

# DIGGING IN THE PAST

ELECTIVE ADVENTURE



## SNAPSHOT OF ADVENTURE



Dinosaurs and other giant creatures lived and died out millions of years ago, so thankfully you won't run into one on a walk. A scientist who studies dinosaurs is called a paleontologist (pa-le-on-to-lo-gist). They study dinosaur bones and fossils to learn more about their habits, the food they ate, and their size. During this Adventure, you will match dinosaurs to their names, and you'll use your imagination to create your own dinosaur.

### REQUIREMENTS

1. Play a dinosaur game that shows what you know about them.
2. Create an imaginary dinosaur. Share with your den or family its name, what it eats, its size, and where it lives.
3. Be a paleontologist and dig through a dinosaur dig.
4. Build a fossil layer.



- Elective Adventure
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## REQUIREMENT 1

Play a dinosaur game that shows what you know about them.

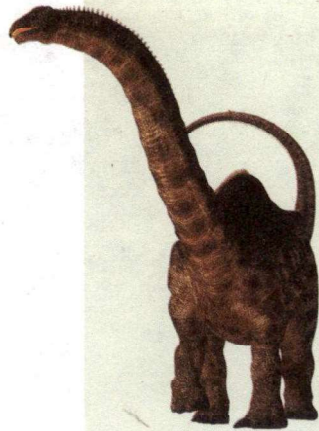
Millions of years ago, there were many types of dinosaurs and ancient reptiles. There were dinosaur herbivores (plant eaters) and carnivores (meat eaters). Some lived in the oceans, like plesiosaurs (PLEE-see-uh-sawrs) (sea creatures), while others like pterosaurs (TER-uh-sawrs) could fly.

Read about some of these creatures below. Then try to match the correct creature to the clues. You may also play a dinosaur match game with your den or your family members. Hand out cards with dinosaur facts on them to half of the people playing the game. Hand out cards with pictures of the dinosaurs to the other half. Have players find their match. You can also have an adult cover up the pictures and names of each creature in your handbook. Then, see if you can use the fast facts to guess the names.



## HERBIVORES (PLANT EATERS)

### Apatosaurus (uh-pa-tuh-sahr-us)



#### Fast Facts:

- ◆ Mistakenly called **Brontosaurus**
- ◆ Name means "deceptive lizard"
- ◆ One of the largest land animals, 70 to 90 feet long, 15 feet tall, weighed 30 to 35 tons
- ◆ Fossils found in Wyoming, Colorado, Oklahoma, and Utah
- ◆ Featured a long neck, four legs, and a long, whip-like tail

### Triceratops (tri-SAIR-uh-tops)



#### Fast Facts:

- ◆ Name means "three-horn face"
- ◆ Lived in western North America
- ◆ Featured a large bony frill and three horns on its face
- ◆ Was a snack for **T. rex**
- ◆ Weighed 4 to 6 tons



### **Ankylosaurus (ANG-ki-lo-sawr-us)**

#### **Fast Facts:**

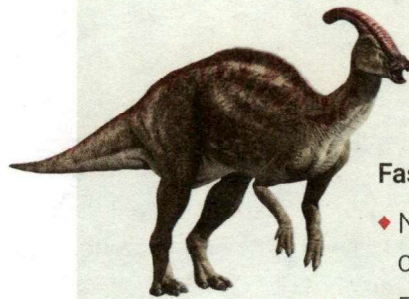
- ♦ Name means "fused lizard"
- ♦ Lived in North America
- ♦ Featured a triangular-shaped head, a heavily armored body, and back legs longer than its front legs
- ♦ Used its long heavy club tail to break the legs of enemies



### **Parasaurolophus (par-uh-SAWR-ol-uh-fus)**

#### **Fast Facts:**

- ♦ Name means "near crested lizard"
- ♦ Featured a large crest on its head almost 6 feet long
- ♦ Fossils found in Canada, New Mexico, and Utah

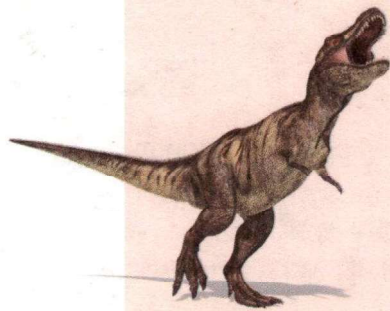


## CARNIVORES (MEAT EATERS)

### Tyrannosaurus rex (tuh-RAN-uh-SAWR-us)

#### Fast Facts:

- ◆ Name means "tyrant lizard king"
- ◆ Lived in forested river valleys in North America
- ◆ Featured huge teeth, strong back legs, short front legs, and powerful tail
- ◆ Was 40 feet long and 15 to 20 feet high
- ◆ Ate other dinosaurs — scientists believe it could eat 500 pounds in a single bite



### Spinosaurus (SPY-nuh-sawr-us)

#### Fast Facts:

- ◆ Name means "spine lizard"
- ◆ Featured fan-shaped spine on its back, short front legs, and powerful back legs
- ◆ The largest carnivore and may have been longer than **T. rex**
- ◆ Lived on land and in water
- ◆ Ate fish and other small and medium-sized prey



### **Velociraptor (veh-loss-ih-RAP-tor)**



#### **Fast Facts:**

- ◆ Name means "speedy thief"
- ◆ Hunted in packs
- ◆ Could run up to 40 miles per hour in short bursts
- ◆ Featured a sharp, curved claw on each foot
- ◆ Weighed about 33 pounds
- ◆ Ate small animals such as reptiles, amphibians, and smaller, slower dinosaurs

### **BIRDS**

#### **Hesperornithiformes (hes-pur-or-NITH-uh-formz)**

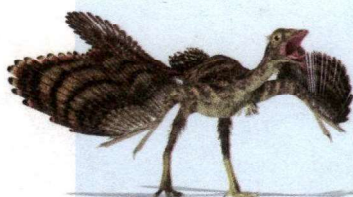


#### **Fast Facts:**

- ◆ A group of birds with feathers that weren't used for flying but kept them warm
- ◆ Lived mostly in water
- ◆ Had teeth and ate fish
- ◆ Featured webbed feet far back on their bodies for diving
- ◆ Fossils found in western North America, Europe, Mongolia, and Kazakhstan
- ◆ May have come on land only to nest and lay eggs



### Archaeopteryx (ar-kee-OP-tuh-riks)



#### Fast Facts:

- ◆ Name means "ancient wing"
- ◆ Considered to be the oldest known bird
- ◆ Lived in southern Germany
- ◆ Featured sharp teeth and three fingers with claws on each wing
- ◆ Similar in size to a raven
- ◆ Ate lizards, frogs, and beetles

### PTEROSAURS (FLYERS)

#### Pteranodon (tuh-RAN-uh-dawn)



#### Fast Facts:

- ◆ Name means "winged tooth"
- ◆ Flying reptile (not a dinosaur)
- ◆ Wings spanned 18 feet
- ◆ Featured hollow bones
- ◆ Fossils found in Kansas and England
- ◆ Ate fish and the carcasses of dinosaurs and other animals

Study the traits of each dinosaur or dinosaur relative, and see if you can match the correct creature to the facts in the "Who am I?" box on the following page.



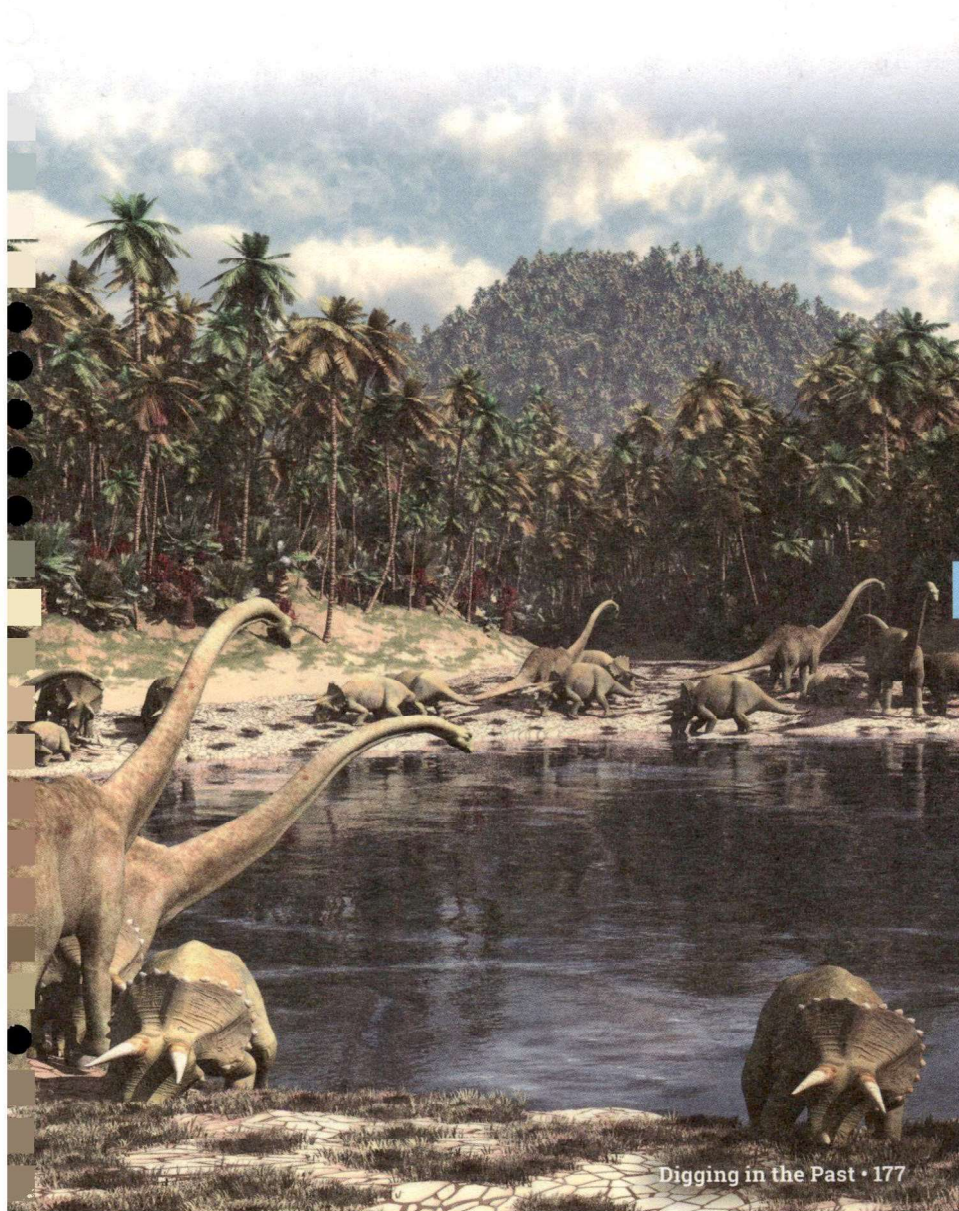
## WHO AM I?

1. My protection comes in the form of spines on my body and a long heavy club tail that could be used to break the legs of enemies.  
\_\_\_\_\_ **Apatosaurus**
2. I am longer than the T. rex; I have a sail on my back, and scientists think I speared fish out of the water.  
\_\_\_\_\_ **Triceratops**
3. I weigh about 4 tons and have a bony crest on my head.  
\_\_\_\_\_ **Ankylosaurus**
4. I am only about 12 inches long and have three fingers with claws on each of my wings.  
\_\_\_\_\_ **Parasaurolophus**
5. I am small and fast. I have sharp claws on my front and hind feet.  
\_\_\_\_\_ **Tyrannosaurus**
6. I have three horns and a bony frill with points on its edges.  
\_\_\_\_\_ **Velociraptor**
7. I use my webbed feet to dive for fish.  
\_\_\_\_\_ **Spinosaurus**
8. I am a carnivore with little arms and a big bite.  
\_\_\_\_\_ **Archaeopteryx**
9. I am a reptile that lived alongside dinosaurs. I was able to fly because I was very light — my hollow bones were filled with air sacs.  
\_\_\_\_\_ **Pteranodon**
10. I am one of the largest land animals. I have a long neck and eat only plants.  
\_\_\_\_\_ **Hesperornithiformes**



Date

Adult's Signature





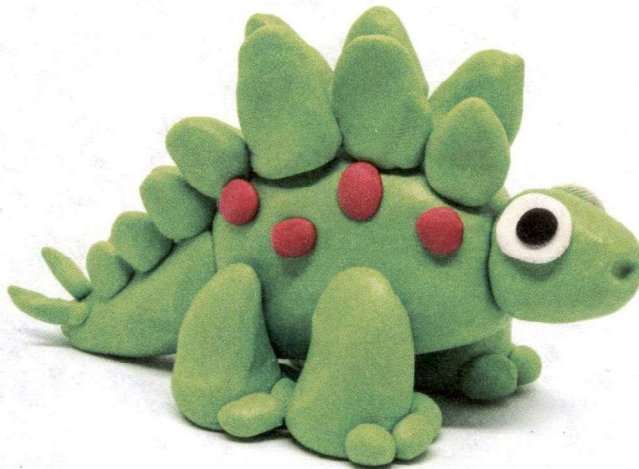
## REQUIREMENT 2

Create an imaginary dinosaur.  
Share with your den or family its name, what it eats, its size, and where it lives.

Now you can make up your own dinosaur using your imagination!

A Scout is thrifty, so create one out of recycled objects and common craft items. Some items you can use include water bottles, laundry soap bottles, soda cans, bottle caps, cereal boxes, container lids, chenille stems, buttons, clay, papier-mâché, cardboard tubes, spools, construction paper, and felt. Remember to ask an adult before you use any of the materials you collect.

Share your dinosaur with your den. Remember, your dinosaur is your own unique creation. Don't forget to make up a name for your dinosaur and tell where it lived and what it ate.



Date

Adult's Signature

### REQUIREMENT 3

#### Be a paleontologist and dig through a dinosaur dig.

It's time to have a dinosaur dig! Paleontologists dig through layers of the ground to carefully uncover bones, rocks, leaf fossils, and other objects that were left behind when the dinosaurs died. Today, you are going to make your own dino dig! Carefully follow the instructions of your den leader.



#### Materials:

- ▶ Disposable aluminum pan
- ▶ Plaster of paris
- ▶ Safety glasses, dust mask
- ▶ Various objects (toy dinosaurs, polished rocks, silk leaves, etc.)

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**Safety:** Give adults lots of space while they get the mix ready. Adults should wear safety glasses and a mask to keep from breathing in the dust.

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## INSTRUCTIONS

1. Have an adult mix plaster of paris.
2. Have an adult help you pour enough plaster of paris to cover the bottom of each pan. Place a few objects in the bottom layer.
3. Have an adult help you pour another layer and place more objects.
4. Repeat until the pan is full.
5. Set the pan aside to dry until the next den meeting.



Paleontologists use many different types of tools to dig out bones and fossils. Because they do not want to damage anything, they usually use small tools like chisels and paintbrushes. You will be digging through plaster instead of rock, so you can use a large nail, a small hammer, and paintbrushes to dig out your objects. Be careful while you work, so you can get the dinosaurs out in one piece.



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**Safety:** For your safety, wear a mask and safety glasses while you work just in case any plaster pieces or dust go flying through the air.

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Can you imagine how exciting it must be for a scientist to uncover bones that are millions of years old? Share with your den leader how your dinosaur dig went and what you found.



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Date

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Adult's Signature



## REQUIREMENT 4

### Build a fossil layer.



Different types of soil, rock, and weather affected the way fossils formed. Sometimes an object was encased, or completely covered; sometimes it became soft and dissolved; and sometimes rock formed around it. To show fossil layers, we are going to make a display that you can eat.

Check with your den leader to find out if your den will do this activity as a group. If you would like to try it with your family, follow the directions below.

#### Materials:

- ▶ Large, clear plastic cups
- ▶ Flavored gelatin
- ▶ Animal crackers
- ▶ Pudding
- ▶ Crushed graham crackers



## INSTRUCTIONS

1. Scoop some crushed graham crackers onto the flavored gelatin layer.
2. Place an animal cracker on the layer.
3. Scoop more graham crackers on top, making sure to cover the animal cracker.
4. Scoop pudding onto the graham crackers.
5. Place an animal cracker on the layer.
6. Scoop more pudding.



While eating your fossil layer dessert, notice that some of the animal crackers stay crunchy and some are soft. This is because some of them will absorb moisture from their surrounding layers and some will not. Each of the materials surrounding the animal crackers affects them in a different way.



Date \_\_\_\_\_

Adult's Signature \_\_\_\_\_