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ALL THAT FLIES, WITH OR WITHOUT FEATHERS



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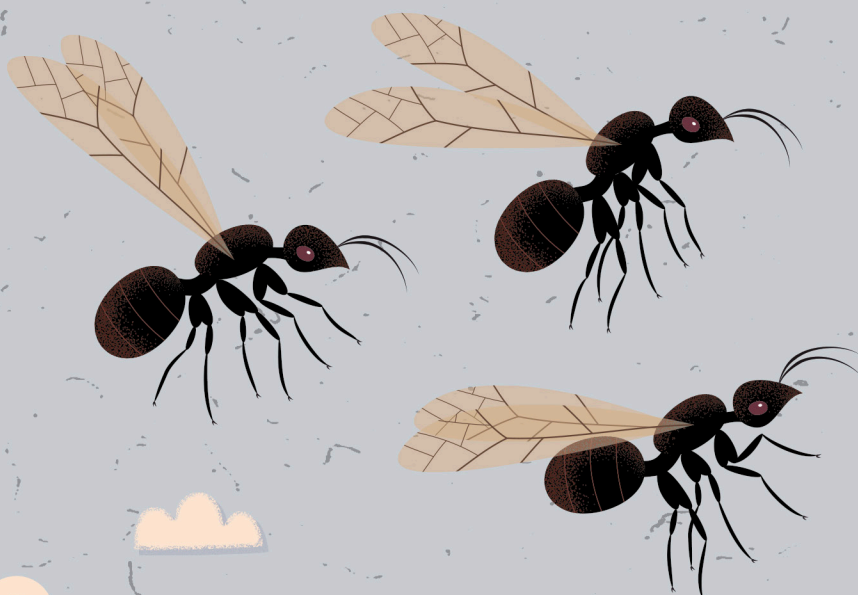
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FLYING INSECTS



↑ FIREFLY

With most species of fireflies, only the males fly. They are like flying chemical factories for cold light. That's right, their light gives off no heat. Which means that it lasts much longer than a light bulb, for instance.



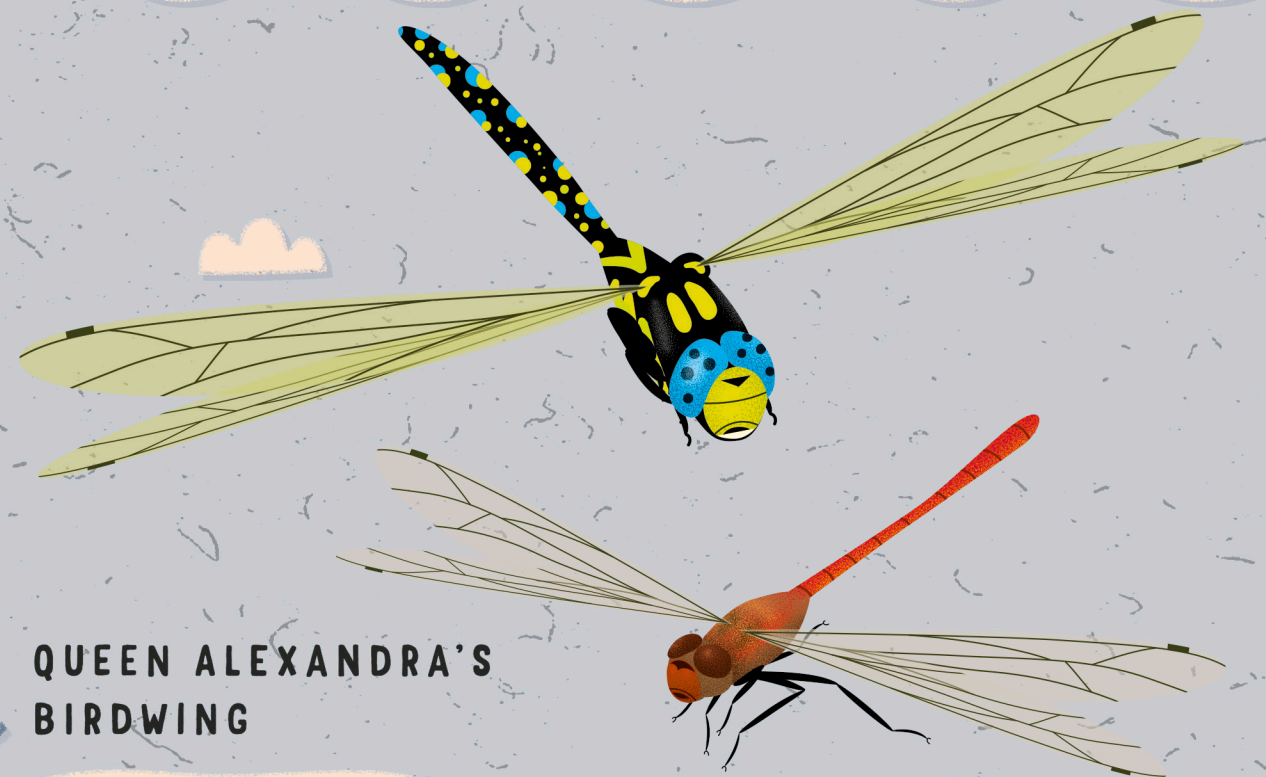
← FLYING ANTS

Ants can't fly, you say? Wrong! They are cousins of bees, wasps and bumblebees. But only those that become mothers/queens and fathers of future worker ants grow wings (and the queen enjoys but one flight before her wings fall off).



↓ QUEEN ALEXANDRA'S BIRDWING

This beauty's wingspan is like that of a small bird. It flies about the primeval forests of Papua New Guinea. And as its caterpillar gorges on poisonous plants, the adult butterfly, too, is poisonous. So don't put it in your mouth!



← DRAGONFLY

A little helicopter, you say? No, it's a dragonfly! And maybe it's the cleverest insect flyer of all. It can move each wing separately, stop mid-flight, and it can even go into reverse!



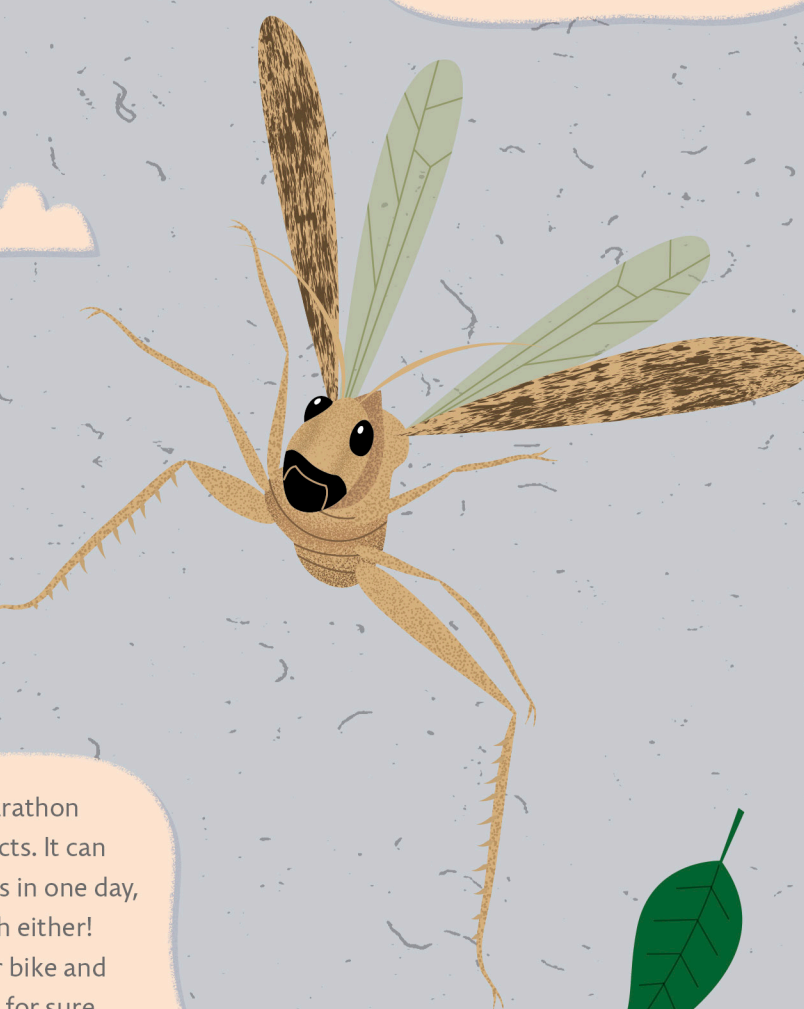
↑ BEE

Wings are an ingenious invention, aren't they? Do you know that it's got four of them? Two at the front and two at the back. In flight, they join to make triangles, and they flap 230 times in one second. Just try counting that!



↑ STAG BEETLE

Look at me! I'm flying just like an aeroplane! I fly slowly, but I make a lot of noise while I'm doing it. I'm Europe's biggest beetle, so I'm pretty sure you'll notice me. My jaws look like the antlers of a stag.



← LOCUST

This locust is the marathon runner of flying insects. It can cover 200 kilometres in one day, and it's no slowcoach either! Why not get on your bike and race it? It'll beat you for sure.



PREHISTORIC BIRDS

→ PTERODAUSTRO

Surely this large, toothy duck isn't a pterosaur too? It is, you know. Although it had fur instead of feathers, it could fly. It must have been quite friendly as well—scientists believe it lived and flew around in a flock. pterodaustro looked like a flamingo.

→ ARCHEOPTERYX

What looks like a bird but isn't? Archeopteryx! This feathered dinosaur was the same size as today's pigeon. Scientists still don't know what its wings were for, but they certainly weren't just for show. We know it came down to earth from trees and rocks, where it built its nest.

↑ ARAMBOURGIANIA

Have you ever seen a flying white giraffe? No? Then imagine adding wings to an animal the size of a giraffe. What you get is Arambourgiania, one of the largest pterosaurs of all time.

↑ BAKONYDRACO

This was more than just a pterosaur, it was a dandy of the prehistoric skies. That head looks pretty fashionable, doesn't it? It must have been a real hit in prehistory!

→ PTERANODON

Toothless wing – that's how the name of one of the best-known prehistoric pterosaurs translates. But it could just as well have been named 'head steerer'. There was a distinctive crest on its head which scientists believe controlled the course of its flight.

↘ QUETZALCOATLUS

Quetzalcoatlus was like a little prehistoric airbus. Imagine it as an enormous stork, with a long neck and an elongated beak. How amazing that such a large, heavy creature could fly! This pterosaur lived 70 million years ago.

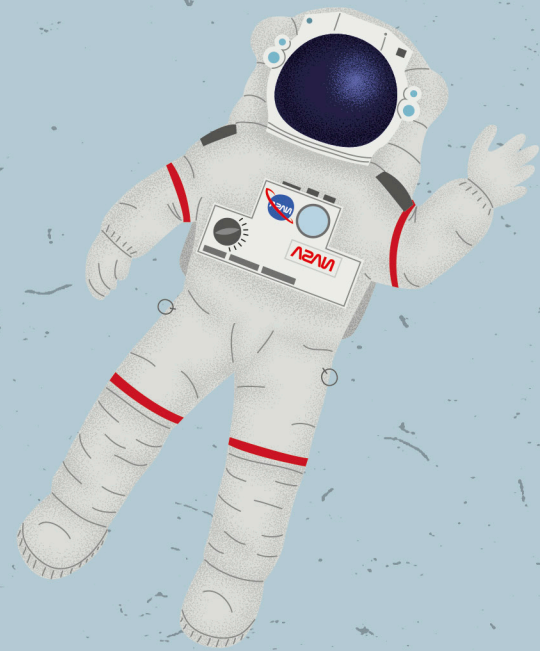
↑ TUPANDACTYLUS

Wowee! This pterosaur was a real flying beauty. The enormous multicoloured crest on its head was used to give different signals. Do you like this prehistoric dandy?

→ LIAONINGOPTERUS

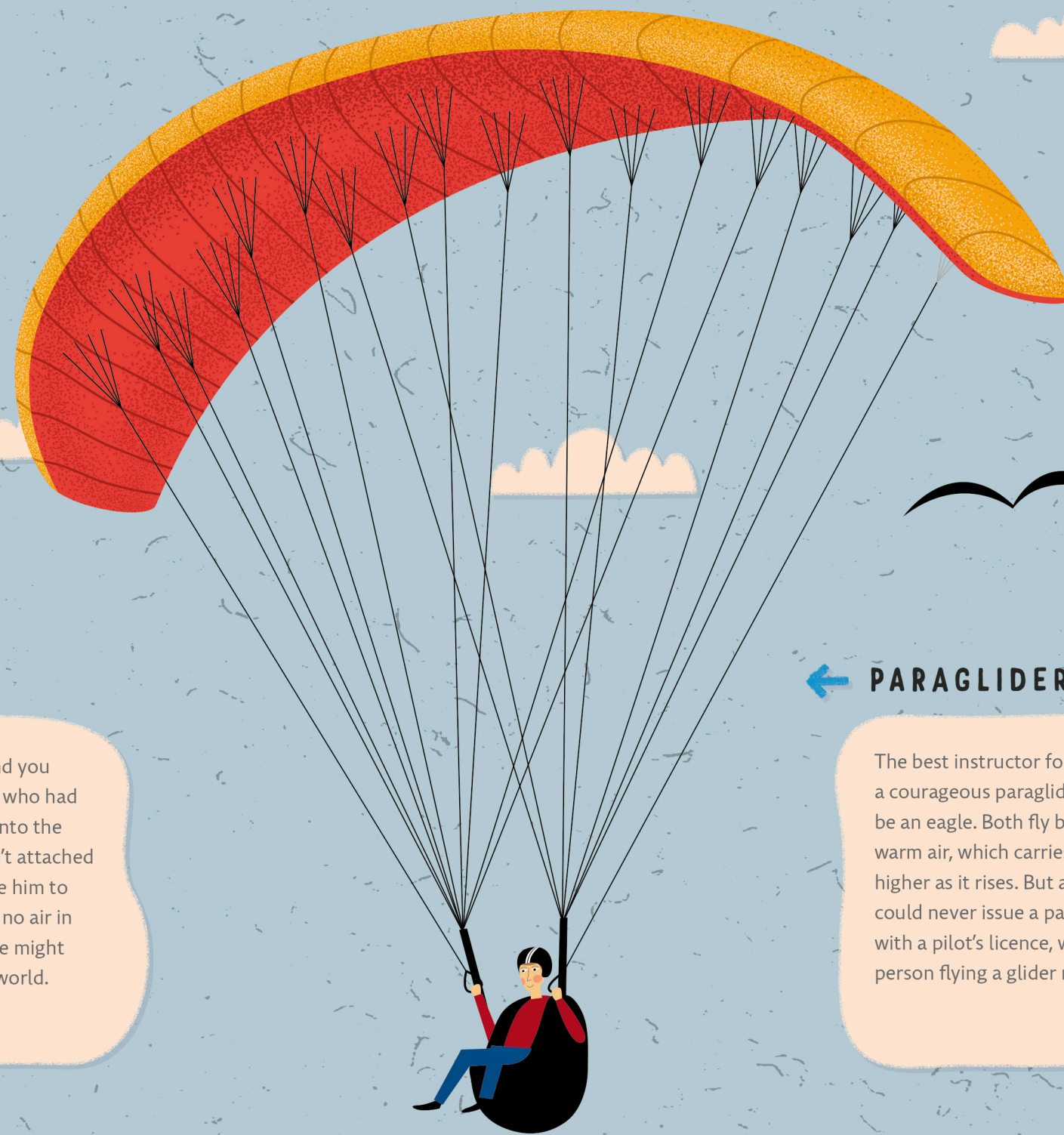
A flying piranha, you say? No, it's another pterosaur. This one flew above the territory of China. But those teeth are something else, aren't they? Scientists describe the teeth at the front of its jaws as the largest of any pterosaur ever.

FLYING PEOPLE



← ASTRONAUT

If you were out in space and you bumped into an astronaut who had stepped out of his rocket into the open cosmos, and he wasn't attached to his ship, you could cause him to orbit the Earth. As there is no air in space to slow him down, he might even fly to the end of the world.



← PARAGLIDER

The best instructor for a courageous paraglider would be an eagle. Both fly by using warm air, which carries them higher as it rises. But an eagle could never issue a paraglider with a pilot's licence, which every person flying a glider must have.



← PARACHUTIST

How crazy people look when they jump out of an aeroplane with just a backpack! But there's no need to worry about them—that backpack contains not a snack and a raincoat, but a parachute, which moments after they jump slows their free fall and turns it into elegant flight.



→ HANG-GLIDER PILOT

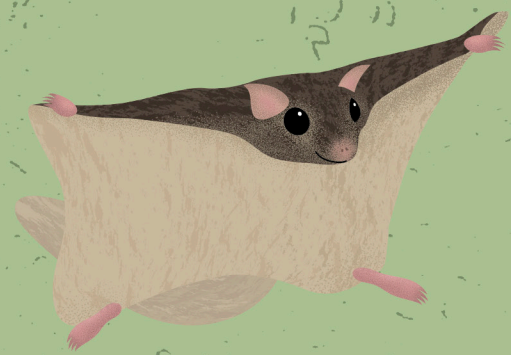
No steering wheel, joystick, brake or accelerator. All hang-glider pilots must manage is the tilt of the vehicle. If they wish to go faster, they must lean forward. It is possible for them to go as fast as a car on a motorway.



← WINGSUIT BASE JUMPER

What's this big, multi-coloured possum? The world has never seen anything like it. Well, it's a person copying the way a possum glides. But the possum's flying membrane has been replaced with a special suit.

FEATHERLESS CREATURES



BAT

Anyone who doesn't believe that a creature without feathers can fly should look at the bat! It can indeed fly, using sound to navigate by. It emits a sound, picks up its ears and waits for a sound to be echoed back. The echo might tell it, "Watch out, tree! Fly a little to the right."

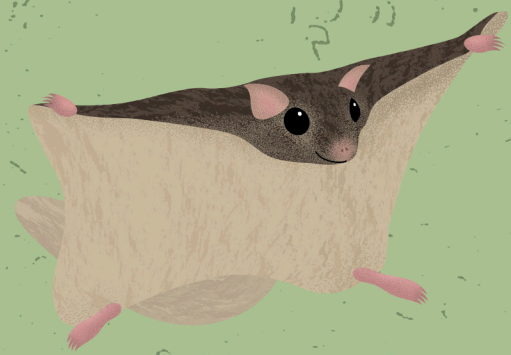


GIBBON

This isn't a swing, it's a monkey. Thanks to its long arms, not only can the gibbon swing from branch to branch, it can fly up to ten metres through the air. This swinging, flying way of movement is called brachiation.

FLYING PHALANGER

This animal can turn itself into a hang-glider. Folds of skin between its front and back limbs allow it to take to the air just by breaking into a run and spreading out all its limbs. By using its muscles, it is even able to steer, so there's no danger of it crashing into another phalanger.



CHEETAH

One of the world's fastest animals, the cheetah wouldn't let any human sprinter anywhere near the medals. It runs so quickly that it barely touches the ground—basically, it flies. It can jump up to seven metres, but it does this for food rather than medals. Cheetahs fly at their prey.



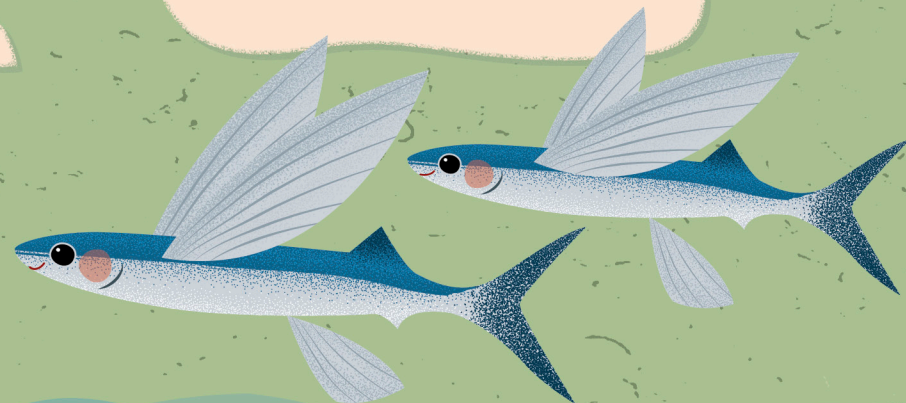
FLYING SPIDERS

These spiders are like glider pilots. And they really are called aeronauts. But instead of using a plane, they release a strong thread, sit at the end of it and wait for sunny weather with a light breeze, which will help them take to the air.



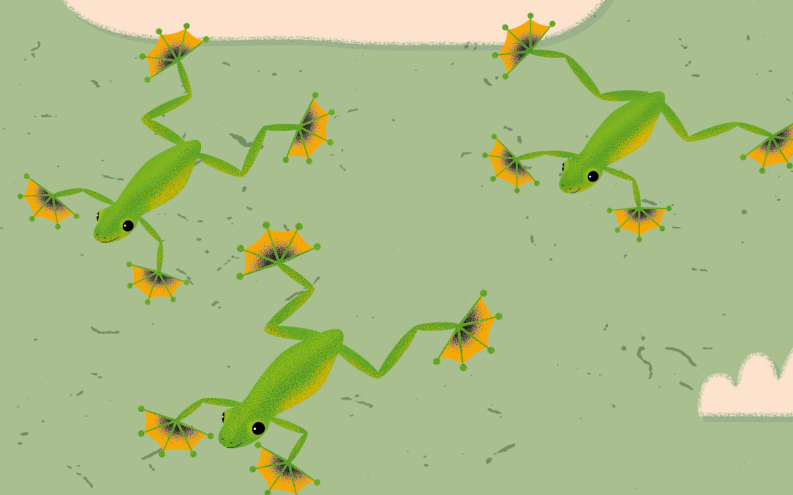
FLYING FISH

Flying fish are driven from the water into the air by fear of their enemies. When chased in the sea, they shoot up into the air, spread out their pectoral fins and fly like paper aeroplanes. They can travel several hundred metres through the air like this.



FLYING FROGS

Get ready to jump, set, go! This frog uses the webbing between its front and back limbs not only in water but also in the air. This enables it to glide from tree to tree over distances of up to twenty metres. So they can live high above the ground.



SENEGAL BUSHBABY


If we could jump like this small nocturnal primate, we would be able to leap over a large football stadium. And that's more of a flight than a jump. So how does the bushbaby do it? Nature has given it strong, nimble legs and a long tail for steering with.




FRUIT BAT

The fruit bat is a cousin of the bat. Like the bat, it has wings but no feathers. Some fruit bats are friends of the bee. They love sweet nectar and pollen of tropical flowers, which they pollinate as they feast. The fruit bats have sharp teeth so they can penetrate the skin of fruits.





I fly, you fly, we all fly! That's what the people, animals, plants and things on every page of this book say, because it's nothing other than a book about flying and hovering. It's as clear as day that birds and butterflies are good flyers, but what about fish and gibbons? Take a look with us at who and what is a great flyer, and how they do it. This fun book is filled with blue sky accompanied with fluffy clouds here and there — and it's all ready for you to explore. Stretch your muscles, prepare to jump and voila! You're now flying. As you fly along, you'll see lovely pictures, and maybe you will overcome your fear of heights (in case you do fear them).

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