

# Why does wind blow?

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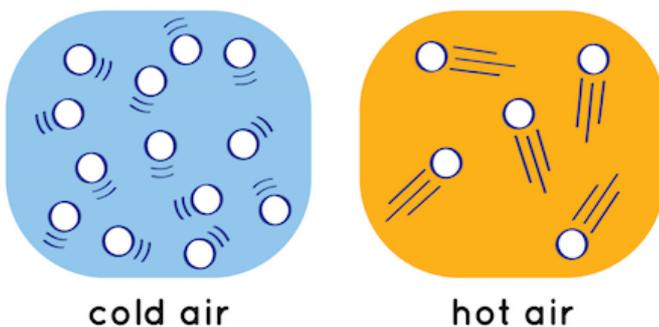
TOP: This wind turbine generates electricity from wind power. Courtesy of Wikipedia. SECOND, THIRD, BOTTOM: NASA.

Wind is a part of weather we experience all the time, but why does it actually happen? The air will be still one day, and the next, powerful gusts of wind can knock down trees. What is going on here?

The main cause of wind is a little surprising. It's actually temperature. More specifically, it's differences in temperature between different areas.

## How Would Temperature Differences Make The Wind Blow?

The gases that make up our atmosphere do interesting things as the temperatures change. When gases warm up, the atoms and molecules move faster, spread out and rise. That's why steam coming off a pot of boiling water always goes upward. When air is colder, the gases get slower and closer together. Colder air sinks.

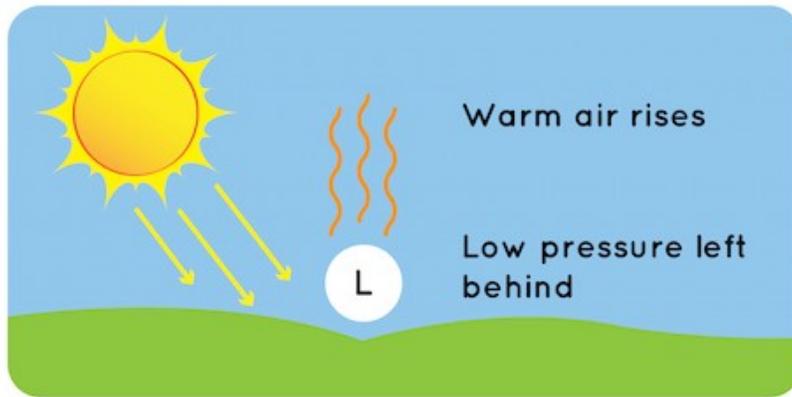


The sun warms up the air, but it does so unevenly. Because the sun hits different parts of the Earth at different angles, and because Earth has oceans, mountains and other features, some places are warmer than others. Because of this, we get pockets of warm air and cold air.

## Different Temperatures Lead To Different Pressures

Since gases behave differently at different temperatures, that means you also get pockets with high pressure and pockets with low pressure. In areas of high pressure, the gases in the air are more crowded. In low pressure zones, the gases are a little more spread out.

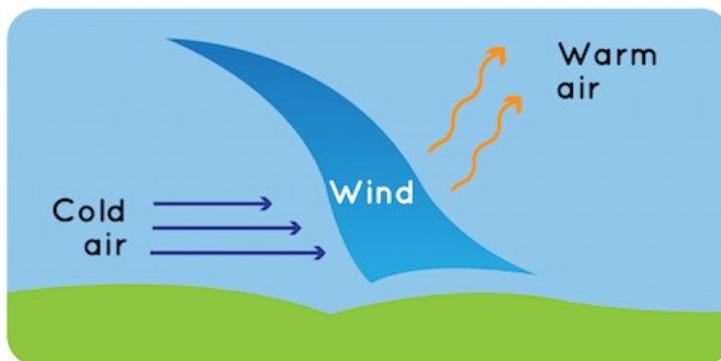
You might think that the warm air would lead to a higher pressure area, but actually, the opposite is true. Because warm air rises, it leaves behind an area of low pressure.



### Here Comes The Wind

Now we're getting to the part where wind happens. Gases move from high-pressure areas to low-pressure areas. And the bigger the difference between the pressures, the faster the air will move from the high to the low pressure. That rush of air is the wind we experience.

### But Why Does The Air Move At All?



You might be wondering why the air would move from high pressure to low pressure in the first place. This is something that happens in nature all the time: things always try to even out. It's called diffusion.

Even people do it! When people get onto a bus, do they all sit on the same side of the bus first? Do strangers sit next to each other when there are plenty of open seats? No way. People want to spread out as much as possible.

Next time you feel the wind blow, think about where it's going and what temperatures and pressures are causing it to do that.