Prehistoric Giants (Other Than Dinosaurs)

A Reading A–Z Level Y Leveled Book
Word Count: 1,561

Connections

Writing

Research an era described in the book. Create a pamphlet persuading someone to vacation there. Include facts about the era and what a visitor should bring along to be prepared.

Science

Do further research on the adaptations of one animal from the book. Describe how the adaptations allowed the animal to survive in the era in which it lived.

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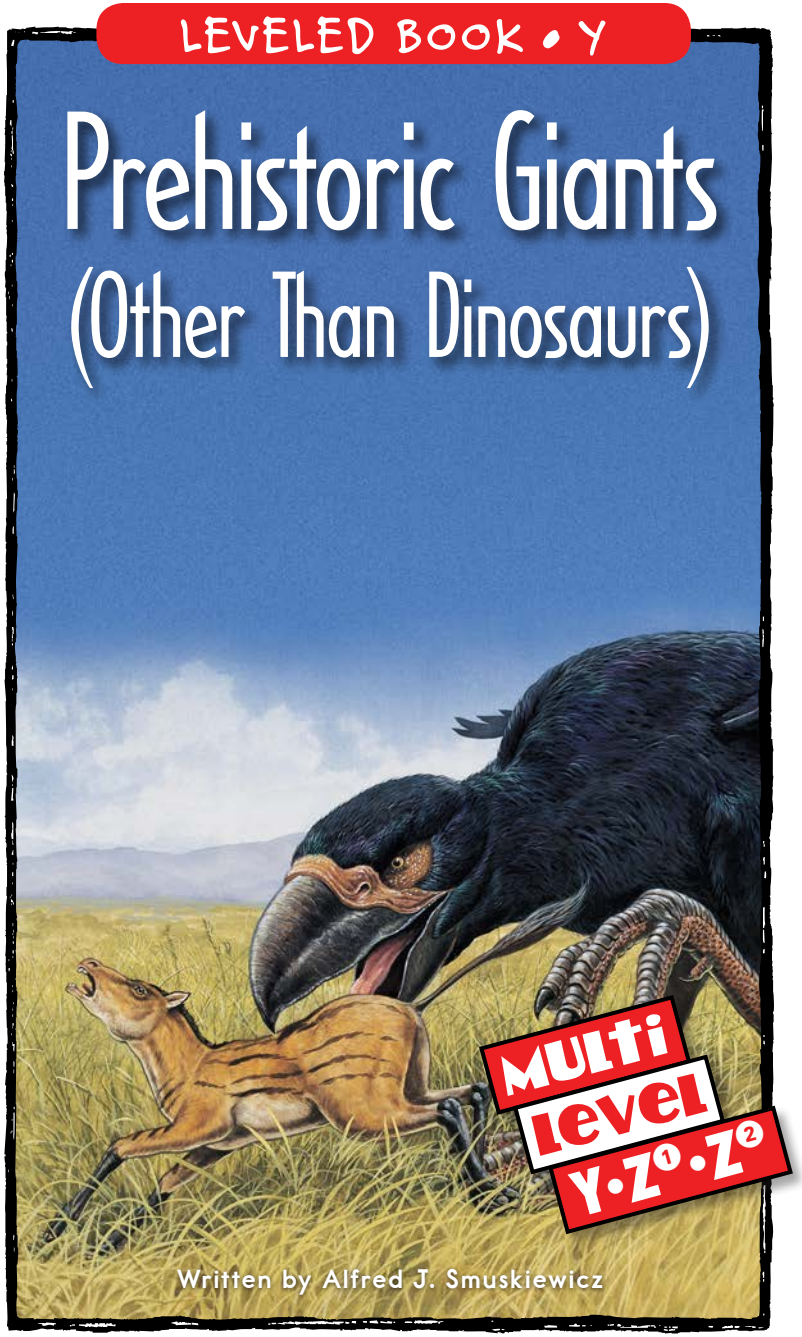

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Prehistoric Giants (Other Than Dinosaurs)

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Focus Question

How and why has animal life evolved on Earth over the past millions of years?

Words to Know

amphibians	ice age
arthropod	invertebrates
eras	paleontologists
extinct	prehistoric
habitats	species
herbivores	tentacles

Table of contents: Georges Cuvier (portrait, top left) defined the ways scientists decide how an extinct animal, such as *Megatherium* (top), might look. Geologist William Buckland (foreground, left) found a tiny mammal's jaw bone (under magnifying glass) with a dinosaur's toe bone, which led him and Cuvier to decide that mammals had lived in more ancient times than anyone had ever known.

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Correlation

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Reading Recovery	40
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Table of Contents

What Giants Lived Long Ago?

Many **prehistoric** animals other than dinosaurs were giants. There were other giant reptiles as well as giant **species** of shellfish, insects, centipedes, fish, **amphibians,** birds, and mammals. There was even a giant ape, almost like King Kong!

Scientists called **paleontologists** learn about prehistoric animals from fossils (remains or traces of animals, such as bones). Paleontologists can use a fossil to learn when and where an animal lived, how big it was, what kind of food it ate, and how it moved.

Do You Know?

Species have changed over and over again throughout Earth's history, with old species becoming extinct and new ones appearing. More than 99 percent of all animal species that have ever lived are now extinct.

Scientists divide Earth's history into several different periods of time. These periods are grouped into different **eras**. The chart on page 15 shows in what periods and eras the animals in this book lived.

Get ready to jump into your imaginary time machine and enjoy your prehistoric journey with giants!

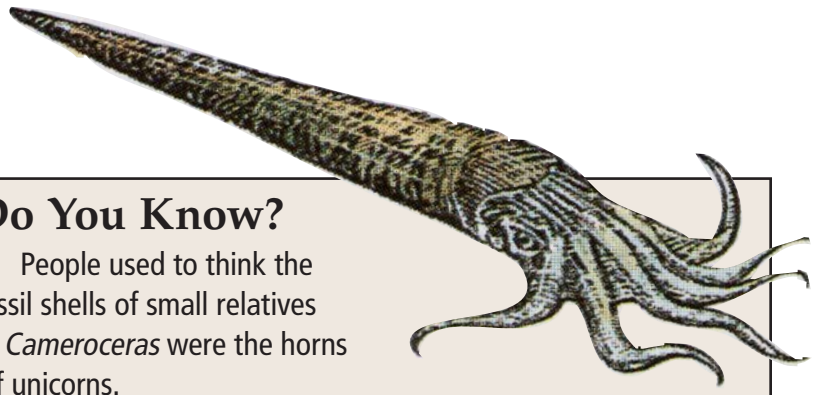
Giant Invertebrates

Set your time machine for the Paleozoic (pay-lee-ah-ZO-ik) era to see some giant **invertebrates** (animals without backbones). Some fly through the air, and others swim in the oceans.

Cameroceras—Scariest Shellfish

It is 470 million to 440 million years ago, and all animals live in the ocean. You see *Cameroceras* (cam-er-ah-SAIR-us), a giant squidlike shellfish. Its head and eight **tentacles** stick out of a cone-shaped shell, which might grow as long as 36 feet (11 m).

Cameroceras hunts sea animals by grabbing them with its tentacles and using its sharp beak to tear them to pieces.



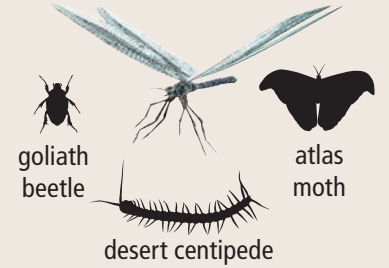
Do You Know?

People used to think the fossil shells of small relatives of *Cameroceras* were the horns of unicorns.

Meganeura—Dangerous Dragonfly

If you travel more than 100 million years forward in time, you will probably end up in a swampy forest, about 311 million to 282 million years ago. A giant dragonfly swoops down. *Meganeura* (meh-guh-NYUR-uh) is bigger than most birds you know. It has a wingspan of 2.5 feet (76 cm), making it the largest insect ever known.

How *Meganeura* Compares with Giant Insects of Today



The air is heavier than you're used to because there is more oxygen in it. This heavy air helps support the weight of the giant flyer. The extra oxygen also allows *Meganeura* and other animals to grow to a giant size.

Arthropleura—Biggest Bug

Crawling toward you along the forest floor is *Arthropleura* (AHR-throw-PLOOR-ah), the largest land **arthropod** ever. It looks like a 60-legged centipede, and it can grow longer than 8 feet (2.5 m). It lives in swampy forests between 340 million and 280 million years ago. It also grows so large because the air is heavy with oxygen.

Giant Fish and Amphibians

Next you'll see some giants that live during different periods of the Mesozoic (MEZ-uh-ZO-ik) era. You might want to bring your snorkel as you head out to sea.

Leedsichthys—Largest Fish

Leedsichthys (leeds-ICK-thiss) is the largest fish that ever lived. It can grow almost 55 feet (16.8 m) long in the seas of 165 million to 155 million years ago.

Leedsichthys gulps in huge mouthfuls of water as it swims. At the back of the fish's mouth are more than 40,000 long, thin teeth. These teeth act like a screen to hold shrimp, jellyfish, and other small animals when *Leedsichthys* blows the water out. This is called *filter feeding;* many whales eat this way back in your time.

Leedsichthys will eventually become **extinct**. One possible reason is because seas become lower and smaller. Smaller seas will mean less food for the giant fish to eat.

Do You Know?

In May 2005, fishermen in Thailand caught a Mekong giant catfish almost 9 feet (2.7 m) long. Before scientists could study this giant fish, however, the fishermen and their friends ate it!

Koolasuchus—Slimy Giant

Skip ahead between 40 million and 60 million years further into the Mesozoic to see *Koolasuchus* (KOOL-ah-SOOK-us). It's a slimy giant salamander—about 17 feet (5 m) long with a wide, flat head—that lives in swampy forests 137 million to 112 million years ago. Its big head holds more than 100 long teeth, which it uses to capture fish, crabs, turtles, and other prey.

Koolasuchus has eyes on top of its head. This allows it to bury itself in muddy water while keeping watch for prey.

Koolasuchus and other giant amphibians will disappear. A change in climate will cause them to become extinct.

Animals of the Mesozoic Era

Giant Reptiles

During the Mesozoic era, while dinosaurs walk the Earth, other giant reptiles swim in the ocean. They are just as gigantic as some dinosaurs—and just as deadly.

Cymbospondylus—Fishlike Reptile

Cymbospondylus (sim-bow-SPON-di-lus) lives 240 million to 210 million years ago, when it is one of the largest animals in the sea, at 33 feet (10 m) long.

Cymbospondylus has a huge head with a long, pointed snout. Its jaws contain many rows of small teeth used for catching and holding fish and other animals that it hunts in deep waters.

Liopleurodon—*T. rex* of the Seas

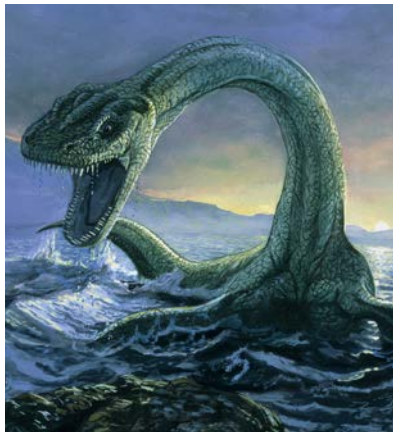
Travel forward in time but stay in the ocean—if you dare. The reptile *Liopleurodon* (LIE-oh-PLOOR-oh-don) swims in these salty waters. *Liopleurodon* can use its large, powerful jaws to kill any animal in the sea.

Short-necked *Liopleurodon* lives 160 million to 155 million years ago. It can grow up to 49 feet (15 m) long.

Elasmosaurus—Long-Necked Hunter

If you go swimming between 85 million and 65 million years ago, you might not even notice *Elasmosaurus* (eh-LAZ-mo-SAWR-us), even though it grows as long as 49 feet (15 m). Most of that length is in its neck and tail.

Elasmosaurus can keep most of its body far away from the fish it hunts. Its long neck allows it to sneak up under a school of fish without the fish knowing there is a giant under them!



Elasmosaurus swam with its long neck straight out. The reptile also had four diamond-shaped flippers.

Ornithocheirus—Flying Reptile

In the sky, you see *Ornithocheirus* (or-NITH-oh-KY-rus), a flying reptile that lives near sea coasts and lakes from 140 million to 70 million years ago.

Ornithocheirus has a wingspan up to 40 feet (12.2 m) and a body about 11.5 feet (3.5 m) long. Although it is gigantic, it probably weighs only about as much as you do. That's because its bones are hollow, which helps it fly easily. Large groups of these giant flyers build nests on cliff tops.

Giant Birds

You can easily spot the huge flightless creatures known as terror birds.

Gastornis—A Ton of Terror

In the forests and swamps of 56 million to 41 million years ago, you will find *Gastornis* (gas-TOR-nis), a bird about 7 feet (2.1 m) tall. It is possibly one of the top predators in North America and Europe since dinosaurs are extinct in its time.

Modern scientists are not sure what this terror bird eats, but its sharp, powerful beak could easily rip the flesh and crush the bones of small animals—if it can catch them. *Gastornis* may weigh more than 1 ton (0.9 metric tons).

Phorusrhacos—Speedy and Deadly

Phorusrhacos (FOR-us-RAH-kus) is a terror bird that stands up to 10 feet (3 m) tall. It hunts small animals in plains and woodlands from 27 million to 2.5 million years ago.

Phorusrhacos can move much faster than *Gastornis* because it doesn't weigh as much as that earlier terror bird. *Phorusrhacos* may be able to run after its prey at 43 miles per hour (69 kmph), faster than a car usually travels down a city street.

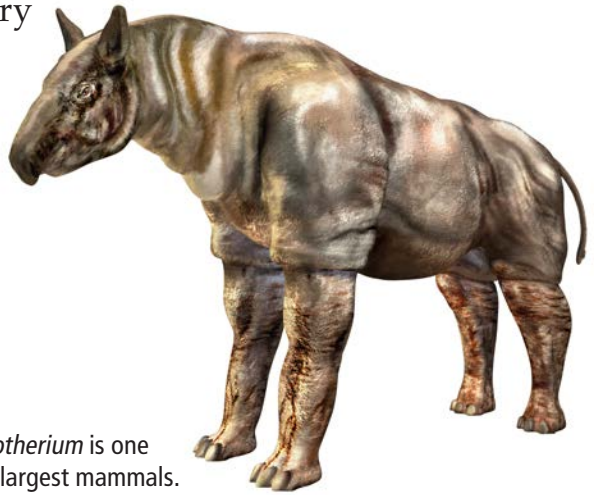
Giant Mammals

After the extinction of the giant reptiles, giant mammals began to rule the world. Many scientists believe terror birds went extinct later in the Cenozoic era because mammals were better hunters—they ate all the food! The giant mammals you are about to meet are **herbivores**, meaning they eat only plants.

Indricotherium—Dino-Sized Rhino

Climb a tree to get a good look at *Indricotherium* (IN-drik-oh-THEER-ee-um), a relative of today's rhinoceros. This giant mammal uses its long neck as a giraffe does—to eat leaves and branches at the tops of trees.

Living from 30 million to 25 million years ago, *Indricotherium* is at least 15 feet (4.5 m) tall—bigger than a one-story house—and it weighs 16 tons (15 metric tons).



Indricotherium is one of the largest mammals.

Gigantopithecus—The Real King Kong

Gigantopithecus (jeye-GANT-o-PIHTH-uh-kuhs) is a real giant ape that lives from about 8 million to 100,000 years ago. Some males stand 10 feet (3 m) tall on their hind legs and weigh more than 1,000 pounds (454 kg). Females are half this size.

Gigantopithecus is a gentle giant. It eats bamboo, fruit, seeds, and other plant food in tropical rainforests in Asia.

While you're here, you might even spot an early type of human called *Homo erectus,* who is living at the same time and in the same places as *Gigantopithecus.*

Do You Know?

Could *Gigantopithecus* still be alive? Hundreds of people have claimed to see a huge, hairy, apelike creature in the northwestern United States and in Canada. Because of the 16-inch (41 cm) footprints that have been seen in these areas, this creature is often called Bigfoot. In Asia, many people say they have seen a similar creature, which is called a Yeti. Most scientists doubt these creatures really exist.

Mammuthus—Woolly Mammoth and Its Relatives

Time to move forward again to between 4 million and 10,000 years ago, during the last **ice age**, to catch a glimpse of a woolly mammoth, a species of *Mammuthus* (MA-muh-thus).

It looks like a huge, hairy elephant with long curved tusks. It uses its tusks to clear paths through snow, probably to search for plant food. The woolly mammoth stands almost 12 feet (3.6 m) tall, but another *Mammuthus* species can grow as tall as 14 feet (4.3 m).

Mammoths will become extinct at the end of the ice age, when the weather becomes too warm for them.

An African elephant (left) stands with the woolly mammoth and three of their closely related ancestors.

Megatherium—Giant Ground Sloth

Another huge mammal that lives during the last ice age is *Megatherium* (meg-ah-THEER-ee-um), a giant ground sloth. It lives about 2 million to 8,000 years ago and is almost 20 feet (6 m) long.

Megatherium is related to the much smaller tree sloths that live in South America today. Fossil footprints found in your time show that it could stand and even walk upright.

Time to start heading back . . .

A World Without Giants?

Isn't it amazing to think that giants such as the ones in this book once walked on Earth and swam in the ocean? It's too bad we can't see these huge creatures today.

However, you can see many other giant animals today. Unfortunately, many of these animals are threatened with extinction because their populations are so small. It's important to protect these animals, mainly by preserving their **habitats.** That way, we can be sure that we'll never live in a world without giants.

Eras and Periods in Earth's History

Era	Period	When Period Began (years ago)	Animals in Period
Precambrian Time		4.5 billion	*
Paleozoic	Cambrian	543 million	
	Ordovician	490 million	*Cameroceras*, page 5
	Silurian	443 million	
	Devonian	417 million	
	Carboniferous	354 million	*Arthropleura*, page 6
			Meganeura, page 6
	Permian	290 million	
Mesozoic	Triassic	248 million	*Cymbospondylus*, page 9
	Jurassic	206 million	*Leedsichthys*, page 7
			Liopleurodon, page 9
	Cretaceous	144 million	*Ornithocheirus*, page 10
			Koolasuchus, page 8
			Elasmosaurus, page 10
Cenozoic	Tertiary	65 million	*Gastornis*, page 11
			Indricotherium, page 12
			Phorusrhacos, page 11
			Gigantopithecus, page 13
	Quaternary	2 million	*Mammuthus*, page 13
			Megatherium, page 14

* The first known animal appeared about 600 million years ago.

Glossary

amphibians *(n.)* cold-blooded animals with backbones that generally spend some time in water and some time on land (p. 4)

arthropod *(n.)* a member of a group of invertebrates that have a segmented body, an exoskeleton, and jointed limbs; includes insects, arachnids, and crustaceans (p. 6)

eras *(n.)* large divisions of time in Earth's history (p. 4)

extinct *(adj.)* no longer in existence; completely wiped out (p. 7)

habitats *(n.)* the natural environments of plants or animals (p. 15)

herbivores *(n.)* animals that eat only plants (p. 12)

ice age *(n.)* any of several periods in Earth's history when ice sheets covered large areas of land (p. 13)

invertebrates *(n.)* animals that do not have backbones (p. 5)

paleontologists *(n.)* people who study plant and animal fossils (p. 4)

prehistoric *(adj.)* of or relating to the time before recorded or written history (p. 4)

species *(n.)* a group of living things that are physically similar and can reproduce (p. 4)

tentacles *(n.)* long, flexible limbs on an animal, especially an invertebrate (p. 5)