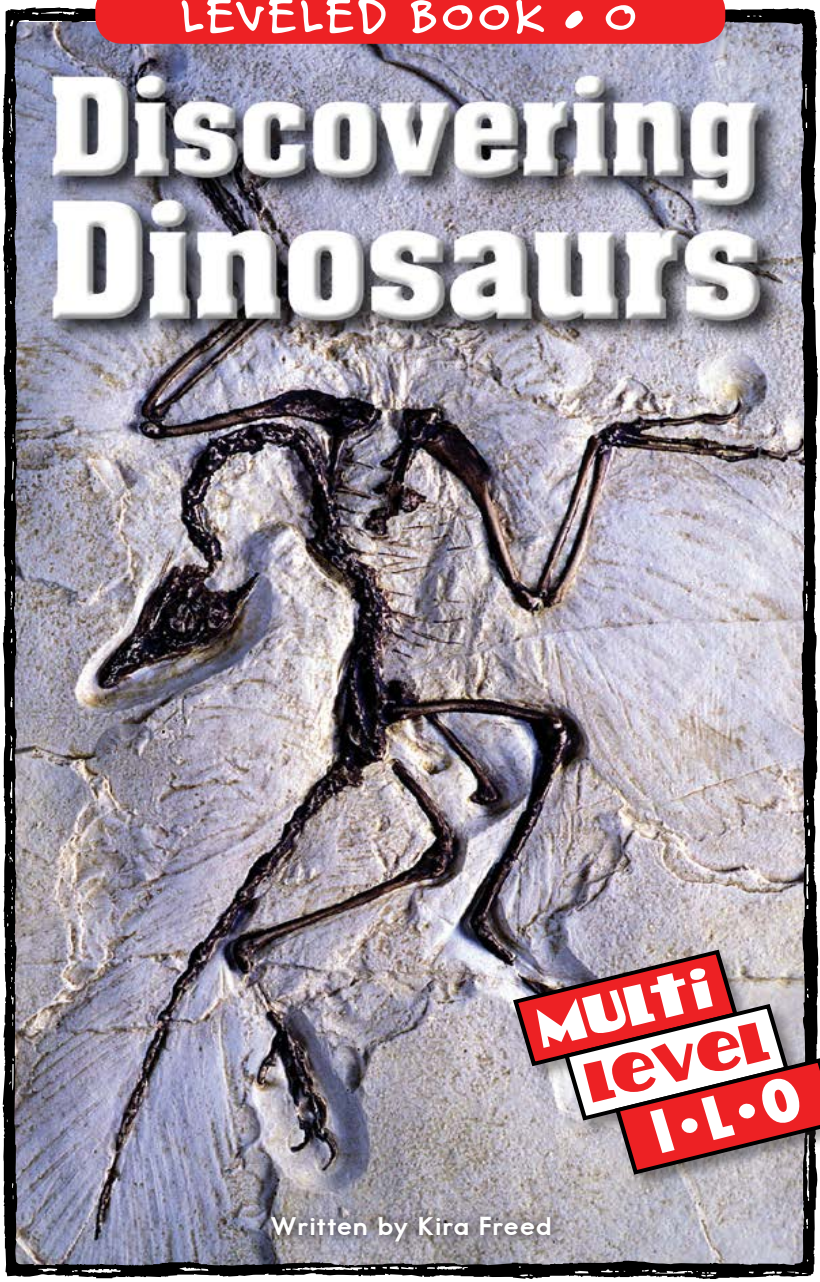
LEVELED BOOK • O

Discovering Dinosaurs



MULTI LEVEL I•L•O

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Focus Question

What are fossils, and how have they helped us learn about dinosaurs?

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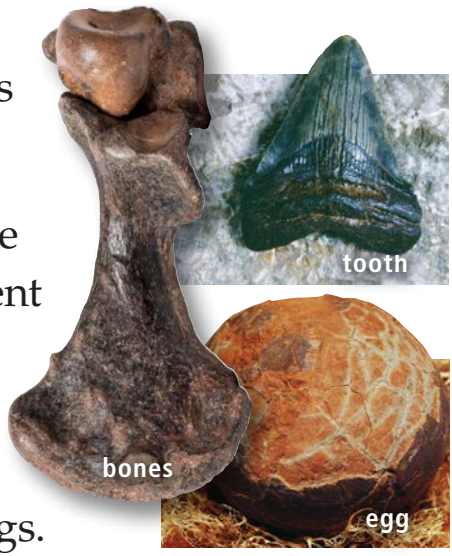
Many dinosaur fossils are on display in natural history museums.

Finding Fossils

How do we know **dinosaurs** lived on Earth? Scientists called **paleontologists** discover **fossils** in rocks all over the world. Studying fossils helps them learn about dinosaurs, including what they looked like, where they lived, and what they ate.

Bone fossils start to form after the death of a dinosaur. Over time, layers of mud, sand, or dirt cover the remains of the dead dinosaur. Once covered, the bones are protected from scavengers as well as rain and other weather conditions. They remain underground until they are discovered millions of years later. Sometimes the dinosaur's bones have turned to stone. In other cases, hard mud surrounds the bones, but the bones have actually **decayed**. Paleontologists can study the spaces where the bones used to be. They can then recreate the bones based on the shapes of the spaces left behind.



Paleontologists have found many different types of dinosaur fossils, including bones, footprints, teeth, nests, and eggs.

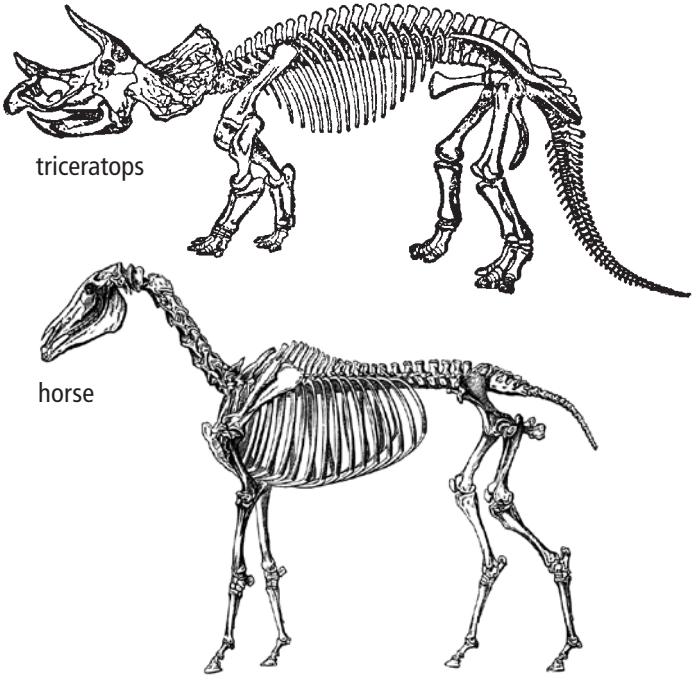
Paleontologists excavate a leg bone fossil.

These paleontologists are excavating, or carefully digging, bone fossils out of the ground. After recording information about them, the paleontologists will wrap the fossils to keep them safe. Then they will take the fossils to a **museum**, where they will examine them.

Paleontologists will study different features of the fossils, such as their shape and color. They'll consider where the fossils were discovered and how deep underground they were discovered.

By comparing their finds to other fossils, paleontologists try to figure out what type of dinosaur they have discovered. Sometimes they can fit bone fossils together to form a complete skeleton. However, it's rare that a complete skeleton is found together or can be put together over time. Most dinosaurs had hundreds of bones, so it is difficult to find all of them. Scientists use other dinosaur skeletons as models for the ones they are trying to put together.

A scientist fits triceratops bone fossils together.



Triceratops and horse skeletons look the same in some ways.

Learning from Fossils

Paleontologists use many other types of animal skeletons to help them learn about dinosaur skeletons. Although dinosaurs are **extinct**, many animals alive today share certain characteristics with them. Some dinosaur bones may be bigger than those of animals alive today. However, the shapes of certain bones and the way their bones fit together are sometimes related.

Many different types of dinosaurs once roamed Earth. Paleontologists study fossils to learn how dinosaurs moved around. Some dinosaurs walked on two or four legs, and some used wings to fly.

walking dinosaur

flying dinosaur

As dinosaurs moved around Earth, they left tracks behind in mud. Paleontologists study fossil footprints to learn how fast or slow dinosaurs moved. Footprints also give paleontologists clues about how big or small the dinosaur leaving the tracks might have been.

A large group of dinosaur footprints was discovered in China.

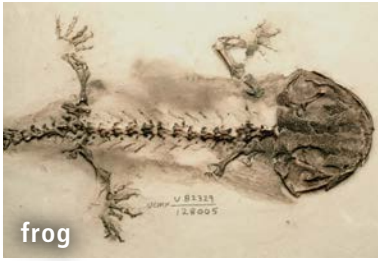
Paleontologists study fossil teeth to learn about what dinosaurs ate. Many dinosaurs grew new teeth to replace those they had worn down or lost.

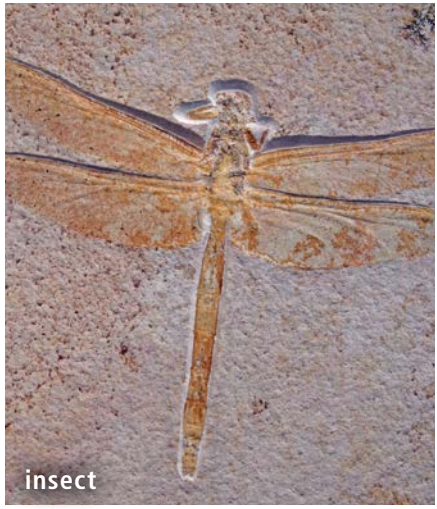
Carnivores often had razor-sharp teeth that helped them cut through meat. Some of their teeth were even strong enough to crush bone. Herbivores usually had sharp beaks that they used to gather plants. Some also had flat teeth to grind tougher plant materials, while others had sharper teeth for chopping their food. Still other dinosaurs had both flat and sharp teeth.

Some of the sharp teeth of this carnivorous dinosaur are as large as a human hand.

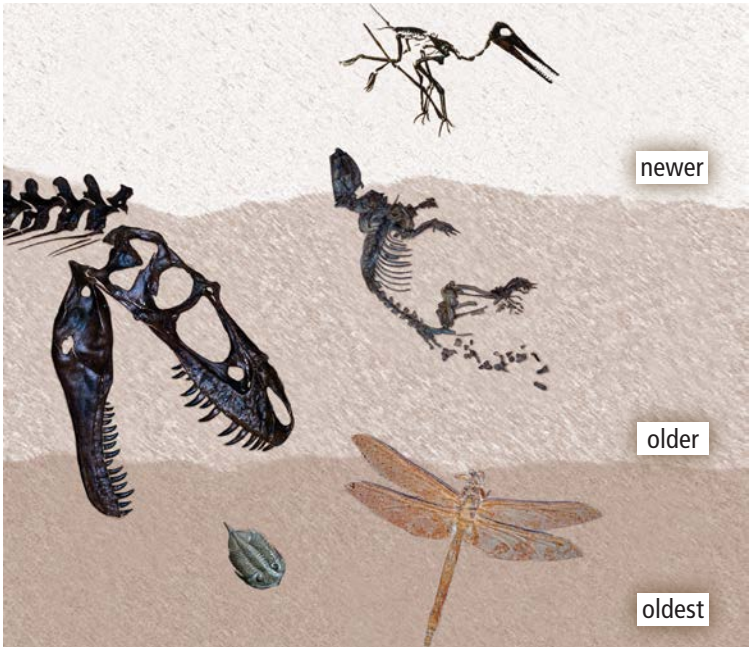
Paleontologists learn about dinosaur babies from fossil nests and eggs. Dinosaur eggs came in many different shapes and sizes, including small round eggs and large oval eggs. Some dinosaurs laid over twenty eggs at a time, while others laid only a few eggs. Similar to birds, some dinosaurs may have sat on their nests until their eggs hatched.

This fossil nest contains large, fossilized dinosaur eggs.





Paleontologists find fossils of plants, fish, insects, and other animals in the same rocks as dinosaur fossils. These fossils help them learn what Earth was like when dinosaurs lived here. More examples of these other types of fossils have been discovered than dinosaur fossils. These fossils are usually smaller and more complete than dinosaur fossils. Therefore, paleontologists can more easily tell the age of these other fossils. They are then able to use the other fossils to estimate the age of dinosaur fossils.



The age of dinosaur fossils is dependent upon how deep they lie within layers of rock.

How Long Ago?

Paleontologists can perform tests to find out the age of fossils. Older fossils are found deeper in the ground than newer fossils. More recent fossils are found in rocks closer to the surface. The oldest dinosaurs lived around 230 million years ago. These dinosaurs were only the size of large dogs. It wasn't until around 145 million years ago that giant dinosaurs roamed on Earth.

Paleontologists have many different ideas to explain how dinosaurs disappeared around 65 million years ago. Studying dinosaur fossils helps paleontologists look for clues to understand what happened.

These footprints of a large three-toed dinosaur were discovered in Germany.

Glossary

decayed *(v.)* broken down slowly or decomposed through natural processes (p. 5)

dinosaurs *(n.)* large groups of reptiles that roamed Earth until they became extinct over 65 million years ago (p. 4)

extinct *(adj.)* no longer living; completely wiped out (p. 8)

fossils *(n.)* remains of plants or animals that turned to stone over time (p. 4)

museum *(n.)* a building used to store and show things that are important to history, science, or art (p. 6)

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

Words to Know

decayed
dinosaurs
extinct
fossils
museum
paleontologists

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Correlation

LEVEL O	
Fountas & Pinnell	M
Reading Recovery	20
DRA	28

Discovering Dinosaurs

A Reading A–Z Level O Leveled Book
Word Count: 750

Connections

Writing and Art

Imagine you are a scientist studying dinosaurs and have discovered new fossils. Draw a picture of your discovery and write a postcard home about it.

Science and Art

Create a list of different types of fossils. Draw a picture of two examples and discuss with a partner what scientists can learn from these fossils.