system occurs when the **weather** is unstable.

The unstable air rises, cools and forms clouds and rain. The rising air means less air pressure occurs at the surface. Low pressure weather is cool, damp and cloudy.

## High pressure air systems.

A **high-pressure** system occurs when the **weather** is stable.

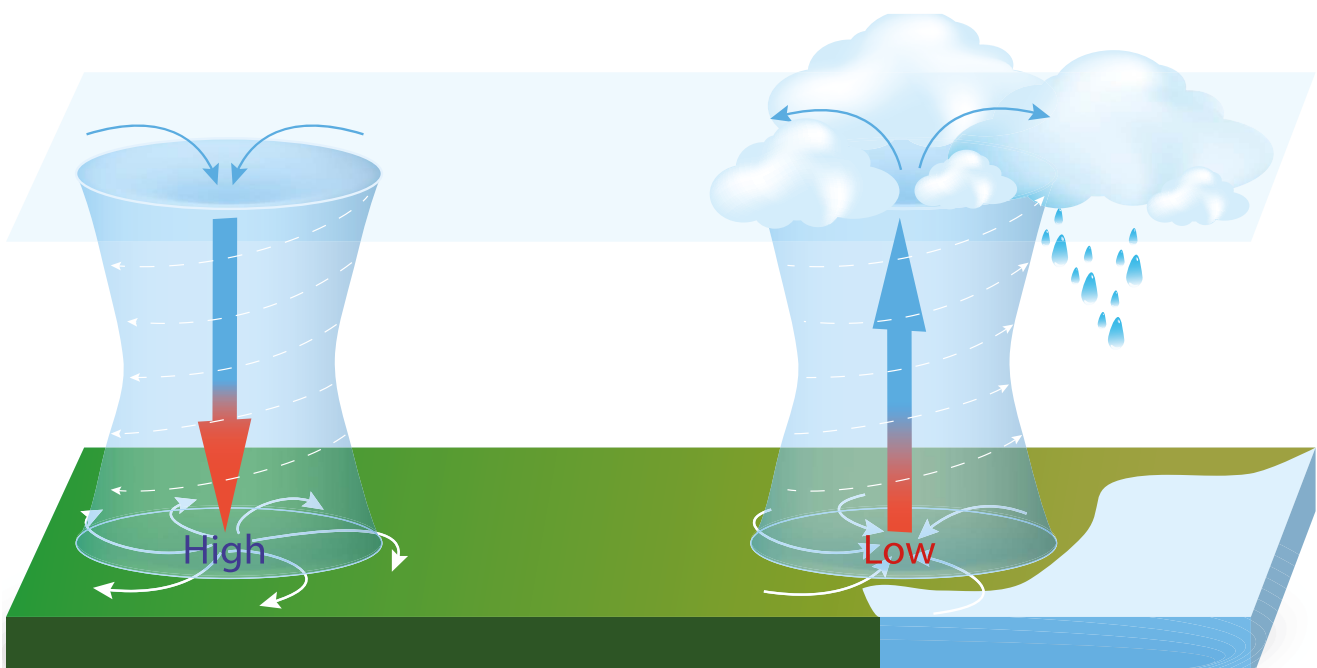
The stable air sinks to the surface and warms up. The sinking air means more air pressure occurs at the surface. High pressure weather is stable, warm and clear.

## High pressure

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## Low pressure

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# Quick Quiz



**ACTIVITY  
SHEET**

Low pressure weather is...

High pressure weather is...

Why is the air pressure higher when the weather is sunny?

Why is the air pressure lower when the weather is cloudy and rainy?

## Experiment time!

# Tornado Tubes

When an area of **high** air pressure meets an area of **low** air pressure, the air starts to spin, which can cause extreme storms and even tornadoes. You will be exploring air pressure by making a tornado tube.

### You will need:

- 2L plastic pop bottles
- Jug of water (add food colouring if you want to)
- A tornado tube connector (you can get these online easily).

**If you cannot get a tornado tube connector** get an adult to help you cut or drill a large hole in the middle of the two bottle caps. Once you have drilled the hole put the caps back on the bottles and then glue the two caps to each other so one bottle sits, upside down, on top of the other. You may need to reinforce the join between the two bottles, with some duct tape.

### Safety

This could get messy so make sure you ask an adult for permission before you begin.

### Method

1. Fill bottle 1  $\frac{1}{3}$  of the way up with water.
2. Attach the tornado tube connector to the top of bottle 1.
3. Attach the empty bottle, bottle 2, to the other side of the connector so the two bottles are connected in the middle.
4. Rest your tornado tube on a flat surface.
5. Swirl the top bottle while keeping the bottom bottle still.
6. Hold your tornado tube still and observe what happens.

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## Questions

Write about or draw what happened inside your tornado.



Tick whether the following sentences describe high pressure or low pressure.

	High	Low
It is very windy.	<input type="checkbox"/>	<input type="checkbox"/>
Is sometimes called an anti-cyclone.	<input type="checkbox"/>	<input type="checkbox"/>
Brings dry weather.	<input type="checkbox"/>	<input type="checkbox"/>
Air is rising.	<input type="checkbox"/>	<input type="checkbox"/>
Air is falling.	<input type="checkbox"/>	<input type="checkbox"/>
Is sometimes called a depression.	<input type="checkbox"/>	<input type="checkbox"/>
Causes wet, cloudy weather.	<input type="checkbox"/>	<input type="checkbox"/>

Can you think of any other names for a tornado?

# My Science Ideas

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What science ideas or questions has this worksheet given you?

**Air pressure & weather**  
**Teacher Feedback**