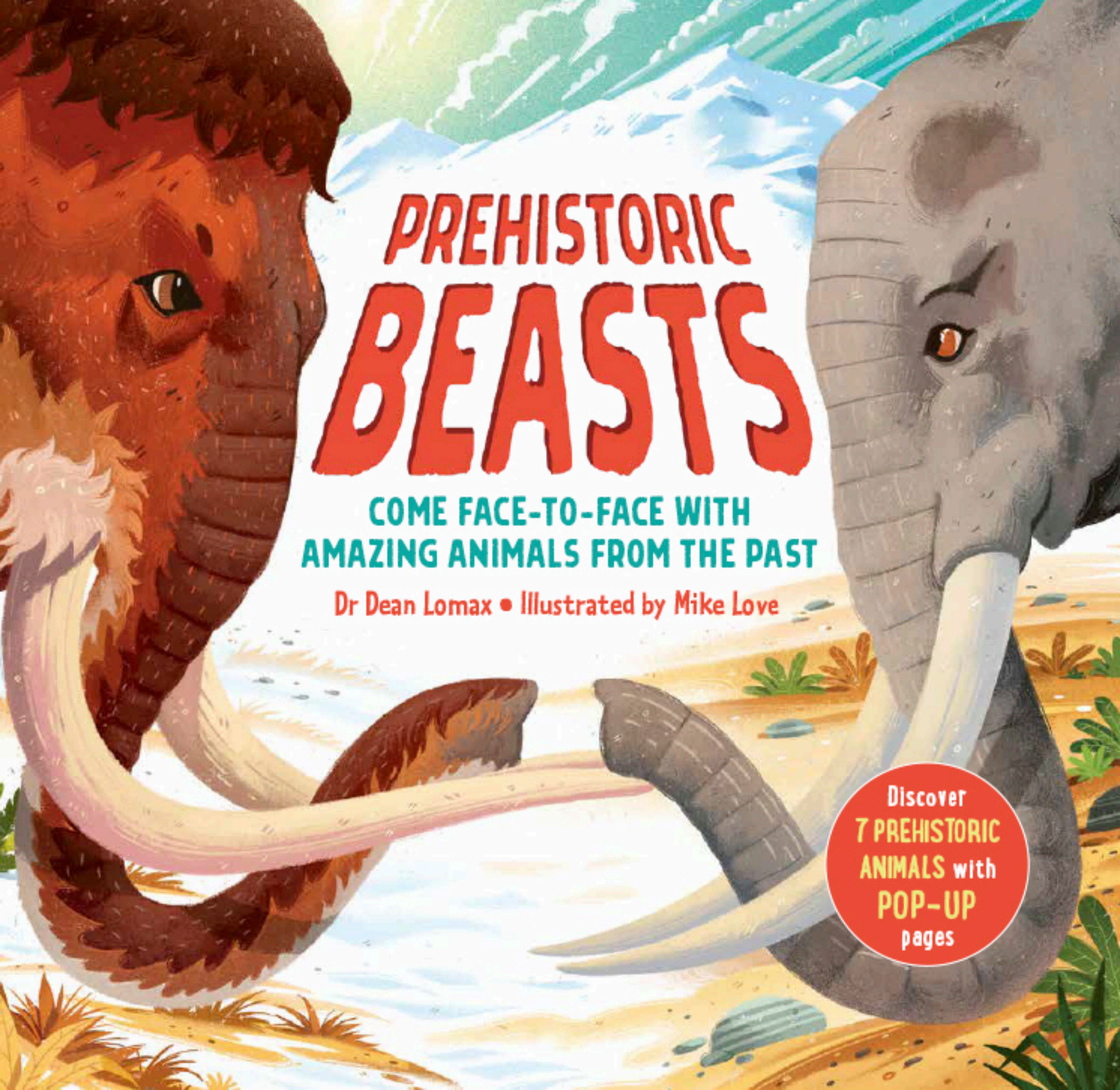

PREHISTORIC
BEASTS
COME FACE-TO-FACE WITH
AMAZING ANIMALS FROM THE PAST
Dr Dean Lomax • Illustrated by Mike Love
Discover
7 PREHISTORIC
ANIMALS with
POP-UP
pages

Have you ever wondered what a penguin's great, great, great, great, GREAT grandparents looked like?

From tropical jungles and open oceans to polar lands, Earth is home to an amazing variety of animals. But did you know that lots of them have fascinating prehistoric secrets? By studying fossils from around the world, we can trace wild animals back to incredible beasts from the past.

ABOUT THE AUTHOR

Dr Dean Lomax

Palaeontologist (scientist who studies fossils)

Being a palaeontologist is one of the coolest jobs on the planet! Unearthing new fossils is one of the most exciting parts. Using special tools, rock is carefully chipped away to reveal the bones of prehistoric animals for the first time in millions of years. Some digs contain thousands of fossils and it may take tens of years to unearth them from their ancient rocky tombs.

When I'm not digging up fossils, I'm studying them. I piece together clues to work out which prehistoric animals are related to those alive today. From studies, we know that the only living dinosaurs today are birds! But many other modern animals, from the blue whale to the elephant, have equally fascinating ancient ancestors.

Some prehistoric animals are ANCESTORS of our favourite wild creatures. This means that if you traced a whales family tree back through enough generations, you'd eventually get to the oldest known whale.

Other prehistoric animals are RELATIVES. This means that they are closely but not directly related. Like distant cousins, they share the same ancestor at one point far back in time.

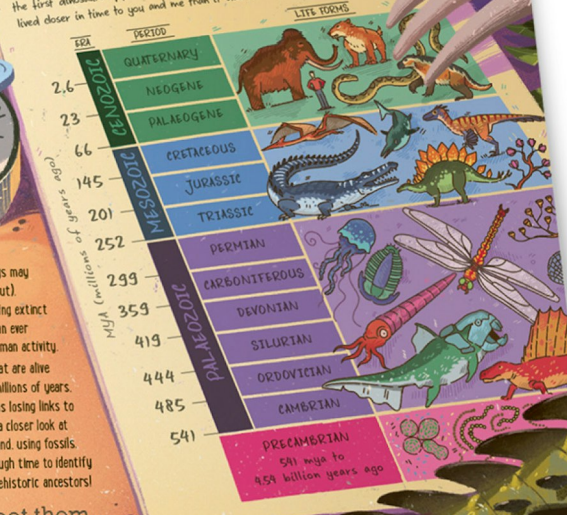
For Evelyn and Aelfred – D. L.

Over time, living things may become extinct (die out). Today, animals are going extinct at a quicker rate than ever before because of human activity. All of the animals that are alive today evolved over millions of years, so losing them means losing links to the past. I've taken a closer look at seven wild animals and, using fossils, I've traced back through time to identify their remarkable prehistoric ancestors!

Let's meet them...

TIMELINE OF LIFE ON EARTH

Earth is around 4.54 billion years old! Its lifetime is split into segments called eras and periods, which show when different life forms lived. Not all prehistoric animals lived at the same time. In fact, some animals, such as the dragonfly relative Meganeura (Carboniferous Period), were actually extinct and fossilized long before the first dinosaurs appeared in the Triassic Period. Even T. rex (Cretaceous Period) lived closer in time to you and me than it did to Stegosaurus (Jurassic Period)!




African Elephant
Meet Axel the African bush elephant. Not only do elephants have huge bodies, but they also have large ears, supersized teeth and a long nose called a trunk. Axel is a mammal belonging to the elephant family, called Elephantidae, whose earliest members appeared as much as 8 million years ago during the Miocene period.
DID YOU KNOW...
Some African elephants seek out salty rocks to eat in caves at the base of an extinct volcano.
Axel's trunk is a very long – and useful – nose. It can 'trumpet' to communicate with others. It can be used like a hand to pick up food and suck water from rivers and it can suck up water like an enormous straw!
Axel lives on the African savanna, where it is extremely hot and dry for most of the year. To keep cool, his giant ears act like radiators, letting body heat escape. Flapping them like a fan helps, too.
Elephants can eat for up to 18 hours a day and go through six sets of molar teeth in their lifetime! Their enormous tusks are actually incisor teeth. They use them to dig in the ground, strip bark from trees, and for fighting.
MAMMUTHUS
Axel's close cousin is the legendary woolly mammoth. Mammuthus primigenius (mam-mu-thuss prim-i-jee-nee-uhs). It was similar in body size to Axel but was covered fur! It lived across Europe, Asia and North America from at least 400,000 to just 4,000 years ago. The last woolly mammoth died almost 1,000 years after the ancient Egyptians had built the Great Pyramids of Giza!
A DAY IN THE LIFE...
Woolly mammoths lived during the Ice Age, roaming vast northern grasslands called mammoth steppes. Winters were long and freezing cold. Their diet was made up of plants, including grasses and flowers. Like elephants today, living in herds would have provided extra safety against predators, such as sabre-toothed cats and early humans. They also lived alongside another big, hairy mammal: the woolly rhinoceros.
DID YOU KNOW...
One of the greatest fossils ever discovered shows two gigantic Columbian mammoths (Mammuthus columbi) fighting with their tusks interlocked.
FOSSIL FILE
MIGHTY MAMMOTHS
The skeletons and remains of thousands of woolly mammoths have been discovered. The first skeleton to be studied in detail, complete with skin and hair, was found frozen in ice in Siberia in 1799. Palaeontologists have identified ten species of mammoth. The earliest lived in South Africa 5.2 million years ago. Some were larger than the woolly mammoth, whereas others stood one metre tall.
CLOSE
250 centimetres
Adult's mammoth skull
ICE BABY
In 2002, a 42,000-year-old woolly mammoth calf was discovered in Siberia. Named Lyuba, it's the most complete mammoth mummy found. The calf's organs, along with its last meal of the mother's milk, are preserved.
SHOVEL TUSK
Platybelodon belonged to an unusual family of proboscideans nicknamed 'shovel-tuskers'. They used the flat, shovel-shaped tusks in their lower jaw to strip, scrape and slice.

Great White Shark

This is Brody the great white shark. At up to 6 metres in length, this shark is the largest predatory fish. Found throughout the world's oceans, Brody is a top predator and skilled hunter, armed with a jaw full of triangular razor-sharp teeth. The earliest sharks evolved more than 400 million years ago during the Paleozoic Era.

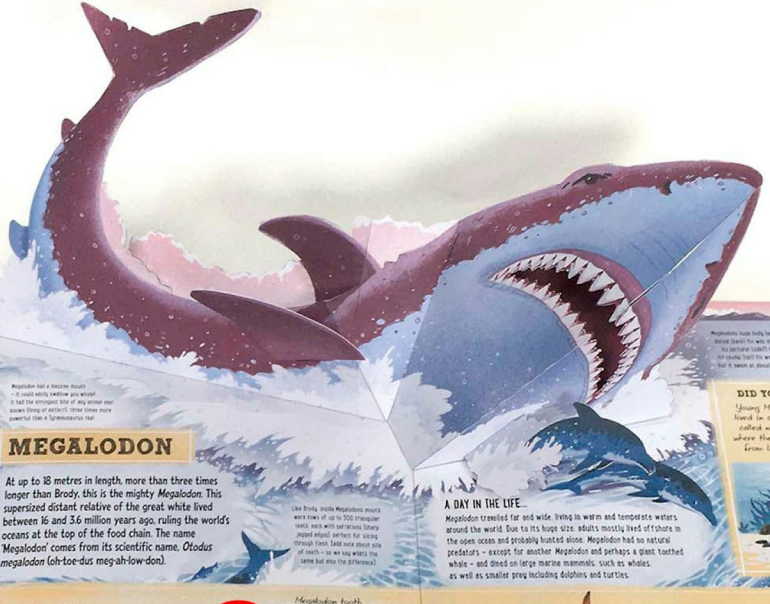
DID YOU KNOW...

- Sharks smell good. A shark's nose detects the equivalent of a teaspoon of blood in a swimming pool from hundreds of metres away.

Brody hunts marine mammals such as seals and small whales. His jaws are lined with around 300 teeth arranged in rows. As one tooth falls out it is quickly replaced by another from the row behind, like a conveyor belt.

By moving its powerful crescent-shaped caudal (tail) fin from side-to-side, a great white shark can power itself through the water to reach a top speed of 40 kilometres per hour – as fast as a 100-metre sprinter!

Great whites are dark on top and white underneath. This colouration is known as countershading and it is a form of camouflage that helps it to blend into its environment and prevent prey from spotting it.



Megalodon had a massive mouth – it could easily swallow you whole! It had the strongest bite of any animal ever known (living or extinct), three times more powerful than a Tyrannosaurus rex!

MEGALODON

At up to 18 metres in length, more than three times longer than Brody, this is the mighty Megalodon. This supersized distant relative of the great white lived between 16 and 3.6 million years ago, ruling the world's oceans at the top of the food chain. The name 'Megalodon' comes from its scientific name, Otodus megalodon (oh-toe-dus meg-ah-low-don).

Like Brody, inside Megalodon's mouth were rows of up to 300 triangular teeth, each with serrations (sharp jagged edges) perfect for slicing through flesh. Read more about size of teeth – so we say what's the same but also the difference!

A DAY IN THE LIFE...

Megalodon travelled far and wide, living in warm and temperate waters around the world. Due to its huge size, adults mostly lived offshore in the open ocean and probably hunted alone. Megalodon had no natural predators – except for another Megalodon and perhaps a giant toothed whale – and dined on large marine mammals, such as whales, as well as smaller prey including dolphins and turtles.

Megalodons' huge body had huge fins, too! It's tail fin-let (back) fin was as tall as an adult human. Its pectoral (side!) fins were longer still, and its caudal (tail) fin was twice as tall as its tall – but it swam at about the same speed as Brody.

DID YOU KNOW...

Young Megalodon pups lived in shallower waters, called nursery grounds, where they were protected from larger predators.

FOSSIL FILE

BIG TOOTH

As Megalodon's skeleton was made of cartilage, which are rarely found, but thousands of teeth have been unearthed in places including Florida, US. Some of teeth from the same animal show that the front row contained 24 teeth in the upper jaw and 22 teeth in the lower jaw, and bite marks matching this teeth pattern have been discovered on whale bones.

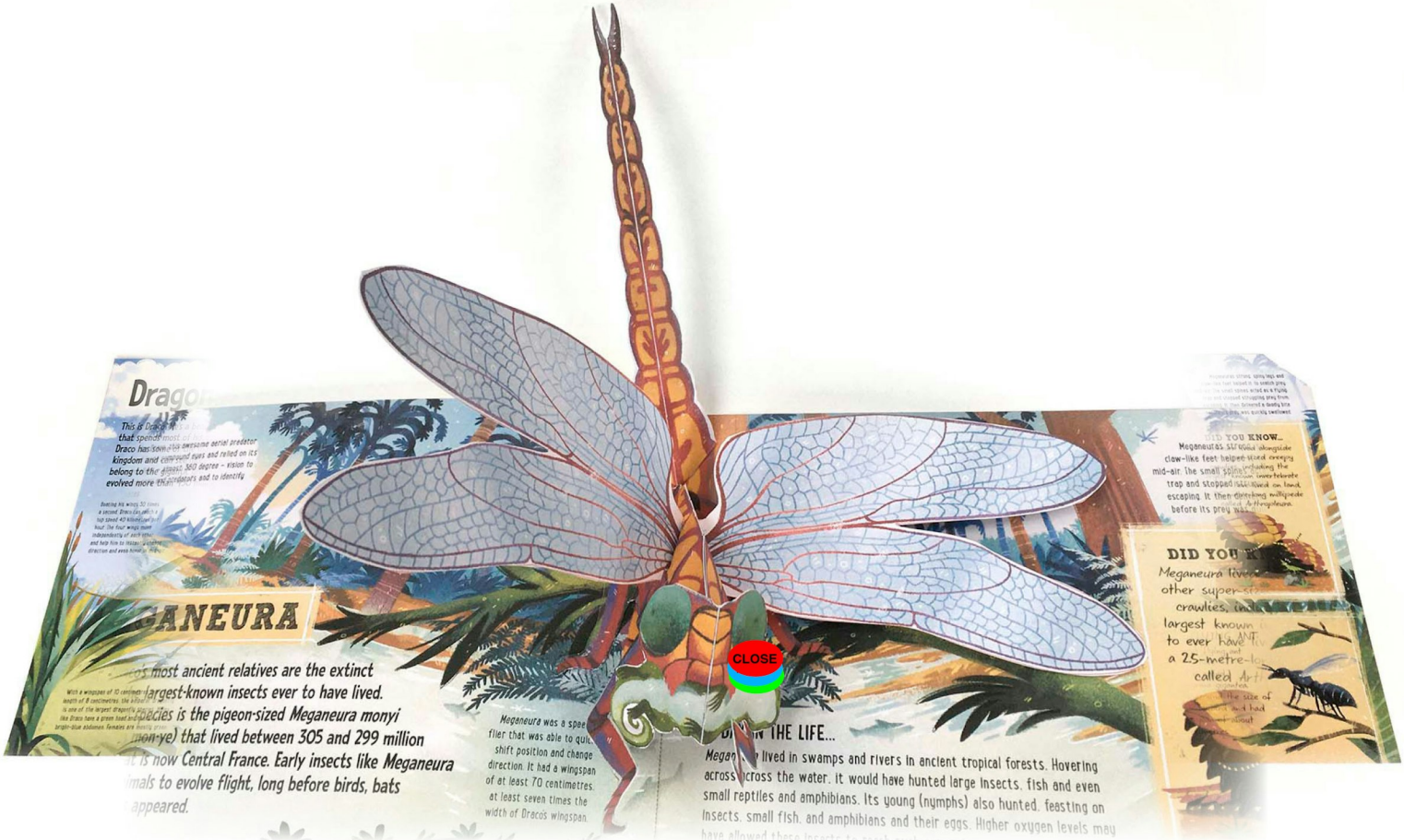
Great white shark tooth

PTEROSAUR DINNER

A tooth from an 85-million-year-old shark called Cretoxyrhina was found in the neck of a Pteranodon, a flying, fish-eating reptile. Cretoxyrhina may have snatched it whilst the Pteranodon was diving underwater.

BUZZSAW SHARK

Helicoprion was an usual shark-like fish that lived 275 million years ago. Rather than jaws filled with rows teeth, it had a circular saw-like wheel of teeth. Old teeth were pushed into the centre of the spiral and replaced by new, larger teeth.


Drago
This is Drac
that spends most
Draco has soa
kingdom and
belong to the
evolved more
GANEURA
most ancient relatives are the extinct
largest-known insects ever to have lived.
species is the pigeon-sized Meganeura monyi
ye) that lived between 305 and 299 million
t is now Central France. Early insects like Meganeura
imals to evolve flight, long before birds, bats
appeared.
Meganeura was a spee
flier that was able to qui
shift position and change
direction. It had a wingspan
of at least 70 centimetres,
at least seven times the
width of Draco's wingspan.
DID YOU KNOW...
Meganeuras
claw-like feet helped
mid-air. The small
trap and stopped
escaping. It then
before its prey
DID YOU
Meganeura
other super
crawlies,
largest known
to ever have
a 25-metre-
called
CLOSE
IN THE LIFE...
lived in swamps and rivers in ancient tropical forests. Hovering
across the water, it would have hunted large insects, fish and even
small reptiles and amphibians. Its young (nymphs) also hunted, feasting on
insects, small fish, and amphibians and their eggs. Higher oxygen levels may