



# A Series of Impossible Questions

By Isabel Thomas

## Why Does Rain Smell Rainy?



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Next time it rains, go outside and take a big sniff. After dry days, a rain shower can make the air smell clean, sweet, fresh and earthy – rather like a walk in the woods. Lots of people like this smell and it even has a name – petrichor (say peh-truh-kaw).



It's not the smell of raindrops themselves, because pure water doesn't have a smell. It actually comes from microbes that live in the soil. Every teaspoon of soil contains up to a billion of these tiny living things.



They do a very important job – feeding on dead leaves and other things that were once alive, recycling the minerals that new life needs to grow. As they go about their lives, microbes make an oil called geosmin.

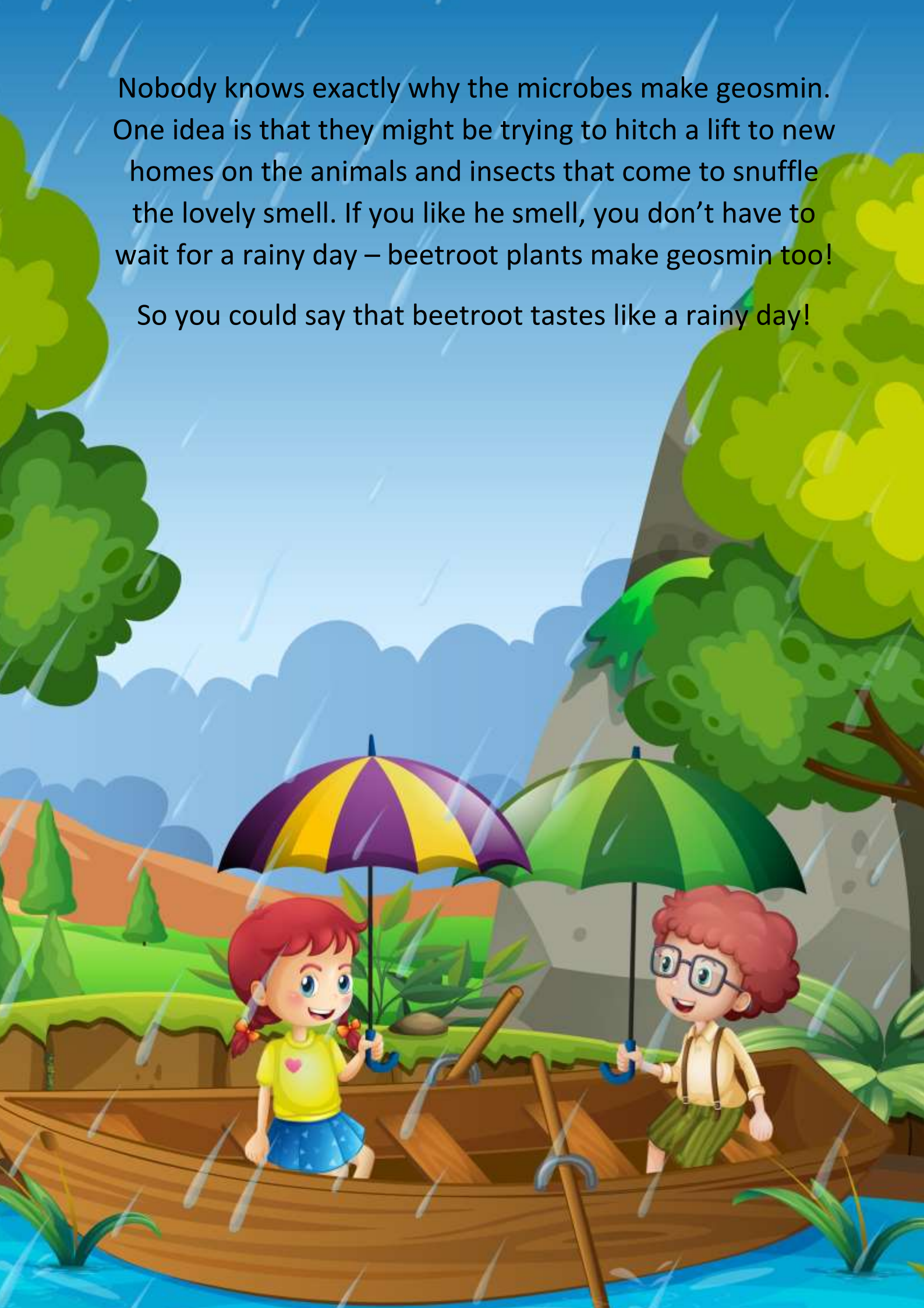


When raindrops splatter on dusty, dry soil, tiny particles of geosmin are thrown up into the air and get carried away on the wind ... eventually reaching our noses!



Nobody knows exactly why the microbes make geosmin. One idea is that they might be trying to hitch a lift to new homes on the animals and insects that come to snuffle the lovely smell. If you like the smell, you don't have to wait for a rainy day – beetroot plants make geosmin too!

So you could say that beetroot tastes like a rainy day!





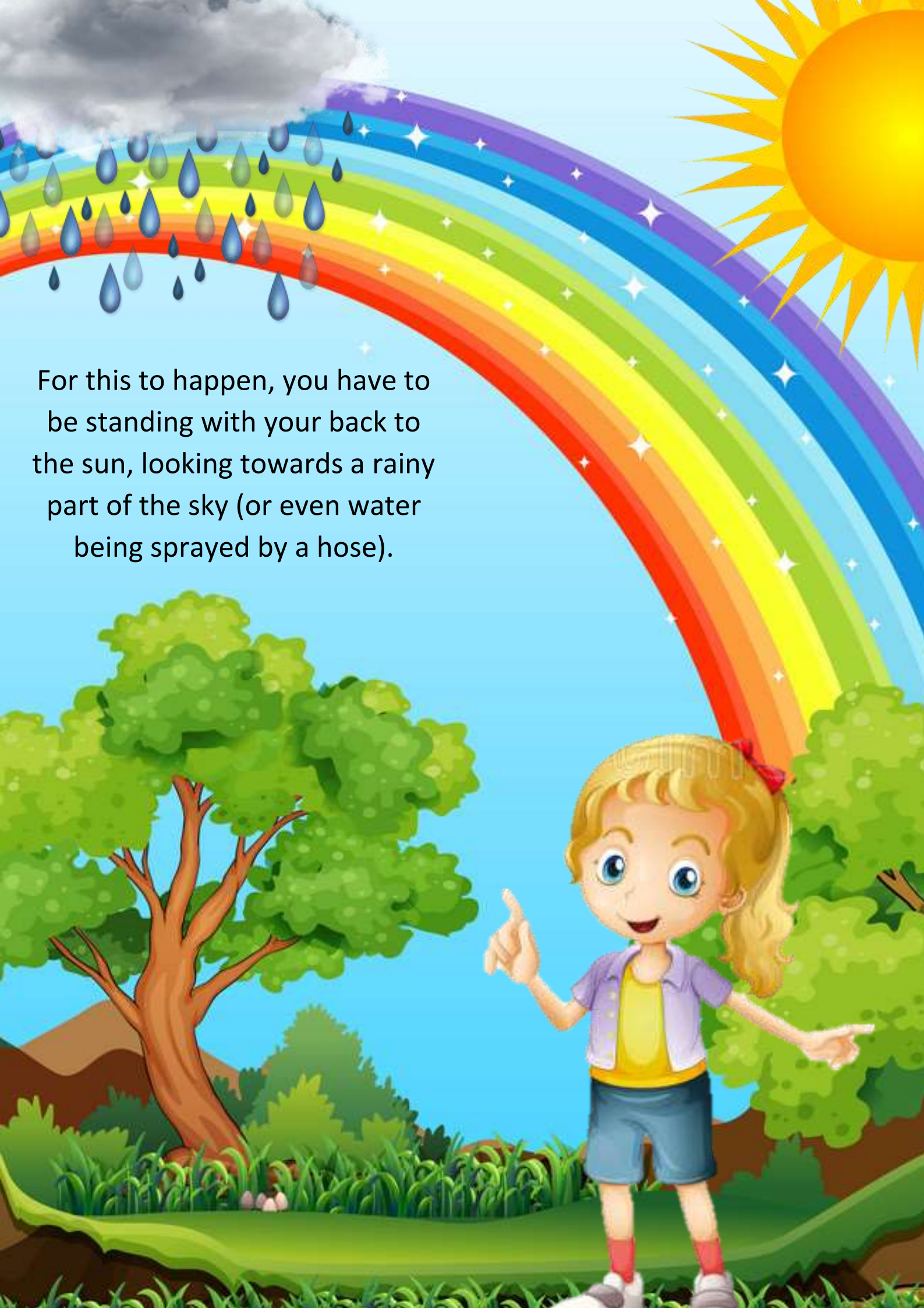
# Could I Touch a Rainbow?



Sadly, a rainbow is not a solid object that we can touch. It's more like millions of moving mirrors made of water. You see a rainbow when sunlight bounces off raindrops towards your eyes.







For this to happen, you have to be standing with your back to the sun, looking towards a rainy part of the sky (or even water being sprayed by a hose).

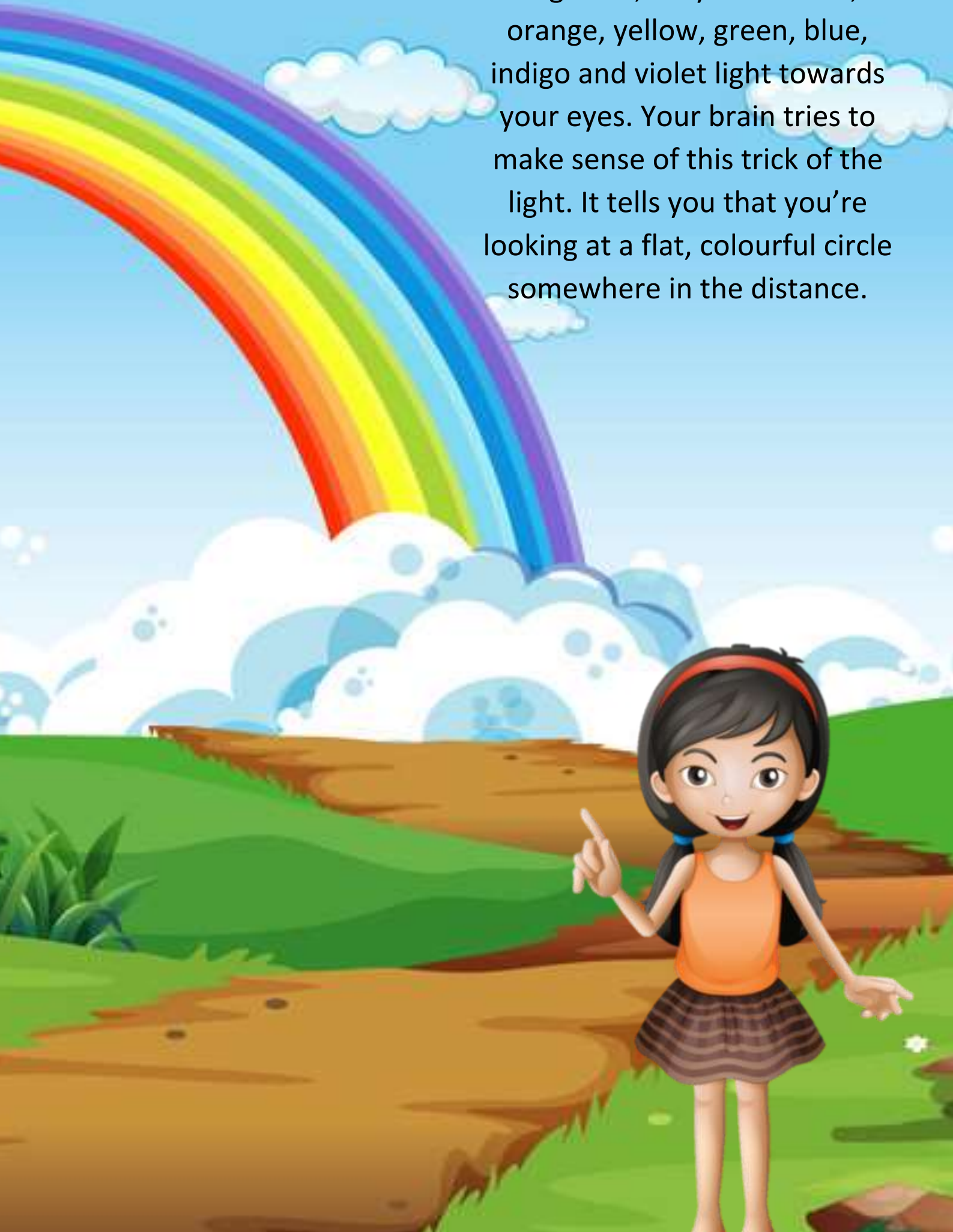
Sunlight is a mixture of different colours. As sunlight travels into a raindrop, it slows down a little and changes direction. This splits the sunlight up into its different colours. The coloured light then bounces off the back of the raindrops, as if it were a mirror.



If you happen to be looking that way, the light reaches your eyes. Each raindrop reflects a single colour towards your eyes, but when you look towards a rainy sky you are seeing millions of drops at once.



Together, they reflect red, orange, yellow, green, blue, indigo and violet light towards your eyes. Your brain tries to make sense of this trick of the light. It tells you that you're looking at a flat, colourful circle somewhere in the distance.



Up close, we can't see the colours reflected by raindrops. So you can't touch a rainbow that you can see. But you could go and stand in the rain that's making a rainbow for somebody else.



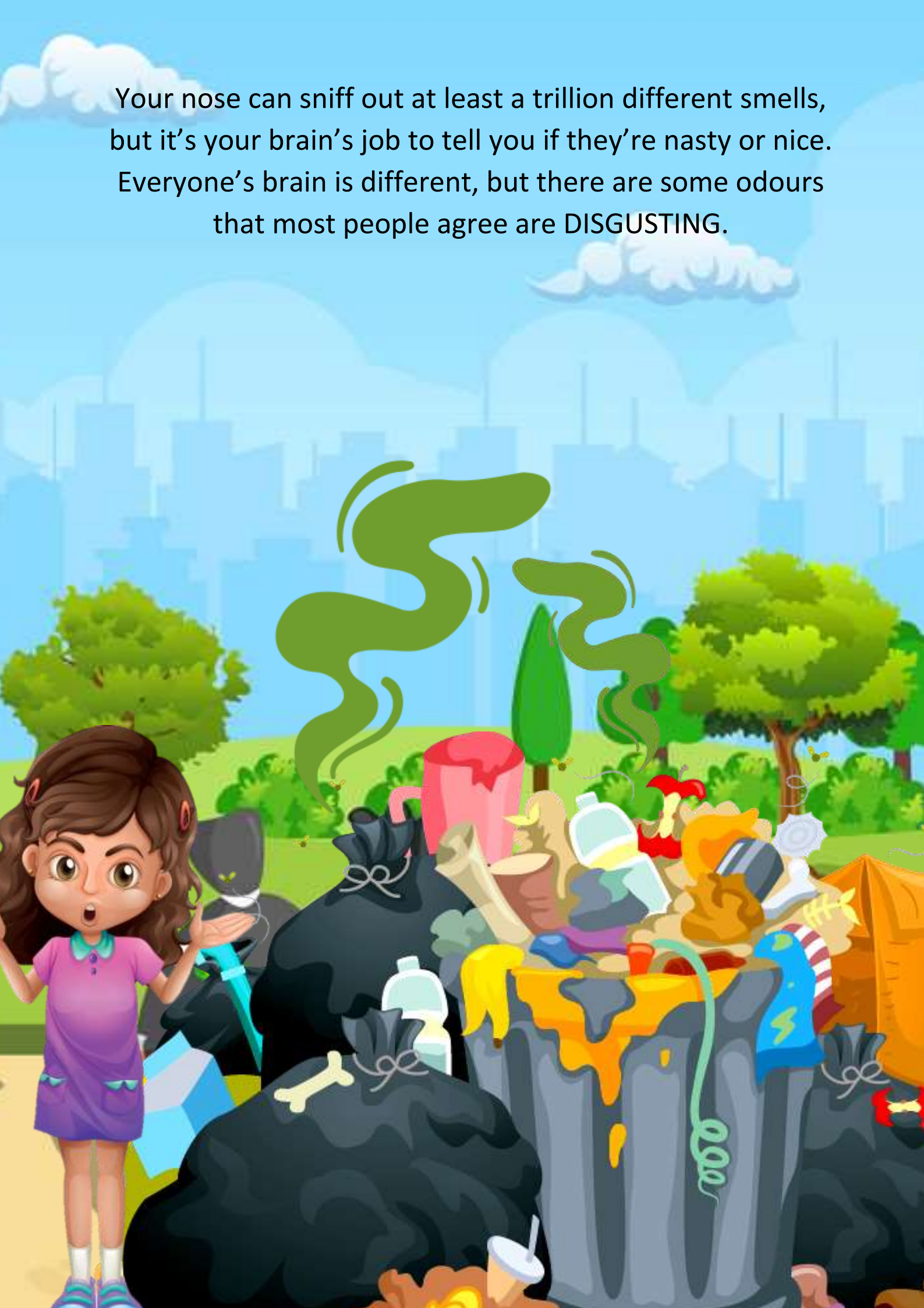
From the ground you only see part of the colourful, circle, which is why most rainbows look like arches.



# What is the World's Worst Smell?



Your nose can sniff out at least a trillion different smells, but it's your brain's job to tell you if they're nasty or nice. Everyone's brain is different, but there are some odours that most people agree are DISGUSTING.





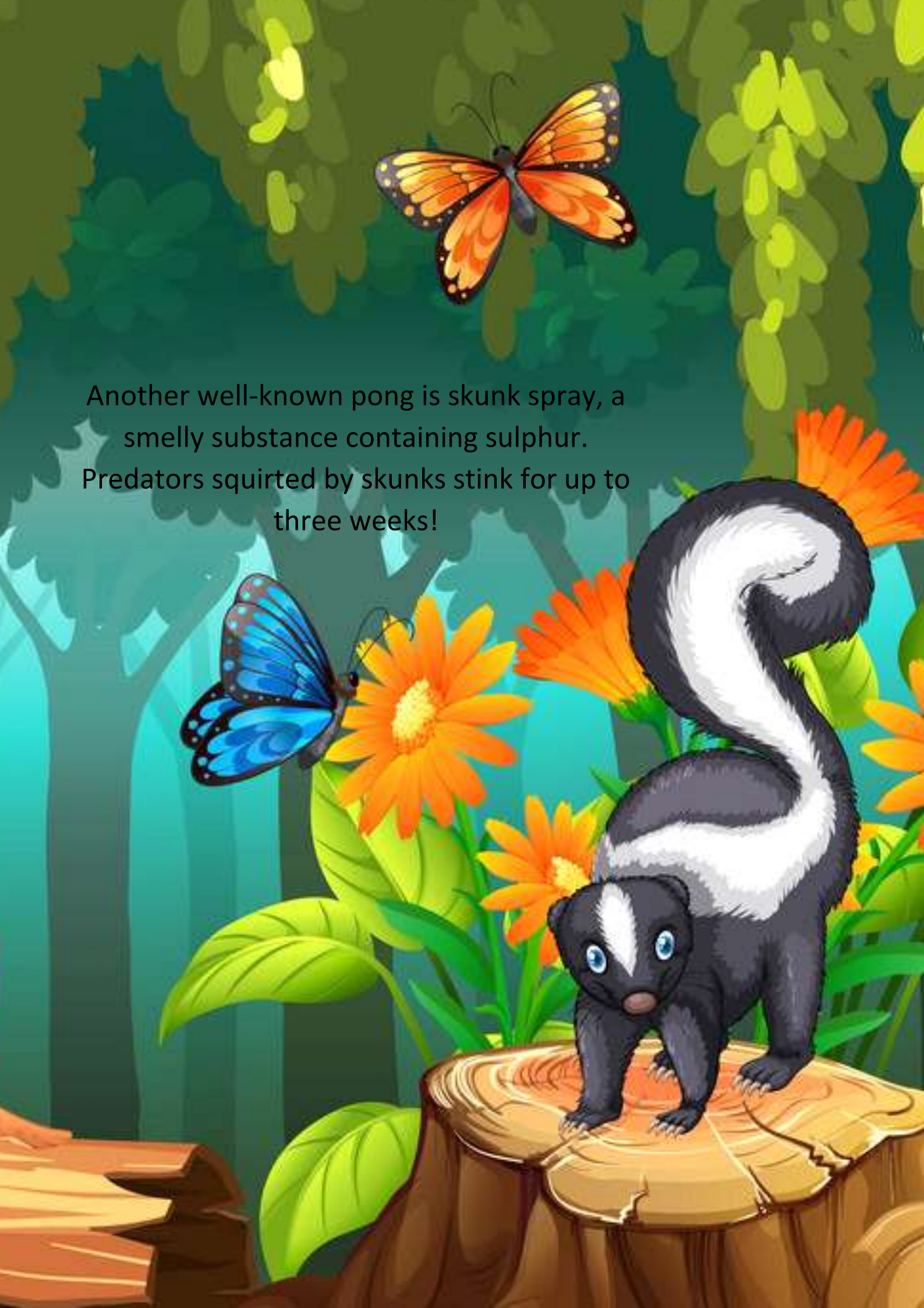
One of these is skatole, the substance that gives  
poo its smell.



Although it's revolting in big doses, a little skatole can smell lovely and sweet – it gives flowers such as jasmine their scent and is even used to flavour vanilla ice cream!



Another well-known pong is skunk spray, a smelly substance containing sulphur. Predators squirted by skunks stink for up to three weeks!



Chemicals that contain sulphur are to blame for lots of other awful smells too, including rotten eggs, stinky socks and farts. But believe it or not, there are even worse smells.



When a metal called selenium combines with hydrogen, it makes a famously foul gas called hydrogen selenide. This is not something you would ever want to sniff – one whiff can wipe out a person’s sense of smell for hours and a big dose can be deadly.



Scientists who have sniffed hydrogen selenide and survived have compared it to rotting radishes, or the smell of six skunks and a burning tyre. What's the worst whiff you have ever sniffed? How would you describe it to somebody else?





# Why do we Need Two Ears?



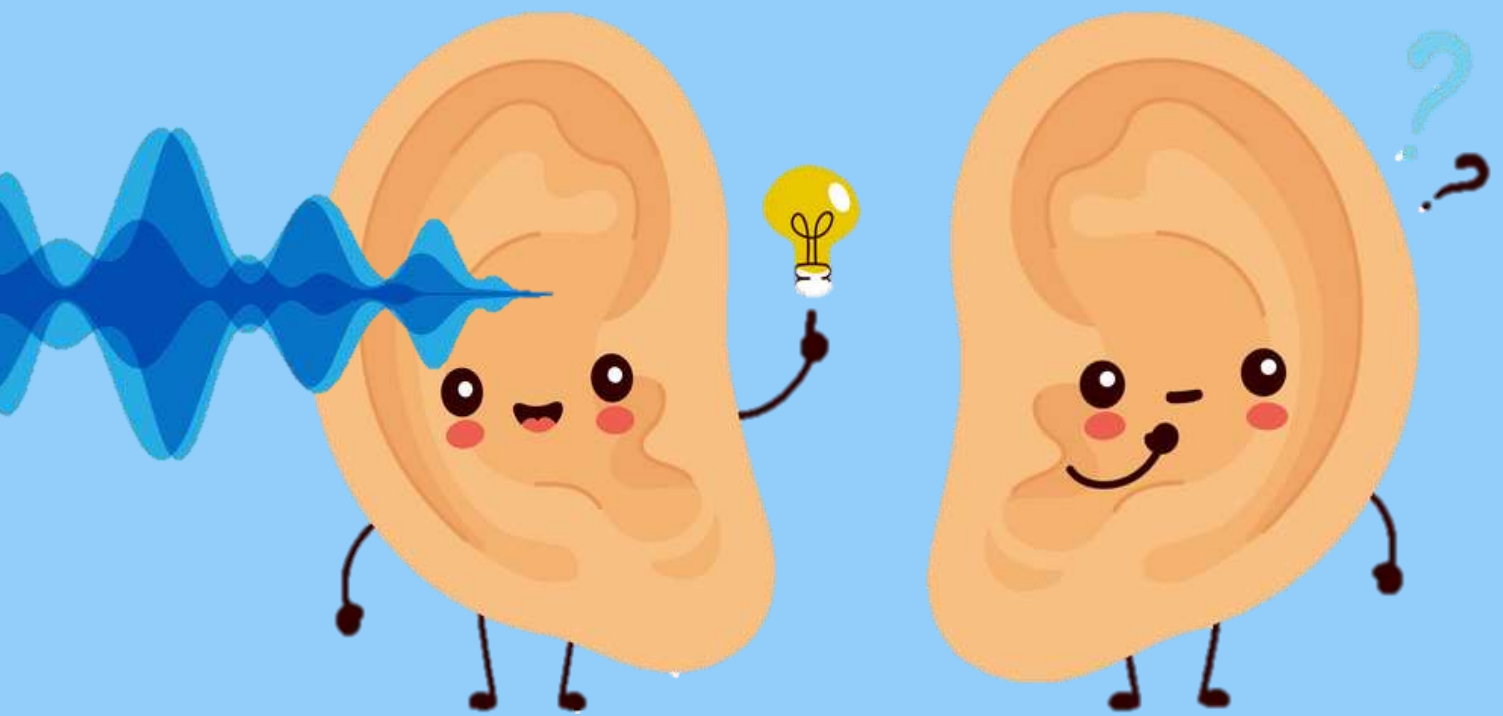
Have you ever listened to a bedtime story while lying on a pillow? Perhaps you're doing it right now. Even with one ear blocked or covered, we can still hear pretty well. So why do our bodies go to the trouble of growing too?





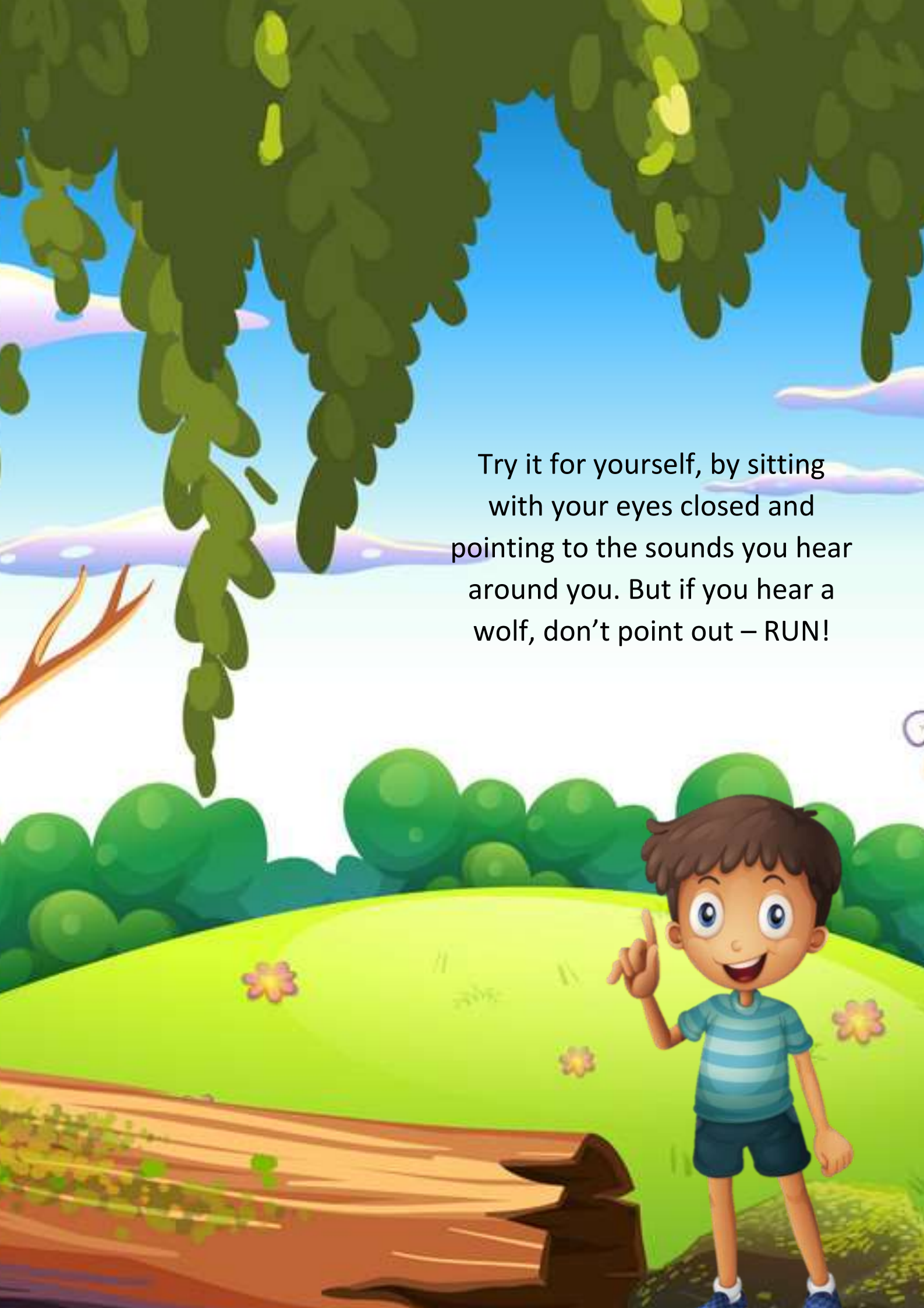
Well, imagine you are Little Red Riding Hood, strolling through a dark, dark forest. Suddenly you hear a rustle and growl. You can't see the wolf, but thanks to your two ears you can hear exactly where the sound is coming from – and run in the other direction.





Because your ears are on opposite sides of your head, each one collects slightly different sounds. So if a twig snaps to your left, your left ear will hear the sound just before your right ear does, and a little more loudly. Your brain quickly compares the information from both ears to work out where the sound is coming from.





Try it for yourself, by sitting with your eyes closed and pointing to the sounds you hear around you. But if you hear a wolf, don't point out – RUN!



# How Many Words are There?



At least 7000 different languages are spoken around the world, and each language has thousands (or even hundreds of thousands) of words. It's impossible to count them all, but people who write dictionaries try their best.



The Oxford English Dictionary is one of the chunkiest. It lists more than 170,000 words in the English language. But English and other languages are always changing – people stop using some words and invent new ones.



Anyone can invent a word, but it only becomes part of a language once it's used and understood by other people.



An English writer from the 1600s called William Shakespeare was brilliant at introducing new words – ‘bedroom’, ‘eyeball’, ‘hurry’ and ‘lonely’ are just some of the 1700 words that he made popular.





In ten years' time we'll all be using words that don't exist right now. Perhaps you'll even invent some yourself?



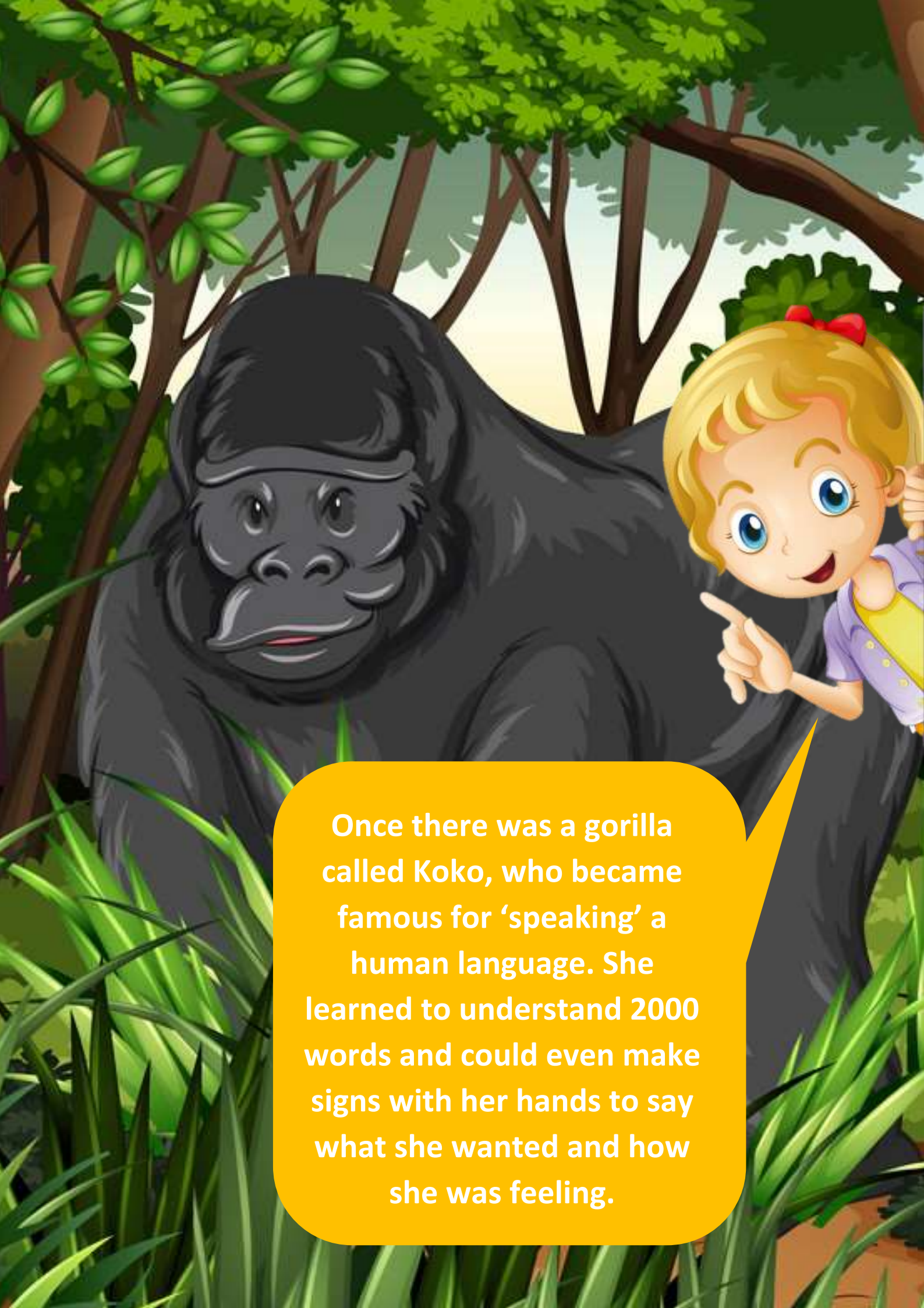
What do we need a new word for? Try inventing one. You could change the meaning of an existing word or put two words together to make a brand new one.





# Can I Learn to Speak to Animals?





Once there was a gorilla called Koko, who became famous for 'speaking' a human language. She learned to understand 2000 words and could even make signs with her hands to say what she wanted and how she was feeling.

Humans don't seem to be as good at learning to understand the sounds that animals make, but many scientists think it's possible if we try.



Most of us only hear simple squeaks, chirps, barks or growls when we listen to animals.



However, scientists who have spent weeks or months with animals such as prairie dogs, bonobos and dolphins, have discovered that these animals use lots of different sounds to 'say' different things.



One scientist even counted eleven different noises made by a group of guinea pigs. They whistle when hungry, thirsty or scared, chut when they are exploring and when they want to raise the alarm.





We'll probably never be able to gossip with a guinea pig or chat with an orangutan, but one day we may be able to listen in on the secrets that animals tell each other.





# How do we Know That Unicorns Have Never Existed?



We can all describe a dinosaur or doodle a unicorn, even though we've never seen either in real life. But how do we know the dinosaurs once stomped about the planet, while unicorns exist only in myths, legends and our imaginations?



It's impossible to travel back in time, but we can use fossils to work out which animals used to live on Earth. Fossils form when part of an animal – like a bone or a footprint – gets preserved in rock.



If we find a fossil, we know that the creature that it came from must have once lived on our planet. We can even work out when that animal lived by measuring how old the rock is.



Humans have found fossils from about 800 different types of dinosaurs, but no one has ever found a unicorn fossil. Until we do, our best theory is that unicorns are not real.



So, where do all the stories come from? Why do unicorns pop up everywhere, from pyjamas to coins?



People have been telling unicorn stories for thousands of years. One of the first came from ancient Greek book, which describes a huge, white horse with a colourful horn in the middle of its forehead. It wasn't a story book – the author thought unicorns were completely real!





More than 1000 years later, the famous Italian explorer Marco Polo also wrote about seeing real unicorns. In the days before cameras were invented, these tales would have been easy to believe.

Marco  
Polo



After all, a horse with a horn doesn't seem that strange compared to a giant beast with a nose that works like a hand (an elephant) or a green, clawed reptile that can swallow a person whole (a crocodile). And there really are animals with horns on their foreheads, such as narwhals and rhinos.



Perhaps Marco and other adventures had seen one of these, and just weren't very good at describing it. We still love to tell unicorn stories, but we don't have to go far to find real-life animals that are just as magical.





# THINK

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