DK

Ask a Dinosaur

Could dinosaurs fly?

Why did you all die out?

Did dinosaurs sneeze?

Did you get toothache?

And it will answer you.

Ask a Dinosaur

This diagram shows you how big we were compared to an adult person.

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Contents

Are all fossils **dinosaurs?**

We are dinosaurs and you know about us because of our fossils. But our fossils are not the only ones found. Fossils are what are left of all the many animals and plants that lived millions of years ago.

Fossils can tell you when we lived and give you some clues (but not all) to how we and other prehistoric animals and plants lived.

5 things to know about us...

1. So far, over 700 types of dinosaur have been found, but there were certainly more of us.
2. We lived between 230 and 65 million years ago.
3. The word dinosaur means "terrible lizard."
4. We were not lizards; instead, we were a group of land reptiles that stood upright.
5. Female dinosaurs laid eggs.

When did you live?

Scientists believe Earth is billions of years old and have given names to its many time periods. They call the time when we lived the Triassic, Jurassic, and Cretaceous periods.

250 million years ago, all the land on Earth was joined together.

What other clues are there?

Different types of fossil can give you different clues.

Footprints and tracks can tell you how we walked and how fast we moved.

Coprolites are fossilized animal dung that can tell you what we ate.

Nest sites can tell you how we lived together.

Is it easy to put a dinosaur together?

No, because often only a few of our fossil bones are found. Paleontologists are people who uncover and study dinosaur fossils. Their work is like putting together a big jigsaw puzzle with many of the pieces missing.

I am a Stegosaurus, a large plant-eating dinosaur.

Can anyone find a **fossil?**

Fossils of dinosaurs are found buried in rocks all over the world. Beaches, quarries, riverbanks—and if you are very lucky even your own backyard—can be possible places to find fossils.

In North America, look for fossils of T-rex, Triceratops, Parasaurolophus, and many others.

What was the first dinosaur found?

Early people found dinosaur fossils but didn't know what they were. It was scientists in the 1800s who started naming us. I am an Iguanodon and I was one of the first to be named.

South America

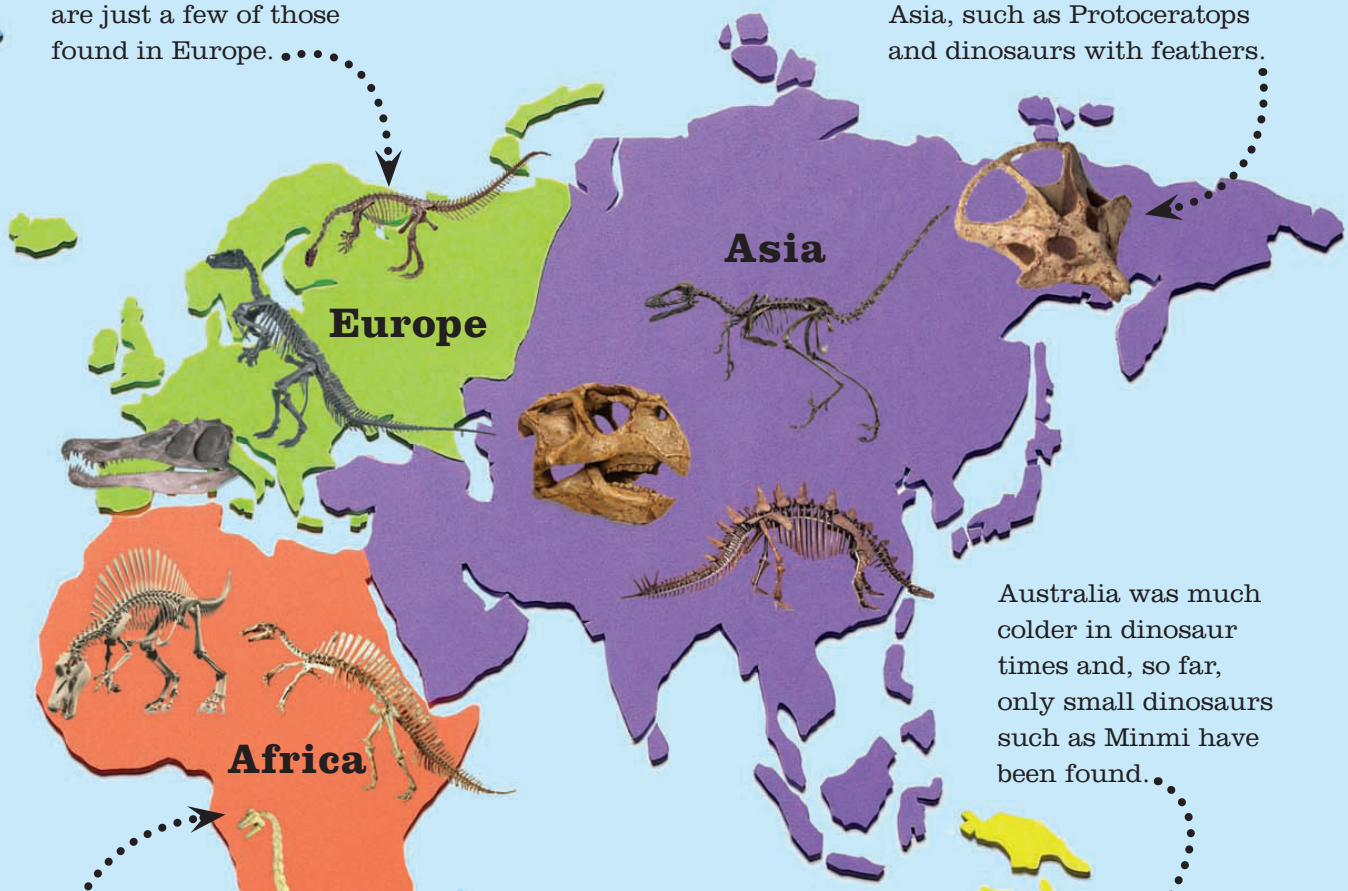
Some of the largest and oldest dinosaurs have been found in South America.

My thumb spike was put on my nose at first!

I could walk on four legs or run on two legs.

Fossils of Plateosaurus, Iguanodon, and Baronyx are just a few of those found in Europe.

Many fossils have been found in China and other parts of Asia, such as Protoceratops and dinosaurs with feathers.



Australia was much colder in dinosaur times and, so far, only small dinosaurs such as Minmi have been found.

The fossils of Brachiosaurus and Spinosaurus, along with many others, have been found in Africa.

Who names the dinosaurs?

The paleontologist who finds a new type of dinosaur can name it. The person might choose someone's name or use the place name where the fossil was discovered. Mostly, our names tell you something about what we looked like.

Australia and New Zealand

Antarctica

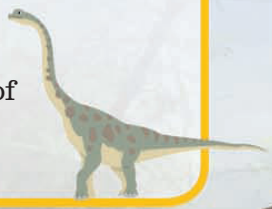
Antarctica was not as cold as it is now and dinosaurs lived here, including a type of hypsilophodont.

Were dinosaurs as **big as skyscrapers?**

Not quite, but there were some huge ones like me. I am a Barosaurus. I belong to the group of long-necked, long-tailed, plant-eating dinosaurs known as sauropods.

5 things to know about me...

1. I lived in the Jurassic period about 156–145 million years ago.
2. I've been found in North America and Africa.
3. My name means "heavy lizard."
4. I probably moved around in a herd.
5. I ate huge amounts of plants, such as conifer and tree ferns.



Did the ground shake when you moved?

Oh, yes! I weighed more than three elephants and walked in a similar way with my pillarlike legs underneath my bulky body.

Sauropod means **"lizard foot."**

My tail could be used **like a whip.**

You would only have been able to **stretch** up to reach my knee.

We grew so big because there were lots of **giant leafy plants** to eat at this time on Earth.

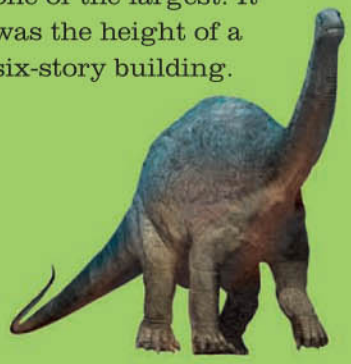
Could you reach to the top of very tall trees?

Not quite. My neck was very long, reaching over two car lengths, but I could not stretch it up very high.

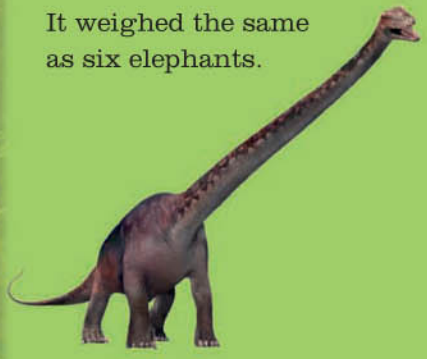
Which sauropods are the record breakers?

Sauropods are the biggest and heaviest animals ever to have walked on land.

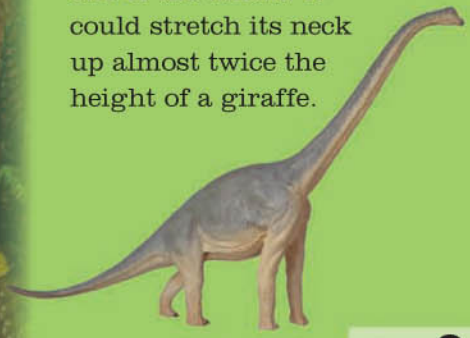
Argentinosaurus was one of the largest. It was the height of a six-story building.



Seismosaurus was one of the heaviest. It weighed the same as six elephants.



Brachiosaurus was one of the tallest. It could stretch its neck up almost twice the height of a giraffe.



Could dinosaurs **fly?**

No, we couldn't. But some of us did have feathers. I am a Caudipteryx. My feathers kept me warm.

I was the **size of a turkey.**

Dinosaur feathers were symmetrical like those of ostriches and other birds that can't fly.

Dinosaurs had holes in the sides of their heads, which led to ears inside, similar to what birds have.

5 things to know about me...

1. I lived in the Cretaceous period about 125 million years ago.
2. I've been found in China.
3. My name means "tail feather."
4. I ate plants and small creatures, like insects, lizards, and mammals.
5. I lived beside lakes and rivers.

What color were you?

No one actually knows. Colors are very, very rarely found on fossils. Paleontologists guess our color after thinking about how and where we lived.

Were there any spotted dinosaurs?

Very, very few fossils show what skin patterns we had. Only recently have fossils been found showing a striped pattern. No dinosaur fossils with spots have been found yet!

Which other dinosaurs looked like birds?

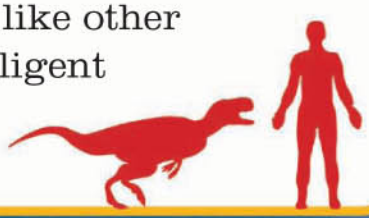
Birds have a lot in common with dinosaurs, so probably some of us may have changed into birds over a long period of time.

Sinosauropteryx was a dinosaur covered in small feathers.

Archaeopteryx is the earliest bird known.

Which was the **deadliest?**

Meat-eating dinosaurs were ferocious killers, but the dinosaur family of raptors were probaby the deadliest. I am a Deinonychus, and, like other raptors, I was a fast, cunning, and intelligent hunter. I was powerful and terrifying.



Can dinosaurs jump?

Yes, raptors were very agile, with muscular, long legs. We could jump onto the backs of much larger plant-eating dinosaurs to attack them.

Here's a model of my **skeleton** showing me leaping.

I could **see** very well and could probably **smell** my prey from as much as a mile away.

How did you kill?

Like a kung-fu fighter, I had a lethal kick! I had a large raised sickle-shaped claw on each foot, which I twisted forward to stab my victims as I kicked at them.

Foot fossil

5 things to know about me...

1. I lived in the Cretaceous period about 115–108 million years ago.
2. I've been found in North America.
3. My name means "terrible claw."
4. I ate rodents, lizards, and plant-eating dinosaurs.
5. I probably hunted in packs.

Why are you called raptors?

The word raptor comes from a Latin word meaning "to grasp." Today, raptors are birds of prey, such as eagles, which catch live prey. We are the dinosaurs who acted like them and some of us had feathers, too.

Velociraptor

My **hand claws** were used for slashing and ripping apart my prey.

My **teeth** were razor-sharp to bite and tear.

My **bony claws** were covered with a large hook of keratin, which is what your fingernails are made of.

My **long tail** helped me to balance as I kicked.

Were there **dragons?**

Dragons are made-up creatures in stories, but some dinosaurs did look and act as fierce as dragons. I am a Spinosaurus. I couldn't breathe fire, but I would have been a frightening sight.

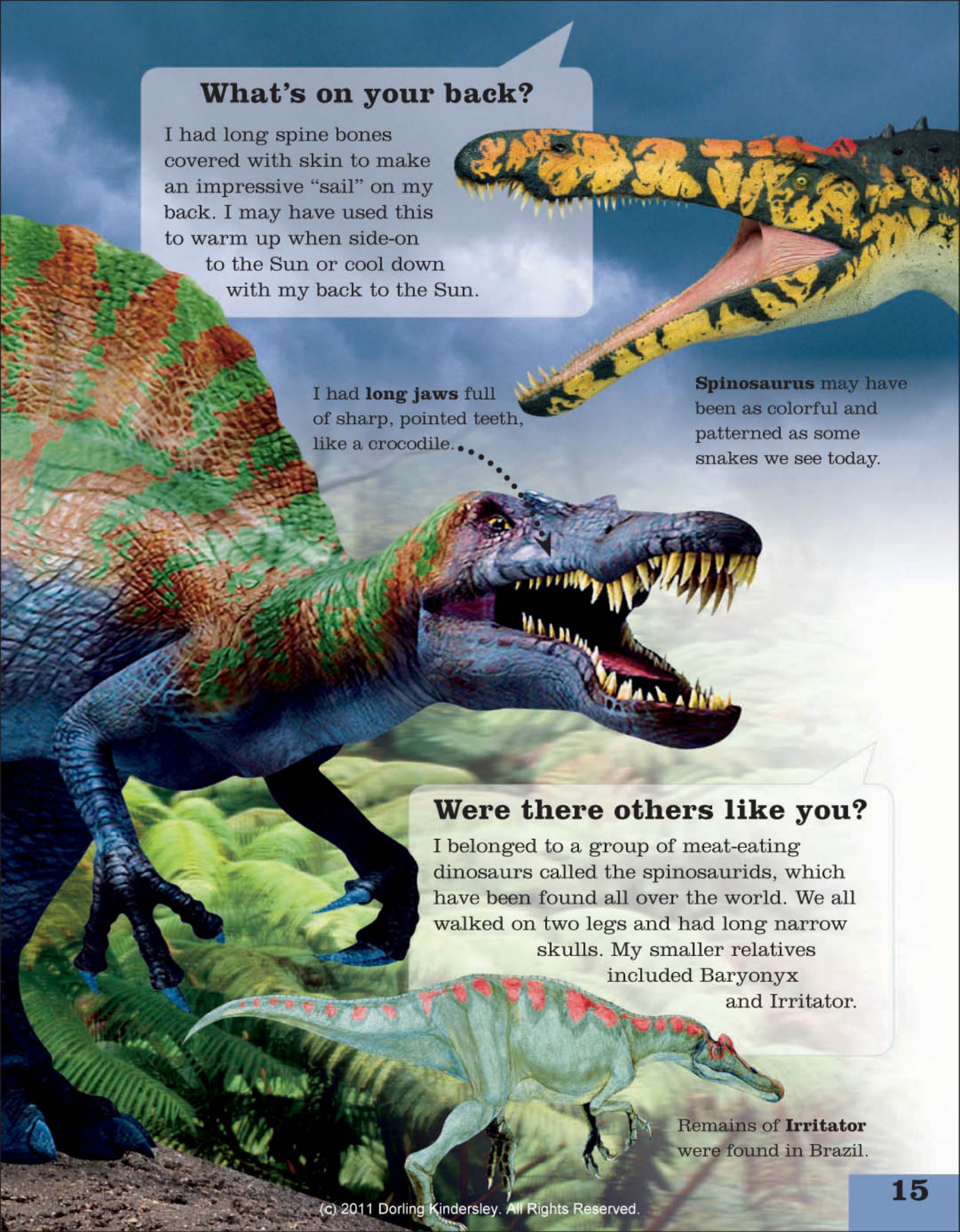
I was larger than a Tyrannosaurus.

I lashed around my **long, stiff tail** to knock over prey.

I impressed my mates with my **huge "sail."**

5 things to know about me...

1. I lived in the Cretaceous period about 106–94 million years ago.
2. I've been found in North Africa.
3. My name means "spine lizard."
4. I ate large fish, dinosaurs, and flying reptiles.
5. I was probably one of the smartest dinosaurs.



Did baby dinosaurs **play?**

We are Leaellynasaura, and we were probably fed, protected, and raised by our mothers. We may have learned how to find food, get along with others, and survive through playing.

Were your nests cozy?

Our nests were made from soil and leaves and they were closely packed together, a bit like the nests of seabirds today.

Eggs were laid in a circular pattern.

We had **larger eyes and a shorter snout** than our parents so that we looked cute, which made our mothers want to look after us.

Is this your mom or is it your dad?

It's guesswork! Some paleontologists think female dinosaurs may have had bigger hips for laying eggs and were a little bigger than the males. Although the males may have had big features to impress a mate.

Maiasaura means "good mother lizard."

Did dinosaurs sneeze?

Probably, since we did have nostrils. Many dinosaurs are thought to have had a good sense of smell for finding food and sensing dinosaurs nearby.

In our time, Australia was a cold place with long, dark winters, so it was very hard for us to survive.

5 things to know about us...

1. We lived in the Cretaceous period about 106 million years ago.
2. We've been found in Australia.
3. Our name means "Leaellyn's lizard," after the daughter of the paleontologists who found us.
4. We ate tough plants.
5. We had large eyes to help us find food in the dark.

Were dinosaurs **noisy?**

I am a Parasaurolophus and it's thought I made a very loud noise to warn other dinosaurs that an enemy was nearby. I'm one of many dinosaurs that had a large hollow crest on its head. Mine was a little like the tube of a trombone.

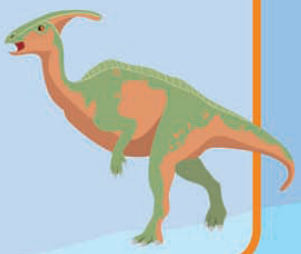
Did you get toothaches?

Probably. I had more than 1,000 teeth behind my ducklike beak. These cheek teeth were tightly packed in rows for grinding tough plants.

Fossilized skull

5 things to know about me...

1. I lived in the late Cretaceous period about 76–73 million years ago.
2. I've been found in North America.
3. My name means "like crested lizard."
4. I lived in herds for protection.
5. I ate tough plants, such as pinecones and bark.



My tough, long snout was like a duck's beak.

When I leaned my head backward, my crest touched this **notch on my back.**

A tall, very thin man could have fit inside my crest.

What plants did you eat?

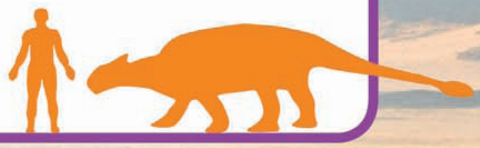
I belonged to the largest group of plant-eating dinosaurs known as hadrosaurs. Some of us were grazers, eating plants on the ground, while others were browsers, reaching for higher leaves and branches.

Were there other crest shapes?

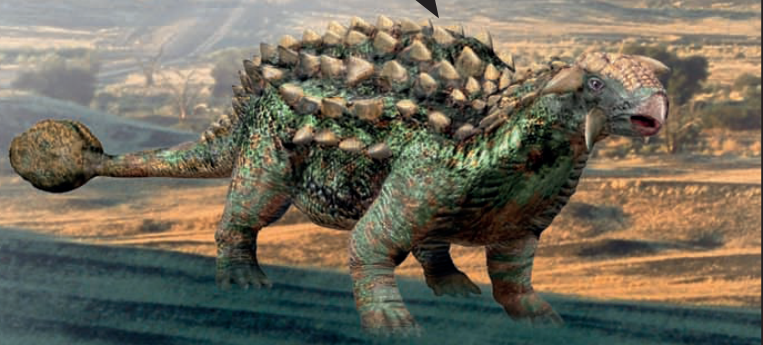
The crests of hadrosaurs were all kinds of sizes and shapes. Some looked like plates, unicorn horns, or helmets.

Were dinosaurs **lazy?**

I am an Ankylosaurus, and like other plant-eating dinosaurs, I had a mostly peaceful life except when I was attacked. My huge, heavy body was covered in thick bony plates and two rows of spikes. This acted like armor, protecting me from meat-eating dinosaurs.



Large, heavy body with oval bony plates and spikes



Were there others like you?

I belong to a group of armored dinosaurs called ankylosaurs.

Euoplocephalus had bony studs on its back and a tail club.

Edmontonia had rows of spikes.

Gastonia had spikes on its back and tail.

What did you do all day?

I ate and ate. I had to eat huge amounts of plants just to keep going. My stomach was very large so it could digest all the tough food. This made me let out huge amounts of gas!

Were dinosaurs smart?

Not really, but we did survive for millions of years. Huge plant-eating dinosaurs like us had tiny brains. However, the meat-eaters had larger brains and could plan an attack.

5 things to know about me...

1. I lived in the late Cretaceous period about 70–65 million years ago.
2. I've been found in North and South America.
3. My name means "fused lizard."
4. I lived in woodlands.
5. I ate low-lying plants.

Wide skull with a tiny brain

Short neck

Four short legs with five-toed feet

Meat-eating dinosaurs would have **broken their teeth** on my armored skin.

Were you strong?

Tail club

Oh, yes! I had a heavy bony club at the end of my tail that I could swing at attackers.

Was Triceratops **brave?**

I am a Triceratops and I belong to the group of "horned-face" dinosaurs. I was brave enough to fight back against a meat-eating dinosaur, using my long, sharp horns.

I was like a **large rhinoceros.**

My horn was about **3 ft (90 cm)** long.

I looked impressive with my **large spiky frill.**

I had a **toothless beak** and small cheek teeth.

What's your frill made of?

Our frills were made from bone. They made us look bigger and protected our necks when we were attacked by meat-eating dinosaurs.

Protoceratops was the size of a sheep.

Fossils of Protoceratops of all ages have been found in the Gobi Desert in Asia.

Skull of newly hatched baby

What was your favorite food?

I was a plant-eater and ate lots of low-lying plants, such as cycads, which I would break off with my parrotlike beak.

What other dinosaurs had frills?

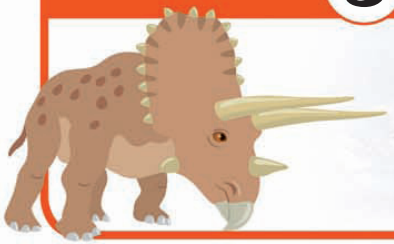
There were many, including these three dinosaurs:

Styracosaurus had a fancy, horned frill.

Protoceratops only had a head crest.

Pentaceratops had an enormous neck frill about the size of a car.

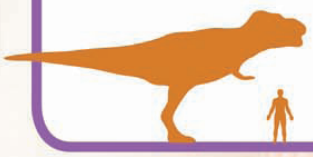
5 things to know about me...



1. I lived in the late Cretaceous period about 68–65 million years ago. **2.** I've been found in North America.
3. I lived in herds for protection.
4. My name means "three-horned face."
5. My main enemy was Tyrannosaurus.

Where is the biggest **T-rex?**

I'm Sue, and I'm the biggest T-rex found so far. My almost complete skeleton was discovered in 1990 by the fossil hunter, Susan Hendrickson. An exact copy of my fossilized bones was made and can be seen at The Field Museum in Chicago.



5 things to know about me...

1. I lived in the late Cretaceous period about 67–65 million years ago.
2. I've been found in North Africa.
3. My name means "tyrant lizard king."
4. I ate large plant-eating dinosaurs.
5. I was the largest meat-eater in my area.

The **"T"** stands for Tyrannosaurus, a type of **meat-eating dinosaur**.

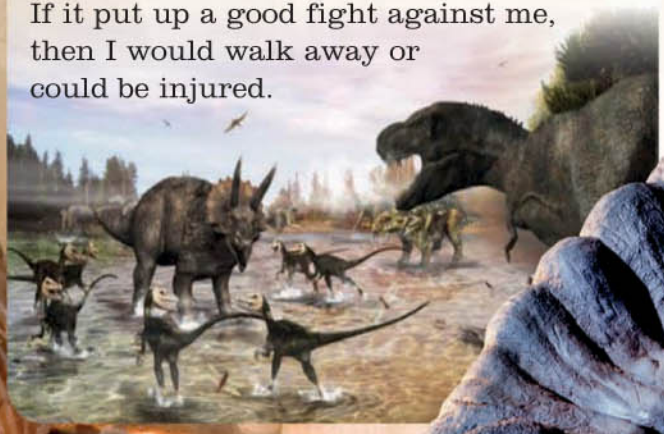
Why were your arms so small?

Paleontologists just don't know. But they do think my arms were too short to use for getting up or eating.

Dinosaur skulls had **large holes** in them, which made them light. This was needed, since some heads were bigger than armchairs.

Did you always win?

No. Plant-eating dinosaurs, like Triceratops, had powerful defenses. If it put up a good fight against me, then I would walk away or could be injured.



How many teeth did you have?

I had about 58 teeth, which I used to stab, tear, and grip my prey. They had serrated, or sawlike, edges, so I could slice through bones.

Many dinosaur teeth have been found, since they often fell out and new ones grew.

Could dinosaurs **swim?**

Dinosaurs were land reptiles and did not swim. But they did live by lakes and rivers, where they wallowed in water and caught fish to eat. There were other reptiles that could swim and lived in the oceans. I am an Elasmosaurus.

What creatures were in the oceans?

I'm not a dinosaur, but a swimming reptile known as a plesiosaur. I was one of many reptiles that lived in the sea when the dinosaurs were around.

My **long neck** was more than half my whole length.

Four paddle-like **flippers**

Elasmosaurus

Ichthyosaur

What was the biggest reptile in the ocean?

The shorter-necked pliosaurs were far larger than me. Liopleurodon was one of the largest, with a huge head and very strong jaws full of large rounded teeth for crushing food, such as large sea reptiles, shellfish, and squid.

Liopleurodon

5 things to know about me...

1. I lived in the Cretaceous period about 85–65 million years ago.
2. I've been found in North America.
3. I am the second-longest plesiosaur.
4. I ate fish, ammonites (mollusks), and belemnites (squidlike mollusks).
5. I swallowed stones to help digest my food.

What did sea reptiles eat?

Some of the creatures sea reptiles ate are still around today.

Squid have been around for over 400 million years.

Jellyfish have been around for 400 million years.

Sea snails have been around for over 500 million years.

Mosasaur

How fast did you swim?

I was a very slow swimmer, stalking groups of fish and hunting prey. Ichthyosaurs were much faster than me and later on the mosasaurs were very agile and powerful swimmers, taking our food.

Fish included the ancestor of the great white shark.

Can dinosaurs be brought **back to life?**

Around 65 million years ago we all disappeared. Some scientists have used modern technology to try to bring back one of us. They haven't, however, succeeded yet!

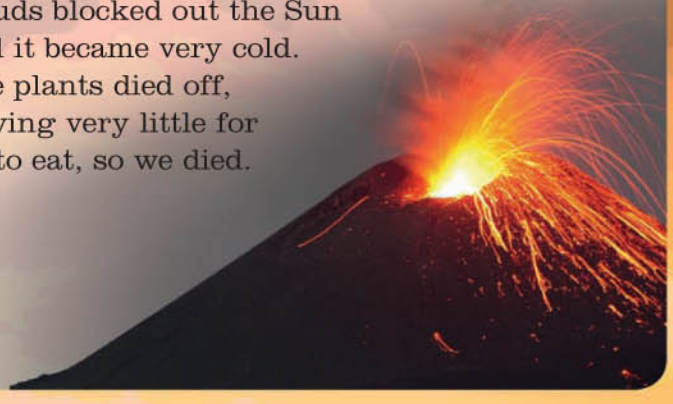
Did you become sick?

Animals do get sick, so it's likely dinosaurs did, too, but fossils don't give any clues to this. However, 65 million years ago something more dramatic caused dinosaurs and other large flying and swimming reptiles to die out completely.

A meteorite crashes into Earth.

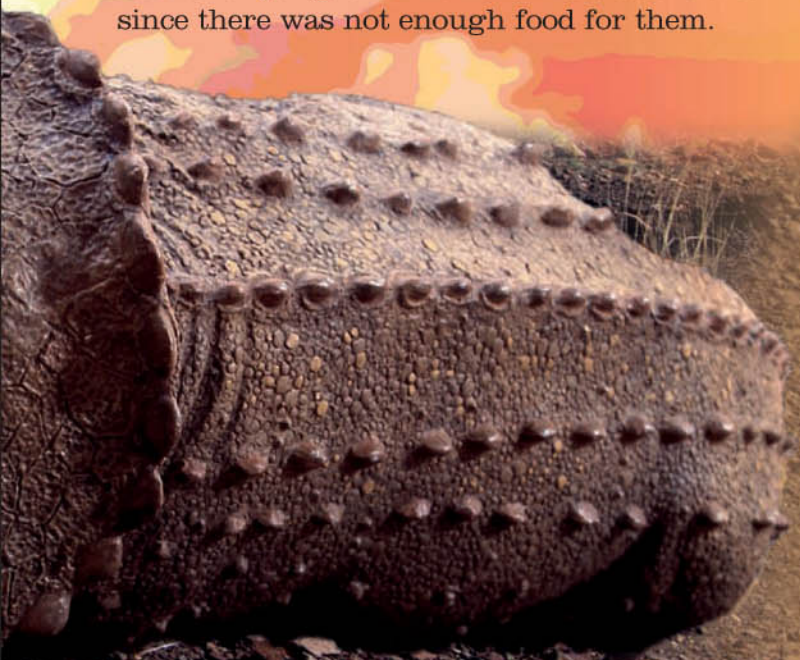
Why did you all die out?

Scientists have a few ideas. Some of them think giant rocks from space, known as meteorites, smashed into Earth, making a dust cloud of poisonous fumes. At the same time, lots of volcanoes erupted, sending up clouds of ash and dust. These dust clouds blocked out the Sun and it became very cold. The plants died off, leaving very little for us to eat, so we died.



Which dinosaur died last?

Probably, it was a meat-eating dinosaur. Plant-eaters would have died first from the cold and from hunger, since the plants they ate no longer grew. Then the meat-eaters died since there was not enough food for them.



What land animals survived?

Although all the dinosaurs died out, some smaller creatures survived. These included small reptiles and insects, as well as some mammals and birds.

Who were the **record holders?**

Which was the largest flying reptile?

Quetzalcoatlus was the largest pterosaur. It had a wingspan of about 43 ft (13 m). That's the length of one of the wings on a Boeing 737 aircraft.

Which had the largest claw?

Therizinosaurus had claws 3 ft (90 cm) long. That's as long as an adult person's arm.

From big to small, we ruled Earth for 165 million years!

Which was the biggest meat-eater?

Giganotosaurus was the biggest meat-eating dinosaur. It was 50 ft (15 m) long. That's more than three car lengths.

Which was the smallest dinosaur?

The smallest dinosaur fossil found was of a baby Mussaurus. It was the length of a pencil.

Which was the longest?

Seismosaurus was 130–165 ft (40–50 m) from its nose to the end of its tail. That's about the same as eight African elephants in a row.

Which was the smartest?

Troodon had a very large brain compared to its body size. This means it was brighter than other dinosaurs and may have been as smart as birds today.

Which laid the largest egg?

The fossilized eggs of Macroelongatoolithus xixiaensis have been found in China. They were 18 in (46 cm) long, which is about the size of this open book.

Which was the fastest?

Struthiomimus, one of the ostrichlike dinosaurs, may have reached speeds of 43 mph (70 km/h).

Glossary

Cretaceous A period of time on Earth between 145 and 65 million years ago.

Dinosaur A reptile that walked on land in an upright way.

Fossils The remains of a plant or animal that lived millions of years ago found in rock.

Herd A number of animals of the same type that stay together in a group.

Jurassic A period of time on Earth between 200 and 145 million years ago.

Mate A pair of animals that have young together.

Paleontologist A person who studies the fossils of prehistoric plants and animals, including dinosaurs, to find out more about them.

Prehistoric A time before events of the past were written down.

Prey An animal hunted and killed for food.

Reptile A scaly animal that lives on land and lays eggs, such as a snake, a turtle, and a lizard.

Species A type of plant or animal that shares the same features and can have young together.

Triassic A period of time on Earth between 251 and 200 million years ago.

Acknowledgments

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