K3.1.2 K3.1.2

K3.1.2 How Are Clouds Formed?

How Are Clouds Formed?

For clouds to form, water vapor on the ground and in the air must rise into the sky. When the sun warms the land and the ocean, the water heats up and becomes water vapor. This water vapor is light, so it goes up into the sky. As the air flows, when water vapor meets a high place, such as a mountain, its pathway is blocked and rises high into the sky.

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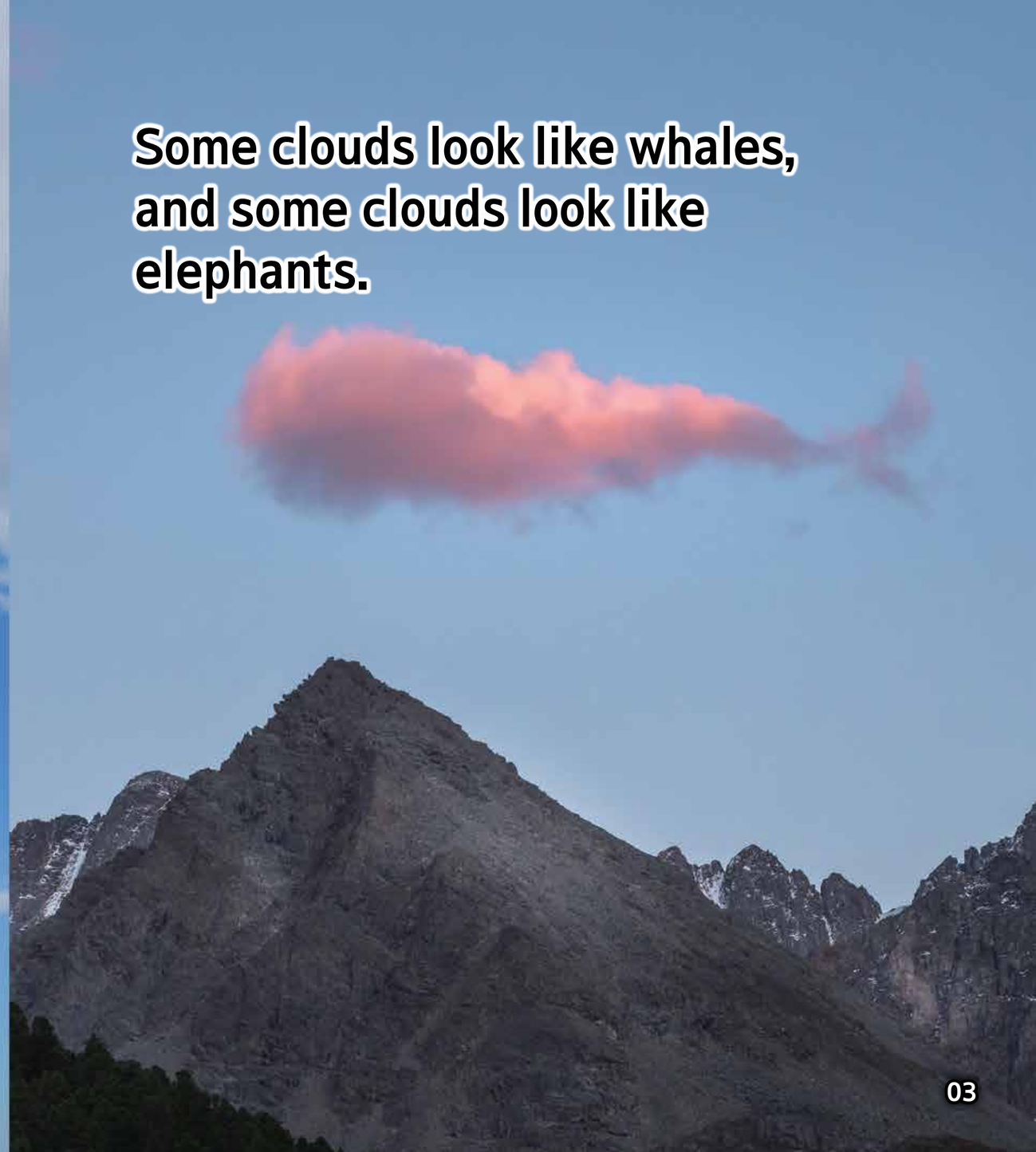
If we look up at the sky,
the clouds look different every day.

Some clouds look like whales,
and some clouds look like
elephants.



A cloud is a collection of tiny drops
of water and ice.
So, how are these clouds made?

For clouds to form, water vapor on the ground and in the air must rise into the sky.
When the sun warms the land and the ocean, the water heats up and becomes water vapor.

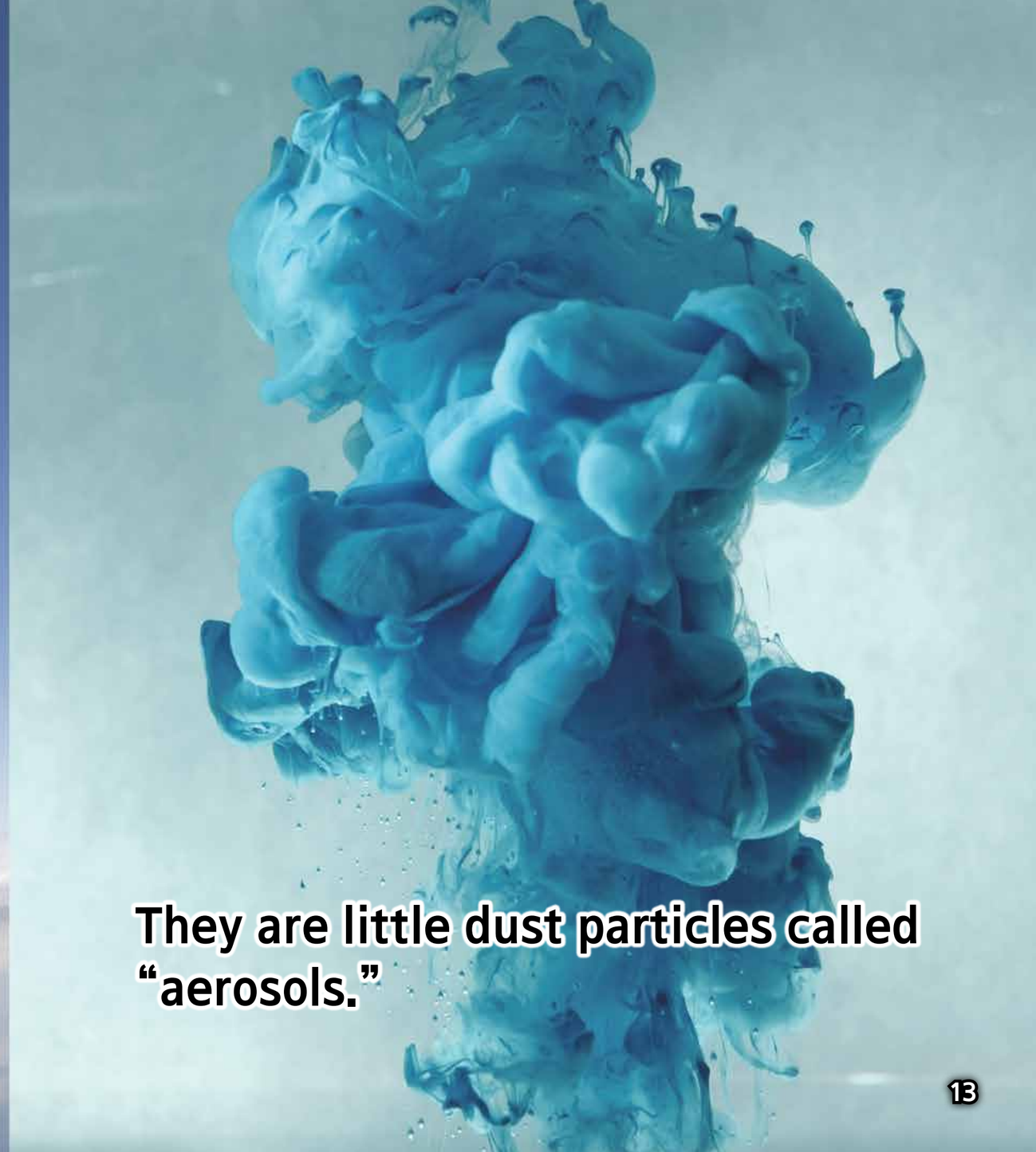
This water vapor is so light that it floats up into the sky.

Following the flow of air, when water vapor meets a high place, such as a mountain, its pathway is blocked and rises high into the sky.

Water vapor can rise into the sky even when cold air meets warm air.

This is because the warm air rises above the cold air, creating an updraft.

The water vapor that comes up to the sky meets some friends who are waiting.

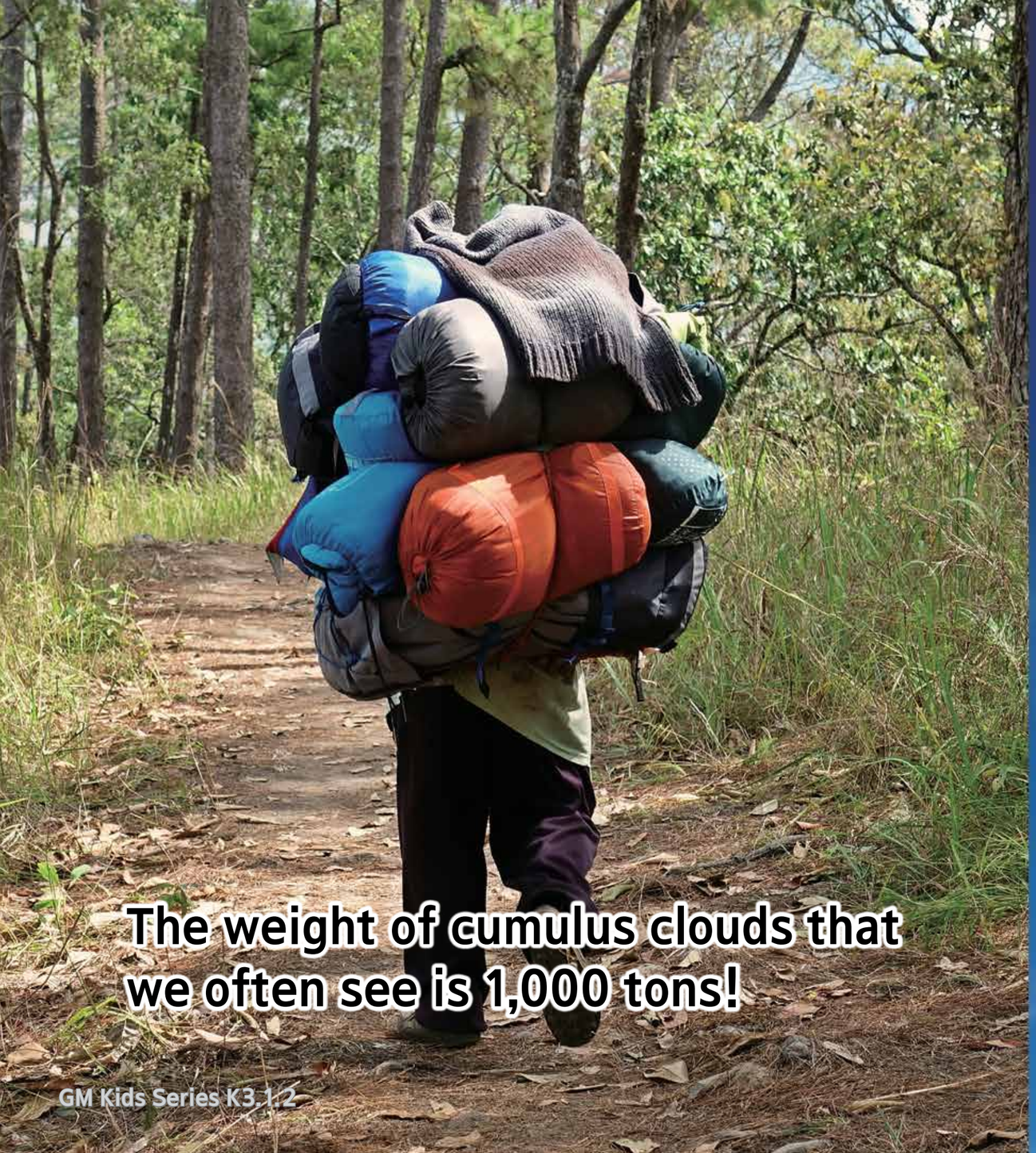


They are little dust particles called “aerosols.”

Aerosols create cloud droplets when
water vapor turns cold as it rises
high into the sky.
When cloud droplets gather,
they look like clouds to our eyes.

Did you know how clouds are made?

Light, cotton candy-like clouds float where the wind blows.
How light must they be to float in the sky?



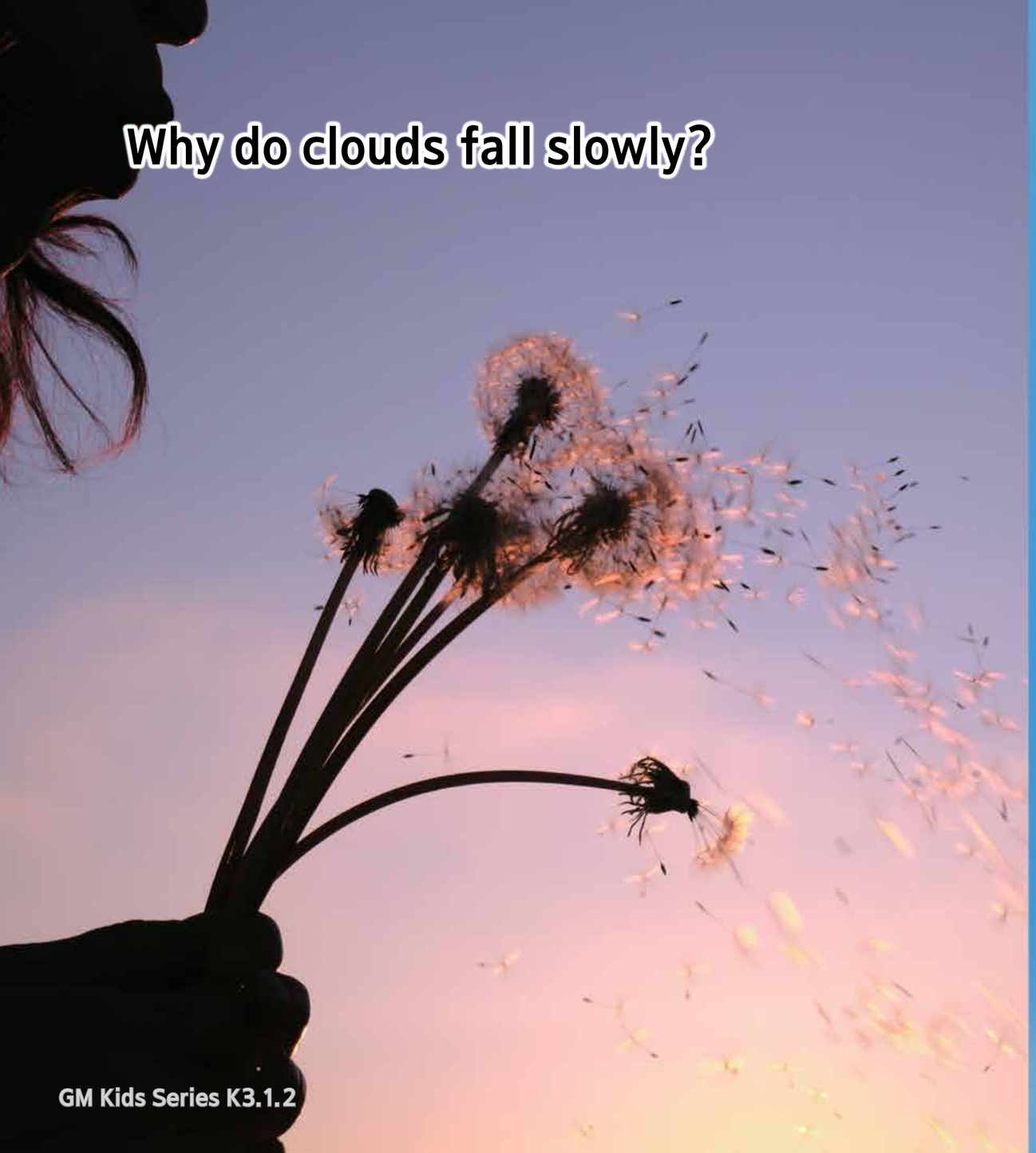
The weight of cumulus clouds that we often see is 1,000 tons!

They are as heavy as 400 elephants. Clouds are not light at all.

How do these heavy clouds float in the sky without falling to the ground?

Clouds are not floating. Each cloud is slowly falling to the ground. Small clouds are so light that they fall slowly and look like they are floating to our eyes.

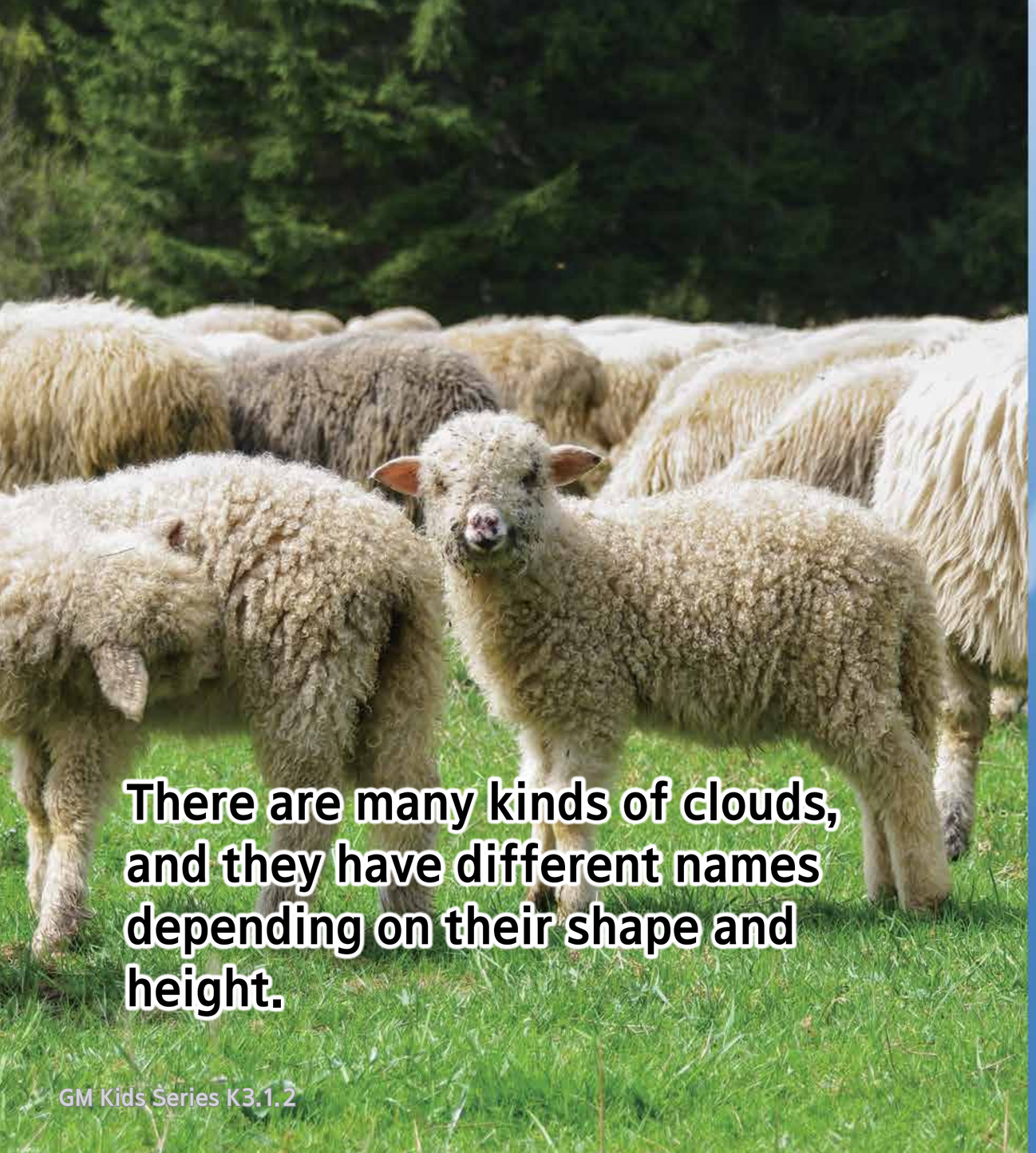
Why do clouds fall slowly?



Clouds are created in updrafts, so the forces trying to rise to the sky and the forces trying to fall to the ground push against each other.

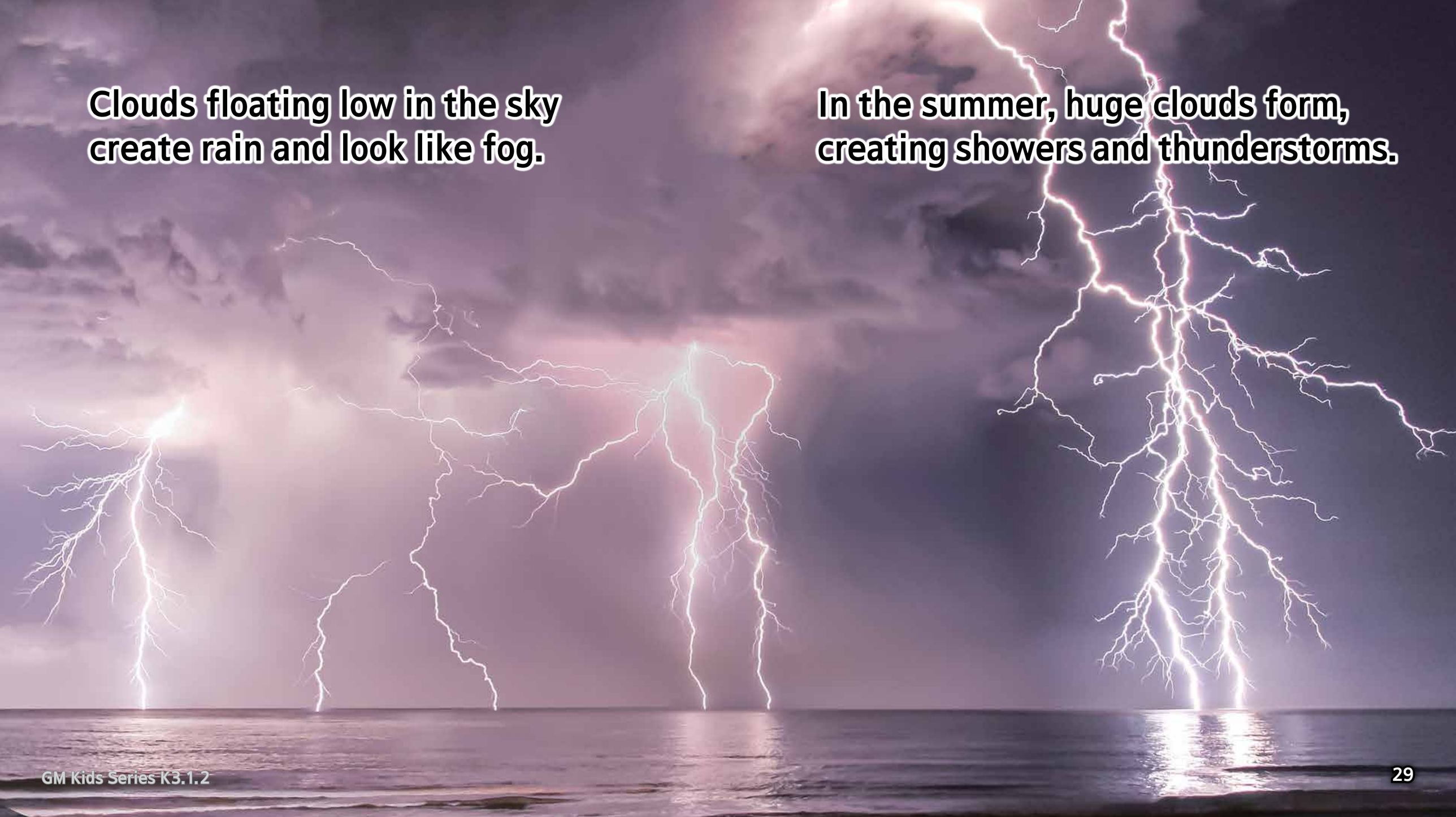
Cloud droplets look like they are still because they are falling very slowly.

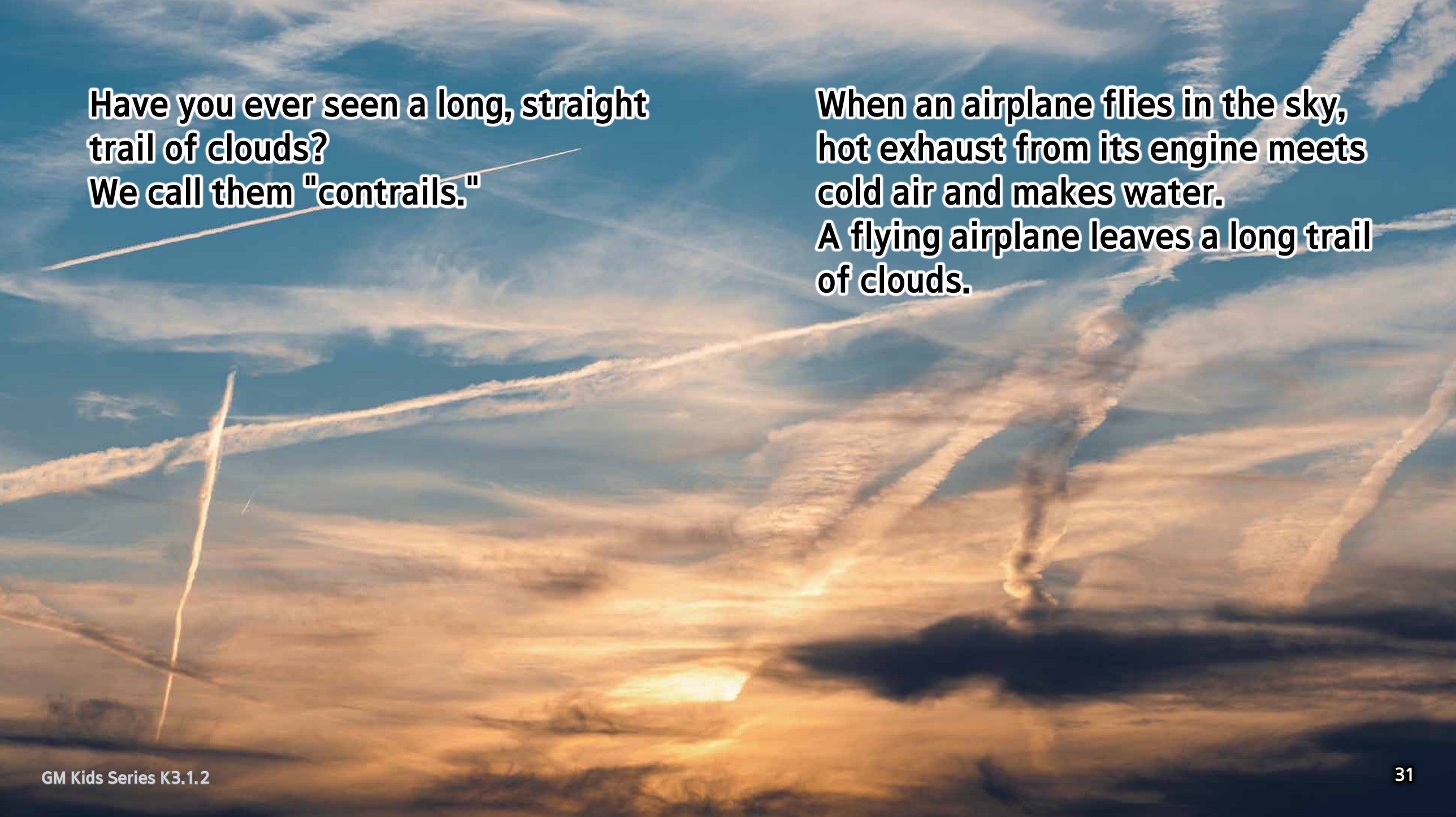
When they become big and heavy enough, they become rain or snow.



There are many kinds of clouds, and they have different names depending on their shape and height.

Clouds that float high in the sky look like wool or feathers.


Clouds floating low in the sky
create rain and look like fog.
In the summer, huge clouds form,
creating showers and thunderstorms.



Have you ever seen a long, straight trail of clouds?
We call them "contrails."

When an airplane flies in the sky, hot exhaust from its engine meets cold air and makes water.
A flying airplane leaves a long trail of clouds.

Clouds in the sky block the hot summer sun.

Now we have learned how clouds in the sky are made.