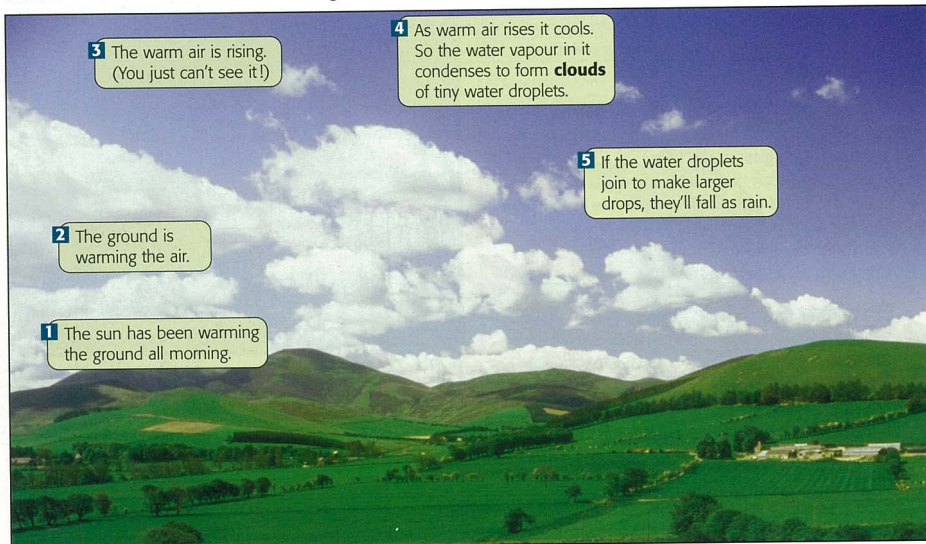


2 Clouds and rain

In this unit you'll learn how clouds form, and about three types of rainfall.

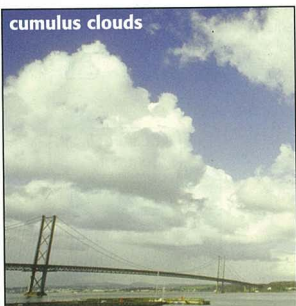
Where do clouds come from?

Look at this photo. It's 3 pm. Warm day. Blue sky. Fluffy clouds. But there were no clouds a few hours ago. Where did they come from?

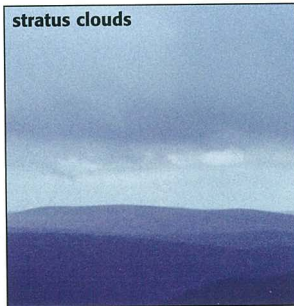


Different kinds of clouds

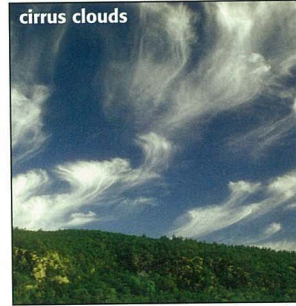
All clouds are formed from water vapour. But they appear in many different shapes and sizes. Here are three important types:



cumulus clouds
Fluffy clouds. They form low in the sky and can bring short, heavy showers. (Some grow into tall dark clouds that bring very heavy rain.)



stratus clouds
Big blankets of dull cloud. They hang low in the sky, and can cover it all. They can give a light drizzle, but no real showers.



cirrus clouds
Thin wispy high clouds (over 6 km up). It's freezing up there, so they are made of ice crystals! They can mean bad weather is on the way.

Three types of rainfall

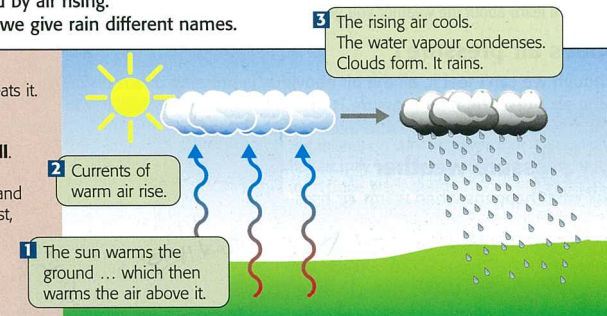
All rain is just water. All rain is caused by air rising. But it rises for different reasons – so we give rain different names.

Convective rainfall

Here the air rises because the ground heats it. It rises in warm currents.

We call these **convection currents**. So we call the rain **convective rainfall**.

In the UK we get convective rainfall inland in summer, where the ground gets hottest, far from the cooling effects of the sea.

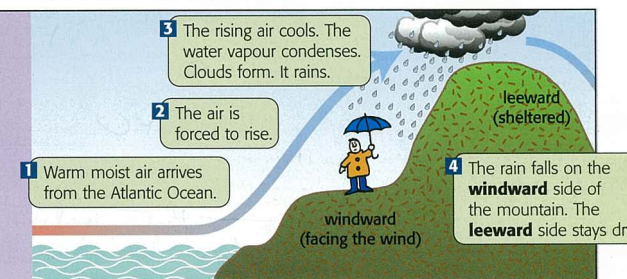


Relief rainfall

Wind is moving air.

When the wind meets a line of high hills or mountains, there's only one way to go – up! So the air rises and cools – and we get rain. We call it **relief rainfall**.

In the UK the prevailing wind is from the south west. So we get relief rainfall on the high land along the west coast.

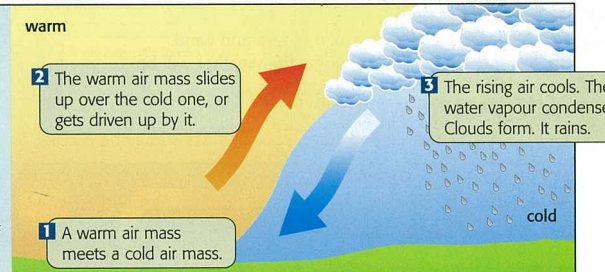


Frontal rainfall

As you'll see in Unit 2.4, huge blocks of air called **air masses** move around the Earth.

When a warm air mass meets a cold one the warm air is forced to rise. So we get rain. This is **frontal rainfall**.

Frontal rain can fall anywhere, since air masses can travel anywhere. But in the UK, they often arrive in from the Atlantic Ocean. So the west of the UK gets a lot of frontal rain.



Your turn

- Look at the clouds in the main photo on page 26.
 - Which type of clouds are they?
 - Why did they form?
 - If it rains, which kind of rainfall will this be?
- To form clouds, two things are always needed. What are they? Choose from this list:
wind rising air mountains hot sun warm ground water vapour
- Can clouds form in the dark? Explain.
- Name a type of cloud which:
 - is made of ice crystals
 - forms a dull blanket and gives drizzle.
- Which type of rainfall is caused by:
 - mountains in the way?
 - a mass of warm air meeting a mass of cold air?
- Write a letter to your friend Gelop on Mars. Tell him what rain is, and why we humans just can't live without it.