

explainity explains: thunderstorm

Today in Windyville, it's sweltering hot. There's something brewing in the sky. But what causes a thunderstorm? Let's take a closer look.

Thunderstorms often happen in summer. That's when the sun is shining particularly strong, which makes the ground, but also lakes and the sea, heat up. The water evaporates, and a warm and humid low pressure zone forms on the ground. This air rises and meets colder, dry air moving toward it from a high pressure zone. That's how wind is made.

The water vapor in the cold air condenses. At first, small and then even bigger clouds are formed out of water vapor – those are called rain clouds ;)

Inside these clouds, an energy cycle is created from heat. The warm and humid air rises even higher. At freezing level, the water vapor turns into ice crystals. Eventually, it can't get any colder and the ice crystals combine to make hail. At a height of up to 12 kilometers, they then spread out sideways. That's what a typical thundercloud looks like.

In a thunderstorm, light air particles are constantly carried upward by updrafts, while heavier ones fall down. They then bump into each other and exchange their electrical charge. More positive particles collect high up in the cloud and at the bottom mostly negative ones. Voltage builds – like in a huge battery. And when it's unleashed, there's lightning! At first, only inside of the cloud. The temperature shoots up to several thousand degrees and makes the lightning glow. If there are mainly positively charged particles on the ground, then lightning may hit the earth. Thunder is actually just a shock wave triggered by lightning. We hear the sound after the flash of light.

When lightning strikes, the charge states cancel out, and an equal amount of positive and negative particles are scattered about again. The thunderstorm then fades out.

But don't forget: a thunderstorm can also cause a lot of damage. That's why you should avoid open spaces, forests and bodies of water and stay at home instead.

For Windyville and its inhabitants, the thunderstorm was just what they needed to cool down.

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