

Doodle
With
Duddle

How to Draw
DINOSAURS

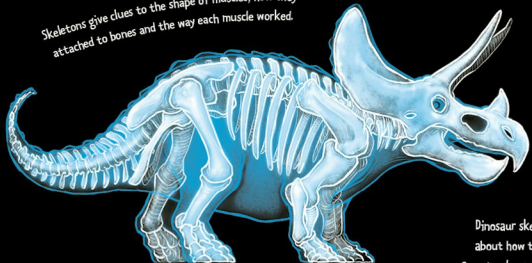


JONNY DUDDLE

SKELETONS

As palaeontologists discover more fossils and build more dinosaur skeletons, a clearer picture emerges of what dinosaurs looked like.

Skeletons give clues to the shape of muscles, how they attached to bones and the way each muscle worked.

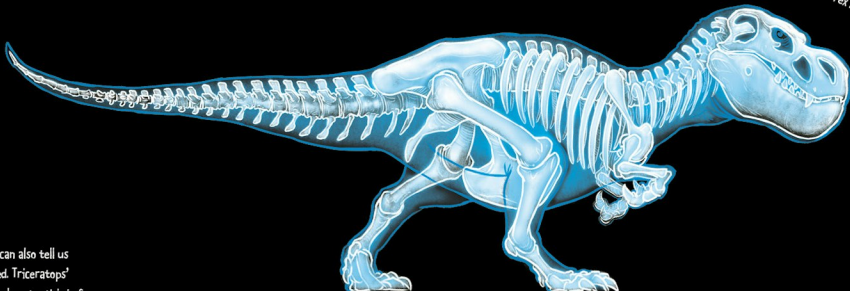


Dinosaur skeletons can also tell us about how they lived. Triceratops' 3-metre-long skull was almost a third of its whole length and protected its body from hungry predators.

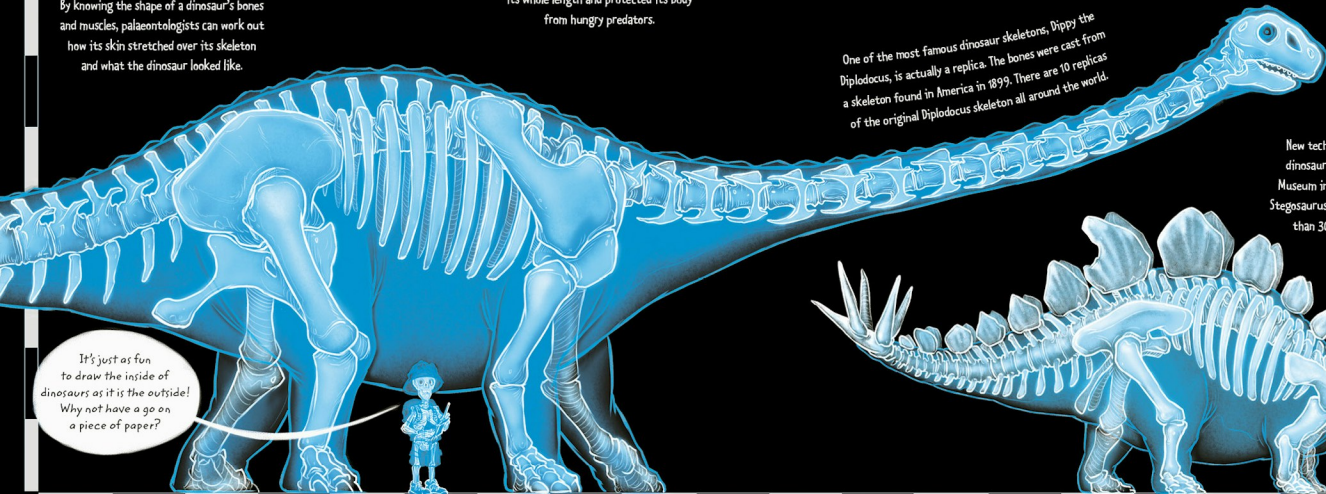
By knowing the shape of a dinosaur's bones and muscles, palaeontologists can work out how its skin stretched over its skeleton and what the dinosaur looked like.

It's rare to find a complete dinosaur skeleton. Museums often assemble them by using bones from a few dinosaurs of the same type. Prehistoric flood waters may have separated the bones, or a hungry predator might've stolen bones for a tasty snack!

In 2023, a Tyrannosaurus rex skeleton sold for \$5 million US dollars, but it was actually made up from three different T-rex skeletons. Only half the skeleton was fossilised bone, with the rest made up of plaster casts of other T-rex bones.

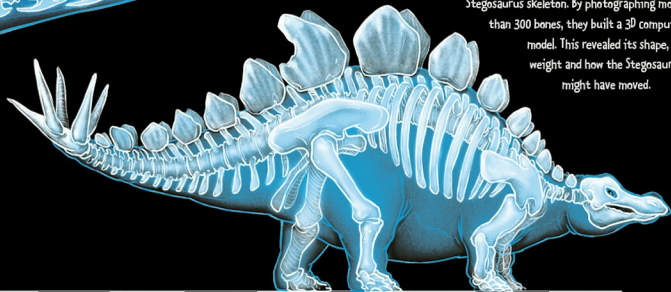


One of the most famous dinosaur skeletons, Dippy the Diplodocus, is actually a replica. The bones were cast from a skeleton found in America in 1899. There are 10 replicas of the original Diplodocus skeleton all around the world.



It's just as fun to draw the inside of dinosaurs as it is the outside! Why not have a go on a piece of paper?

New technology can help us understand dinosaur skeletons. The Natural History Museum in London has an almost complete Stegosaurus skeleton. By photographing more than 300 bones, they built a 3D computer model. This revealed its shape, weight and how the Stegosaurus might have moved.

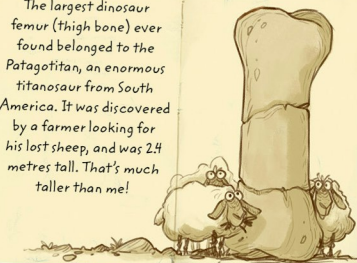


SAUROPODS

Sauropods were the largest animals EVER to have walked the earth! While palaeontologists might disagree about how big specific sauropods really were, we CAN be sure that titanosaurs like *Argentinosaurus*, *Patagotitan* and *Dreadnoughtus* were absolutely GIGANTIC. At around 60 tonnes, a *Dreadnoughtus* weighed more than 12 elephants. These plant-eating beasts had incredibly strong legs, long tails and towering necks with tiny heads.

Camarosaurus was a medium-sized sauropod with a shorter neck, and is the most common sauropod fossil found in North America. It had a blunt nose and an arched skull that gave it a very square head, with 19-centimetre-long teeth shaped like chisels, for eating tough plants.

The largest dinosaur femur (thigh bone) ever found belonged to the *Patagotitan*, an enormous titanosaur from South America. It was discovered by a farmer looking for his lost sheep, and was 2.4 metres tall. That's much taller than me!



If you're wondering how a sauropod could hold such a long and heavy neck in the air, their neck bones were full of holes, like honeycomb, which helped keep them light but strong.

If you could name a sauropod, what would you call it?

MEGASAUROUS
VERYDIGOSAUROUS

A typical sauropod loved its greens, eating at least 45 kilograms of plants every single day. I reckon that's about 150 lettucees!

The heaviest *Argentinosaurus* may have weighed up to 100 tonnes, and reached 40 metres in length, from its nose to the tip of its tail!

Brachiosaurus' forelimbs were taller than its hind legs, which gave it a steeper tummy than most sauropods and angled its neck high into the air. This must have been ideal for ripping leaves off the tallest trees.

Diplodocus was an extremely long dinosaur. Its tail made up almost half of its length – reaching 12 metres or more!

Europasaurus was a small sauropod that lived in the late Jurassic period. They were isolated from the rest of the dinosaur world on an island, which might be why they only weighed about 800 kilograms – a similar weight to a horse, but they were less fluffy and had a MUCH longer neck!

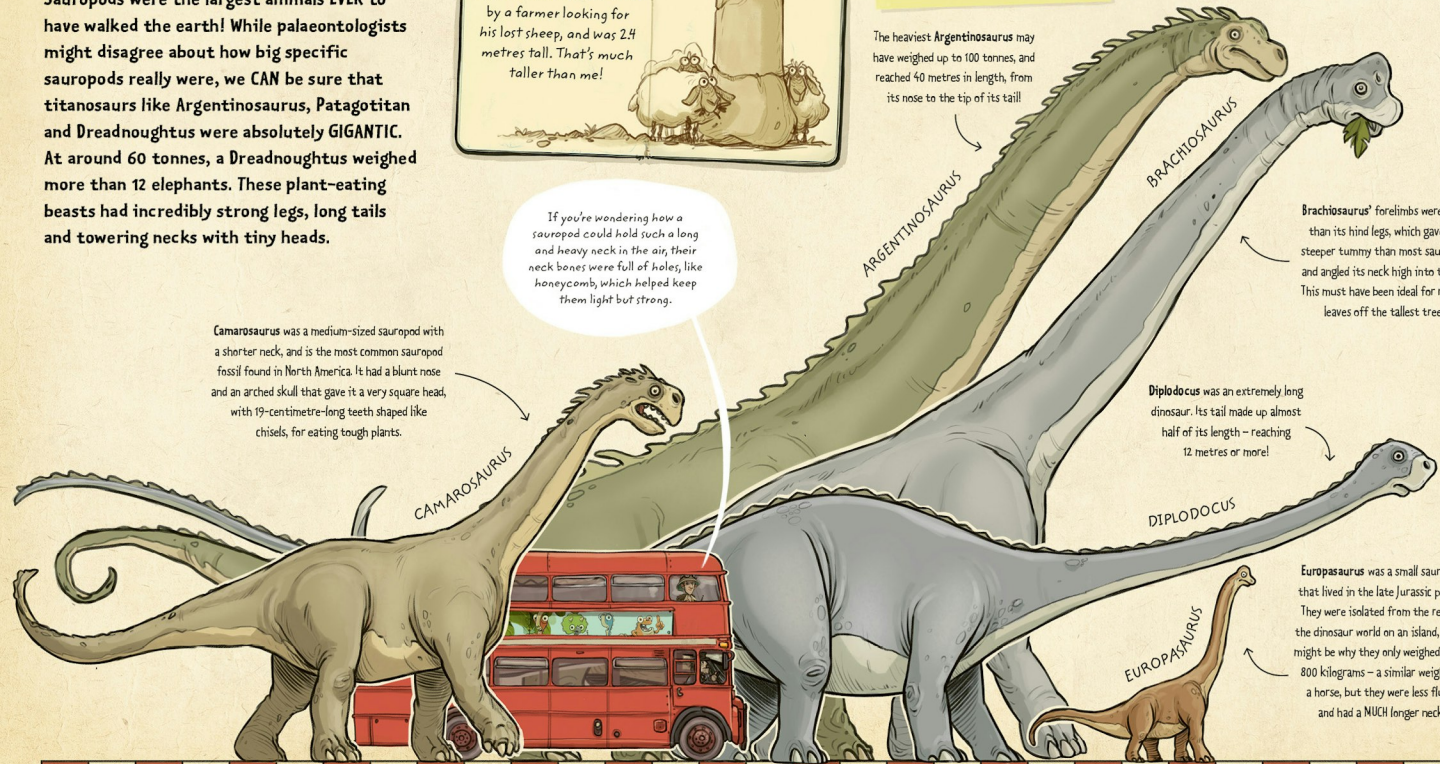
CAMAROSAURUS

ARGENTINOSAURUS

BRACHIOSAURUS

DIPLODOCUS

EUROPAZAURUS



HOW TO DOODLE... GIGANTOSAURUS

1



Gigantosaurus' body is an egg shape, with a head like a peanut. Draw those shapes, joined by a curved neck. Leave gaps for the legs, arms and tail.

2



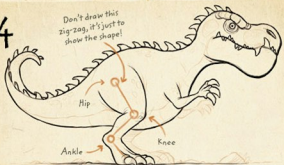
Draw a long tail with a pointy end. Add a wavy line for his mouth, and draw a circle for his eye, with a dot in the middle.

3



Draw lots of teeth, pointing up and down, a chunky eyebrow and a thin nostril. Add a row of spikes along his back, from his head to the end of his tail.

4



Next, draw Gigantosaurus' leg. Start with a chunky thigh, down to a long foot with pointy toenails. Draw his tiny arm, with three sharp claws.

5



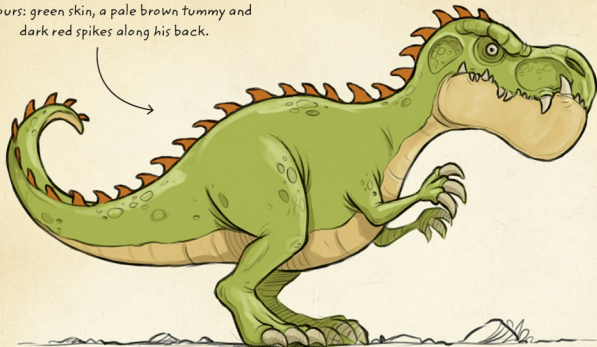
Draw a line, from his mouth down his tummy and along his tail where his skin changes colour. Add the far-side leg and arm and shade them in.

6



Finally, add more details: hollows on his face, either side of his eye, scaly patches and wrinkles around his arms and legs.

When you've finished drawing all the lines, colour him in! Gigantosaurus has three main colours: green skin, a pale brown tummy and dark red spikes along his back.



If you want to draw Gigantosaurus even BIGGER, you could doodle on a BIG piece of paper instead.

DINO DETAILS

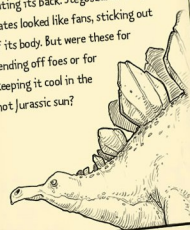
Dinosaurs were impressive creatures, but they were even MORE impressive up close! While we can work out the shape of a dinosaur from its bones, it's harder to work out all the little details because fossils of skin and feathers and all the soft squidgy bits are harder to come by. But we do have clues...

Unique Physique

Ankylosaurus and Stegosaurus had tail weapons made from the same bony material called osteoderms, but they looked completely different.



Ankylosaurus had protective bony plates that grew from within its skin, armour-plating its back. Stegosaurus' bony plates looked like fans, sticking out of its body. But were these for fending off foes or for keeping it cool in the hot Jurassic sun?



Watch the Horns!

Triceratops had lots of cousins with different horn arrays. Styracosaurus had six long pointy horns fanning from its neck frill. Regaliceratops' horns resembled a crown.



Competitive Crests

While Parasauroplophus had the loudest prehistoric crest, other dinosaurs such as Dilophosaurus and Corythosaurus also had interesting crests atop their heads!



Bumpy Skin

There are very few pieces of fossilised dinosaur skin, but there are trace fossils, where dinosaur skin has pressed into mud and left a pattern. These show us that dinosaurs had scaly skin.



Feathers!

Some theropod fossils show feathers growing from their scaly skin. Chicken skin has a similar pattern to some dinosaur fossils, and the birds we know today are the closest living relatives of theropod dinosaurs.

Velociraptors had lots of feathers and looked quite bird-like, but I think I'd rather meet a chicken than a Velociraptor!



She's my chicken cousin!

Creative Colours

What colour was a dinosaur? Nobody really knows, because we can't see colours in fossils. Palaeontologists and artists make a guess when they paint dinosaurs. We'd need dinosaur skin to work out their actual colours but, after 65 million years, it's too late for that!



Some scientists think that dinosaurs were grey or green - camouflaged to blend in with their surroundings. Others think they could have been brightly coloured. What do you think? Why not colour Tiny here?

