DK findout!

Reptiles and Amphibians

What do you want to findout?

Fun Facts, Amazing Pictures, Quizzes

DK findout!

Reptiles and Amphibians

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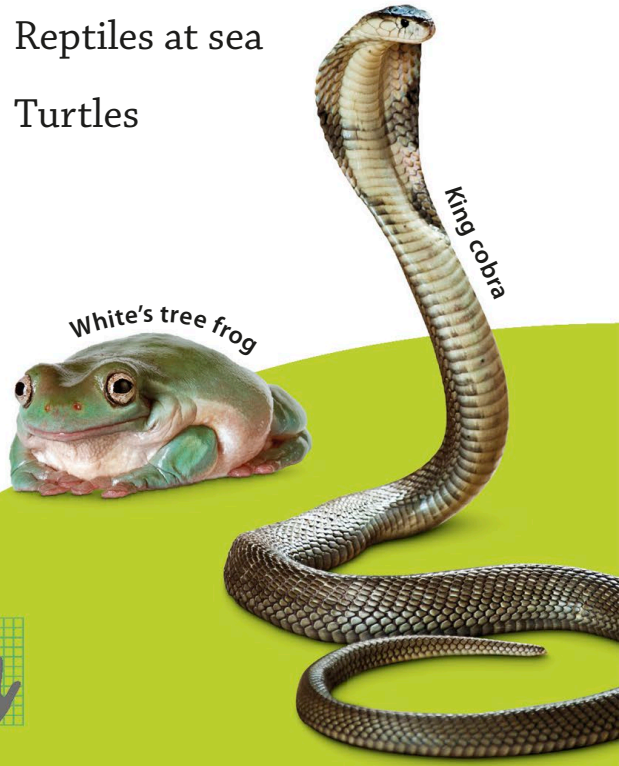


The scale boxes throughout the book show you how big a reptile or amphibian is compared to a person who is 6 ft (1.8 m) tall or a hand that is 7 in (18 cm) high.

» Scale

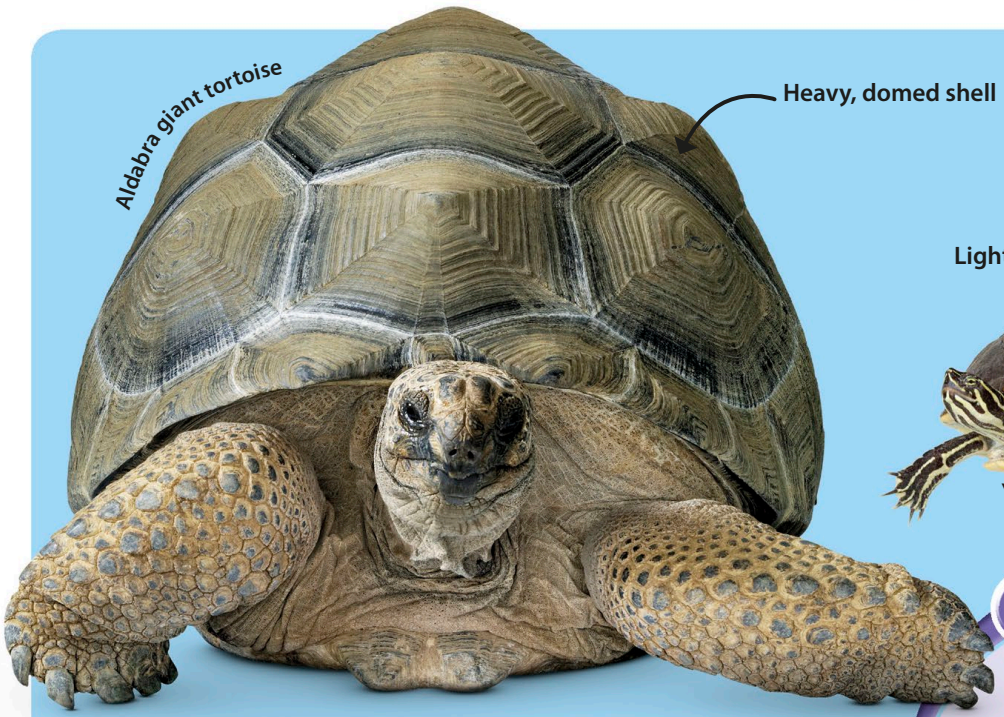
» Scale

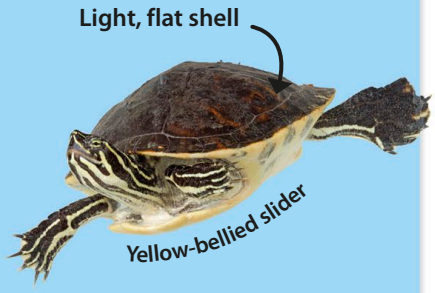
What is a reptile?

There are five different groups of reptiles, and they come in a wide range of shapes and sizes. Reptiles all have a backbone, they are covered in scales or hard armor, they are cold-blooded, and most of them lay eggs. A reptile's scales are made of the same substance that is found in our fingernails!

5 REPTILE TYPES

1. **Lizards:** 6,263 species
2. **Snakes:** 3,617 species
3. **Turtles and tortoises:** 346 species
4. **Crocodilians:** 25 species
5. **Tuataras:** One species!





Turtles, tortoises, and terrapins

Tortoises live on the land and have domed shells and stumpy legs. Turtles live in the water, have flatter shells, and feet like paddles. Turtles that live in fresh water are sometimes called terrapins.

! WOW!

There were **tortoises** on Earth before the **dinosaurs**!

Snakes

Snakes have no legs, so they move by slithering along, or climbing. Snakes never stop growing. They eat other animals and swallow their prey whole.

Burmese python

Burmese pythons can grow up to 13 ft (4 m) long.

Eurasian blindsnake

Crocodilians

The crocodilian family includes alligators, crocodiles, gharials, and caimans. They are all hunters that can live in water and on land, but they are different sizes and shapes.

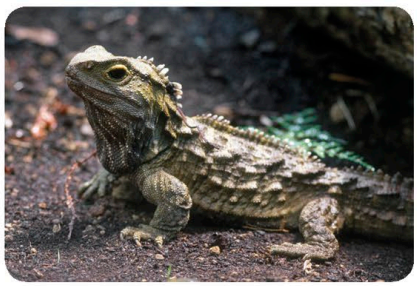
Saltwater crocodile

Crocodiles have teeth that stick out over their jaws.

Spectacled caiman

Tuataras

There is only one kind of tuatara, as all its relatives became extinct 60 million years ago. The tuatara looks like a lizard, but can survive in much colder temperatures and live to well over 100 years old.



Tuatara in a New Zealand forest

Lizards

By far the most common reptiles are the lizards, which live on every continent except Antarctica. This group includes chameleons, geckos, monitors, iguanas, and skinks, among others.

Parson's chameleon

Fringe-toed lizard

Eyes move separately, so they can look in different directions.

What is an amphibian?

Amphibians evolved from fish millions of years ago. They are divided into three kinds: frogs and toads, newts and salamanders, and caecilians. They all share a few common features.

Backbone

Amphibians are vertebrates, which means they have a backbone. Salamanders, newts, and caecilians have tails, but frogs and toads do not.

Life cycle

Most amphibians start life in the water as eggs that are covered in a kind of jelly. As they grow, most species develop limbs and lungs so that they can move and breathe on land.

No scales

An amphibian's skin is moist and thin. This allows it to breathe through its skin, but also means that the skin dries out quickly. This means that most amphibians live in damp places.

Gills

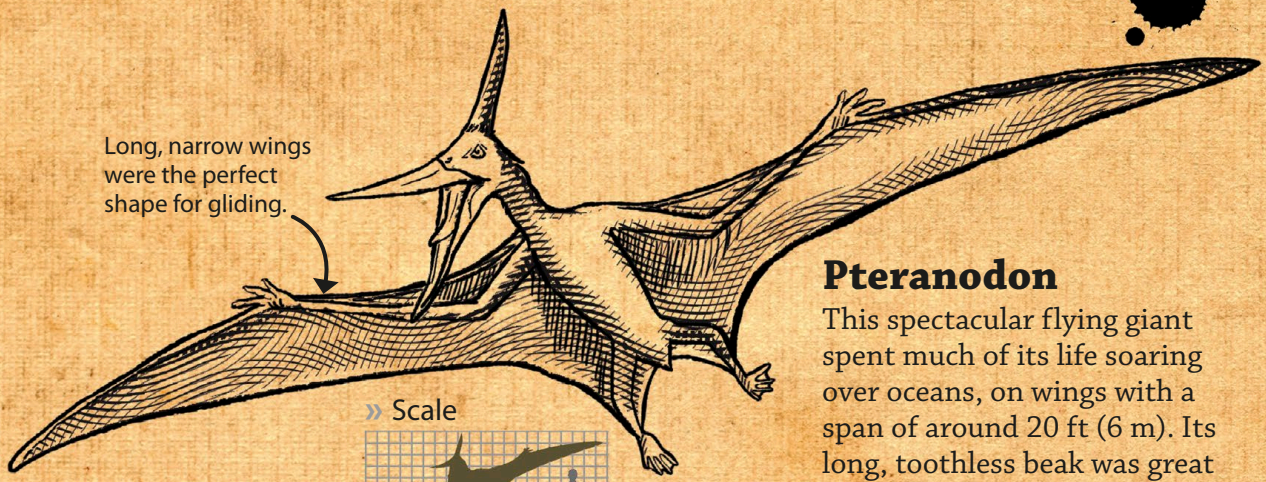
Amphibian babies breathe through gills, like fish. Some salamanders, like sirens, keep their gills their whole life, but most lose them and grow lungs, so that they can breathe on land.

Cold-blooded

Amphibians' bodies are the same temperature as their surroundings. They cannot make heat inside their bodies, so they have to warm themselves up in the sun.

Ancient relatives

Reptiles first appeared on Earth about 450 million years ago. They evolved from the first amphibians, which emerged when fish with leglike fins crawled onto land about 50 million years earlier. Some modern reptiles, such as crocodiles, look very similar to their ancient relatives.



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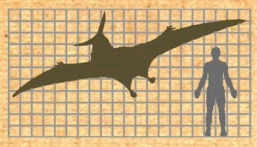
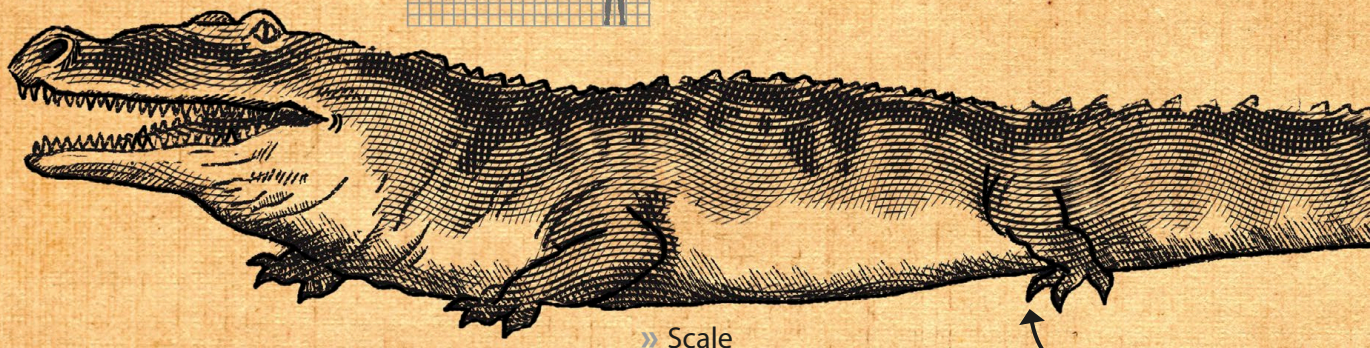


Pteranodon

This spectacular flying giant spent much of its life soaring over oceans, on wings with a span of around 20 ft (6 m). Its long, toothless beak was great for scooping up small fish.



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Deinosuchus

Although not as quick on land as today's alligator or crocodile, *Deinosuchus* became a fast-moving killer in water. Its powerful jaws, lined with lots of spiky teeth, were strong enough to grab any mid-sized dinosaur grazing near the river bank.

Titanoboa

This was one of the biggest and heaviest snakes to have ever lived. With a 49-ft (15-m) long, 3-ft (1-m) wide body of solid muscle, it weighed as much as a small car!

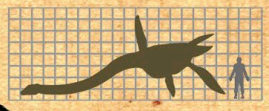
» Scale

A stretchy jaw let the mouth open incredibly wide to pull in huge prey.

Albertonectes

The 23-ft (7-m) long neck of this huge sea reptile contained more bones than any other animal neck ever—76! Four powerful flippers propelled it through the sea.

» Scale



A smooth coat of small, closely packed scales helped *Albertonectes* move easily through water.

Carnivores and herbivores

Animals that eat other animals are known as carnivores, while those that only eat plants are known as herbivores. All adult amphibians, crocodilians, and snakes are carnivores. Most lizards and turtles are also carnivores. Some lizards and most tortoises are herbivores. A few reptiles eat both plants and animals, and are called omnivores.

Crocodilian

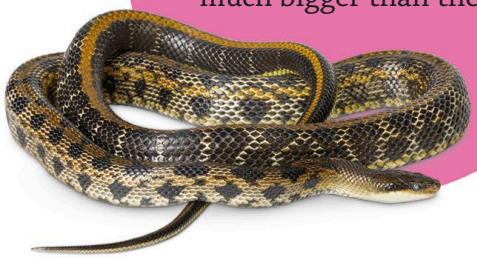
Crocodilians are carnivores. Their powerful jaws will snap at any animal that gets too close, including birds and other reptiles. Some also scoop up fish and amphibians.

Tortoise

Like most herbivores, tortoises live mainly on a diet of grass, leaves, fruit, and flowers. Young tortoises will also eat insects.

Snake

Snakes are carnivores, and eat a wide range of animals, including mice. They have stretchy jaws, so can swallow animals that are much bigger than they are!



REALLY?

Some African snakes eat only eggs. They are swallowed whole, then cracked open inside the snake's gut!

Salamander

Like frogs, salamanders are meat-eating amphibians. On land, they use their long, sticky tongues to catch insects. In water, they also eat tadpoles.

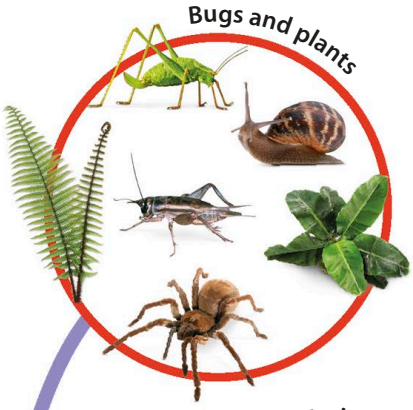
Frog

Frogs are carnivores. They mainly eat insects and other small creatures, such as spiders and worms. Most of them hunt at night.

Lizard

A few lizards eat plants, but most are carnivores. Smaller lizards like to eat flies, spiders, snails, and caterpillars. There are also huge lizards that will hunt pigs and even deer.

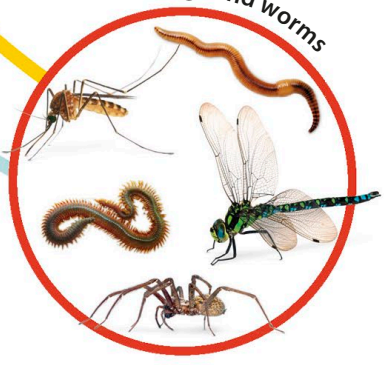
Bugs and plants



Fruit, leaves, and flowers

Larger prey

Bugs and worms

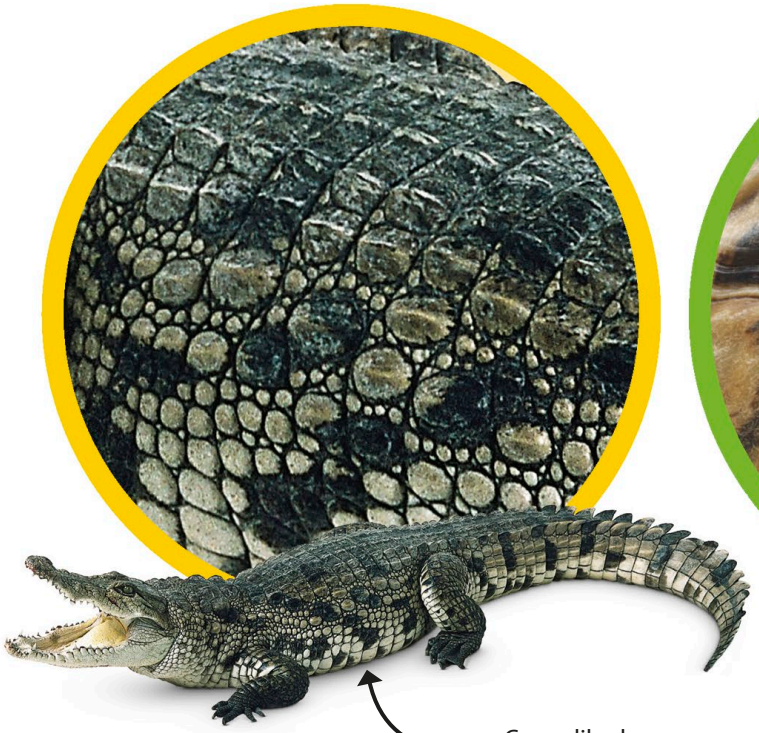


Crocodiles and alligators

These large reptiles have thick skin. Bony plates grow across the tail, back, and snout, providing body armor in case of attack. The plates are packed with nerve endings that respond to touch, and hot or cold temperatures.

Tortoises and turtles

The only reptiles with hard shells are tortoises and turtles. Attached to their backbones, these strong suits are a mix of horny and bony keratin plates. If threatened, tortoises and turtles hide their head inside their shell.



Crocodiles have smoother skin on the belly and sides of the body.

Tortoises move slowly because of their heavy shells.

Scaly skin

Reptiles have skin covered with protective scales or plates. Because scales don't stretch, reptiles have to shed their skin in order to grow. The skin underneath the scales is dry and watertight so reptiles can live in and around water. Scales vary hugely in color, shape, and size between different species.

Lizards

Most lizards shed their skin throughout their lives. This is replaced by new skin in a process called molting. Some lizards eat the old skin! Lizard skin color changes often, depending on light, temperature, and emotions.

Snakes

Smooth, scaly snakeskin is shed up to six times a year. Snakes crawl out of their old skin, usually leaving it behind in one complete piece. The scales of the new skin are much brighter and shinier.

Special skin cells change color to blend in with the environment.

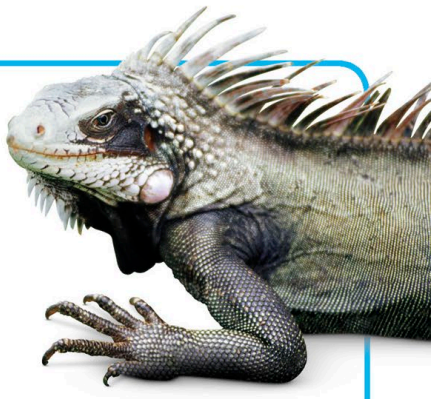
Many snakes have gripping scales on their belly to help them slither along.

WOW!

The Galápagos land iguana has a stomach so tough it can eat cactus!

Scaly spikes

The iguana is a tropical American lizard. It has a large throat flap and long spikes, which make a ridge down its back. Each long spike is one pointed scale. The spikes stand upright when a predator comes close so the iguana looks bigger and scarier.



Green iguana

Babies

Lots of reptile and amphibian babies are left to take care of themselves once the mother has laid the eggs, or given birth to live young. But some species are better parents, and will guard their eggs to make sure they are not eaten or damaged by predators.

WOW!

Marine toads can lay up to **25,000 eggs** in one long string.

Crocodile with hatchling in its mouth.

Crocodile

Mother crocodiles lay their eggs in a nest of dead leaves and reeds, and wait for them to hatch. Then they carry them to the water in their mouth. Baby crocodiles are called hatchlings.

Baby crocodiles are kept safe between their mother's teeth.

Turtle

Turtle mothers bury about 100 eggs in a deep hole on a sandy beach. When the babies hatch, they find their way out of the hole and make their way to the water.

The babies try to reach the water as quickly as possible to avoid predators.

Turtle babies

Midwife toad carrying eggs

Midwife toad

The male midwife toad takes care of its eggs by wrapping them around its back legs, and carries them until they are ready to hatch. Then it takes them to a small pool and releases the tadpoles into the water.

Mudpuppy

Mudpuppies are salamanders that lay up to 200 eggs at one time. Female mudpuppies stay with their eggs for about 40 days, so that they can guard the eggs against predators. Mudpuppies grow gills when they are babies and, unlike most salamanders, they never lose them.

Mudpuppy with red gills

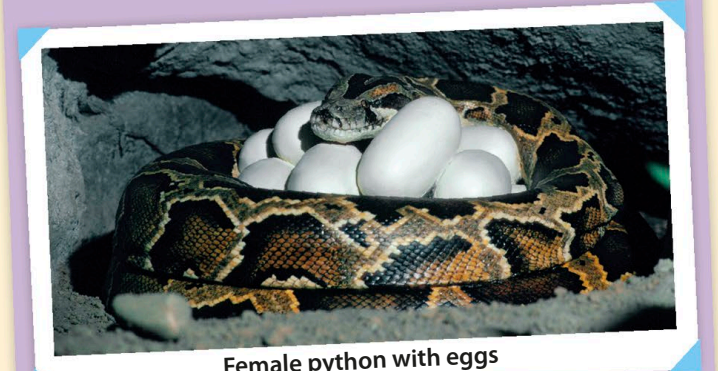
Family group

Girdle-tailed lizard

Unlike most lizards, this species give birth to live young rather than eggs. The babies stay with the parents for a long time, living together as a family group, which is also unusual.

Python

Pythons are one of the only snakes that take care of their babies. They coil around the eggs to keep them safe and warm. Python babies have an "egg tooth," which they use to break out of the egg when they are ready to hatch.



Female python with eggs

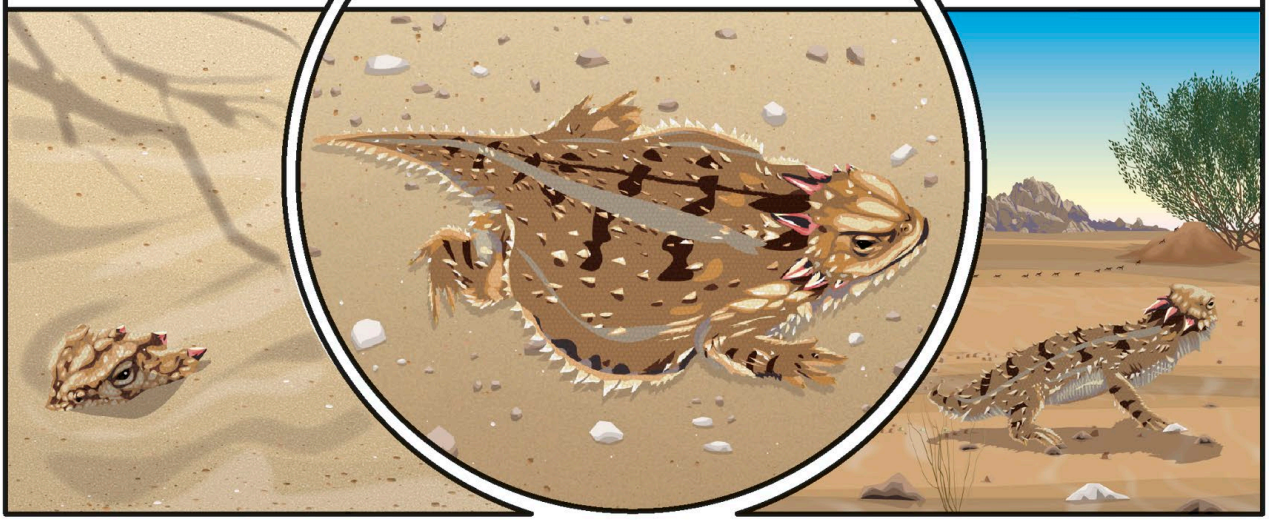
Temperature control

Reptiles are cold-blooded. This means that they have to move in and out of the sun at different times of the day to control their body temperature. Follow the desert horned lizard's day.

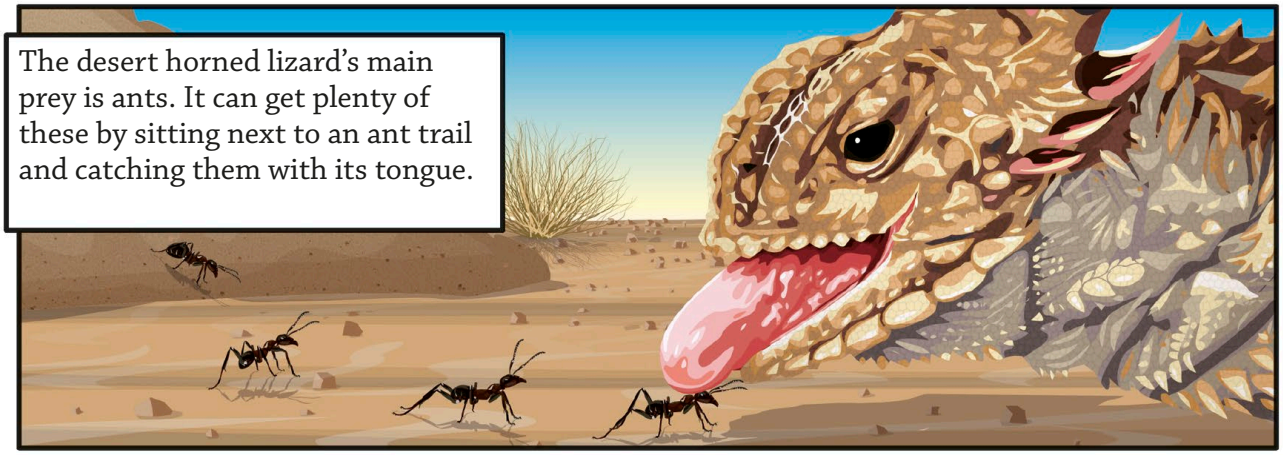
The lizard pokes its head out early in the morning to start warming up.

It flattens its body against the ground and tilts toward the sun.

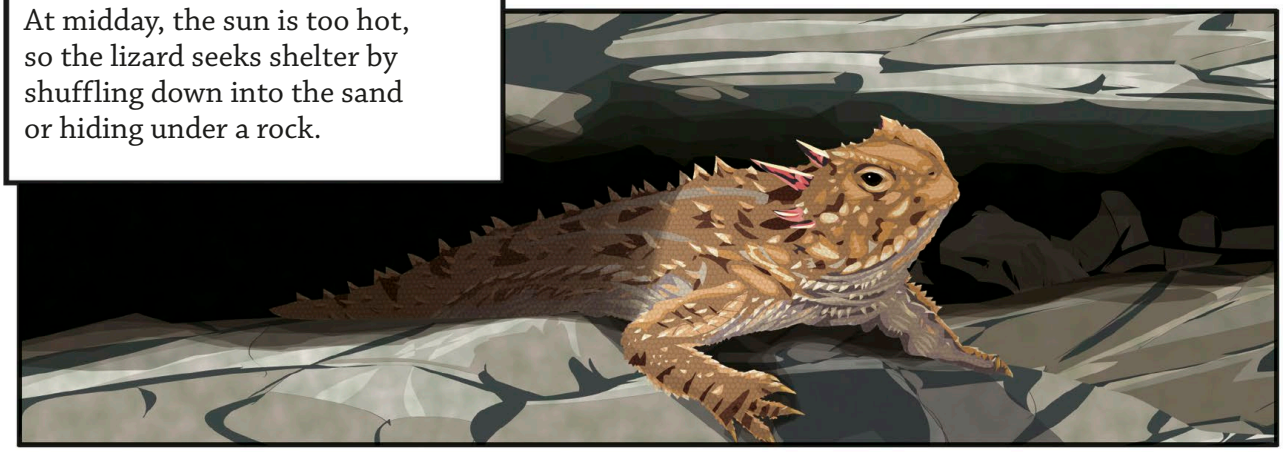
Once the lizard's blood is warm enough, it can start to move around and hunt.



The desert horned lizard's main prey is ants. It can get plenty of these by sitting next to an ant trail and catching them with its tongue.



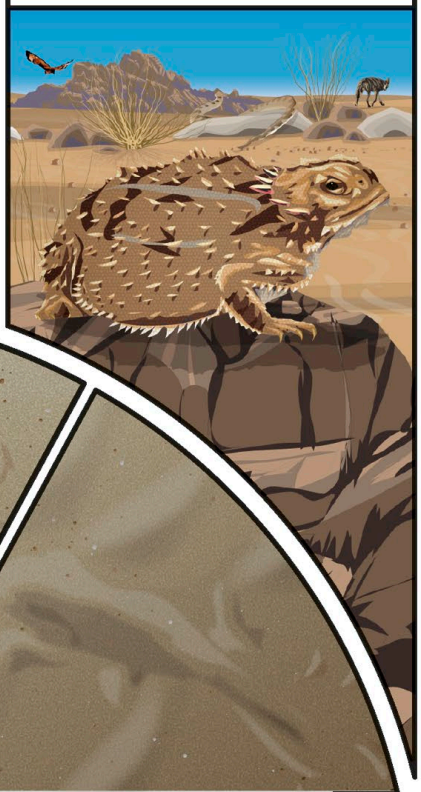
At midday, the sun is too hot, so the lizard seeks shelter by shuffling down into the sand or hiding under a rock.



When the lizard comes back outside later in the day, it is threatened by predators, such as hawks and coyotes.

Luckily, its brown skin helps it to blend into the sand...

...and it can puff itself up to scare away any predators.



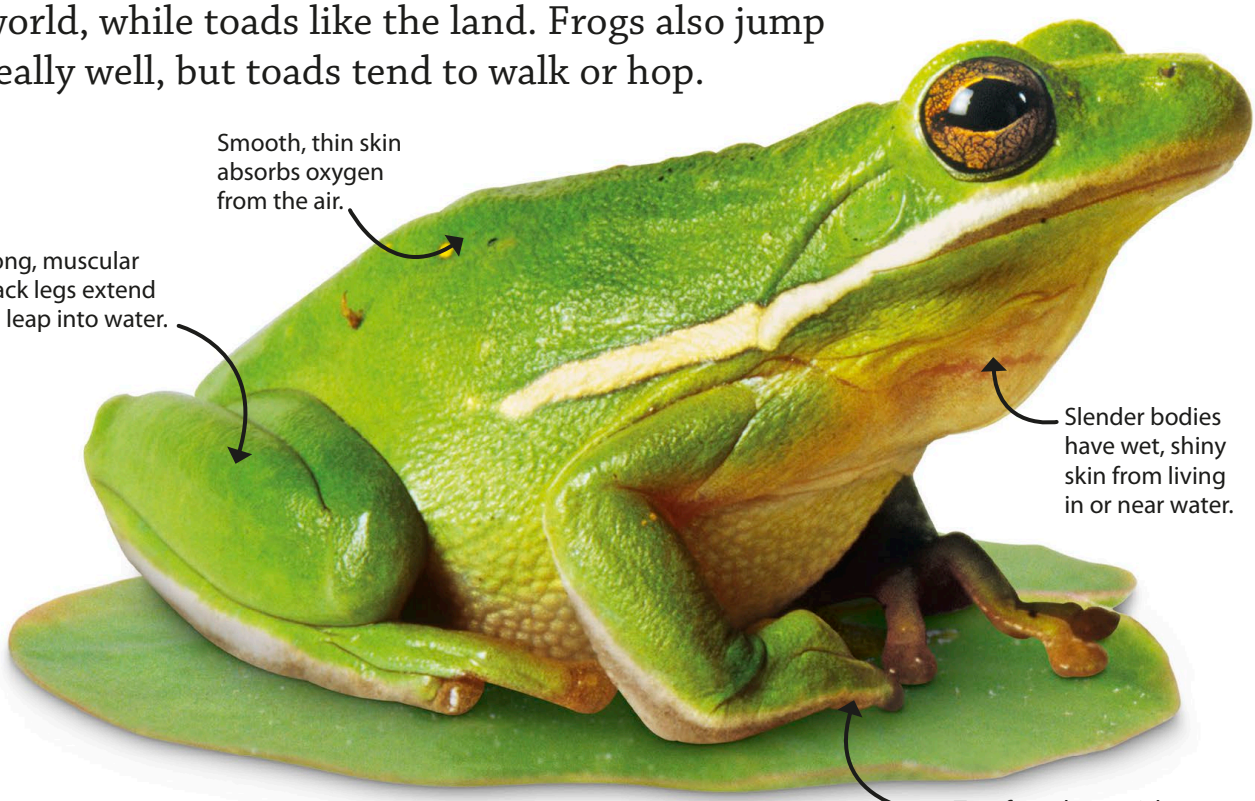
At night, the lizard shuffles down into the sand or retreats into a burrow to shelter from the cold.

It will stay under the sand until the following morning, when it will pop its head out of the sand and begin another day.

Frog or toad?

Frogs and toads are similar types of amphibian. While frogs are usually wet and smooth, toads are often dry and bumpy. Frogs prefer a watery world, while toads like the land. Frogs also jump really well, but toads tend to walk or hop.

Green tree frog
Green tree frogs live in the reeds around the edge of ponds in the US.



Something in common

Frogs and toads share lots of similarities as well as differences. They both croak! They are short and stocky, with big heads, wide mouths, and small necks. Frogs and toads have no tails. They reproduce by laying eggs, and catch food with their long, sticky tongues.

Egg timer
Females lay large clusters of jelly-covered eggs, called frogspawn. Three weeks later these hatch into small fishlike creatures called tadpoles.

Toad in frog's clothing

Some sneaky toads look a lot like frogs, with smooth skin and long legs. The Asian tree toad looks like a tree frog, but belongs to the same family as the common toad.

Asian tree toad

Tough, dry skin covered in warts.

Cane toads have poison glands on each shoulder.

Toes on the front feet are not webbed.

Short legs are better for hopping around on land.

Hardened toes are useful for digging.

Cane toad

The cane toad is one of the world's largest toads. It lives in dry places in many parts of the world.

Tongue trap

Frogs and toads have wide mouths and long tongues. A passing insect is easily caught on the end of the fast-moving, sticky tongue.

WOW!

There are more than **5,800 types** of frog and toad in the world.

In the rain forest

Most reptiles and amphibians live in the wettest places on the planet, rain forests. The forests provide a warm, damp place with plenty of places to hide, and lots of food such as plants and insects. There is no winter, only a wet season and a dry season.

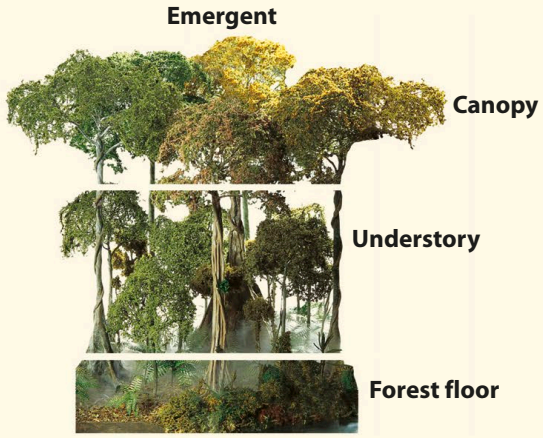
Green iguana
If they're seen by a snake or other predator, these large lizards drop out of their tree, and can fall up to 60 ft (18 m) without being hurt.

Red-eyed tree frog
This frog's large red eyes help it see at night. Its sticky toes help it cling to leaves in its home high in the canopy.

Emerald tree boa
This South American snake blends in against a background of green leaves, waiting for prey.

Rain forest layers

The rain forest is divided into four different layers. The emergent layer is the very tops of the trees. The canopy is a layer of branches and leaves below this, where most rain forest animals live. The understory is made up of small trees and shrubs. The forest floor is the darkest layer, with lots of plants, and pools of water.



Giant day gecko
This is one of the largest geckos in the world. It lives in Madagascar, where it is usually found basking on high branches.

Poison dart frog
These frogs live in groups on the forest floor. Their bright skin warns predators that they are poisonous.

Caiman
Caimans live in swampy parts of the forest floor. Caimans can be up to 10 ft (3m) long. This one is just a baby!

Reptiles at sea

The marine iguana, from the Galapagos Islands, is the only lizard that goes into the sea to feed. It eats sea lettuce, a kind of seaweed, that grows on the bottom of the ocean and so it has to dive to find its food. When it has finished eating, it returns to the land and basks in the sun to warm its body.

Ocean grazers Marine iguanas cling to rocks while they graze on sea lettuce, which grows on the rock's surface. They have blunt noses so they can get their sharp teeth very close to the rock.

WOW!

Marine iguanas can stay **underwater** for half an hour.

Life underwater

Reptiles that live or swim in the water can only stay underwater for a short time before coming up to the surface. These reptiles live in tropical waters, which are warm enough for cold-blooded animals.

Sea snakes
Sea snakes are related to cobras. They stay in water their whole lives, and give birth to live young. Their tails are flattened and they move them from side to side like a paddle to swim through the water.

Sea turtles
Sea turtles spend their lives at sea, but females have to come ashore every year to lay their eggs in the sand on a tropical beach. This beach is usually the same one where they hatched.

Saltwater crocodiles
The saltwater crocodile is the largest living reptile and can grow to 20½ ft (6.3 m). It has been seen swimming many miles away from the land and also swims up rivers.

Turtles

Turtles are reptiles that have adapted to life in water. Their flattened shells help them slip easily through the water. Some live in the sea, while others make their home in freshwater lakes and rivers. They all come ashore to lay their eggs.

Leatherback turtle

This is the world's largest turtle. It can grow to over 6½ ft (2 m) long and weigh up to 1,540 lb (700 kg). The leatherback lives in warm seas around the world.

FACT FILE

- **Length:** Up to 6½ ft (2 m)
- **Habitat:** Warm and temperate oceans
- **Food:** Jellyfish

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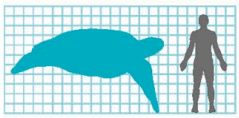

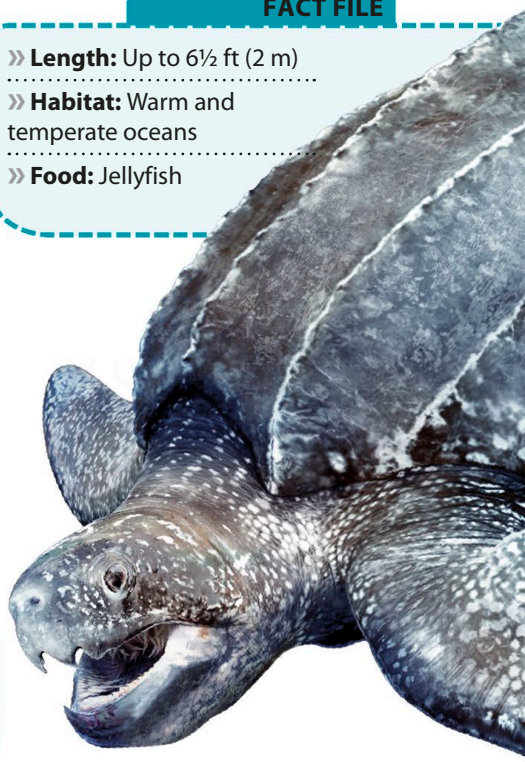

FACT FILE

- **Length:** Up to 11 in (28 cm)
- **Habitat:** Freshwater lakes and rivers
- **Food:** Fish, crabs, lobsters, and frogs

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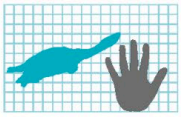

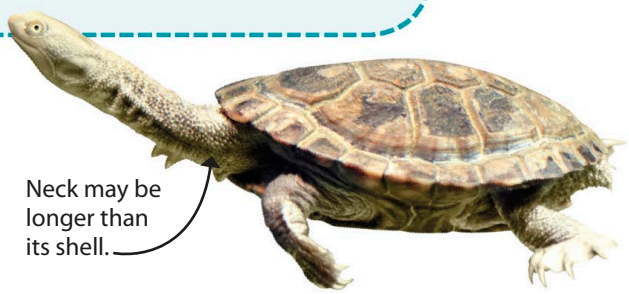

Common snake-necked turtle

This Australian turtle has a long neck that can reach the surface so it can breathe while resting underwater.

Pig-nosed turtle

This unusual looking turtle has a snout like a pig's. Its large flippers mean it can swim really fast around its home, the rivers of northern Australia.

FACT FILE

- **Length:** Up to 28 in (70 cm)
- **Habitat:** Rivers, streams, lagoons
- **Food:** Snails, small fish, and fruit

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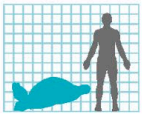
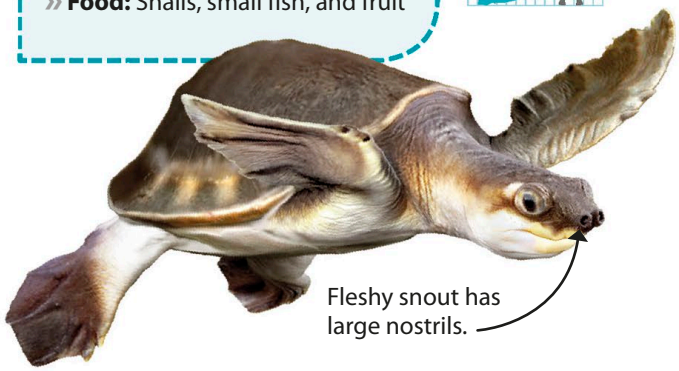
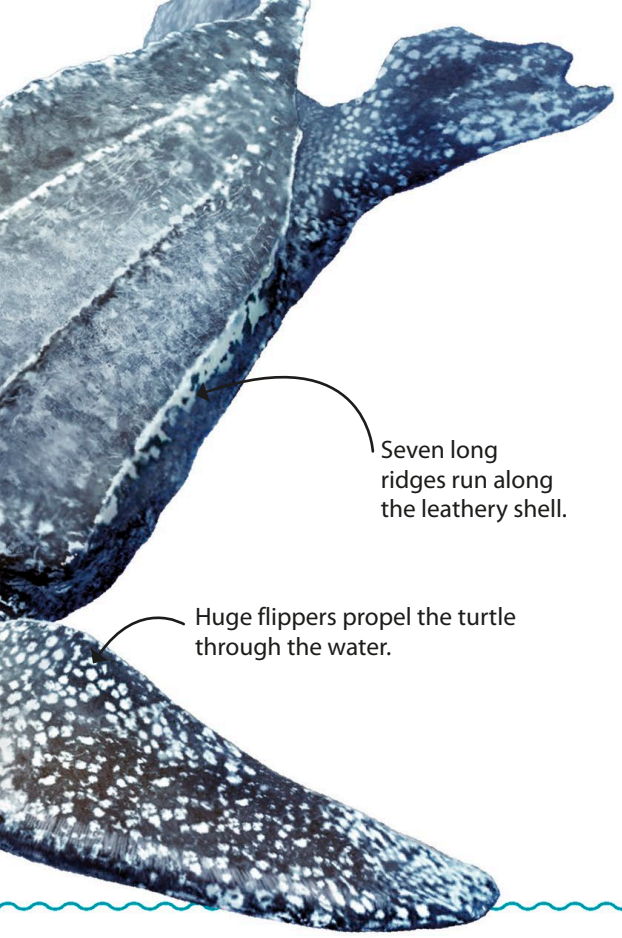


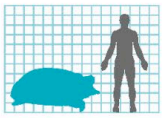




Softshell turtle

Instead of a hard shell, a thick layer of skin covers this turtle's back. It swims along the bottom of muddy or sandy rivers, using its long, pointed snout like a snorkel to breathe.

» Scale



FACT FILE

- **Length:** Up to 5 ft (1.6 m)
- **Habitat:** Rivers
- **Food:** Fish, shrimp, crabs, and clams

Flat, leathery skin protects its back.

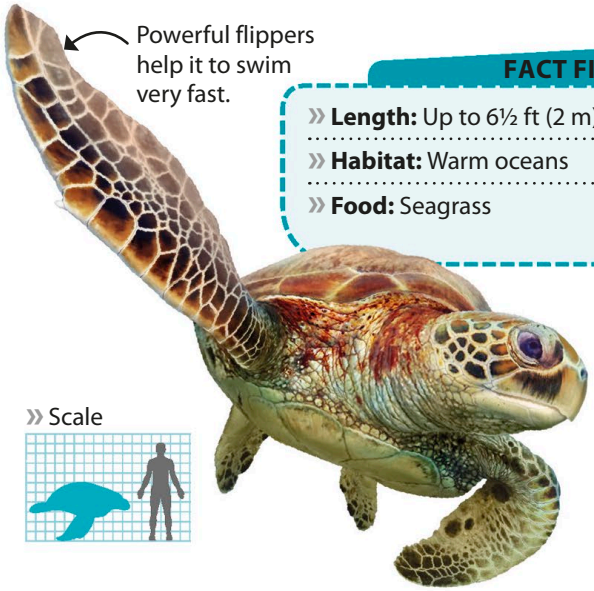
Green sea turtle

This turtle can hold its breath for hours, as it swims through the world's oceans at speeds of up to 35 mph (56 kph).

Powerful flippers help it to swim very fast.

FACT FILE

- **Length:** Up to 6½ ft (2 m)
- **Habitat:** Warm oceans
- **Food:** Seagrass



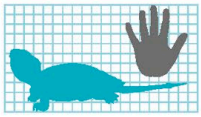
» Scale

FACT FILE

- **Length:** Up to 16 in (40 cm)
- **Habitat:** Shallow rivers and streams
- **Food:** Fish, mollusks, and worms

Bony plates cover the large head.

» Scale



Big-headed turtle

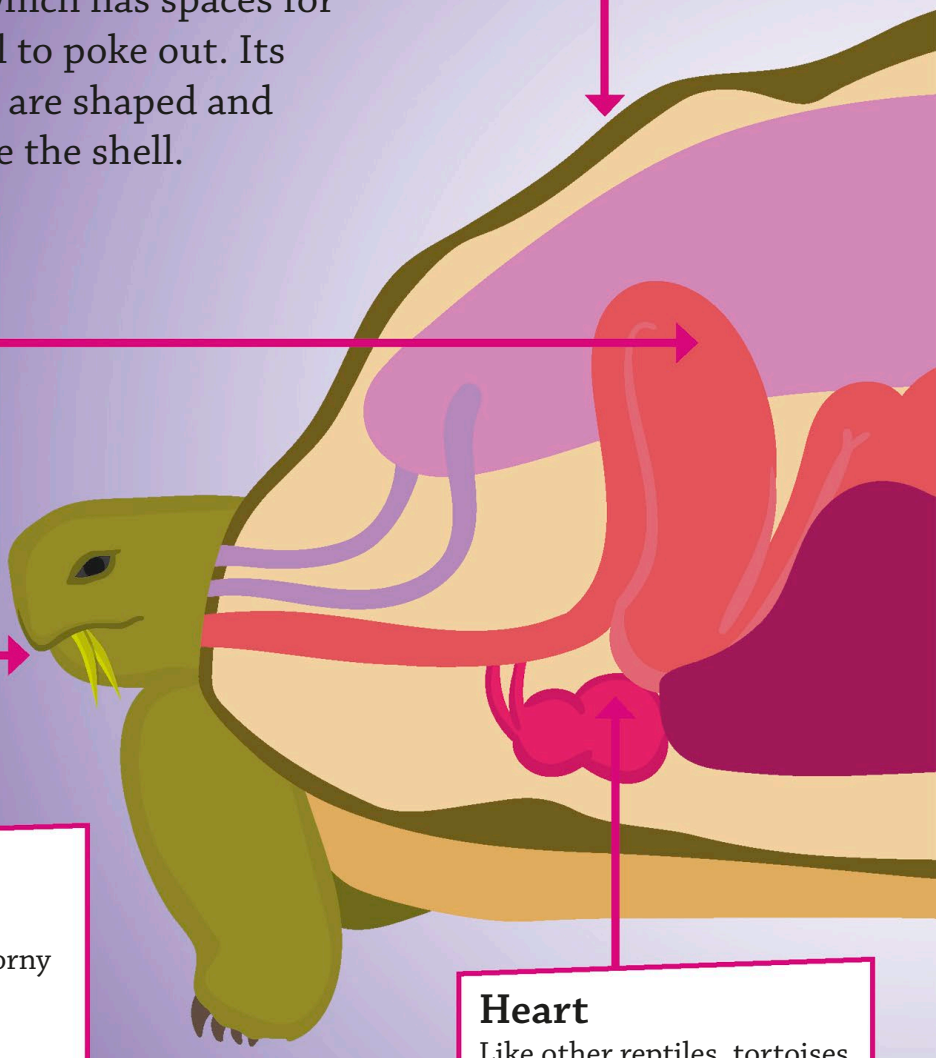
This Southeast Asian turtle cannot fit its big head into its shell when threatened. Instead, plates of armor protect it from injury.

Inside a tortoise

A tortoise's body parts are packed tightly inside its hard shell, which has spaces for the legs, head, and tail to poke out. Its organs, like the heart, are shaped and positioned to fit inside the shell.

Shell

The tortoise can hide inside its shell to protect itself. The top shell is called the carapace, and the shell that protects the belly is called the plastron.



Digestive system

Food is processed in the stomach and then the intestines. Tortoises have long, folded-up intestines to help digest the tough grasses that they eat.

Mouth

Tortoises have no teeth. Instead, they have sharp, horny beaks that they use to slice pieces off plants. Then they push the pieces down their throats with thick tongues.

Heart

Like other reptiles, tortoises have hearts with three sections. The heart pumps blood around the body.

Lungs

The shell stops the rib bones from moving enough to be able to breathe. Instead, the tortoise pumps air into its lungs by moving its head and limbs.

Shell shapes

Tortoise shells can be many different shapes.

Domed shells
The starred tortoise's domed shell makes it difficult for predators to grip.

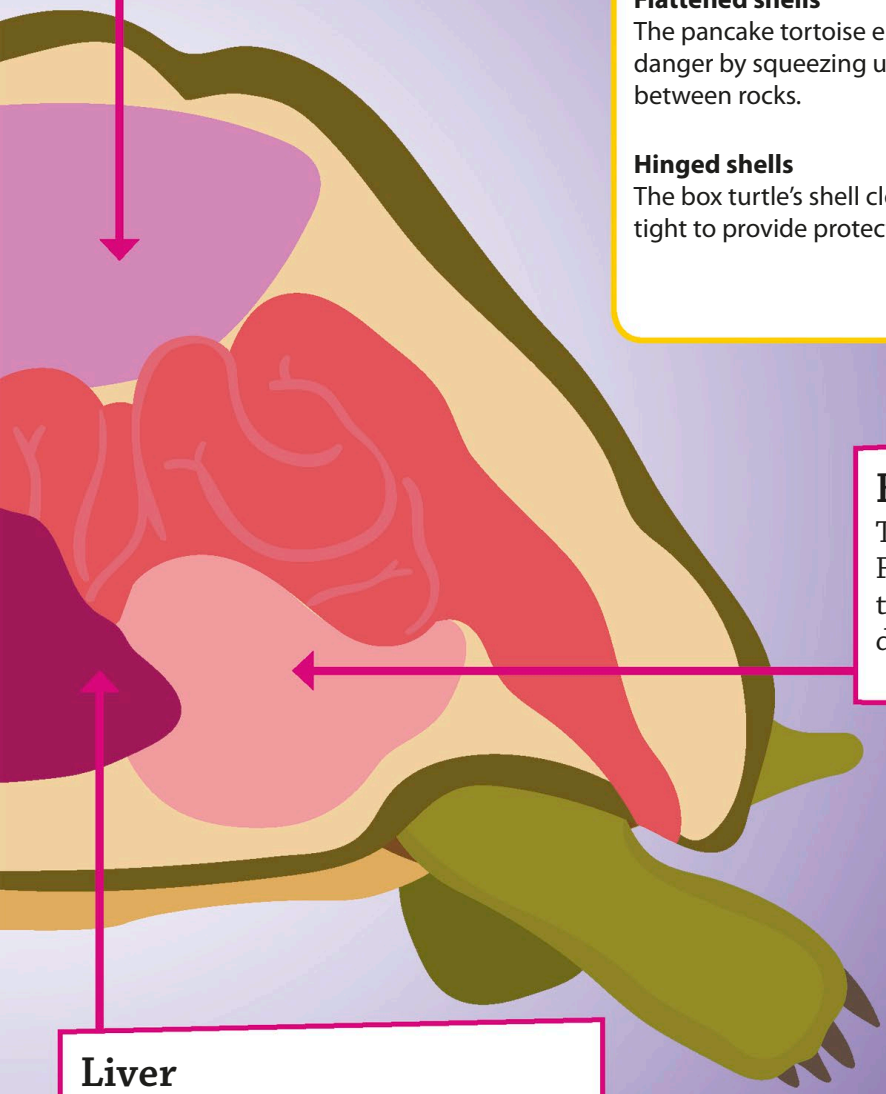
Starred tortoise

Flattened shells
The pancake tortoise escapes danger by squeezing under or between rocks.

Pancake tortoise

Hinged shells
The box turtle's shell closes up tight to provide protection.

Box turtle



Bladder

The bladder stores watery urine. Female tortoises use this to wet the soil, which makes it easier to dig nests for their eggs.

Liver

The liver produces substances that help the tortoise to digest its food and also helps to clean its blood.

WOW!

Radiated tortoises from Madagascar can live for up to **188 years!**

Hunting habits

Different species of reptile and amphibian have a wide range of diets and appetites. This means that they have to hunt for their food in very different ways. Larger, heavier species mostly sit and wait for their prey to come near, but light, lively ones are more likely to be active hunters.

The American green tree frog has a long tongue to catch insects.

Reptile hunters

Most reptiles, aside from tortoises, are meat eaters, also known as carnivores. Reptiles that eat other animals often have to hunt for their food. Some species camouflage themselves so their prey can't see them and wait for it to get close, while quicker, stronger reptiles run and attack their prey.

Boa constrictor

Snakes
All snakes eat other animals, from insects to large prey such as antelopes. Some snakes, such as boas, sense prey using heat sensors, and swallow it whole.

REALLY?

Some **big snakes** only eat **one meal a year.**

Frog hunter
Frogs can use their long tongues to catch insects, but sometimes they just jump on their prey and swallow it.

Eastern fence lizard

Lizards
Most lizards eat insects and spiders, but some eat plants or larger prey. Lizards wait quietly until their prey is close enough. They chew their food or bite small pieces off it.

American alligator

Alligators
Alligators eat fish, birds, and mammals. They wait in shallow water until their prey comes close enough to catch.

American alligator

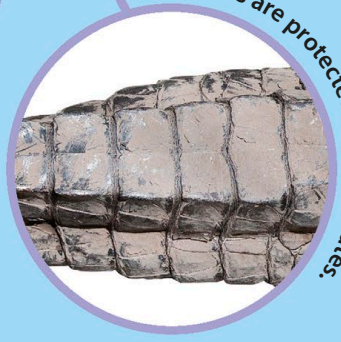
This species of alligator lives in rivers and swamps. Males can grow to 15 ft (4.5 m) long and weigh around 1,000 lb (450 kg). During breeding season, males make a loud roaring sound.

Black caiman

This caiman is one of the largest crocodilians, and can grow to between 13 and 20 ft (4 and 6 m) long. Its dark scales help to keep heat in, and camouflage it at night.

Map key

- Alligator/caiman
- Crocodile
- Gharial



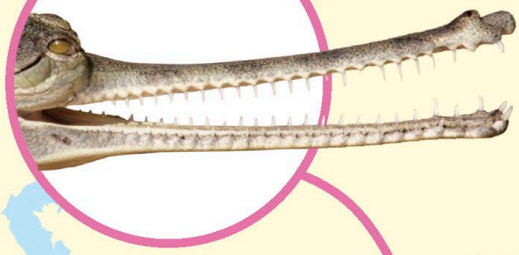
Crocodilians

The crocodilian family includes 25 species of alligator, crocodile, caiman, and gharial. Crocodiles have shorter snouts than alligators, while gharials have long, narrow snouts. All of these reptiles live in warm parts of the world, and eat meat using their powerful jaws.

Chinese alligator

The only alligator found outside of the US, this reptile is very rare due to the destruction of its riverside habitat. It lives in burrows in winter.

The gharial has up to 110 teeth.



Nile crocodile

This is the second biggest reptile in the world after the saltwater crocodile, and can grow to over 20 ft (6 m) long. It eats large mammals, such as zebras.

Gharial

The long, thin jaws of the gharial contain more than 50 teeth and are excellent for catching fish. Gharials are only found in the rivers of India.

Crocodiles have extra, transparent eyelids.

Australian freshwater crocodile

Like all crocodiles, this species has 68 teeth. It lives in freshwater areas, like rivers, creeks, and swamps. In the winter, it digs itself a shelter to hide in.

! WOW!

The **saltwater crocodile** can grow up to **23 ft (7 m)** long!

Desert dwellers

Many reptiles and some amphibians like living in hot, dry deserts and can survive happily on the limited food supply often available there. Each of the world's great deserts is home to a group of these animals.

American deserts

Rattlesnakes live in many American deserts. There are also lots of lizards, and even some tortoises. Most of these reptiles are only active at night, when the temperature is much cooler.

Desert tortoises emerge from their burrows in the early morning and late afternoon, when it is not so hot.

Rattlesnakes can detect their prey of mice and birds in the dark, using heat sensors.

Rattlesnake

Desert tortoise

Australian deserts

Deserts cover a large part of central Australia. Many Australian reptiles are a reddish-brown color, so they are hard to see against the rocks and sand.

Thorny devil

This frog stores water in its body. It lives underground, coming up only when it rains to feed, breed, and refill its water supply.

African deserts

The biggest African deserts are the Sahara, the Kalahari, and the Namib. They are very hot and dry, so the reptiles that live there have developed smart tricks to help them survive.

Only found in Australia, this spiky lizard eats ants. Its sticky tongue can grab and eat hundreds in one meal.

Water-holding frog

Extra-large webbed feet help this lizard run across soft sand. During the day, it stays in its burrow to avoid the heat.

Web-footed gecko

Sandfish

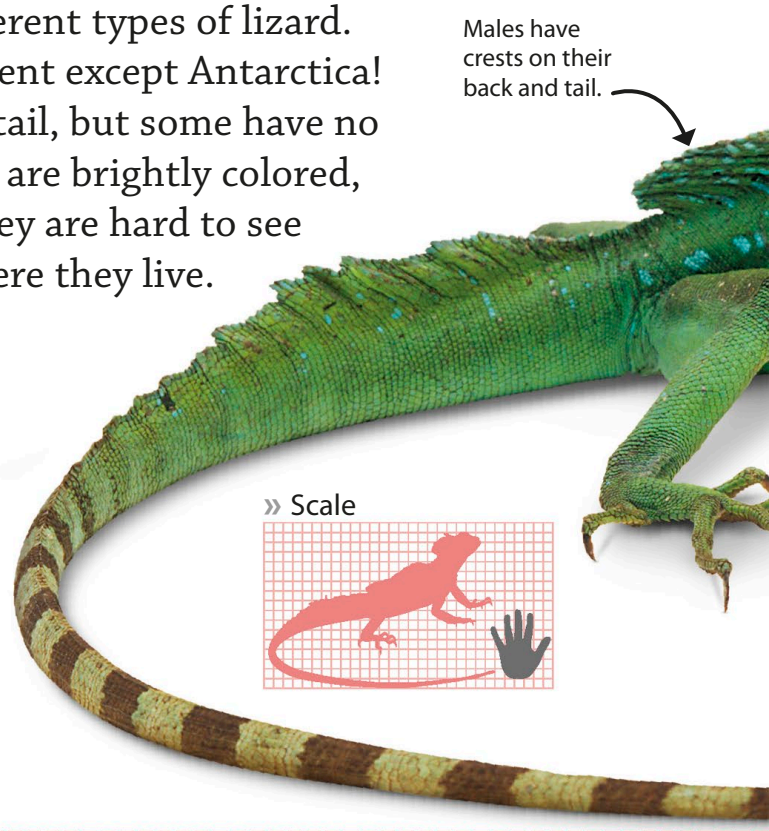
Shovel-snouted lizard

This lizard's smooth scales help it glide effortlessly through the sand, as if it was swimming.

To stop its feet from burning on hot sand, this lizard only stands on two at a time. It hops from one pair to the other.

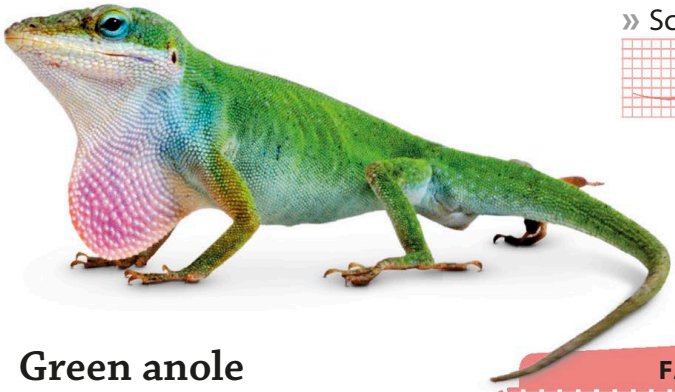
Lizards

There are more than 6,000 different types of lizard. They are found on every continent except Antarctica! Most have four legs and a long tail, but some have no legs and look like snakes. Many are brightly colored, while others are dull, so that they are hard to see among the leaves and rocks where they live.



FACT FILE

- **Length:** 30–31 in (75–80 cm)
- **Habitat:** Streams and rivers around rain forests
- **Food:** Seeds, fruits, and leaves



Green anole

This North American lizard lives mainly on leaves. It can change color from green to brown, making it harder for predators to see it among the trees. Males have large pink throats to attract females.

FACT FILE

- **Length:** 5–8 in (12–20 cm)
- **Habitat:** Trees
- **Food:** Insects

Slow worm

The slow worm is a legless lizard. You can tell them apart from snakes because they have eyelids. Slow worms live under the ground, in European woods. Its tail may break off if you grab it, but will quickly grow back!

Males have a crest on their head.

Long claws are used for climbing.

Green basilisk

This lizard lives near rivers in Central American rain forests. It is a good swimmer and can stay underwater for up to 30 minutes. Special flaps of skin on its feet also allow it to run for up to 16 ft (5 m) across the surface of water.

WOW!

The micro lizard of Madagascar is only 1 in (2.9 cm) long. It can fit on the tip of an adult's index finger.

Scales are like small pebbles.

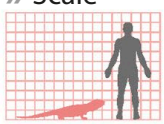
FACT FILE

- **Length:** 12–20 in (30–50 cm)
- **Habitat:** Burrows under logs, stones, and garbage
- **Food:** Insects, slugs, and worms

Bosc monitor

A large, heavy lizard with powerful jaws, the Bosc monitor lives in the warm African grasslands, known as savanna. It uses its long, forked tongue to snatch up food.

» Scale



FACT FILE

- **Length:** Up to 5 ft (1.5 m)
- **Habitat:** Grasslands
- **Food:** Small animals, insects, spiders, and millipedes

Salamanders and newts

Salamanders and newts are amphibians that look like lizards but are actually more similar to frogs and toads. They have smooth skin, thin bodies, and long tails. They are born in the water, but can live in water and on land.

Great crested newt
The great crested newt is also called the warty newt because of the pearly warts on its back. It lives in Europe and can be found in ponds.

Bright underside warns enemies that its skin is poisonous.

Wide tail fin helps newts to swim.

Newts

Newts are a type of salamander. The only difference is that newts spend more of their adult lives in the water. When they are breeding, male newts often have fins that you can see.

Eyes are on top of the head and bulge out.

Alpine newt
Alpine newts normally live in mountain areas. They can live in very cold places and even under ice. They have bright orange undersides, and the male's sides turn purple when they are ready to breed.

Red salamander
The red salamander is bright red with black spots over its body. It comes from North America and is found in mossy places near running water.

The red skin gets darker as the salamander gets older.

Salamanders

Salamanders live in damp places on land. They lose the moisture in their body very quickly, so cannot survive in dry places. Some breed in the water, while others breed on land.

Feathery gills let the axolotl breathe underwater.

Axolotl
Axolotls are Mexican salamanders that never grow up! While most amphibians are born in the water, change shape, and go on land, axolotls can only survive in water.

Olm
Olms live in caves deep underground in Southern Europe. They have gills on the outside of their body and their skin has no color. Olms live in total darkness and are completely blind.

Olms have a good sense of smell that helps them hunt for prey.

Senses

Most reptiles and amphibians have the same five senses as humans—taste, smell, touch, hearing, and sight—but they use them in different ways. Their senses help them to find safety and food, communicate with each other, and warn them of predators.

Lizards like to scuttle into the gaps between rocks.

Sudan plated lizard

Touch

The sense of touch helps reptiles and amphibians feel their way into the small spaces where they feel safe. Snakes can sense vibrations through their jaws. This means they can figure out the size of their prey as it approaches.

Snakes have poor eyesight, but a good sense of touch.

Rainbow boa

Eyes can move in different directions.

Panther chameleon

Sight

Many lizards communicate with each other by changing their skin color—because of this, it's very important for these lizards to have good color vision. Some snakes, such as the Eurasian blind snake, cannot see at all.

Full-color vision

Green iguana

Boulenger's Asian tree toad

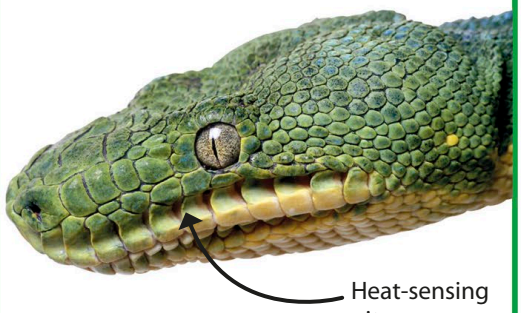
Toads have large eardrums and good hearing.

Hearing

Frogs, toads, geckos, and crocodilians communicate with each other by calling, which means that their hearing needs to be good. Snakes have poor hearing, and turtles have no ears at all.

Heat sensors

Snakes such as rattlesnakes, boas, and pythons have special heat sensors that they use to detect warm-blooded prey such as mice.



Heat-sensing pits

Emerald tree boa

Tokay gecko

Frogs croak to find mates.

Lemur leaf frog

Smell and taste

Smell and taste are very similar senses that are often used together. Both these senses pick up chemicals to help reptiles and amphibians tell other animals where they've been, attract a mate, and track and catch food.

Asian water monitor lizard

The monitor's tongue picks up scent from the air.

Cave salamander

Roll a dice to play the game of survival.

START

Can you survive?

Reptiles and amphibians have to defend themselves from being eaten by enemies and predators. During this game, you will find out how some of them survive.

1 **You got distracted by a tail. Miss a turn!**
Tree skinks can detach their tails to distract predators. A new one grows back later!

2

11

12 **You are warned by its rearing head. Move forward one space!**
The monocled cobra has a big hood that scares off any enemies.

13

14 **You spotted it. Move forward three spaces!**
Vipers are the same color and pattern as their background, so are hard to see. This is called camouflage.

15

16 **Your way is blocked. Go back to the start!**
The Komodo dragon is a large, powerful lizard that will kill predators.

17

18 **You stood on a spike. Go back one place!**
The thorny devil is covered in hard spikes that make it difficult to catch and eat.

Survival tactics

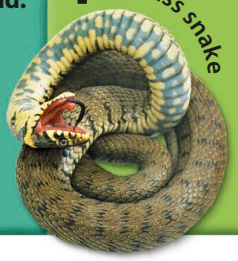
Reptiles and amphibians face danger every day. They have to avoid predators and find food and good places to live. To do this, they have lots of different survival tactics that help them stay alive. Play the game to learn about some of these creatures' survival tactics.

27

28 **You scared it away across the water. Go straight to the finish!**
A green basilisk can run across water to escape predators.

3 **You noticed it was playing dead. Move forward three spaces!**
Grass snakes play dead and produce a bad smell so hunters won't eat them.

4



5 **A frilled lizard scared you. Move back one space!**
A frilled lizard has a big collar around its neck that it can fan out to scare away any attackers.

6

10 **A rattling sound scared you off. Move forward one space!**
Rattlesnakes shake their tail and make a loud noise to warn attackers not to step on them.

9 **You didn't notice the prickly ball hiding. Move back one space!**
The armadillo lizard curls up into a ball so that its tough, spiny scales are on the outside.

8

7 **You avoided the venom. Move forward three spaces!**
The Gila monster has powerful jaws and a venomous bite.

19

20 **You were warned by the colors. Go forward three spaces!**
A fire salamander has brightly-colored skin that warns about their poisonous skin.

21

Fire salamander

22 **You missed it. Miss a turn!**
Tree frogs are experts at camouflage, which makes them hard for predators to find.

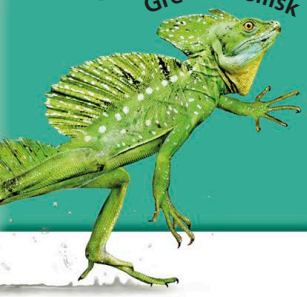
23 **A camouflaged tree frog**

26 **You were shot with blood. Go back two spaces!**
Horned lizards can squeeze drops of blood from their eyes to put off predators.

25

24

29



30 **You missed it. Go back two spaces!**
The flat-tailed gecko looks exactly like a mossy tree trunk when it is sleeping during the day.

You made it!

As you can see, many reptiles and amphibians have extreme defense tactics that help them stay alive. Surviving in real life is not as easy as getting to the end of this board game!

FINISH

Snake

Snakes are reptiles with long, legless bodies that are covered in scales. These scales can be rough or smooth, and lots of different colors and patterns. There are about 3,600 types of snakes in the world, and most of them live in tropical habitats.

FACT FILE

- **Length:** 3–5 ft (1–1.5 m)
- **Habitat:** Grasslands and dry forests
- **Diet:** Birds and small mammals

A cobra spreads its hood to make it look bigger.

» Scale

FACT FILE

- **Length:** 10 ft (3–4 m)
- **Habitat:** Forests
- **Diet:** Other snakes

King cobra

This Asian cobra is the longest venomous snake. It can raise up to two-thirds of its body off the ground, and spreads its hood wide if it feels threatened.

Texas thread snake

This tiny snake from the American desert is often mistaken for a worm, as it lives in the soil and is pink. Its eyes are covered in scales since it doesn't need to see underground.

» Scale

FACT FILE

- **Length:** 6–11 in (15–27 cm)
- **Habitat:** Dry and desert areas
- **Diet:** Termites and other small insects

Spots help this snake to blend in against plants.

» Scale

Royal python

This West African snake is also known as the ball python because it rolls itself up into a ball when it gets scared. It is a constrictor, which means it squeezes its prey to death.

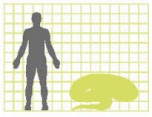
FACT FILE

- **Length:** 4–5 ft (1.2–1.5 m)
- **Habitat:** Forests of Central Africa
- **Diet:** Birds and mammals

Gaboon viper

This viper has the longest fangs of any venomous snake at 1.5 in (2.5 cm). Its patterned skin helps it to stay hidden in dry leaves while it waits for its prey.

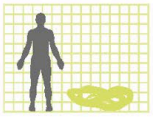
» Scale



Paradise tree snake

This snake from tropical Asian forests can glide through the air for up to 328 ft (100 m) by making its body flat like a wing.

» Scale



This snake has a row of red spots that runs down its back.

FACT FILE

- **Length:** Up to 3 ft (0.9 m)
- **Habitat:** Tropical forests
- **Diet:** Lizards, frogs, bats, and birds

Changing colors

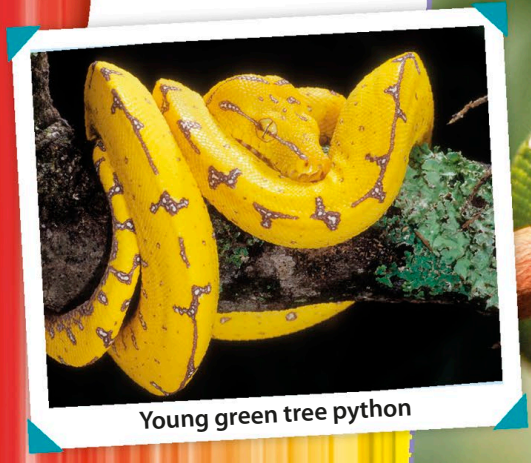
Some reptiles and amphibians can change the colors and patterns of their skin. This happens as they grow older, in response to their surroundings, or at different times of the year. Some animals can control their color changes.

WOW!

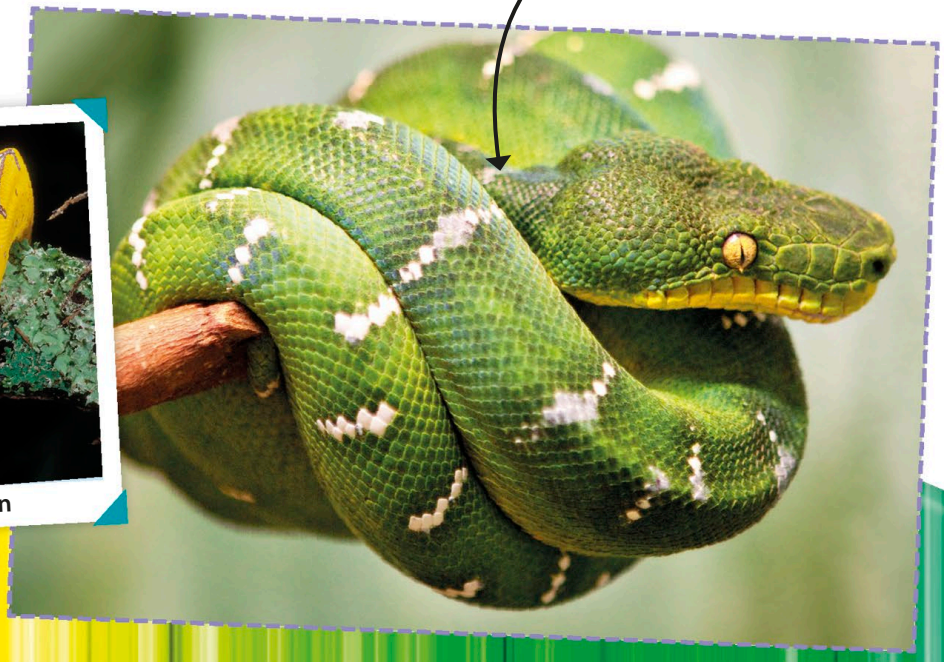
The **glass frog** has so little color in its skin, it is almost **transparent!**

Green tree python

Young green tree pythons are bright yellow when they hatch. When they reach about one year old, they turn green. This snake, which lives in the rain forests in New Guinea, is the only python that is mostly green in color.



Young green tree python



Adults also have white markings along the body.

Moor frog

Male moor frogs are usually brown, but turn bright blue in the spring, when they want to attract a mate. Once the breeding season is over, they change back to brown.

The blue color is produced by cells in the frog's skin.

Brown moor frog

Panther chameleon

This chameleon can change its color in just a few seconds. If it spots a rival chameleon, special cells in its skin will change to a bright, eye-catching pattern.

Bright colors occur when the chameleon is angry or excited.

Green coloration

Warning!

Reptiles and amphibians have changed and evolved over time so that they can naturally warn off their enemies and predators. Some species use bright colors or different patterns to warn humans and other animals that they are poisonous, have venomous bites, or taste disgusting. This is known as warning coloration.

TOXIC SKIN

GOLDEN POISON DART FROG

The golden poison dart frog lives in Columbia and is the most toxic animal in the world. It stores a substance in its skin that is strong enough to poison 10 people, but only if it gets into the blood. The bright yellow color of its skin warns predators that the frog is poisonous.

POISON GLANDS

FIRE SALAMANDER

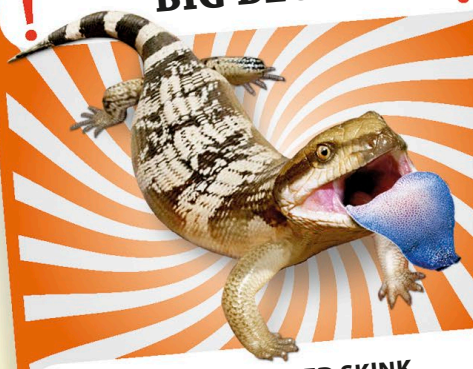
The fire salamander is bright yellow and glossy black. It stores poison in big glands behind its eyes and in the row of warty glands down each side of its back. If it feels threatened, poison oozes out of these glands. This salamander lives in Central and Southern Europe.

WARNING RINGS

CORAL SNAKE

Coral snakes live in North and Central America. They have colorful rings of red, black, and yellow (or white). These rings warn predators that it is venomous. The nonvenomous milksnake has similar patterns to the coral snake, so predators often avoid it, thinking it is dangerous!

BIG BLUE



BLUE-TONGUED SKINK

If the blue-tongued skink thinks it is in danger, it will stick out its bright blue tongue. The color can frighten predators enough that they leave it alone. At the same time, it spreads out its legs to look bigger than it really is. This skink lives in eastern Australia.

WOW!

A spitting cobra can spit its venom up to 8 ft (2.4 m)!

BELLY SURPRISE

ORIENTAL FIRE-BELLIED TOAD

The oriental fire-bellied toad has bright red and black markings on its stomach. It only shows these off if it is threatened or scared. The top of the frog is brown, which camouflages it when it is floating on the surface of muddy water. This frog lives in China, Korea, and eastern Russia.

BRIGHT ORANGE

RED-SPOTTED NEWT

When the red-spotted newt is young, it is bright orange all over. When it becomes an adult, it turns into a brown or green color with orange spots along its side. The orange skin and spots warn other animals in the newt's North American habitat that it is poisonous.

Real-life dragons

Enter the dragon's den! Dragon lizards might not be able to breathe fire, but they have special skills like the creatures of ancient legends. Some can glide, while others spit venom, and many can detect prey with a long, forked tongue.

Komodo dragon

This dragon is the king of lizards, the largest and heaviest of all. This meat-eating monster from the Indonesian islands uses its sharp teeth and venomous saliva to feast on pigs, deer, and smaller dragons.

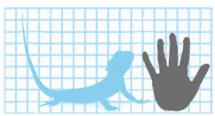
FACT FILE

- **Length:** Up to 2 ft (60 cm)
- **Food:** Small animals, fruit, and leaves
- **Habitat:** Australian deserts and scrublands

Bearded dragon

If frightened or angry, these dragons push out their puffy throats to look like beards. They are very athletic, climbing high and running fast. Bearded dragons can control their temperature by changing color to absorb more or less heat.

» Scale



Frilled lizard

This dragon puts on a scary show for predators. It rises up to full height, displays its large neck frill, and hisses threateningly. If this fails, the dragon runs back to the trees where it lives.

FACT FILE

- **Length:** Up to 3 ft (90 cm)
- **Food:** Insects such as ants and termites
- **Habitat:** Australian forests

» Scale

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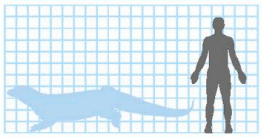


Scaly skin acts as a protective outer layer.

Komodo dragons have good eyesight, but mainly hunt using smell.

Forked tongue can sniff out prey 2½ miles (4 km) away.

FACT FILE

- » **Length:** Up to 10 ft (3 m)
- » **Weight:** Up to 366 lb (166 kg)
- » **Food:** Live or dead mammals
- » **Habitat:** Indonesian islands, including Komodo island

WOW!

Scared komodo dragons **make themselves vomit** to become lighter and escape quicker.

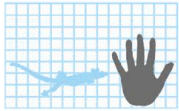
Kuhl's flying gecko

Although this lizard cannot really fly, it can glide up to 30 ft (9 m), using skin folds that spread out like wings. Flying dragons live in trees and eat ants that live on tree branches.

FACT FILE

- » **Length:** 8 in (20 cm)
- » **Food:** Insects
- » **Habitat:** Tropical forests of Southeast Asia

» Scale



Burrowers

Some reptiles and amphibians live most of their lives under the ground and look like earthworms. They burrow through the soil, and eat small insects that they find there. Caecilians are amphibians, with smooth, moist skin, while amphisbaenians, or worm lizards, are scaly reptiles.

Iberian worm lizard
Amphisbaenians have wedge-shaped heads that they use to dig burrows in the soil.

Zarudnyi's worm lizard
Amphisbaenians are rarely seen above ground. This one lives in the deserts of Arabia.

Short, powerful front legs

Mexican worm lizard
This unusual reptile has a pair of front legs with claws for burrowing, but no back legs. Like other amphisbaenians, its nostrils point backward so they don't get soil in them while burrowing.

Tropical terrain
Amphisbaenians and caecilians are cold-blooded, but because they live underground, they can't bask in the sun to warm up. This means they live in tropical places where staying warm isn't a problem!

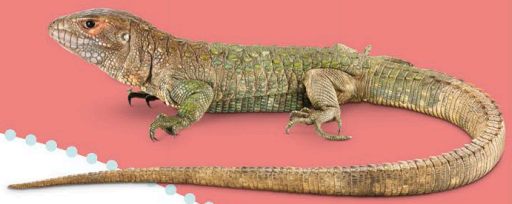
Aquatic caecilian
A few eel-like caecilians live in the water. This one lives in muddy ponds in South America.

Uraeotyphlus caecilian
Caecilians take good care of their young. Their babies nibble on their parents' skin for food!

Gymnopis multiplicata
Caecilians have a special tentacle under their eyes that gives them an excellent sense of smell.

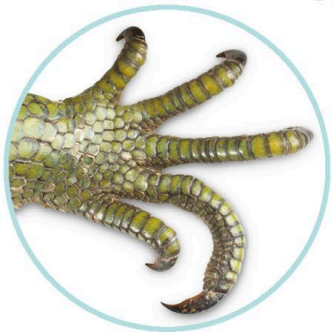
Match each animal with its feature.

1 Caiman lizard



2 Tomato frog

3 Diadem snake



A **Scaly skin**
All reptiles have waterproof scales that protect them from predators. This reptile has sharp teeth and lives in the water.

B **Metamorphosis**
Most amphibians begin life in one shape, and change as they become adults. This tadpole will turn into a smooth, hopping amphibian.

C **Claws**
Reptiles have sharp claws that they use to climb, hunt, and dig. This reptile has a long tail and lives in the rain forest.

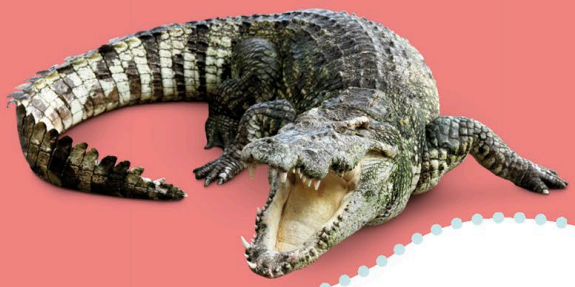
Reptile or amphibian?

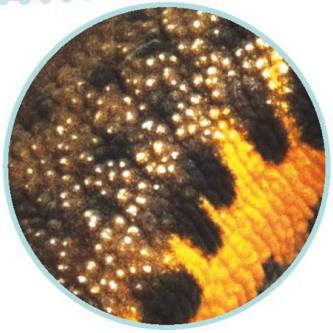
It can be hard to tell the difference between reptiles and amphibians, but there are some features that let us know what family each creature belongs to. Use the clues to match the animal with its feature.

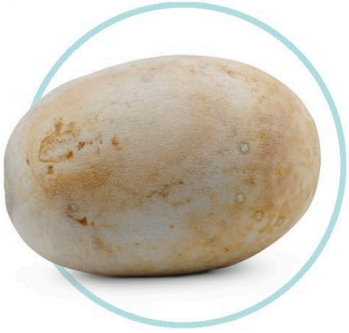
4 European common toad

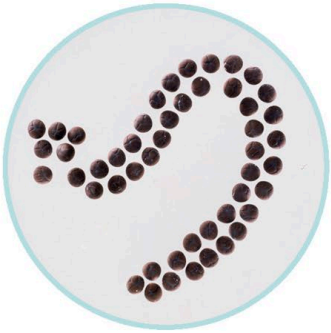
5 Great crested newt

6 Mugger crocodile









D Smooth skin

Amphibians have smooth, sometimes sticky, and moist skin. This is the skin of an amphibian that spends most of its life in water.

E Shelled eggs

Reptiles lay hard, shelled eggs that are laid on land, or kept in their bodies until they hatch. This egg belongs to a reptile with no legs and strong jaws.

F Soft eggs

Amphibians lay eggs in water. The egg is covered with a soft gel. These eggs will turn into an amphibian with dry, warty skin.

Sneaky reptiles

If you're a budding biologist trying to spot different reptiles and amphibians, watch out for tricksters! There are some creatures that look like one species, but are actually something else. One of these is the glass lizard. Like a snake, it has no legs. However, you can tell that this is a lizard because snakes don't have eyelids.

Answers: 1C 2B 3E 4F 5D 6A

Amphibians, reptiles, and us

Many reptiles and amphibians are under threat of becoming extinct, as there are few members of the species left alive. This is because humans have destroyed their habitats. However, there are conservationists trying to help these animals by breeding more of them in captivity, and protecting the environment.

WOW!

One third of all frogs are in **danger of extinction.**

Danger zone

Antiguan racer
Predators such as rats have reduced the number of Antiguan racers to 1,100. This makes it one of the world's rarest snakes.

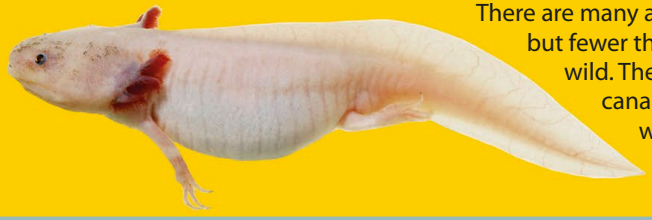
Corroboree frog
This tiny frog lives in a small part of Australia, where bushfires have destroyed its habitat. There are only 250 left.

Chinese alligator
There are only about 200 Chinese alligators left, because their swampy home has been turned into farmland.

In trouble

Green turtle
Humans have turned many beaches into vacation resorts, so green turtles are unable to lay their eggs, resulting in fewer turtle babies.

Gharial
The gharial's river habitat has been dried out, as dams are built to provide water for people. Their eggs are also stolen to eat or sell.



Axolotl
There are many axolotls kept as pets, but fewer than 1,000 left in the wild. They live in Mexican canals, which suffer from water pollution.

Saved

Kihansi spray toad
This toad became extinct in the wild when a dam was built over its home in Tanzania. But some were saved and thousands have now been returned home.

Blue iguana
After its habitat was turned into farms, this Caribbean iguana came close to extinction, with just 25 in the wild. After captive breeding, there are now more than 400.

Galápagos tortoise
The huge tortoises of the Galápagos islands were threatened by rats, which eat tortoise eggs. 1,200 have now been bred and released back into the wild.

Meet the expert

We meet Dr. Victoria Larcombe, frog expert and manager of the Scottish Dragon Finder project. Dr. Larcombe studies amphibians and reptiles, and helps to protect them and their habitats.

Q: What do you do on a typical day?

A: Every day is different! I run a project called Scottish Dragon Finder. We create and restore ponds, and help people attract amphibians to their yards. We go out with walking groups to show them how they can spot, identify, and record amphibians. We even stage a play called Dragon Tails.

Q: What inspired you to work with amphibians?

A: Amphibians are often a bit unloved and many people think of them as being slimy and uninteresting. When I started my degree in Zoology, I was convinced I wanted to work with monkeys or tigers, but after learning about the amazing array of amphibians and

Dr. Larcombe and her team clearing duckweed.

the weird and wonderful things that they do, I was inspired to work with these fascinating creatures.

Q: What equipment do you use?

A: One of the most exciting parts of my job is creating new ponds and this often involves using large mechanical diggers. But of course on some days, we just put on our boots, get a team of volunteers, and dig with our shovels.

Q: How did you get your job?

A: While studying for my Zoology degree, I went to Trinidad to study amphibians and it was there that my interest in amphibians soared. I did a PhD looking at how the food that tree frogs eat affects the color of their skin. Afterward, I started working at Froglife.

Q: What is your favorite amphibian?

A: There's a Trinidadian stream frog that I love because the dads take such good care of their babies—after the tadpoles hatch they wriggle up onto the dad's back. He carries them around looking for a pond with no predators. Once he finds a safe pool, he puts the tadpoles in.

Red-eyed tree frog

Rainforest research
Dr. Larcombe studied tree frogs in Belize as part of her research.

Q: What do you wish more people knew about amphibians?

A: Almost a third of amphibians are at risk of becoming extinct, making them more vulnerable than birds or mammals. Amphibians are important to humans as part of ecosystems, for developing new medicines, controlling pests—and they are beautiful and fascinating in their own right.

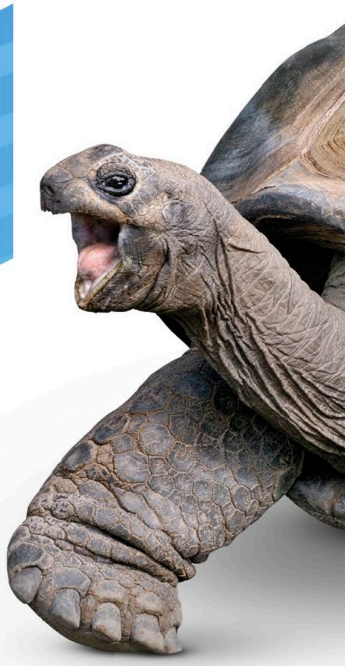
Q: What can we do to help frogs, toads, and newts in the wild?

A: Habitat loss is the main reason that amphibians are dying out, so creating ponds is the best way to help them. You can sign up to help amphibians cross roads during migration. Finally, we need to know where amphibians are and how they're doing.

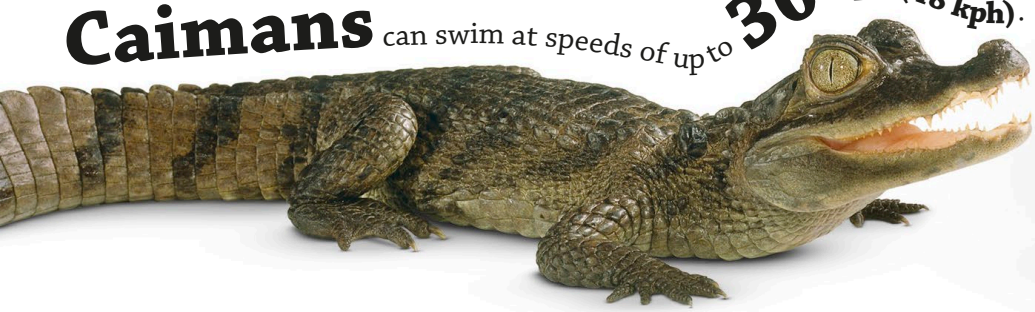
Facts and figures

Reptiles and amphibians are amazing creatures. Here are some weird and wonderful facts about them that you may not know.

An axolotl can regrow its arms and legs, with no scarring!



Caimans can swim at speeds of up to **30 mph (48 kph)**.



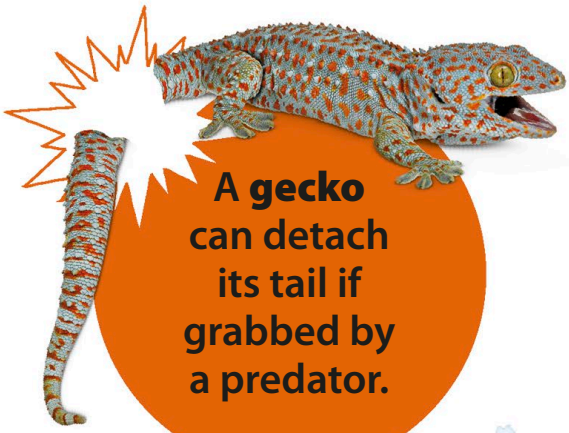
10,500

is the approximate number of reptile species in the world.

6,700

is the approximate number of amphibian species in the world.

On average, a **frog** completely **sheds** its skin **once** a week.



A **gecko** can detach its tail if grabbed by a predator.

Galápagos **tortoises** can live for over **100** years.

The North American wood frog can **freeze solid** for up to **3** months.

1

is the number of meals that some snakes eat per year.

220 lb (100 kg) is approximately how much the world's heaviest snake, the anaconda, can weigh.

Glossary

Here are the meanings of some words that are useful to know when learning all about reptiles and amphibians.

ambush To surprise and attack something

amphibians Cold-blooded animals that start life in the water before moving between land and water when fully grown

amphisbaenian A legless, burrowing reptile

armor A hard, protective outer layer

basking Lying in sunlight

breed To have young

caecilian A wormlike amphibian

camouflaged Blending in with surroundings to hide

carapace A bony shield that covers the back of a reptile such as a tortoise

carnivore An animal that eats other animals

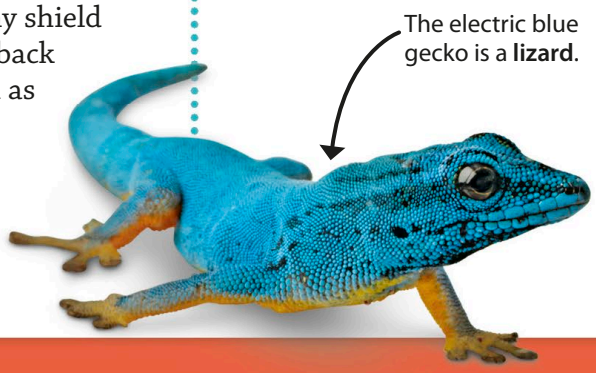
chelonia The part of the reptile family that includes tortoises, turtles, and terrapins

cold-blooded Animal whose body temperature changes with the environment

conservation Trying to stop an animal from becoming extinct

crocodilian Reptile family that includes crocodiles, alligators, caimans, and the gharial

endangered Any species of animal or plant that is in danger of not existing any more



environment The place where an animal lives and is suited to

fresh water Water that is not salty, such as rivers, lakes, and ponds

gharial A member of the crocodilian family with a long, thin snout

gills Organs of some amphibians that allow them to breathe underwater

habitat The place where an animal lives

hatch When a baby animal is born and cracks out of its egg

hatchling A newly-hatched animal, such as baby crocodile

herbivore An animal that only eats plants, fruit, and vegetables

hibernate To sleep through the winter

inflate To make something bigger by filling it with air

inhabit Live in

invertebrates Animals with no backbone

keratin A substance found in shells, claws, and skin

lizard Four-legged reptile with a tail

low tide When the sea level is at its lowest

marine Found in the sea

metabolism How a living thing uses food as energy

metamorphosis The way in which some animals change themselves into a different form when they become adults

migration The movement of groups of animals from one place to another

newt A type of salamander that lives mainly in water

nocturnal Being active at night

omnivore Animals that eat a mix of meat and plants

oviparous Laying eggs that then hatch

paralyzed Unable to move

plastron The part of a tortoise's shell that covers its underside

poisonous Something that contains chemicals that will hurt you if you eat it

predator An animal that lives by hunting and eating other animals

prey An animal that is hunted and eaten by another animal

rain forest A hot, damp forest habitat

reptile Cold-blooded vertebrates with scaly skin that reproduce by laying eggs

salamander An amphibian that lives in both land and water

salt water Water with a lot of salt in it, like seawater

scales Hard pieces of skin that cover a reptile's body

scute A bony plate on the body of an animal, such as a turtle's shell

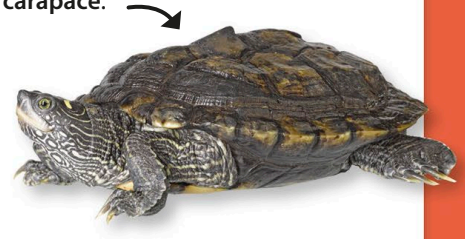
seaweed A plant that grows in the sea

snake Long, thin reptile with no legs

snout The nose or mouth of an animal

species Types of animals that can produce young together

The musk turtle has a bony **carapace**.



squamates The part of the reptile family that includes snakes and lizards

submerged Completely underwater

tadpole The young of a frog or toad

transparent See-through

tropical A place that is hot and humid

tuatara A member of the reptile family with no living relatives

venom A poisonous liquid that is produced by some reptiles and amphibians

vertebrates An animal that has a backbone, also called a spine

warning coloration Skin color that tells predators the animal is dangerous

zoology The study of animals

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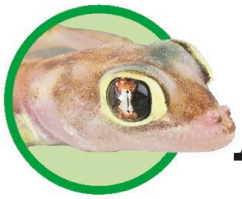

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About the author

Chris Mattison is a zoologist, wildlife photographer, and writer. He has over thirty years of experience photographing reptiles, amphibians, and other animals all over the world. His other DK books include *Snake*.