

# DINOSAUR

**A simulation using time-telling skills to unravel the mysteries of prehistoric life**

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# DINOSAUR

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# PURPOSE

DINOSAUR is a simulation designed to increase your students' knowledge of dinosaurs, to let them study dinosaurs the way scientists do, and to provide an exciting format for the practice of telling time.

Your students will have many opportunities to study dinosaurs. They will read about them, listen to stories about their lives, build skeletons, and study fossils. They begin when they journey back in time to the Age of Reptiles. Through role-playing activities they become plant-eating dinosaurs who survive by finding Food Cards and avoiding the dangerous Tyrannosaurus. Next, they visit fossil sites where they learn how to map, label, and remove fossils. Then your students study the fossils. They learn about the dinosaurs from these clues and put the fossils together to create a skeleton. Each student's team makes a report that explains how their dinosaur lived. By the end of the simulation your students will have studied more than a dozen dinosaurs, learned what it was like to be a dinosaur, assembled and reported on a dinosaur from a fossil site, created their own dinosaur, and finished dinosaur books they can take home. They will present a program—The Dinosaur Story—for parents and other students. Specifically, they will experience the following:

## ***Knowledge***

1. how fossils are formed
2. what fossils tell us
3. how scientists study fossils
4. different kinds of dinosaurs
5. how dinosaurs lived
6. theories of dinosaur extinction

## ***Feelings***

1. excitement as they discover fossils
2. enthusiasm as they build skeletons and guess how their dinosaurs lived
3. fulfillment as they understand how scientists study dinosaur fossils
4. excitement as they search for food and avoid Tyrannosaurus
5. satisfaction as they learn about dinosaurs
6. accomplishment as they complete their dinosaur books

## ***Skills***

1. how to scientifically study dinosaur fossils
2. how to scan for information
3. how to tell time
4. how to add and subtract time
5. how to make the parts of a book
6. how to make cards for a library catalog
7. work as a team to solve problems
8. use data to form hypothesis about dinosaurs

## Introduction

DINOSAUR begins when students enter their classroom and discover a huge skeleton of Tyrannosaurus hanging on the wall. They are allowed to share what they know about dinosaurs. Then they are told that they have been selected by the famous author, Diana Saurus, to participate in a special dinosaur research project. This project has three phases. In Phase 1 students role play the part of peaceful plant-eating dinosaurs. Their goal is survival. They must stay alive and raise their young dinosaurs while finding food and avoiding Tyrannosaurus. The teams with the greatest number of dinosaurs get the first choice of fossil sites in the next phase. In Phase 2 the teams go to a fossil site. The team members learn how to make maps of the fossil site, how to label the fossils, and how to carefully remove them. Once the fossils are removed the students begin the next phase. In Phase 3 the students put the fossils together to form a skeleton. They study the fossils and prepare a report in which they explain how their dinosaur lived. The simulation concludes with a presentation of The Dinosaur Story. This is a shadow play that is performed for parents and students.

## Phase 1: Dinosaur Survival Contest

The Dinosaur Survival Contest is a mini simulation that takes place in the Age of Reptiles about 65 million years ago. Students role play the part of peaceful plant-eating dinosaurs. Their goal is survival. The team of students that finishes the contest with the most dinosaurs is the winner. The order of finish determines the order in which teams will select fossil sites for Phase 2 of the simulation.

In order to survive, dinosaurs must eat, care for their young, and avoid Tyrannosaurus. Eating is simulated by finding Food Cards and coloring the Daily Dinosaur. A Daily Dinosaur is an activity sheet that provides practice telling time and gives information about dinosaurs. There are three levels of difficulty for you to choose from.

- Level 1: telling time to nearest half hour
- Level 2: telling time to nearest minute
- Level 3: adding and subtracting time

You may use one level with your class or divide up your class according to age or ability and use all three.

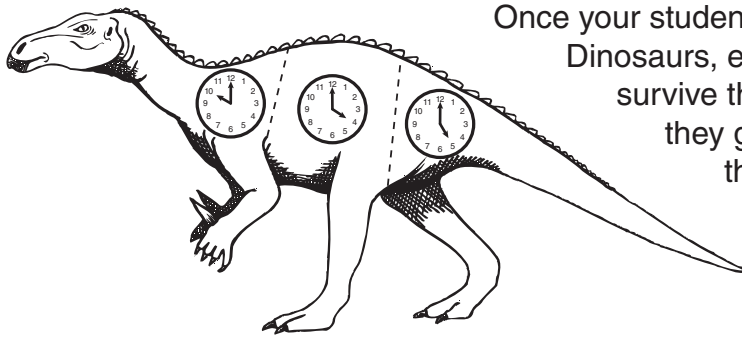
Look at the Daily Dinosaur on page 3. You will notice that it is divided into small sections with a clock on each one. Examine the Food Cards that correspond to the Daily Dinosaur. Each of these cards has a time and a color written on it. Your students have to read the time on their Daily Dinosaur and match it to the Food Card. Once this is done they color in that section of their Daily Dinosaur with the color given on the Food Card. While looking for the Food Cards the students must leave the Daily Dinosaurs on their desks.

## OVERVIEW - 2

10:00 BLUE	4:00 RED	5:00 YELLOW
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*Food Cards like these are scattered around the room.*

In the illustration at left, a student would color the dinosaur's head blue because the time card for 10:00 says blue, and it matches the time on the clock. The next section would be colored red because 4:00 on the Food Card matches the 4:00 on the clock. As soon as they have finished coloring one part, they must return their Food Card. Students can have only one Food Card at their desk at a time. (Team members may share cards and help each other, but there is still a limit of one Food Card per person at a time.) *Be sure your students understand all of this before they begin. It would be helpful to model this activity several times before you start.*



*Students must color in this Daily Dinosaur using the colors on the Food Cards.*

Once your students understand how to color in their Daily Dinosaurs, explain to them that for their dinosaurs to survive they must get enough food. The only way they get enough food is to completely color in the dinosaurs with the correct colors. The dinosaurs will be quite colorful. This is all right. Many scientists believe dinosaurs were colorful animals. There is a time limit for this activity so students must work quickly to get their dinosaurs fed.

While looking for food they keep away from Tyrannosaurus. You role play this giant monster by pinning on a Tyrannosaurus card and switching the lights on and off (or by using some other signal) to let the class know that Tyrannosaurus is hunting for food. This fierce monster is looking for a Daily Dinosaur that is alone. If a student is sitting at a desk with the Daily Dinosaur then the dinosaur is safe from Tyrannosaurus, but if a Daily Dinosaur is left unattended it can be snatched up. Teams lose dinosaurs each time a Daily Dinosaur is not completely colored in, colored incorrectly, or is taken by Tyrannosaurus.

During this phase of the simulation you will have two roles. First you will have the role of teacher. You will be able to help your students and answer their questions. Your second role is that of Tyrannosaurus. There are two things you must do so that your students know when they can get help from you as teacher and when they should avoid you (Tyrannosaurus). To avoid any confusion you need to develop a signal that warns your students that you are role-playing Tyrannosaurus. The signal you give may be the flashing the classroom lights or ringing a bell. Once you give this signal, pin on the picture of Tyrannosaurus. Students now know that you are role playing the dinosaur and will continue to do so until the signal is given a second time at which point you resume your role as the teacher. The amount of time you spend role playing is up to you.

## OVERVIEW - 3

By avoiding Tyrannosaurus and finding Food Cards dinosaurs stay alive. Teams can also increase the number of dinosaurs they have by caring for eggs and newly hatched dinosaurs. Each team begins the contest with 10 dinosaur eggs. On each egg there is a question that must be answered. The answers are found on Nest Cards.

The Nest Cards are scattered around the room in the same way and at the same time as the Food Cards. While students hunt for Food Cards so their dinosaurs can be fed they also read Nest Cards so they can answer questions on the dinosaur eggs. Just as a dinosaur dies if not completely fed, a dinosaur egg is crushed and ruined if the question is not answered.

During the second day of the contest the eggs “hatch” and are replaced with small baby dinosaurs called “hatchlings.” The hatchlings must be cared for also. Each one has a question on it and students must answer the question for it to survive. This is done with Nest Cards in exactly the same way as was done with the eggs.

On the third day of the contest the surviving hatchlings become “nestlings.” The nestlings, like the hatchlings and eggs, must be given proper care. Once again this is done by answering questions using Nest Cards. Any nestling surviving the third day of the contest is considered an adult dinosaur and is added to the teams’ total number of dinosaurs. (Note: The number of eggs that actually develop into adult dinosaurs will be small.)

**Typical day** A typical day begins with a discussion of the Daily Dinosaur. Next, the questions on the eggs (or hatchlings or nestlings) are discussed. Then the Food Cards and Nest Cards are scattered around the classroom. The students have 20-30 minutes (time may vary depending on the age of your students) to color in their Daily Dinosaur and answer the questions on the eggs (or hatchlings or nestlings). At the end of the time limit quickly check each teams’ Daily Dinosaurs. Any dinosaurs that are colored wrong or that are not finished are taken from the team. Keep these dinosaurs until Hour 13 of the simulation. The Daily Dinosaurs that were done correctly go into each student’s folder where they are saved. Collect the eggs (or hatchlings or nestlings) from each team and correct at a later time. Be sure each team has its name on all of the eggs. Once you have all of the eggs (or hatchlings or nestlings) discuss the answers with your students. Tell your students they will receive one hatchling for each egg with a correct answer (or a nestling with each correct answer on the hatchling).

## Phase 2: Fossil Sites

Teams spend the next four days working at the fossil sites. Each day begins with a lecture on the type of work the students are to do that day. There are lectures on how to find and record a fossil's position, how to remove the rock covering the fossils, how to label the fossils, and how to remove the fossils. Following the lecture the students apply what they have learned to their work at the fossil sites. For example, if the lecture is on labeling fossils, then the teams will label the fossils they have found. After the work is done for the day the students study a Daily Dinosaur. The Daily Dinosaurs gives students practice in telling time while providing information about dinosaurs.

**Typical day** A typical day begins with a lecture about the day's work at the fossil site. The fossil site is the large sheet of butcher paper on which the dinosaur fossil have been traced and then covered sheets of paper (see Fossil Sites and Setup Directions). Following the lecture the students work at the fossil site on the assigned task for the day. When this work is done students complete a Daily Dinosaur.

## Phase 3: Museum

Your students will spend three days working in the museum. During this phase students put together the fossils they have collected to make a dinosaur skeleton. Next they study fossils to learn about their dinosaur. Then they give reports to the class about the dinosaur skeletons they have assembled. During this phase students also have the opportunity to create their own dinosaur and to compile a dinosaur book from their Daily Dinosaurs.

## The Dinosaur Story

The Dinosaur Story is a shadow play that uses art and drama to reinforce the information learned about dinosaurs. Its use is optional, but highly recommended. It is an easy way for children to share what they have learned. The complete directions and material for this program are located in the section titled "The Dinosaur Story."

# SIMULATION ELEMENTS - 1

**Question Cards** (Egg Questions, Hatchling Questions, and Nestling Questions) Question Cards are used only in Phase 1. They are used to increase the size of a team's dinosaur herd. Each team begins with 10 eggs. On each egg there is a different question. Students search for the answer to the question on Nest Cards (see below). Each correct answer earns them a Hatchling Card. This card also has a question whose answer is found on Nest Cards. Each correct answer earns the team a Nestling Card. The Nestling Card, like the other cards, has a question whose answer is found on Nest Cards. A correct response here earns the team a new dinosaur. Here is an example of how a team can increase the number of dinosaurs for its herd.

Imagine a group of students beginning with 10 Egg Cards. During Hour 2 they correctly answer seven of them. For Hour 3 they receive seven Hatchling Cards and get the correct answer on five of them. So, in Hour 4 they receive five Nestling Cards. They answer all five questions correctly so they get to add five new dinosaurs to their team's total. In this way teams can increase the size of their dinosaur herds.

**Nest Cards** The answers to the Question Cards are found on Nest Cards. There is a set of Nest Cards that have answers to the Egg Questions. There is another set of Nest Cards with answers to the Hatchling Questions and there is a third set of Nest Cards to answer the Nestling Questions.

There are two levels of Nest Cards. Level 1 has shorter sentences and just enough information to answer the questions. It should be used with younger readers. Level 2 provides students with more in-depth information about the topic. It is suitable for older readers. Select the level that best meets the needs of your students.

**Food Cards** During Phase 1 students “feed” their Daily Dinosaurs. This is done with Food Cards. There is a set of Food Cards that corresponds to each of the Daily Dinosaurs. More information about this is given in the Phase 1 Overview.

**Daily Dinosaur** A Daily Dinosaur is an activity sheet that provides practice telling time and gives information about eight different kinds of dinosaurs. It is used in Phases 1 and 2. In Phase 1 students color in the dinosaur to simulate it eating. In Phase 2 students use it for a sentence completion activity. There are three levels of difficulty for you to choose from.

- Level 1: telling time to nearest half hour
- Level 2: telling time to nearest minute
- Level 3: adding and subtracting time

## SIMULATION ELEMENTS - 2

You may use one level with your class or divide up your class according to age or ability and use all three. The completed Daily Dinosaurs should be saved because they will be used to make a dinosaur book at the end of the simulation.

**Dinosaur Herd** The term “dinosaur herd” means the total number of dinosaurs each team has during Phase 1. This number includes Daily Dinosaurs and Nestlings.

**Fossil Sites** There are six fossil sites in this simulation. The fossil sites are used during Phase 2 and Phase 3. Each fossil site has a complete dinosaur skeleton in which the bones are separated and arranged in a pattern that is similar to those found at a real fossil site. The bones or “fossils” are enlarged and covered with layers of paper that simulate the rocks in which fossils are embedded. (The directions on how to enlarge and prepare the fossil sites is given in the Setup Directions.) Each fossil site’s skeleton is based on a real dinosaur. Listed below are the names of these dinosaurs. This is for your information only. Do not tell your students these names until the end of the simulation.

- Fossil Site 1: Iguanodon
- Fossil Site 2: Brachiosaurus
- Fossil Site 3: Psittacosaurus
- Fossil Site 4: Megalosaurus
- Fossil Site 5: Hadrosaurus
- Fossil Site 6: Dilophosaurus

In order to make the study of the dinosaur skeletons easy enough for children a couple of changes have been made. First, the skeletons have been modified. The structure of the teeth have been exaggerated. The number of vertebrae have been reduced. The bones, especially the hips, feet, and legs, have been simplified. Second, the skeletons are basically the same size. The 80-foot-long Brachiosaurus is the same as the seven-foot-long Psittacosaurus. This enables all groups to work with skeletons that are basically the same size.

During Phase 2 of the simulation students will work at these fossil sites. They remove the layers of “rock” that surround the fossils and cut out each fossil. In Phase 3 the students put the fossils together to make a dinosaur skeleton. In most cases this will go smoothly, but sometimes a team needs extra help so a FOSSIL SITE KEY is provided. This key shows how the dinosaurs at each of the sites should look. It is intended as a reference for you to use while helping students. It should not be duplicated.

# SETUP DIRECTIONS - 1

**Note:** Before beginning the setup directions, be sure you have carefully read all the preceding pages in this Introduction.

1. Make separate overhead transparencies of Tyrannosaurus and the six fossil sites.
2. Project the transparency of Tyrannosaurus skeleton on white butcher paper and trace it. Display this skeleton on a wall or hang it from the ceiling.
3. Use the overhead projector to project each of the fossil site dinosaurs. Trace each dinosaur onto a different sheet of colored butcher paper and label it according to fossil site. Make these skeletons quite large. It will add to the excitement of the simulation. You also need to place 10 marks around the dinosaur as indicated on the Fossil Site. In most cases this will have to be done “freehand” since the projected image of these marks will not all fit on a standard size roll of butcher paper. A rough approximation works fine.
4. Cover each fossil site with layers of scratch paper to simulate fossils being covered with rock. (During Phase 2 students will carefully remove these pieces of paper to expose the skeleton just as scientists remove the rock that surrounds dinosaur fossils.) The layer of paper must be glued or taped to the fossil site. As you do this you must be careful not to put tape or glue on the skeleton outlines. The more glue and tape you use the more difficult it will be for your students to extract the “fossils” from the “rock.” Be sure to leave a part of the skeleton showing and do not cover the 10 dots (called grid marks) that are around the skeleton. The “exposed” part is what brought scientists here in the first place and the grid marks will be used to record the fossil positions. When you have finished, each of the fossil sites will be covered with layers of paper that hide the skeleton underneath it. Set these fossil sites aside until they are needed during Phase 2.
5. Run off two copies of the PRE/POST TEST for each student; duplicate a class set of PRONUNCIATION KEY.
6. Select the level of Daily Dinosaur you want to use with your class. Run off one copy of each of the eight Daily Dinosaurs for each of your students.



*Use different sizes and shapes of scratch paper to cover the skeleton.*

## SETUP DIRECTIONS - 2

7. Run off one copy of each Food Card on green construction paper. Be sure the Food Cards you run off correspond with the level of Daily Dinosaur you selected in #6 If, for example, you are using Daily Dinosaur—Level 2, then you should use Food Cards for Level 2.
8. Make one copy of the Egg Questions for each team.
9. Make three copies of each of the Nest Cards for Egg Questions (either Level 1 or Level 2). Cut out each card and set aside for Hour 2.
10. Make one copy of the Hatchling Questions for each team.
11. Make three copies of each of the Nest Cards for Hatchling Questions (either Level 1 or Level 2). Cut out each card and set aside for Hour 3.
12. Make one copy of the Nestling Questions for each team.
13. Make three copies of each of the Nest Cards for Nestling Questions (either Level 1 or Level 2). Cut out each card and set aside for Hour 3.
14. Make one copy of the following for each student:
  - Phase 1: DINOSAUR SURVIVAL CONTEST
  - Phase 2: STORY OF FOSSILS
  - Phase 3: MAKE A DINOSAUR BOOK  
DINOSAUR DISCOVERY REPORT  
CREATE YOUR OWN DINOSAUR
15. Make two copies of the Tyrannosaurus Card. Color them green and cut them out.
16. Make one copy of the FOSSIL SITE GRID MAP for each team and two copies of WHAT FOSSILS TELL US for each team.
17. Divide your class into six teams. Balance the teams according to ability, interest, and number. Have the list of teams ready to go on the first day.
18. Plan a seating arrangement so that team members can sit next to each other and have plenty of room to work.
19. The materials and setup directions for the shadow play are listed at the beginning of the section titled, The Dinosaur Story.

# UNIT TIME CHART

<p>Introduce the simulation</p> <p>PRE/POST TESTS</p> <p>Explain the Dinosaur Survival Contest</p> <p>Assign students to teams</p> <p style="text-align: right;"><b>1</b></p>	<p><b>Phase 1</b></p> <p>DAILY DINOSAUR 1</p> <p>Find Food Cards</p> <p>Answer Egg Questions</p> <p style="text-align: right;"><b>2</b></p>	<p><b>Phase 1</b></p> <p>DAILY DINOSAUR 2</p> <p>Find Food Cards</p> <p>Answer Hatchling Questions</p> <p style="text-align: right;"><b>3</b></p>	<p><b>Phase 1</b></p> <p>DAILY DINOSAUR 3</p> <p>Find Food Cards</p> <p>Answer Nestling Questions</p> <p style="text-align: right;"><b>4</b></p>	<p><b>Phase 1</b></p> <p>DAILY DINOSAUR 4</p> <p>Dinosaur Survival Contest ends; announce winners</p> <p>Teams select fossil sites</p> <p>Students learn the story of fossils</p> <p style="text-align: right;"><b>5</b></p>
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<p><b>Phase 2</b></p> <p>DAILY DINOSAUR 5</p> <p>Lay out grid lines over fossils</p> <p>Make first drawing on Fossil Site Grid Map</p> <p style="text-align: right;"><b>6</b></p>	<p><b>Phase 2</b></p> <p>DAILY DINOSAUR 6</p> <p>Remove rock from fossil sites to expose dinosaur skeletons</p> <p>Record fossils position on Fossil Site Grid Map</p> <p style="text-align: right;"><b>7</b></p>	<p><b>Phase 2</b></p> <p>DAILY DINOSAUR 7</p> <p>Label each fossil</p> <p style="text-align: right;"><b>8</b></p>	<p><b>Phase 2</b></p> <p>DAILY DINOSAUR 8</p> <p>Remove the fossils from the rock</p> <p>Depending on how quickly and accurately your students work Hours 9 and 10 could go together or Hours 10 and 11 could go together.</p> <p style="text-align: right;"><b>9</b></p>	<p><b>Phase 3</b></p> <p>Assemble the fossils to make a complete skeleton</p> <p style="text-align: right;"><b>10</b></p>
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<p><b>Phase 3</b></p> <p>Study What Fossils Tell Us</p> <p>Complete a Dinosaur Discovery Report</p> <p style="text-align: right;"><b>11</b></p>	<p><b>Phase 3</b></p> <p>Oral presentations on dinosaur discoveries</p> <p style="text-align: right;"><b>12</b></p>	<p><b>Phase 3</b></p> <p>Make personal dinosaur books</p> <p>Create Your Own Dinosaur</p> <p>Debriefing</p> <p style="text-align: right;"><b>13</b></p>
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The Dinosaur Story is optional as is the amount of time you want to spend on it. A simple class presentation can be done in two days; a more elaborate presentation may take a week or longer.

<p><b>The Dinosaur Story</b></p> <p>Tell students they are going to present a shadow play</p> <p>Assign parts; distribute script</p> <p>Explain shadow puppets and scenery</p> <p style="text-align: right;"><b>1</b></p>	<p><b>The Dinosaur Story</b></p> <p>Move students into groups; practice script</p> <p>Finish shadow puppets</p> <p style="text-align: right;"><b>2</b></p>	<p><b>The Dinosaur Story</b></p> <p>Record play scene by scene</p> <p style="text-align: right;"><b>3</b></p>	<p><b>The Dinosaur Story</b></p> <p>Assign students to work the lights</p> <p>Practice the play</p> <p style="text-align: right;"><b>4</b></p>	<p><b>The Dinosaur Story</b></p> <p>Performance of the play</p> <p style="text-align: right;"><b>5</b></p>
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# DAILY DIRECTIONS - 1

## Hour 1

### Materials

1. PRE/POST TESTS (class set)
2. PRONUNCIATION KEY (class set)
3. DINOSAUR SURVIVAL CONTEST (class set)
4. 12"x18" sheet of construction paper for each student

### Procedure

1. Read aloud the following:



Read aloud ...

Do you like dinosaurs? Do you like to learn about them? You are going to study dinosaurs in a new way. You will learn to read dinosaur fossils. You will discover their secrets. They will tell you many things about dinosaurs. And that's not all.

You will collect dinosaur fossils. You will put them together to build skeletons, and you will live the life of a dinosaur. You will do all of these things in the next few weeks thanks to the generosity of the famous author Diana Saurus. Before I tell you any more I want you to tell me what you know about dinosaurs.

2. Discuss the skeleton of Tyrannosaurus and dinosaurs in general with your students. You may want to make a wall chart listing all the questions children have about dinosaurs. At the end of the simulation you can see how many of these questions your students are able to answer.
3. Pass out the PRE/POST TEST and give your students about 15 minutes to complete it. Read the test aloud for students who are unable to read it on their own. Your students do not have to answer all the questions. Have them stop the test at a point that is suitable to their ability on questions 14-17.
4. Pick up the PRE/POST TEST and keep in a folder so you can compare pre and post scores. Here is the answer key to the PRE/POST TEST: 1-F, 2-F, 3-T, 4-T, 5-T, 6-T, 7-F, 8-T, 9-F, 10-F, 11-P (all bird-hipped dinosaurs were plant eaters), 12-M, 13-P, 14-a, 15-a, 16-c, 17-4 hours.
5. Go over the PRONUNCIATION KEY with your students. Have them practice pronouncing the names of the dinosaurs.

## DAILY DIRECTIONS - 2

6. Read aloud to your students:

Read aloud ...

Diana Saurus, the author of the tremendously successful series of children’s books called *Dancing Dinosaurs*, has decided that all royalties from her dinosaur books will go into a special fund for the purpose of dinosaur research. And since children are the ones who read her books she wants them to be the ones who do the research.

Under the expert guidance of famous paleontologists (dinosaur scientists), teams of students will search the most remote regions of the world for dinosaurs. When a dinosaur is discovered the students will remove it from the rock and send it to the National Dinosaur Museum where scientists will assemble the fossils and prepare reports about the dinosaur’s life. This year, after a nationwide search, Ms. Saurus has selected you to be the members of the Dinosaur Research Project. Here is her letter:

Dear Project Members,

Congratulations! You have been selected to participate in this year’s Dinosaur Research Project. Six new and very promising fossil sites have been selected. Before you begin work at these fossil sites I have de-vised a little contest. Its purpose is to give you a review of the latest dinosaur information and to prepare you for the work that lies ahead. You will have to cooperate with each other and work hard in order to win. The order of finish in this contest determines the order in which you will select the fossil sites. Get ready for a marvelous adventure. You will bring to the world dinosaurs that have been hidden for millions and millions of years. How fortunate you are to be a member of this exciting project. Your teacher has all of the information you will need.

Good luck,  
Diana Saurus

7. Give out a copy of the DINOSAUR SURVIVAL CONTEST to each student. Read aloud the directions and answer any questions the students may have. Point out the dinosaur under the word Eating and explain how the dinosaurs will “eat.” Allow the students time to color in the dinosaur as indicated by the food cards.

**TT**

### TEACHING TIP

You may need to refer to the Phase 1 section in the Overview.

## DAILY DIRECTIONS - 3

8. Explain to your students how they are to protect themselves from Tyrannosaurus (refer to the Phase 1 section in the Overview as needed).
9. Show your students how they will care for their young by answering questions that are written on the eggs, hatchlings, and nestlings (refer to Phase 1 section in the Overview as needed).
10. Divide your class into six teams. Have each group select a team name. Give each student a 12"x18" sheet of construction paper. Have them fold it in half. This will serve as a folder to keep all of their papers used in the simulation.
11. Tell your students the contest begins tomorrow. Warn them to be cautious and aware of everything around them because in the Age of Dinosaurs there was no right or wrong, no fair or unfair, only survival.

### Hour 2

#### Materials

1. DAILY DINOSAUR 1 (one for each student)
2. Food Cards for DAILY DINOSAUR 1 (each card cut out)
3. Three sets of Nest Cards for Egg Questions (each card cut out)
4. One copy of Egg Questions for each team. Eggs may or may not be cut out.
5. Picture of Tyrannosaurus

#### Procedure

1. Tell your students that today they begin the Dinosaur Survival Contest. Remind them that they are to role play peaceful plant eating dinosaurs. They must eat and care for their young. While doing these things they must avoid Tyrannosaurus. Before continuing make sure your students understand how Tyrannosaurus attacks.
2. Give each student a copy of DAILY DINOSAUR 1. Read the information about the dinosaur and discuss it briefly. Tell your students they will "feed" this dinosaur by coloring it. First they must read the time on the clock. Then they must leave their desks and find a Food Card that gives the same time. Finally they read the color given on the Food Card and color in the dinosaur with the color indicated. Remind them that all Daily Dinosaurs will have three different colors when completely colored in. The Daily Dinosaurs must stay on the students' desks. Students are not allowed to carry them around the room while hunting for food. Answer any questions your students may have.



#### TEACHING TIP

*Practice having students return to desks when Tyrannosaurus appears. If necessary, refer to page 3 of this Introduction.*

## DAILY DIRECTIONS - 4

3. While answering your students' questions scatter the Food Cards for DAILY DINOSAUR 1 around the classroom.
4. Give each team 10 dinosaur eggs. Read aloud the question on each egg. Tell your students that for an egg to survive it must have the question answered correctly. Next hold up the Nest Cards for Egg Questions. Tell your students these cards have the answers to the questions written on the eggs. Remind students that the eggs must remain at each team's table. Students cannot carry them around the room as they search for answers. You will need three copies of each Nest Card. The Nest Cards may be taped to objects like tables, walls, and chalkboards or scattered around the room just as you did the Food Cards.
5. Tell your students they will have a limited amount of time to feed their dinosaurs and answer the egg questions. They should work quickly and accurately. Since dinosaurs could not talk encourage your students to work silently and communicate using body language.
6. Answer any last-minute questions then have your students begin. Help the children as necessary and be sure to play your role as Tyrannosaurus. Try to snatch up at least two or three dinosaurs. Remember, any dinosaur left unattended may be taken by Tyrannosaurus. The time needed to complete this activity will vary greatly from class to class. Observe your students. When it looks like three-fourths of them are done give a warning such as "Two minutes left." When this time expires all teams must stop.
7. Check each team's dinosaurs. The answers to DAILY DINOSAUR 1 are: head-red, body-blue, tail-yellow. Take any dinosaur that is not colored correctly or is not completely colored in.
8. Collect each team's dinosaur eggs and set them aside for correction at a later time.
9. Discuss the answers to the Egg Questions.
10. Have students place their Daily Dinosaurs in their folders.
11. At the end of the day or while students are busy with another activity correct the Egg Questions. Accept any answer that is reasonably close to what is written in the answer key. Keep in mind that students had to work quickly and did not have time to give thorough answers.



*Remind teams to put their names on all eggs.*

*The Answer Key is on pages 36-37 of this Introduction section.*

## Hour 3

### Materials

1. DAILY DINOSAUR 2 (one for each student)
2. Food Cards for DAILY DINOSAUR 2 (each card cut out)
3. Three sets of Nest Cards for Hatchling Questions (each card cut out)
4. Hatchling Questions
5. Picture of Tyrannosaurus
6. A second picture of Tyrannosaurus

### Procedure

1. Give each student a copy of DAILY DINOSAUR 2. Read the information about the dinosaur and discuss it briefly.
2. Give each team the appropriate number of Hatchling Questions. Teams earn one Hatchling Question for each egg that survived during Hour 2. If a team had eight eggs survive they receive eight Hatchling Questions. It does not matter which ones they receive.
3. Scatter the Food Cards for DAILY DINOSAUR 2 and three sets of the Nest Cards for Hatchling Questions around the classroom.
4. Have your students begin searching for Food Cards and answers to the Hatchling Questions.
5. While students search for food you must role play Tyrannosaurus. Today you will try to outsmart your students. Make a second copy of the Tyrannosaurus picture and hide it in the back of your classroom before you start the simulation. When it is time to play Tyrannosaurus pin on the first picture, give the signal that Tyrannosaurus is present, and roam around the classroom trying to catch peaceful dinosaurs. After a minute or two put the picture at the front of the room where all students can see it. Silently slip to the back of the room and pin on the second picture of Tyrannosaurus and attack. If you move quickly enough you will surprise a lot of dinosaurs. No one ever said there was only going to be one Tyrannosaurus!
6. Stop your students after 30 minutes or when about three-fourths of them have finished. Remember to give your students a two- or three-minute warning before you stop.

## DAILY DIRECTIONS - 6

7. Check each team's dinosaurs. The answer to DAILY DINOSAUR 2 is: head-green, body-blue, tail-yellow. Take any dinosaur that is not colored correctly or completely.
8. Collect each team's Hatchling Questions and set them aside for correction at a later time.
9. Discuss the answers to the Hatchling Questions.
10. Have students place their Daily Dinosaurs in their folders.
11. At the end of the day or while students are busy with another activity correct the Hatchling Questions. Accept any answer that is reasonably close to what is written in the answer key. Keep in mind that students had to work quickly and did not have time to give thorough answers.

### Hour 4

#### Materials

1. DAILY DINOSAUR 3 (one for each student)
2. Food Cards for DAILY DINOSAUR 3 (each card cut out)
3. Three sets of Nest Cards for Nestling Questions (each card cut out)
4. Nestling Questions
5. Picture of Tyrannosaurus
6. A second picture of Tyrannosaurus

#### Procedure

1. Give each student a copy of DAILY DINOSAUR 3. Read the information about the dinosaur and discuss it briefly.
2. Give each team the appropriate number of Nestling Questions. Teams earn one Nestling Question for each hatchling that survived during Hour 3. If a team had six Hatchlings survive they receive six Nestling Questions. It does not matter which ones they receive.
3. Scatter the Food Cards for DAILY DINOSAUR 3 and three sets of the Nest Cards for Nestling Questions around the classroom.
4. Have your students begin searching for Food Cards and answers to the Nestling Questions.
5. While students search for food continue to role play Tyrannosaurus.

## DAILY DIRECTIONS - 7

6. Stop your students after 30 minutes or when about three-fourths of them have finished. Remember to give your students a two- or three-minute warning before you stop.
7. Check each team's dinosaurs. The answer to DAILY DINOSAUR 3 is: head-orange, body-red, tail-green. Take any dinosaur that is not colored correctly or is not completely colored in.
8. Collect each team's Nestling Questions and set them aside for correction at a later time.
9. Discuss the answers to the Nestling Questions.
10. Have students place their Daily Dinosaurs in their folders.
11. At the end of the day or while students are busy with another activity correct the Nestling Questions. Accept any answer that is reasonably close to what is written in the answer key. Keep in mind that students had to work quickly and did not have time to give thorough answers.

### Hour 5

#### Materials

1. DAILY DINOSAUR 4 (one for each student)
2. Food Cards for DAILY DINOSAUR 4 (each card cut out)
3. Picture of Tyrannosaurus
4. THE STORY OF FOSSILS (one for each student)
5. SIX FOSSIL SITES (one for each team)

#### Procedure

1. Tell your students that today is the last day of the Dinosaur Survival Contest.
2. Return to the teams any Nestling Questions that were answered correctly. Have them cut out the dinosaurs and add them to their folders.
3. Give each student a copy of DAILY DINOSAUR 4. Read the information about the dinosaur and discuss it briefly.
4. Scatter the Food Cards for DAILY DINOSAUR 4 around the classroom. The Food Cards for DAILY DINOSAUR 4 are the same regardless of level.

## DAILY DIRECTIONS - 8

5. Have your students begin searching for Food Cards. They will experience difficulty and frustration because it will be impossible for the dinosaurs to be completely fed. Continue on with the game as usual and remember to role play Tyrannosaurus.
6. Give your students about 10 minutes to search for Food Cards then have them stop. Since none of the dinosaurs will be completely fed collect all of them and tell your students these dinosaurs starved to death. They may complain and say it is not fair. Use this opportunity to lead into a discussion of death of the dinosaurs.
7. Read or tell the following:

Read aloud ...

### What happened to the dinosaurs?

Dinosaurs ruled the world for more than 160 million years. Suddenly (within a few million years) they died out. Why? What could have caused these creatures to die out so quickly? There are many theories. Here are some of the main ones:

- **Theory 1:** The climate of the earth changed. It became colder. The dinosaurs could not live in such a cold world.
- **Theory 2:** A meteor hit the earth. This event caused a large cloud of dust to darken the skies. As a result, plants stopped growing because there wasn't enough sunlight. With the plants gone the dinosaurs lost their supply of food.
- **Theory 3:** The dinosaurs could not eat the new flowering plants that were growing. They starved to death because there was not enough food.
- **Theory 4:** The continents moved apart and mountains began to form. The dinosaurs were trapped. They got cut off from their supply of food and could no longer move from feeding ground to feeding ground.
- **Theory 5:** A strange new disease may have spread quickly through the dinosaur population and killed them in a short time.
- **Theory 6:** Fewer dinosaurs were born each year because small mammals were eating the dinosaur eggs.

Whether dinosaurs died out from one cause or several, their life on earth ended 65 million years ago.

**TT**

TEACHING TIP

*Have students make posters to illustrate these theories.*

## DAILY DIRECTIONS - 9

8. Have each team count their total number of dinosaurs. The Nestlings that survived are included in this count. On the chalkboard list the teams in order from those having the most dinosaurs to those having the least.
9. Tell your students you have received a letter from Diana Saurus that you would like to read to them. Read the following:

Read aloud ...

Dear Students,

Congratulations on completing the Dinosaur Survival Contest. Now it is time to begin the field work. Scientists have located for me six sites where the remains of dinosaur fossils have been exposed by recent storms. In each case only a small part of the dinosaur is showing, but my experts at these sites think they have found complete dinosaur skeletons and they want you to report to the fossil sites as soon as possible. It is very unusual to get a complete skeleton so you can see why we are so excited. All of the materials and supplies you will need have already been sent ahead. All I need is for you to select a site and begin digging.

Good luck,  
Diana Saurus

10. Give each team a copy of SIX FOSSIL SITES. Read together the directions and discuss any questions the students may have. Then give them time to select a site where they want to work.
11. Beginning with the first-place winner and working toward the last-place finisher have teams select their fossil sites. Write the fossil site number next to the team name as the fossil sites are selected.
12. Tell your students that tomorrow they will begin work at the fossil sites they have chosen. Then ask, "What is a fossil?" After a brief discussion read or tell the following:

Read aloud ...

### Dinosaur Fossils

Dinosaur fossils are found on every continent. There are fossils of bones, teeth, eggs, and footprints, but complete skeletons are rare. For every million dinosaurs that died one may have been fossilized and of these only a few have been found. This is because fossilization can happen only under very special circumstances.

## DAILY DIRECTIONS - 10

Before discussing these circumstances let's see what happens to a dinosaur after it dies. Within a few hours the dead dinosaur's flesh is being eaten by scavengers. Scavengers will continue to eat the flesh until it is gone. Meanwhile insects, bacteria, and molds have been living off of the remains of the dinosaur. Eventually the dinosaur will be broken down until it becomes part of the soil. There will be no trace that this dinosaur ever lived.

Sometimes scavengers, insects, bacteria, and molds could not reach the dead dinosaur. It is under these circumstances that fossils may be formed. Let's assume a dinosaur is caught by a flooding river and drowns. Its body sinks into the river bottom where it is quickly covered with mud. The flesh slowly disappears, but the bones remain. They are slowly covered with layers and layers of mud. Eventually the mud hardens and becomes stone. Meanwhile water is seeping through the buried bones and depositing minerals inside them. The result is a fossil made up of original bone and stone minerals. This process takes millions of years. Fossils formed this way are called permineralized.

Not all dinosaur bones are permineralized. There are five other ways they become fossils: preserved, mold, cast, trace, and impressions.

13. Give each student a copy of THE STORY OF FOSSILS and read it aloud together and discuss it. Tell your students that tomorrow they will begin work at their fossil sites where they will begin to extract permineralized fossils.

### Hour 6

#### Materials

1. Fossil site for each team (see setup directions)
2. 10 paper clips for each team
3. String or yarn for each team
4. Masking tape, scissors
5. FOSSIL SITE GRID MAP (one for each team)
6. DAILY DINOSAUR 5

## Procedure

1. Tell your students that today they will begin working at the fossil sites but before they begin they need to learn about fossil sites and how to record the positions of the fossils they find.
2. Read or tell the following:

### Finding Fossils

Read aloud ...

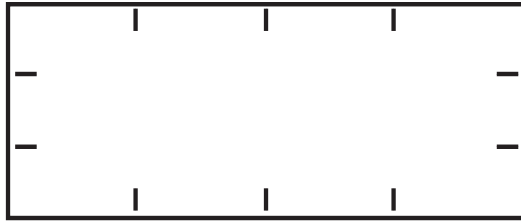
You might think scientists spend a lot of time digging for fossils. They don't. Scientists seldom dig for fossils. Instead they go to dry places like deserts. There they study the sedimentary rocks like sandstone, limestone, slate, or shale. They look for bits of bone or discoloration in the rocks. The best places to look are in ravines, canyons, and gullies where rivers have cut through layers of rocks exposing dinosaur fossils. Any place where winds, rain, or floods have cut away new rocks to expose old ones are good places to look.

A team of experts has already located a fossil site for each team. They have been busy describing its exact location. They used many different kinds of maps and they sketched landmarks so the site could be found again next year. They drew pictures that showed the different layers of rocks. Pictures were taken and drawings were made of the fossils exact position. All of this information was carefully recorded in their notebooks.

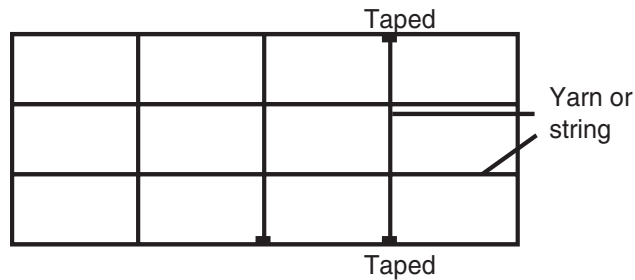
The scientists that did this work know how important it is to keep accurate notes. The position of the fossils tells them many things about the dinosaur. The fossils can show the location of the stomach. By looking carefully in this area scientists sometimes find the fossils of food the dinosaurs ate. Sometimes the position of the fossils show how the animal died and if it was eaten by other animals. The location of the fossils also helps scientists put the bones together. This information is lost once the fossils are removed unless careful notes are taken. Before you remove a fossil you must record its exact position. This is how you will do it.

## DAILY DIRECTIONS - 12

3. Show your students how to build a grid over their fossil sites. Demonstrate this by taping a sheet of butcher paper to the chalkboard. Place 10 marks around the paper just as you did for each of the fossil sites. See illustration below:



Explain to your students that they are to make grids by connecting the marks with pieces of string. Do this using string and paper clips to hold the string in position. Then go back and tape the string into place as shown below:



4. Tell your students that each of their fossil sites have marks. These represent stakes in the ground to which pieces of string are tied. The grids that are formed help scientists record the exact position of the fossils they find.
5. Have the teams spread out around the classroom. Then give each team its fossil site. Explain to your students that the “fossils” are buried under layers of “rock.”
6. Give each team 10 paper clips (to be used as pegs) and a ball of string or a skein of yarn.
7. Have the teams build grids over their fossils. They do this by attaching paper clips to the peg marks on the fossil site and then running string from one peg to the one on the opposite side.
8. Check to see that each team has made the grids correctly. Then give each team enough masking tape so they can tape the string or yarn into place. The taping must be done only at the peg mark. Some teams will find it easier to remove the paper clip and tape the string directly to the peg mark. Other teams prefer to tape over the paper clip. Either option is fine as long as the string is securely attached to the paper.

## DAILY DIRECTIONS - 13

9. Each fossil site has a part of the dinosaur showing. Have the students choose one member of their team to make a careful drawing of this exposed part on their FOSSIL SITE GRID MAP. You will have to explain how each grid on the fossil site corresponds to a square on the FOSSIL SITE GRID MAP. Students may take turns drawing or have one person do it all of the time
10. When your students have finished the drawings on the FOSSIL SITE GRID MAP have them carefully stack the fossil sites on top of each other being careful not to disturb the grid lines. If you are fortunate enough to have a large room where the fossil sites can remain in place then keep them where they are.
11. Tell your students that during the day they will be removing fossils and at night they will study dinosaurs. Explain to them that the information they learn from the study of dinosaurs may help them with the dinosaur they are removing from their fossil sites.
12. Give each student a copy of DAILY DINOSAUR 5. Read the directions together and have your students complete it. When all students have finished correct it together. The answer to DAILY DINOSAUR 5 is “Lizard.”

### Hour 7

#### Materials

1. Fossil site (one for each team)
2. Each team’s FOSSIL SITE GRID MAP
3. DAILY DINOSAUR 6 (one for each student)

#### Procedure

1. Read or tell the following:

#### **Removing the Rock Covering the Fossils.**

Today you begin removing the rock covering the fossils. At real fossil sites it takes years to remove a complete skeleton. You will do it in less than an hour, but you will get a good idea of how difficult and time consuming this kind of work can be. Removing fossils from rock is a slow process. It takes many hours of chipping, chiseling, and scraping to free a fossil, and extreme care must be given to avoid damaging it.



Read aloud ...

## DAILY DIRECTIONS - 14

Scientists begin by clearing away all of the plants, soil, and loose rock. If the fossil is brittle they paint it with a glue, liquid plastic, or resin to keep it from falling apart. While chipping away the stone they always aim the chisel away from the fossil. For smaller fossils they remove a large chunk of rock that has the entire fossil. They take this rock to a lab or workroom where they carefully remove the rock from the fossil. They use small tools and brushes. It is not uncommon to see scientists scraping bits of rock from a fossil using small dental tools and toothbrushes.

Larger fossils are exposed in sections. Once part of it is exposed it is also painted with a glue, liquid plastic, or resin to hold it together. Then it is covered with wet tissue paper. Next it is covered with several layers of cloth or burlap that has been dipped in plaster of Paris. This gives the fossil a strong protective cast. This process is repeated until the entire fossil is removed and covered with the plaster cast.

You will not have to worry about preserving your fossils in this way, but you must be very careful when you remove the layers of paper that cover your dinosaur skeleton. Remember to work slowly and carefully.

2. Have your students get their fossil sites and take them to an area where they will not be disturbed. Let them begin removing the layers of paper covering the fossils. They may use scissors or tear away the paper, but they do not cut out the fossils. They will also have to work around the strings that form the grids. As each grid is uncovered and the fossils exposed, students must make detailed drawings of what they find in the grid areas on their FOSSIL SITE GRID MAPS.
3. Move from team to team and check to see that they are working slowly, methodically, and are making detailed drawings.
4. When the teams finish removing all of layers of paper covering the dinosaur skeleton have them put away the fossil sites.
5. Give each student a copy of DAILY DINOSAUR 6. Read the directions together and have your students complete it. When all students have finished correct it together. The answer to DAILY DINOSAUR 6 is “Chicken.”

## Hour 8

### Materials

1. Fossil site for each team
2. Each team's FOSSIL SITE GRID MAP
3. DAILY DINOSAUR 7 (one for each student)
4. White tempera paint and a small paint brush for each team

### Procedure

1. Have your students get their fossil sites and take them to an area where they will not be disturbed.
2. Tell your students to look closely at the dinosaur skeleton. Have them make any changes or additions to their drawings on the FOSSIL SITE GRID MAPS. Next, point out that the skeletons are broken into several pieces. The dinosaurs at the sites are in six or seven pieces. Have them find an inconspicuous spot on *each* of these pieces and paint a small white rectangle approximately 1/2"x1-1/2".
3. While the paint is drying read or tell the following:

### Labeling the Fossils

Today you will be labeling the fossils you have discovered. Labeling fossils helps scientists do many things. First, if the fossil is of great scientific value they may want to return to the exact spot where it was found. The labeling helps them do this. Second, knowing the position of the fossil in relation to the other fossils helps them see how the skeleton fits together. It also helps them organize the fossils they have collected. Labeling is an important part of fossil hunting.

The fossil is labeled in a spot where it is not easily noticed. Usually this is at one end or on a side that will be hidden from view when put on display. A label right in the middle of a fossil would spoil its appearance.

The first step in labeling is to apply a small streak of white paint to the fossil. On this white paint a number is written in black ink. This number is then entered in a notebook where the fossil is described. The system used by scientists to label their fossils varies so a special one has been made up for your fossil sites.



Read aloud ...

## DAILY DIRECTIONS - 16

4. Here is how a sample number looks (write the following on the board):

95-2-B-1

Year Fossil Grid Fossil  
Site Box Number

This tells me the fossil was discovered in 1995 at fossil site 2. The B refers to the fossil's location on the grid map. Each of your teams has a grid map. Each of the squares has a name. Here are the names. Put up the following chart:

A	B	C	D
E	F	G	H
I	J	K	L

*Each box on the grid is assigned a letter. Use these letters when labeling the position of the fossils. More than one letter may be used if a fossil extends across squares. For example, a fossil is found in boxes F and G uses the letters FG on its label.*

The B tells me the fossil was found in the square labeled B. The 1 tells me it was the first fossil labeled at this fossil site.

5. Answer any questions your students may have before continuing.
6. Have each team select one fossil. On the left end of the white paint have them write the year followed by a dash. This is followed with the fossil site number. Next, they make another dash and write the letter of the grid box where the fossil is found. Finally they make a dash and write the number 1. The number 1 represents the first fossil labeled at the fossil site.
7. Have team members go to the next fossil. Again they write the year, dash, the fossil site number, dash, the letter of the grid box where the fossil is found, dash and the number 2. They continue in this way until all fossils are labeled.
8. When the students have finished labeling all of their fossils they may remove the strings forming the grid boxes and put the fossil sites in a safe place.
9. Give each student a copy of DAILY DINOSAUR 7. Read the directions together and have your students complete it. When all students have finished correct it together. The answer to DAILY DINOSAUR 7 is "Ferns."



### TEACHING TIP

*Use fine-point black marking pens instead of pencils to write fossil site numbers.*

## Hour 9

### Materials

1. Fossil site for each team
2. DAILY DINOSAUR 8 (one for each student)

### Procedure

1. Read or tell the following:

#### Removing Fossils

Once the fossils have been labeled and their position carefully recorded it is time to remove them. Great care must be taken so they are not ruined. First, the exposed part of the fossil is painted with a glue or resin to strengthen it. Then the surrounding rock is chipped away and the loose sediment is brushed off. As the fossils are exposed they are again painted with a glue-like liquid. This glue dries hard and holds the fossil together. This process continues until the fossil is removed from the stone. Scientists do not remove all of the rock that surrounds the fossil at this time. This will be done later in a laboratory.

Large fossils are covered with a plaster cast. First, the exposed part is painted with a glue or resin. Cracks are filled with Japanese rice paper or tissue, and glue is applied again. Then the fossil is covered with wet tissue paper. Next strips of burlap that has been soaked in plaster of Paris are laid on the exposed fossil. This process is repeated as more of the bone is uncovered until it is completely removed. Sometimes, on very large pieces, the plaster is made even stronger with the addition of steel rods.

Another type of cast is made by covering the fossil with aluminum foil. The foil is covered with a polyurethane foam which dries hard, but is lighter than the plaster cast.

When the entire fossil is protected it is packed in a wooden case and sent to a museum. At the museum the burlap and plaster are removed. Any surrounding rock is chipped off. Each bone is completely cleaned. If a fossil breaks or chips, it is glued back together. Again the fossil is covered with a glue or resin.



Read aloud ...

## DAILY DIRECTIONS - 18

Today you will be removing your fossils from the rock that surrounds them. You will not be covering them with glue or plaster of Paris to make them stronger so you must be careful not to ruin them.

2. Give each team their fossil sites. Have them look at their fossils. Point out to your students that the fossils are in groups and that these groups should be cut out as one piece. Next have your students discuss among themselves the pieces that are going to be cut out and who is going to be responsible for cutting out the different pieces.
3. Explain to your students that they must carefully cut out their fossils as close to the black lines as possible without cutting the black lines. Emphasize that accurate cutting is like carefully chipping away rock from fossils. They must be patient. A poor job of cutting out the fossils makes the assembly of them very difficult. Students who have difficulty cutting do not have to cut out the spaces between ribs, vertebrae on the tails, or any other area where fine motor skills are required.
4. As teams finish have them paper clip the fossils together in a neat stack and set aside for later use. Then have each team carefully examine the leftover paper for fossils they may have forgotten to cut out before throwing it away.
5. Give each student a copy of DAILY DINOSAUR 8. Read the directions together and have your students complete it. When all students have finished correct it together. The answer to DAILY DINOSAUR 8 is “Packs.”



*Save the scraps of paper until the fossils have been assembled in Hour 10.*

### Hour 10

#### Materials

1. Fossils from each fossil site
2. Each team's FOSSIL SITE GRID MAP
3. Tape for each team.

#### Procedure

1. Give each team their fossils. Tell them they are to pretend they are paleontologists working in a museum. Their job is to put the fossils together to form a skeleton. Have them begin with the backbone. Once this is in place they can add the other fossils to complete the skeleton. Explain to them that this is not an easy task and requires patience. They may use the Fossil Site Grid

## DAILY DIRECTIONS - 19

Map drawings they made to help them. Remind them to lay out the pieces, but not tape them together until you have checked them. (*Note:* Some of the skeletons are difficult to put together. If your students get frustrated remind them they are just working with paper and scissors while paleontologists are working with heavy stone and incomplete skeletons. Then you may give them some hints on how to complete the skeleton.) Pictures of the completed skeletons are in the Phase 2 tab section.



*You have a choice whether or not to correct errors. Scientists, too, make mistakes in putting together dinosaur skeletons.*

2. Give your students time to put together their skeletons. When a team has assembled its skeleton, give members tape so they can tape all of the pieces together.
3. The time necessary to assemble the skeletons varies greatly depending on the age and abilities of your students. If they finish quickly you may go on to Hour 11. Otherwise put the completed skeletons aside for use during the next session.

### Hour 11

#### Materials

1. Each team's dinosaur skeleton
2. DINOSAUR DISCOVERY REPORT (one for each student)
3. WHAT FOSSILS TELL US (two for each team)
4. TYRANNOSAURUS SKELETON (one copy)

#### Procedure

1. Tell your students that today they will study dinosaurs the way scientists do. They will learn how to read fossils and to search for clues that will tell them how dinosaurs lived.
2. Give each team two copies of WHAT FOSSILS TELL US then read, or tell, the following story to your class:

#### What Fossils Tell Us

If no human being has ever seen a dinosaur, how do we know so much about them? The answer: look for clues the dinosaurs left behind. These clues are found in fossils. By studying fossils scientists can make guesses about dinosaurs. They can tell how large dinosaurs were, how fast they walked, how much they weighed, and what they ate—just by studying their bones.



Read aloud ...

## DAILY DIRECTIONS - 20

Let's begin with the dinosaur's teeth. If the teeth were long, sharp, and pointed they probably belonged to a meat-eater. (*Point out the drawing of a meat-eater's teeth on WHAT FOSSILS TELL US.*) These teeth were used for tearing and ripping the flesh of other animals. Meat eaters hunted for food. Animals that hunt for food must be smart and fast. They must have good eyesight. If they were like meat-eaters of today, they had large chests and small waists. We can make these guesses by just looking at an animal's teeth.

The teeth of a plant eater were usually flat. (*Have your students look at the drawing of a plant-eater's teeth on the WHAT FOSSILS TELL US.*) These teeth were used for grinding and chewing plants. Plant-eaters were slow and needed to spend a great amount of time eating. They were peaceful. If they had weapons such as horns or spikes, they were used only for protection.

Next, look at the dinosaur's hips. All dinosaurs had one of two kinds of hips. The dinosaurs that had hips like reptile's are called lizard-hipped. The dinosaurs with hips like birds are called bird-hipped. (*Have your students look closely at the two kinds of hips shown on WHAT FOSSILS TELL US.*) The bird-hipped dinosaurs were all plant eaters. The lizard-hipped dinosaurs are divided into two groups—those that ate meat and those that ate plants. Dinosaurs are divided into two groups based on their hips. Lizard-hipped dinosaurs are called saurischian (sore-RIS-key-in) dinosaurs. Those with bird-hips are called ornithischian (OR-nuh-THIS-key-in) dinosaurs. You will be able to tell the kind of dinosaur you have by looking at its hips.

After studying a dinosaur's hips you will have to examine its feet. Dinosaurs had different kinds of feet. Their toes ended in claws or hoofs. Some had three toes and others had as many as five. All dinosaurs had toe bones that slanted upward to their ankles. This meant they had to walk on their toes. Most of the meat-eating dinosaurs had three toes on the ground and one up high by the ankle. If you see this kind of foot on a dinosaur you can be fairly certain it was a meat eater. (*Have your students look at the feet on WHAT FOSSILS TELL US.*)

## DAILY DIRECTIONS - 21

The markings on bones can also give clues about dinosaurs. One thing they look for are rough spots on the bones. (*Have your students look at the drawing of these rough spots on WHAT FOSSILS TELL US.*) These rough spots show where the muscles were attached. If there are many rough spots, scientists know the bone had a large, powerful muscle. If there were few rough spots, then they know the bone had small, weak muscle. By looking closely at the bones scientists can tell how powerful a dinosaur was.

When all the bones are put together to make a skeleton, scientists measure the dinosaur's height and length. Using what they know about the dinosaur's muscles, they can guess its weight. Thus, we see how scientists learn many things about dinosaurs just by studying fossils.

3. Have your students look at the skeleton of Tyrannosaurus. Tell them that scientists believe this creature was a meat-eater. Ask your students to tell you what clues from the fossils indicate it ate meat. They should list: long sharp teeth, hips like a lizard, and a toe off the ground and near the ankle.
4. Give each team their dinosaur skeletons.
5. Give each student a DINOSAUR DISCOVERY REPORT. Have them complete the top section by writing their team's fossil site number and then their name. Next, tell your students to complete numbers 1-5. While they are doing this, go from team to team and help them study their dinosaurs. Here are some clues you may give them:
  - **Fossil Site 1** What is unusual about this dinosaur's hands? (a spike for a thumb) What could it be used for? (defense)
  - **Fossil Site 2** Why was the neck so long? (better able to get food from tall trees) What is unusual about its legs? (the front legs are longer than the back ones).
  - **Fossil Site 3** This dinosaur's head is similar to an animal that is alive today. What animal is it? (parrot) Does this give you clues about what it ate and how it ate? (use its beak to cut and slice plants)
  - **Fossil Site 4** This dinosaur is like one you already studied. (Tyrannosaurus) How can that help you? (both ate meat)
  - **Fossil Site 5** This dinosaur has a mouth like a duck. Does this give you a clue about where it lived? (near water) And what it ate? (plants)

## DAILY DIRECTIONS - 22

- **Fossil Site 6** This dinosaur has small bones. Does that give you a clue about what it ate and how it hunted? (possibly a small meateater that ate small animals or hunted in packs to attack large ones)

6. When the teams have finished with Numbers 1-5 have them select a name for their dinosaur (Number 6). Here is what you can suggest to your students: I want each of you to think of a name for your dinosaur. Think of a special name that describes it. Is there something special about your dinosaur that could be used in a name. The name Brontosaurus (scientists prefer Apatosaurus) means “thunder lizard.” Someone thought it would make a noise like thunder when it walked because it was so big. Talk with your teammates and pick a name that describes your dinosaur. The name may have more than one or two words.
7. Tell your students that they must now describe their dinosaurs (Number 7) using the information they got from their fossils. They should tell if it was a meat eater or plant eater. Does it have lizard-hips or bird-hips? Does it have anything that is different from other dinosaurs? If so, what could be its purpose? Do they think it was a large dinosaur or a small one?
8. As your students finish the DINOSAUR DISCOVERY REPORT give them a sheet of paper to draw a picture of their dinosaurs.
9. Collect each team’s dinosaur skeleton.

**Note:** Tell your students that for this simulation the small dinosaurs were enlarged and large ones were reduced in size so all teams would be working with the same size skeletons. Therefore they won’t be able to measure the skeleton’s size.

### Hour 12

#### Materials

1. Each team’s dinosaur skeleton
2. DINOSAUR DISCOVERY REPORT

#### Procedure

1. Tell your students that scientists write reports about their dinosaur discoveries and share what they have learned with other scientists. Today each team will share what it has learned with the rest of the class. Each team member is responsible for saying something he/she learned about the dinosaur. The DINOSAUR DISCOVERY REPORTS may be used. Allow time for teams to plan their reports.

## DAILY DIRECTIONS - 23

2. Call up each team one at a time. Members should bring the Fossil Site Skeleton they put together and their DINOSAUR DISCOVERY REPORTS.
3. Let each team member say something she/he learned about the team's dinosaur. The first student should give the name of the dinosaur. Other students should tell what it ate, how it walked, and what was unusual about it. Allow other students in the class to make comments and observations.
4. At this point you have several options to choose from: 1) You can continue with the next team; 2) you can give the real name of the dinosaur and some information about it; or 3) you might even assign each team the goal of finding its dinosaur in a dinosaur book. Here are the names of the dinosaurs by Fossil Sites:
  - **Fossil Site 1** This is a dinosaur you already studied. Do you recognize it? You read about it in Daily Dinosaur 1. It was one of the first dinosaurs ever discovered. Its teeth were like an iguana's so it is called Iguanodon (ig-WAN-o-don). It ate plants. Iguanodon was 29 feet long, weighed four tons, and had a spiked thumb that could be used for protection. Scientists believe it usually walked on two legs, but at times could walk on all four.
  - **Fossil Site 2** This dinosaur was 70-80 feet long, 40 feet tall, and weighed 50 tons. Its two front legs were longer than its back legs. It is called Brachiosaurus (BRACK-ee-o-SORE-us). Its name means "arm lizard." The Brachiosaurus had a nose above its eyes. It traveled in small herds eating plants. It walked on four legs.
  - **Fossil Site 3** This dinosaur has a head like a parrot's. It is called Psittacosaurus (si-TACK-o-SORE-us) and its name means "parrot lizard." The Psittacosaurus was nearly seven feet long and walked on two legs. Its teeth were specially designed for cutting and chewing tough plants.
  - **Fossil Site 4** This dinosaur is called Megalosaurus (MEG-a-lo-SORE-us). Its name means "great lizard." It was 20 to 30 feet long, 13 feet tall, and weighed two to three tons. It was a ferocious meateater with long teeth. As the old teeth became dull and worn they were replaced with sharp new ones. It walked on two large, powerful legs.
  - **Fossil Site 5** This dinosaur was 40 feet long and had 2,000 tiny teeth. It is one of the duck-billed dinosaurs and was one of the first dinosaurs discovered in America. It is called Hadrosaurus (HAD-ro-SORE-us) which means thick lizard. The Hadrosaurus traveled in herds and ate plants. It most likely walked on four legs, but stood on its hind legs to reach high growing plants.

## DAILY DIRECTIONS - 24

- **Fossil Site 6** This dinosaur is called Dilophosaurus (die-LOAF-o-SORE-us). Its name means two-ridge lizard because there are two thin bony ridges on top of its head. Dilophosaurus had a long slender body that was quick and agile. It could easily attack plant eating dinosaurs with sharp claws and long teeth. Some scientists believe it ate only animals that were already dead, but others believe it hunted in packs. Dilophosaurus weighed just over 1000 pounds and was 19 feet long. It walked on two legs.
5. After all teams have given their reports, collect and file the DINOSAUR DISCOVERY REPORTS.



**Note:** This lesson is to be completed on the last day of the simulation. If you are doing the dinosaur program you will come back to this lesson when you have finished the program.

### Hour 13

#### Materials

1. Each student's Daily Dinosaurs
2. Each student's DINOSAUR DISCOVERY REPORT
3. CREATE YOUR OWN DINOSAUR (one for each student)
4. MAKE A DINOSAUR BOOK (one for each student)
5. PRE/POST TEST (one for each student)
6. Bookbinding materials (construction paper, fasteners, a hole punch, book binding tape, contact paper, etc.)
7. Writing paper (at least three sheets for each student)
8. DINOSAUR certificate

#### Procedure

1. Give each student a copy of CREATE YOUR OWN DINOSAUR and read the directions together.
2. While students create their own dinosaurs give each student the following:
  - a. Their eight Daily Dinosaurs (most students have these in their folders)
  - b. Their DINOSAUR DISCOVERY REPORT
  - c. A 12"x18" sheet of construction paper
  - d. Three sheets of writing paper
3. Give each student a copy of MAKE A DINOSAUR BOOK and following the directions, or using your own, have each student make a dinosaur book.
4. Give each student one copy of the PRE/POST TEST and allow them 10 minutes to complete it.

## DAILY DIRECTIONS - 25

5. Have a teacher-student discussion of the knowledge gained during DINOSAUR. Topics to cover are:
  - PRE/POST TEST
    - a. How did your final answers compare with your first ones?
  - Phase 1: Dinosaur contest
    - a. Did you like being a dinosaur? Why or why not?
    - b. Was it easy being a dinosaur? Why or why not?
    - c. If you could be any dinosaur, which one would you be?
    - d. Was your teacher a good Tyrannosaurus?
  - Phase 2: Fossil sites
    - a. What did you learn about fossils?
    - b. What part of fossil hunting did you like the best? the least?
  - Phase 3: Museum
    - a. Did you like putting together the fossils?
    - b. How was your study of dinosaurs' skeletons like a scientist's study?
    - c. Do you understand how scientists learn so much about dinosaurs from studying their fossils? If so, how?
    - d. What dinosaur skeleton did you like the best? the least?
  - Dinosaur program
    - a. Did you like doing the dinosaur program?
    - b. What did you like the most? the least?
    - c. What did you learn from the program?
  - Miscellaneous
    - a. What part of DINOSAUR did you like the best? the least?
    - b. Did you learn much about dinosaurs?
    - c. What did you learn about dinosaurs that really surprised you?
    - d. Can you now tell time better than you did before you started the simulation? (or add and subtract time better?)
    - e. Should next year's students play this simulation?
6. Read aloud the following:

Read aloud ... 

Dear students,

Congratulations on your excellent work as members of the Dinosaur Research Project. I have heard nothing but favorable comments from everyone who worked with you about your hard work and willingness to learn. In appreciation for all that you have contributed to this project I have a special certificate to present to each one of you.

Sincerely,  
Diana Saurus

7. Give out the Dinosaur Research Project certificates to each student.



## TEACHING TIP

*The answers given by your students may vary slightly from those given. Accept any reasonable answer.*

### NEST CARDS (Levels 1 & 2) for Egg Questions

1. **What is a dinosaur?** A dinosaur is a reptile that lived a long time ago.
2. **What does the word dinosaur mean?** The name “dinosaur” means “terrible lizard.”
3. **How big did dinosaurs get?** The large dinosaurs were 80-125 feet long. They were 40-60 feet tall. Some weighed as much as 10 elephants.
4. **How fast did dinosaurs move?** Dinosaurs could move from 4-20 m.p.h..
5. **What size were the smallest dinosaurs?** The smallest dinosaurs were about the size of today’s chickens and pigeons.
6. **What was a dinosaur’s skin like?** Dinosaurs had scaly, bumpy skin. They may have been brightly colored with spots and stripes.
7. **How many kinds of dinosaurs were there?** There are more than 600 different kinds of dinosaurs. New ones are found each year.
8. **What are the two main groups of dinosaurs?** The two groups of dinosaurs are those with lizard hips and those with bird hips.
9. **What do the terms “warm blooded” and “cold blooded” mean?** Warm blooded means the animal makes its own heat. Cold blooded means the animals get their heat from the air around them.
10. **Were dinosaurs warmblooded or cold-blooded?** Scientists do not know for sure if dinosaurs were warm blooded or cold blooded.

### NEST CARDS (Levels 1 & 2) for Hatchling Questions

1. **How did dinosaurs select the plants they ate?** Dinosaurs ate plants that were easy to reach.
2. **Did plant eaters travel alone or in herds?** Scientists believe that many plant eaters traveled in herds.
3. **How did plant-eating dinosaurs protect themselves?** They stayed in groups. Their bodies had weapons like clubs, spikes, horns, or protective plates.
4. **How did meat-eating dinosaurs hunt?** They hunted alone and in packs. Some meat eaters ate animals that were already dead.
5. **What diseases and dangers bothered the dinosaurs?** They had bone diseases. They were injured in fights and annoyed by insects.
6. **Where did dinosaurs build their nests?** Dinosaurs built their nests in colonies. Nests were close to each other.
7. **How did dinosaurs take care of their eggs?** Dinosaurs kept their eggs warm and protected them from other dinosaurs.
8. **How did dinosaurs take care of their babies?** Dinosaurs fed their babies until they could get food on their own. They protected them.
9. **Did all dinosaurs hatch from eggs?** Yes
10. **What is the “Good Mother Lizard”?** The name of a dinosaur that took care of its babies.

## ANSWER KEY - 2

### NEST CARDS (Levels 1 & 2) for Nestling Questions

1. **Did all dinosaurs live at the same time?** No, different kinds of dinosaurs lived at different times.
2. **What was the land like during the Triassic Period (225-180 million years ago)?** The land was all joined together and it was warm.
3. **What plants and animals were alive during the Triassic Period (225-180 million years ago)?** Answers should include some of the following:
  - **Plants:** ferns, large trees like spruce and pine, and smaller ones like ginkgoes. Horsetails and cycads covered the drier areas.
  - **Animals:** pterosaurs, turtles, crocodiles, mammals, grasshoppers, ants, beetles, cockroaches, and spiders.
4. **What dinosaurs were alive during the Triassic Period (225-180 million years ago)?** Mussaurus, Melanorosaurus, Plateosaurus, Coelophysis, Herrerasaurus, and Staurikosaurus.
5. **What was the land like during the Jurassic Period (180-130 million years ago)?** The world was warm and moist. The land began splitting apart. New mountains grew and new oceans were formed.
6. **What plants and animals were alive during the Jurassic Period (180-130 million years ago)?** Answers should include some of the following:
  - **Plants:** ferns, horsetails, palmlike trees, and tall conifers.
  - **Animals:** birds began to appear, animals from the Triassic Period, and dinosaurs.
7. **What dinosaurs were alive during the Jurassic Period (180-130 million years ago)?** Apatosaurus, Brachiosaurus, Diplodocus, Stegosaurus, Allosaurus, and Compsognathus.
8. **What was the land like during the Cretaceous Period (130-65 million years ago)?** The land moved even farther apart. It began to look like the continents of today, but much of the land was under water. The climate was warm but the land was drier.
9. **What plants and animals were alive during the Cretaceous Period (130-65 million years ago)?** Answers should include some of the following:
  - **Plants:** flowering plants, shrubs, and trees. Walnuts, maples, and oaks began to grow.
  - **Animals:** Snakes, moths, and bees appeared. Mammals began to multiply, but dinosaurs still ruled the land.
10. **What dinosaurs were alive during the Cretaceous Period (130-65 million years ago)?** Tyrannosaurus, Deinonychus, Spinosaurus, Troodon, Oviraptor, Maiasaura, Iguanodon, and Triceratops.

# ANNOTATED BIBLIOGRAPHY

Aliki. *Digging Up Dinosaurs*. Harper, New York, 1981. (This children's book contains accurate illustrations of how fossils are uncovered, collected, and studied.)

Beaty, Seddon Kelly and Fountas, Irene. *Dinosaurs Forever! A Whole Language Resource Guide For K-4*. Addison-Wesley, Menlo Park, California. 1994. (This book provides children with experiences about dinosaurs in many of the curriculum areas: science, math, social studies, art, music, and language arts. It contains a wealth of information about dinosaurs including a list of museums and parks, and an extensive annotated bibliography of fiction and non-fiction books about dinosaurs.)

Lambert, David. *The Ultimate Dinosaur Book*, Dorling Kindersley, New York. 1993. (This richly illustrated and comprehensive book contains more than 500 color photographs and drawings of dinosaurs. Many of the drawings illustrate the dinosaurs internal, as well as external anatomy. The dinosaur world is shown through maps and drawings of vegetation from the three periods of the Mesozoic era. Photographs of fossil sites and a dictionary that includes every type of dinosaur discovered so far complete this excellent book.)

Lemonick, Michael D. "Rewriting the Book on Dinosaurs." *Time*, April 1993. (This article explores the recent discoveries that have changed our thinking about dinosaurs. It provides a brief, and accurate, look at many of the dinosaur controversies.)

Rao, Anthony. *The Dinosaur Coloring Book*, Dover Publication, Inc. New York. 1980. (Contains more than 40 drawings, superbly rendered for coloring, of 32 dinosaurs, six non-dinosaurian archosaurs, one fossil bird, and one ancient sea turtle. Each illustration is accompanied by an informative and factual caption containing such information as size, habitat, classification, related dinosaurs, means of offense or defense, skeletal structure, and evolutionary significance.)

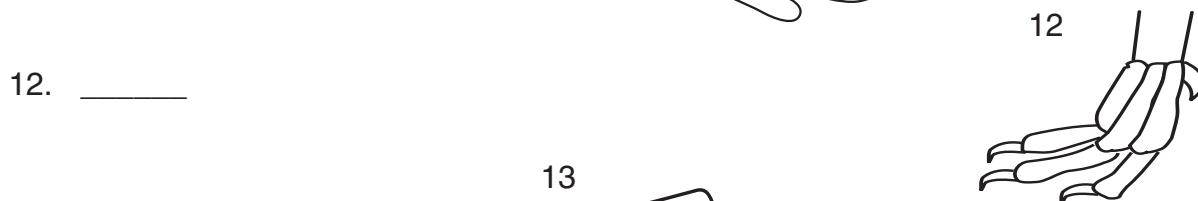
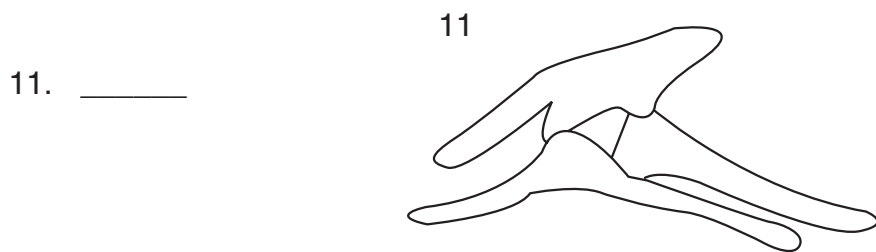
Wexo, John Bonnette. *Dinosaurs*, Zoobooks, Wildlife Education, Ltd. San Diego, CA, 1992. (A wealth of information is contained in this brief Zoobook. Beautiful illustrations and brief narratives show the reader how fossils are removed and studied, how dinosaurs lived, and how the dinosaurs may have died. It also explores the idea that birds are descendants of dinosaurs.)

# PRE/POST TEST

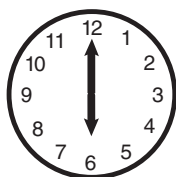
**Directions:** Read each statement. Circle T if the statement is true or F if it is false.

- |   |   |   |
|---|---|---|
| 1. All dinosaurs were larger than elephants.              | T | F |
| 2. There are only about 300 different kinds of dinosaurs. | T | F |
| 3. Some dinosaurs had hips like birds.                    | T | F |
| 4. Some dinosaurs built nests.                            | T | F |
| 5. All dinosaurs hatched from eggs.                       | T | F |
| 6. Most dinosaurs ate plants.                             | T | F |
| 7. All of the dinosaurs lived at the same time.           | T | F |
| 8. While the dinosaurs lived the land kept changing.      | T | F |
| 9. Some dinosaurs could move as fast as 60 m.p.h.         | T | F |
| 10. Tyrannosaurus was the largest dinosaur.               | T | F |

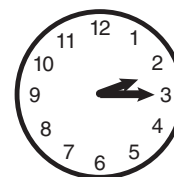
Study the pictures. Write P if the fossil is most likely from a plant eater. Write M if the fossils is most likely from a meat eater.



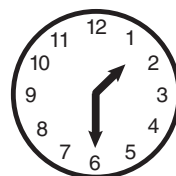
14. Circle the time shown on the clock.
- a. 6:00  
b. 12:00  
c. 12:30



16. Circle the time shown on the clock.
- a. 3:10  
b. 3:15  
c. 2:15



15. Circle the time shown on the clock.
- a. 1:30  
b. 2:30  
c. 6:05



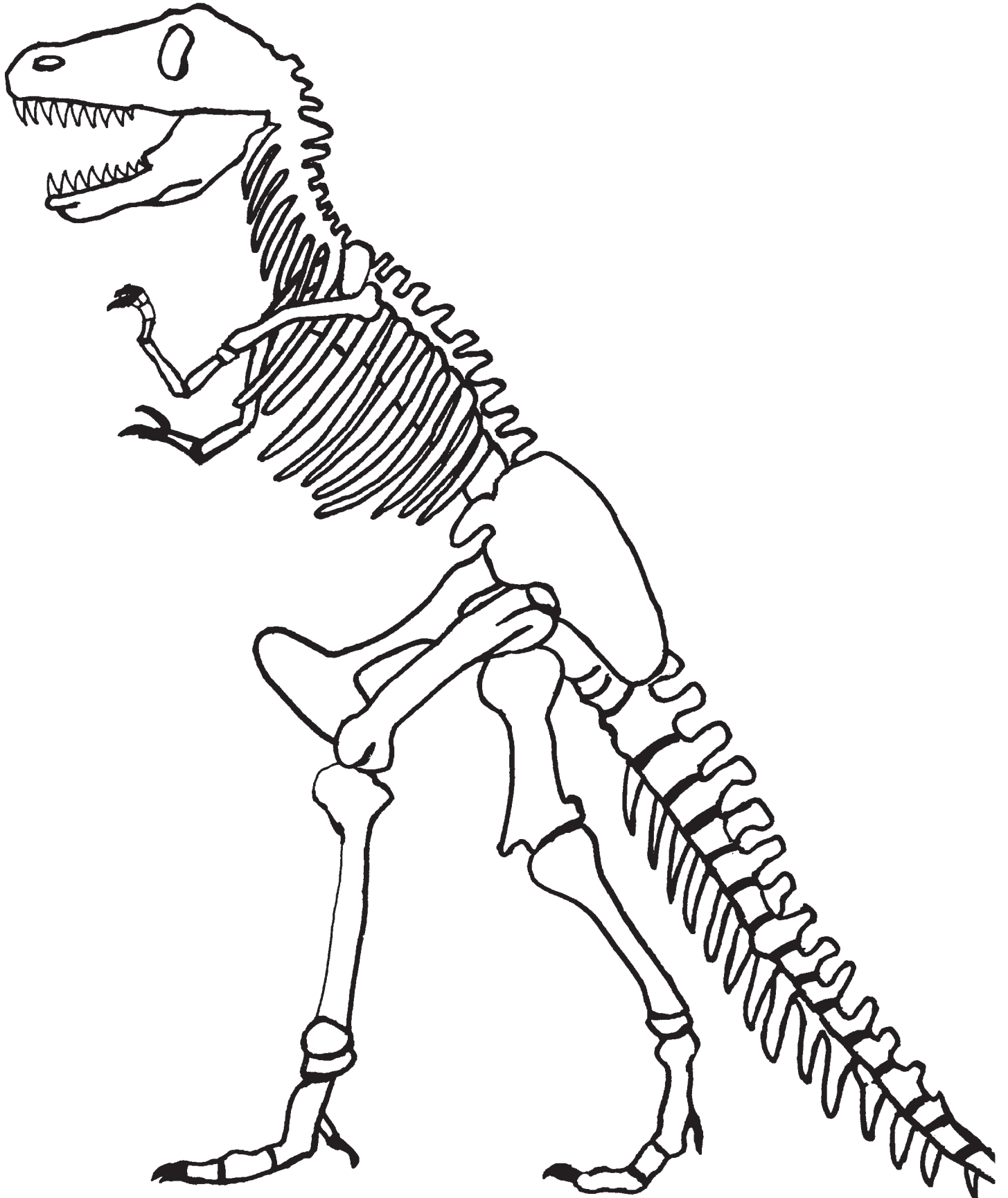
17. Work the following problem.

$$\begin{array}{r} 2 \text{ hours } 15 \text{ minutes} \\ + 1 \text{ hour } 45 \text{ minutes} \\ \hline \end{array}$$

# PRONUNCIATION KEY

Allosaurus (al-oh-SORE-us)  
Ankylosaurus (an-KILE-lo-SORE-us)  
Apatosaurus (ah-PAT-uh-SORE-us)  
Archaeopteryx (ark-ee-OP-ter-icks)  
Brachiosaurus (BRACK-ee-o-SORE-us)  
Brontosaurus (BRON-tuh-SORE-us)  
Carnotaurus (car-no-TORE-us)  
Coelophysis (seal-o-FI-sis)  
Compsognathus (COMP-sog-NAY-thus)  
Deinonychus (die-NON-i-kus)  
Dilophosaurus (die-LOAF-o-SORE-us)  
Diplodocus (di-PLO-de-kus)  
Hadrosaurus (HAD-ro-SORE-us)  
Herrerasaurus (eh-ray-rah-SORE-us)  
Iguanodon (ig-WAN-o-don)  
Maiasaura (MY-a-SORE-a)  
Megalosaurus (MEG-a-lo-SORE-us)  
Melanorosaurus (MEL-an-or-o-SORE-us)  
Monoclonius (mon-o-KLO-nee-us)  
Mussaurus (mus-OR-us)  
Ornithischian (OR-nuh-THIS-key-un)  
Oviraptor (OH-vi-RAP-tor)  
Parasaurolophus (para-SORE-o-LOAF-us)  
Plateosaurus (PLAT-ee-o-SORE-us)  
Protoceratops (PRO-toe-SERR-a-tops)  
Psittacosaurus (si-TACK-o-SORE-us)  
Pteranodon (ter-an-o-don)  
Saurischian (sore-RIS-key-un)  
Seismosaurus (SIZE-mo-SORE-us)  
Spinosaurus (SPINE-o-SORE-us)  
Staurikosaurus (stor-ick-o-SORE-us)  
Stegosaurus (steg-o-SORE-us)  
Supersaurus (SU-per-SORE-us)  
Triceratops (tri-SERRA-tops)  
Troodon (TRO-o-don)  
Tyrannosaurus (tie-RAN-o-SORE-us)  
Ultrasaurus (UL-tra-SORE-us)

# TYRANNOSAURUS SKELETON







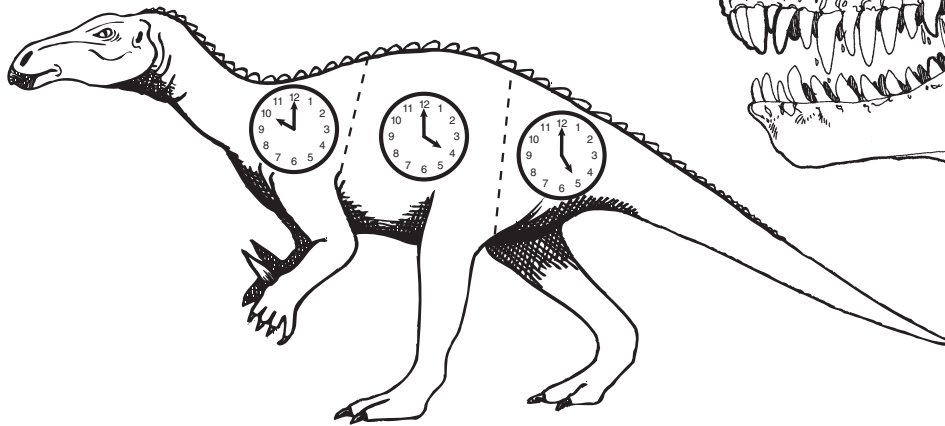


# DINOSAUR SURVIVAL CONTEST

**Directions:** This contest is a game designed to show how well you can survive in the world of dinosaurs. Each day you will role play a peaceful plant-eating dinosaur. You must eat, avoid the dangerous Tyrannosaurus, and protect your young. The team with the most dinosaurs at the end of this contest will be declared the winner. Listen carefully as your teacher explains each part of the contest shown below.

## Eating

10:00 Blue	4:00 Red	5:00 Yellow
---------------	-------------	----------------



## Protection



## Care of young

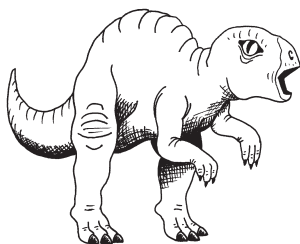
### Egg

Team \_\_\_\_\_  
1. What is a dinosaur?  
\_\_\_\_\_  
\_\_\_\_\_

### Nest Card

Dinosaurs are reptiles that lived from 220 million years ago to 65 million years ago. They had the same type of skin, bones, and teeth as many of today's reptiles. They lived on land and laid eggs on land. Dinosaurs were different from today's reptiles. Most reptiles have legs that go out from the sides. They walk with their bellies dragging across the ground like lizards and crocodiles. Dinosaurs were larger. Their legs were under the body like an elephant's. They walked with their body off the ground

### Hatchling

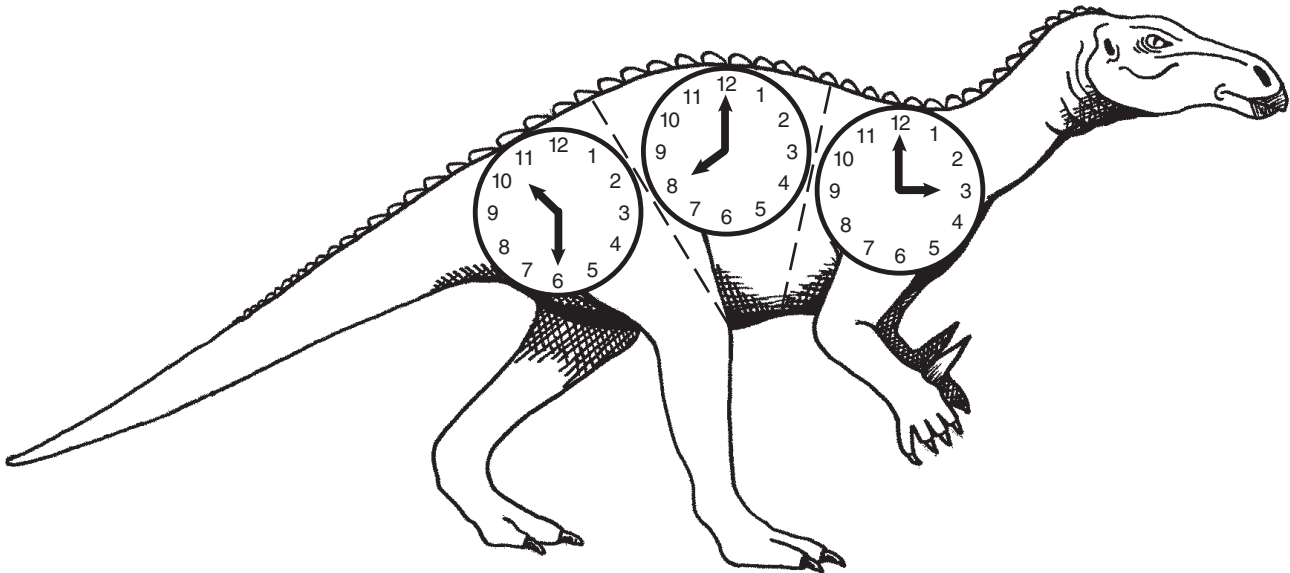


Team \_\_\_\_\_

1. How did dinosaurs select the plants they ate?  
\_\_\_\_\_  
\_\_\_\_\_

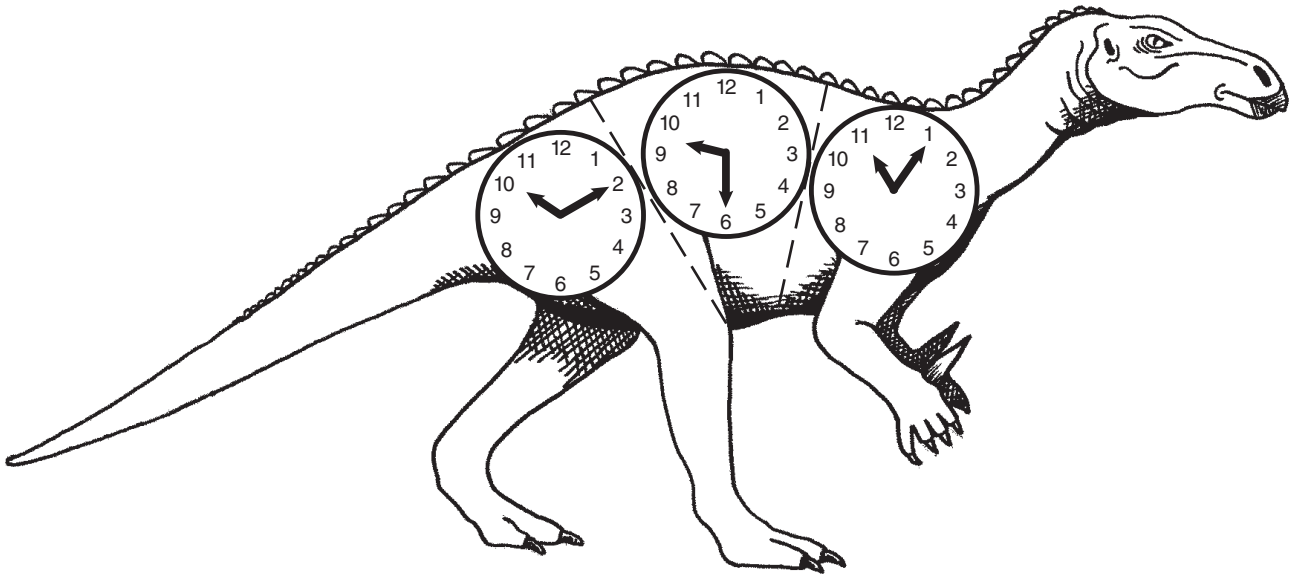
# DAILY DINOSAUR 1—Level 1

Iguanodon (ig-WAN-o-don) was one of the first dinosaurs found. It was discovered by a woman. No one knew what it was. No one had ever heard of dinosaurs. It ate plants. It had spikes on its hands.



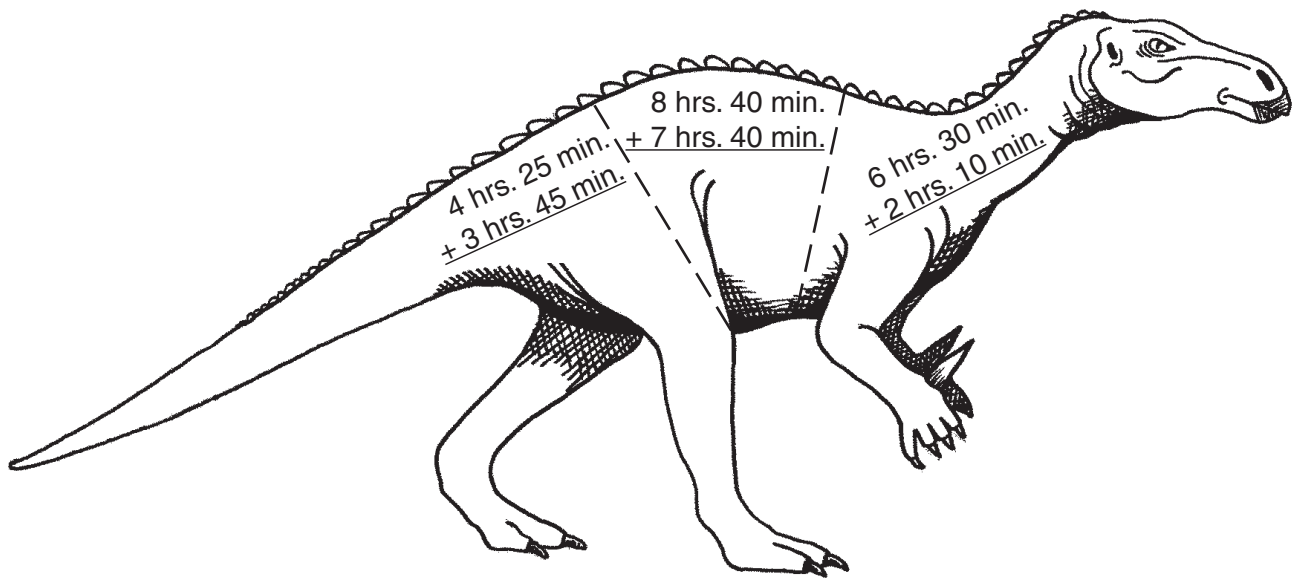
## DAILY DINOSAUR 1—Level 2

Iguanodon (ig-WAN-o-don) was one of the first dinosaurs ever discovered. It was discovered by a woman. Scientists did not know what it was. No one had ever heard of dinosaurs. This animal walked on two legs. It ate plants. It even had spikes on its hands.



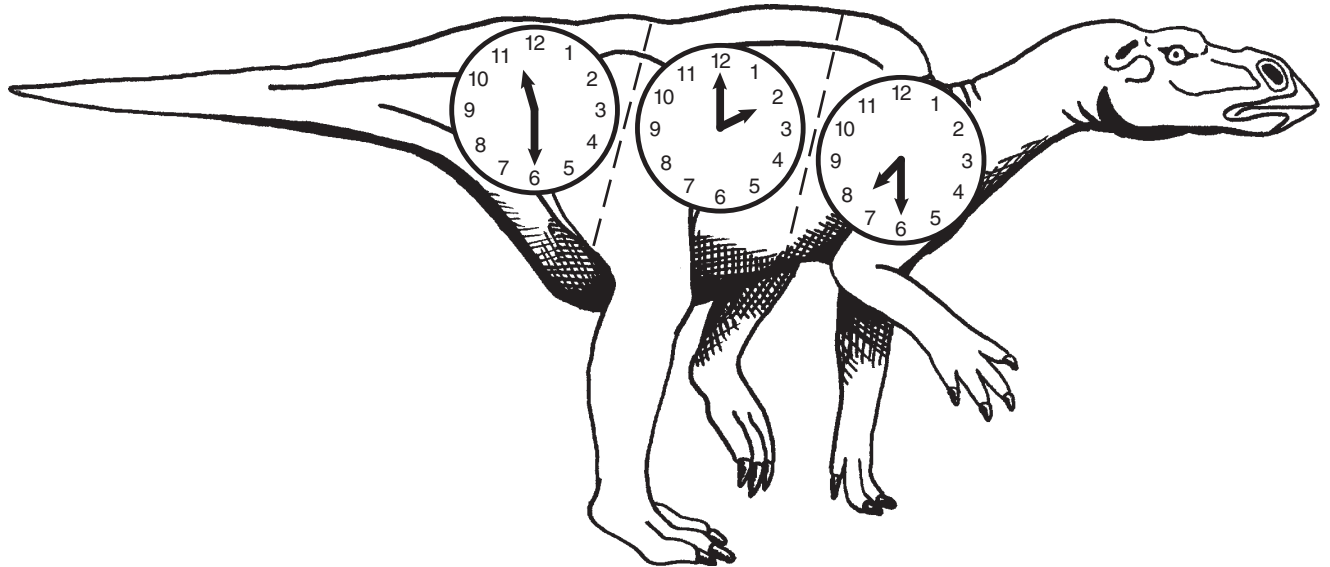
# DAILY DINOSAUR 1—Level 3

Iguanodon (ig-WAN-o-don) was one of the first dinosaurs to be discovered. It was found by Mrs. Gideon Mantell in 1822. It had teeth like an iguana, so it was named Iguanodon. At first there weren't many bones. Scientists guessed that it had horns on its nose and walked on four legs. Then several skeletons were discovered. Scientists then learned that Iguanodon walked on two legs and had horns on each thumb.



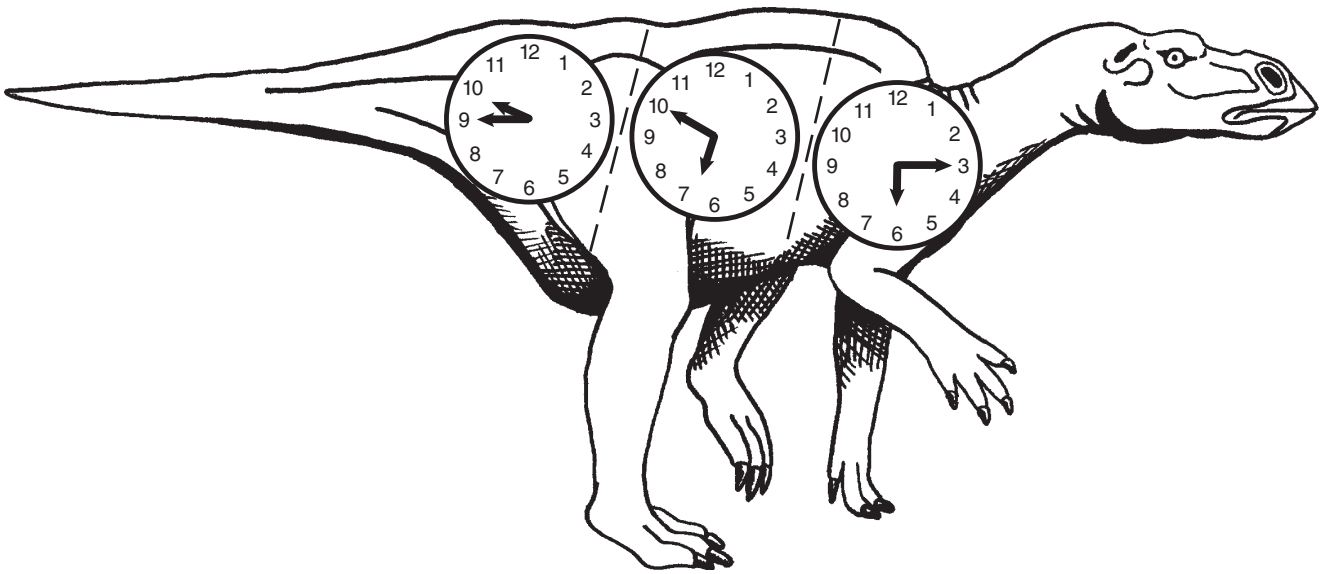
# DAILY DINOSAUR 2—Level 1

Maiasaura (MY-a-SORE-a) was a duck-billed dinosaur. It had a beak like a duck. It had powerful jaws. Maiasaura built nests on the ground. They took care of their young the same way birds do. The name Maiasaura means “Good Mother Lizard.”



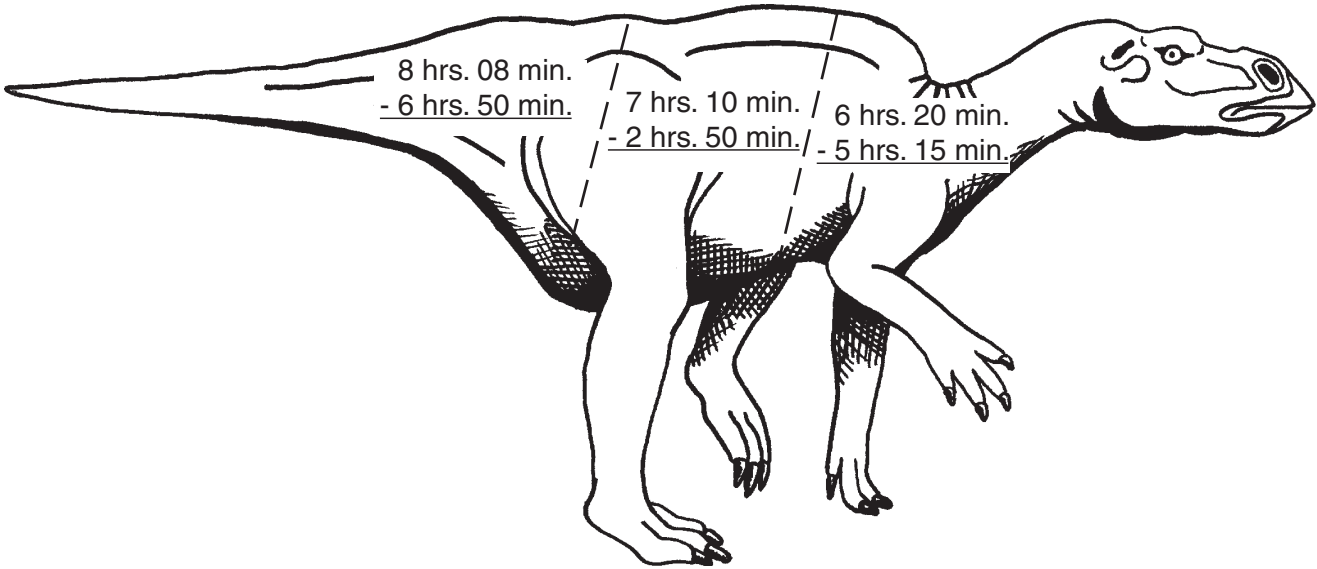
## DAILY DINOSAUR 2—Level 2

Maiasaura (MY-a-SORE-a) was a duck-billed dinosaur. It had a beak like a duck and powerful jaws. Maiasaura built nests on the ground. Some nests had fossilized eggs in them. Other nests had tiny pieces of egg shells around them. Scientists believe this dinosaur stayed with its young and took care of them in much the same way the birds of today take care of their young. The name Maiasaura means “Good Mother Lizard.”



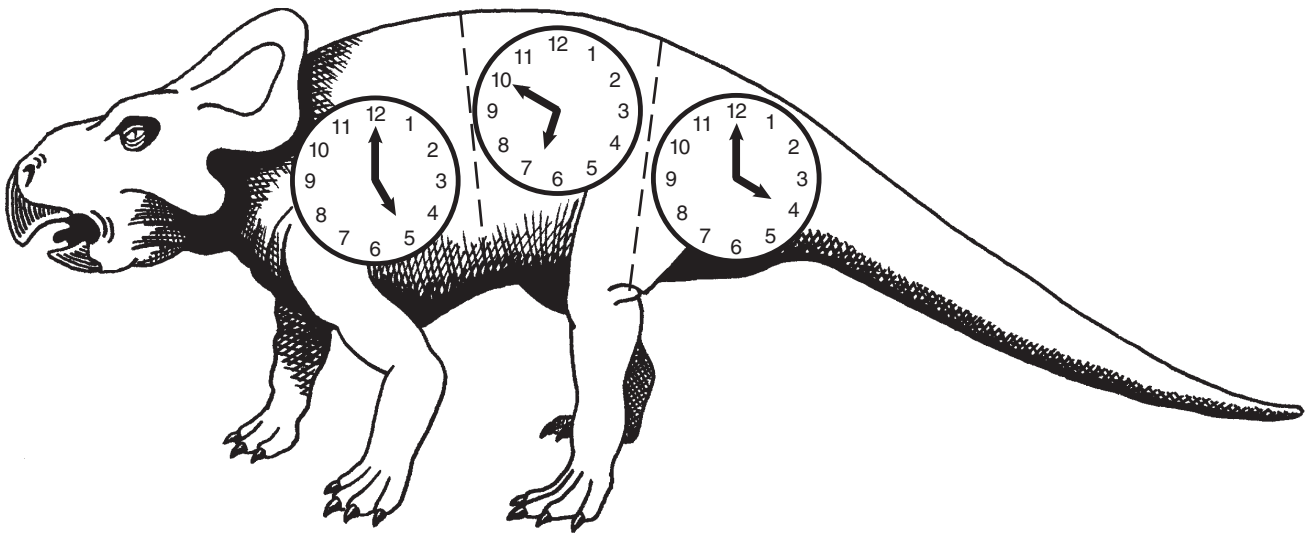
# DAILY DINOSAUR 2—Level 3

Maiasaura (MY-a-SORE-a) was a duck-billed dinosaur. It had a beak like a duck and powerful jaws. It was discovered in 1978 among 14 rocky nests in eastern Montana. Some nests had fossilized eggs in them. Other nests had tiny pieces of egg shells around them. Scientists concluded that this dinosaur stayed with its young and took care of them in much the same way the birds of today take care of their young. The name Maiasaura means “Good Mother Lizard.” Since their first discovery thousands of other specimens have been found.



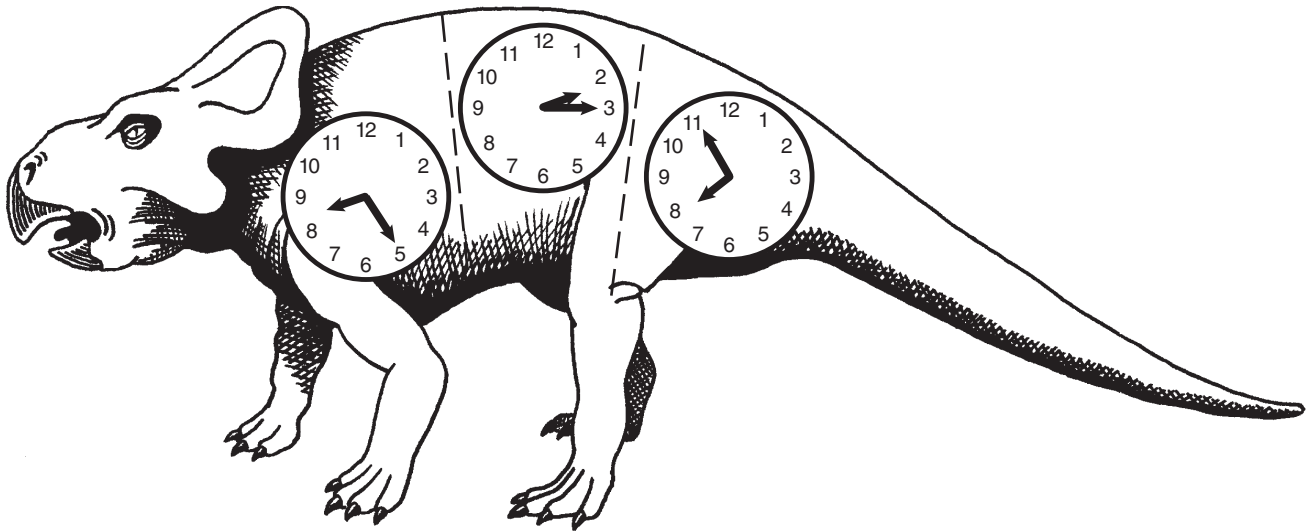
# DAILY DINOSAUR 3—Level 1

This was a small dinosaur. It had a shield to protect its neck and head. It ate plants. Its name is Protoceratops (PRO-toe-SERR-atops). It is a famous dinosaur. Its eggs were the first dinosaur eggs ever found. Some eggs even had skeletons in them.



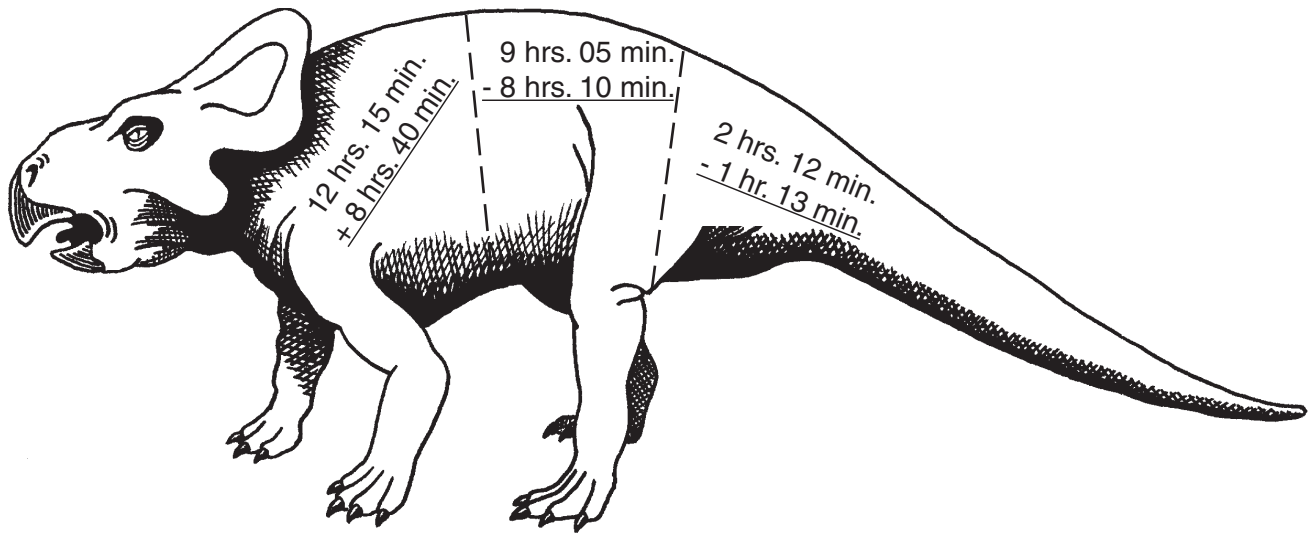
## DAILY DINOSAUR 3—Level 2

This dinosaur was small and famous. The first dinosaur eggs ever found belonged to it. Some eggs had skeletons of unhatched dinosaurs inside. Its name is Protoceratops (PRO-toe-SERR-atops). It ate plants. It had a bony plate to protect its head and neck.



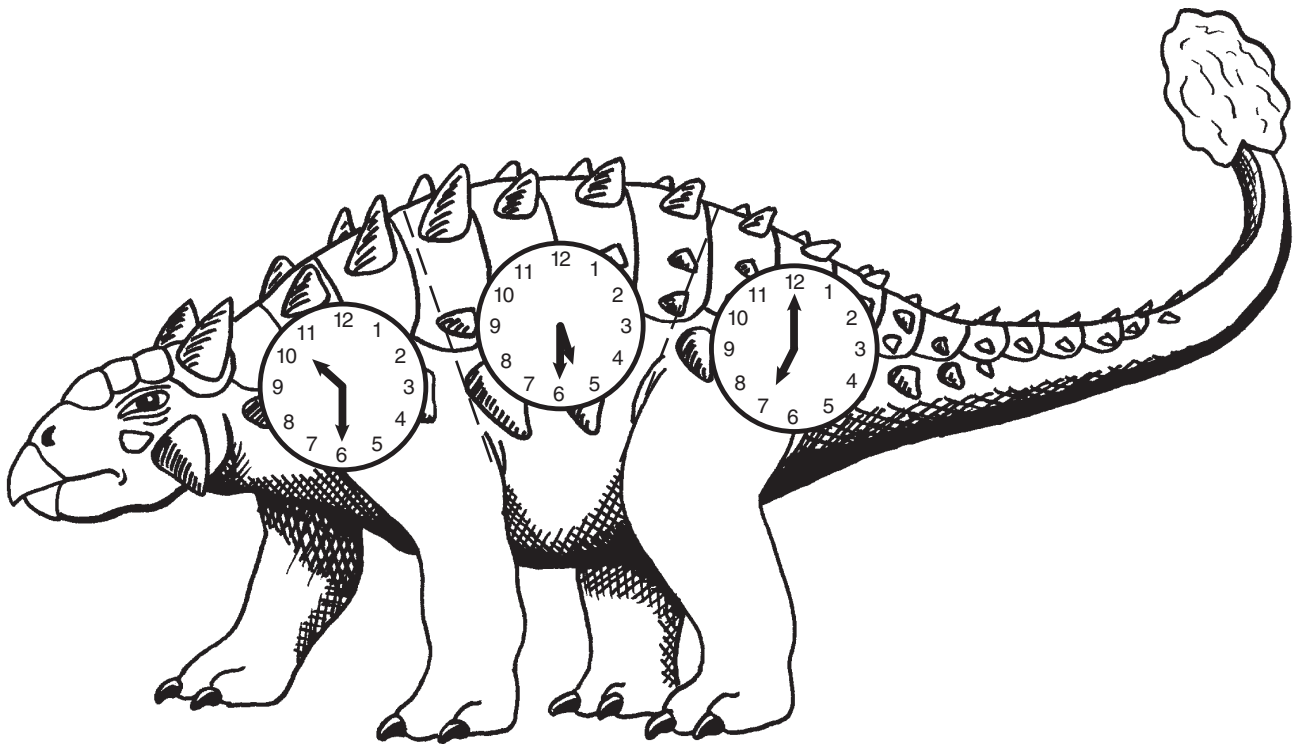
## DAILY DINOSAUR 3—Level 3

Protoceratops (PRO-toe-SERR-a-tops) was a small plant-eating dinosaur. It had a bony shield that protected its head and neck. It also had a beak like a parrot. Although Protoceratops was small, it is very famous. The first dinosaur eggs ever discovered belonged to Protoceratops. Some of the eggs even had unhatched dinosaurs inside.



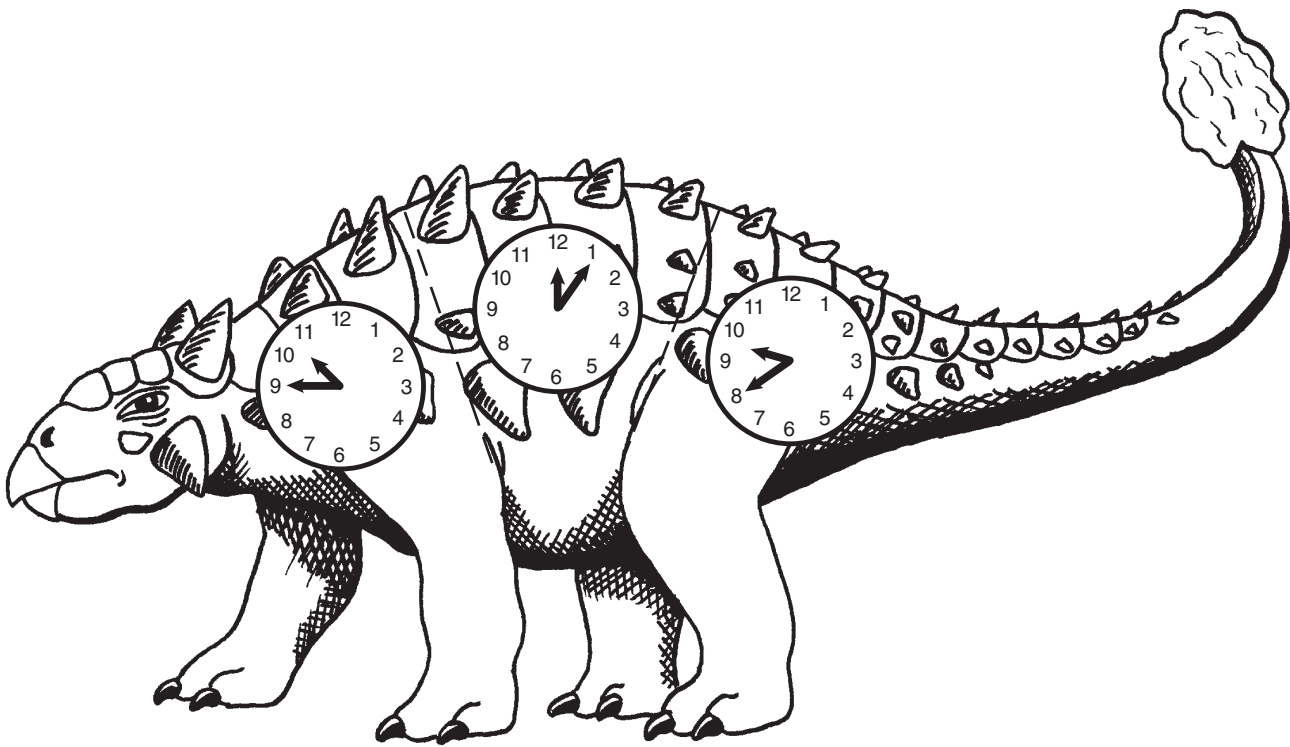
# DAILY DINOSAUR 4—Level 1

This dinosaur had a shell. The shell was hard. It had a tail. The tail had a club on the end of it. Meat-eating dinosaurs could not break the shell. They were afraid of the club. This dinosaur ate plants. Its name is Ankylosaurus (an-KILE-lo-SORE-rus).



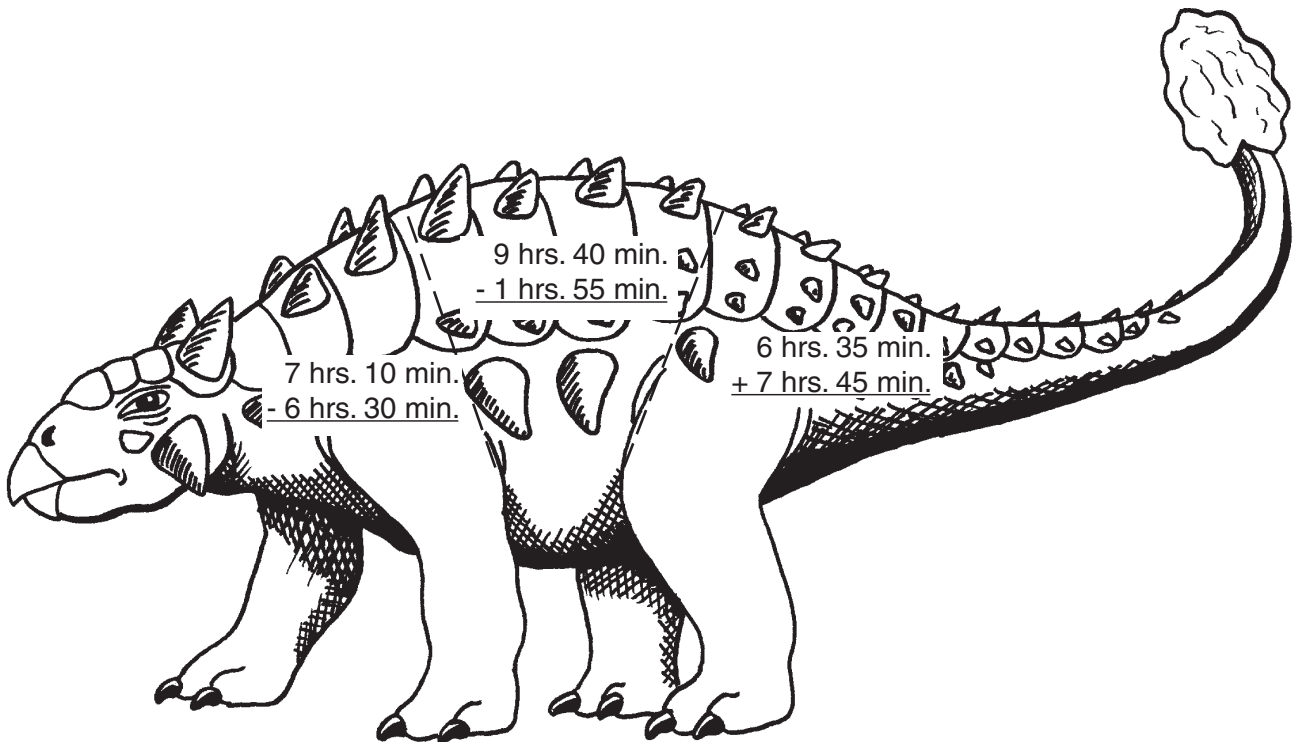
## DAILY DINOSAUR 4—Level 2

Ankylosaurus (an-KILE-lo-SORE-rus) was a peaceful plant-eating dinosaur. Meat-eating dinosaurs stayed away from it. Its body was covered with a hard shell. There were spikes around the edges of its shell. There was a club at the end of its tail. This club could crack bones with one strong swing.



# DAILY DINOSAUR 4—Level 3

This dinosaur ate plants. Its name is Ankylosaurus (an-KILE-lo-SORE-rus). Its body was covered with a shell of hard bony plates. Long spikes poked out from the edge of its shell. At the end of its tail was a large club that had enough power to crack the bones of attacking dinosaurs. Meat-eating dinosaurs stayed away from this dinosaur. They could not bite through the shell. They were afraid of its club. Many dinosaurs were like Ankylosaurus. They had a shell for protection.



# FOOD CARDS

Daily Dinosaur 1— Level 1

3:00 RED	8:00 BLUE	10:30 YELLOW	8:00 RED
3:00 RED	8:00 BLUE	10:30 YELLOW	8:00 RED
3:00 RED	8:00 BLUE	10:30 YELLOW	8:00 RED
3:00 RED	8:00 BLUE	10:30 YELLOW	8:00 BLUE
3:00 RED	8:00 BLUE	10:30 YELLOW	8:00 BLUE
3:00 RED	8:00 BLUE	10:30 YELLOW	8:00 BLUE
3:00 RED	8:00 BLUE	10:30 YELLOW	10:30 YELLOW
3:00 RED	8:00 BLUE	10:30 YELLOW	10:30 YELLOW
3:00 RED	8:00 BLUE	10:30 YELLOW	10:30 YELLOW
3:00 RED	8:00 BLUE	10:30 YELLOW	10:30 YELLOW

# FOOD CARDS

Daily Dinosaur 1—Level 2

11:05 RED	9:30 BLUE	10:10 YELLOW	11:05 RED
11:05 RED	9:30 BLUE	10:10 YELLOW	11:05 RED
11:05 RED	9:30 BLUE	10:10 YELLOW	11:05 RED
11:05 RED	9:30 BLUE	10:10 YELLOW	9:30 BLUE
11:05 RED	9:30 BLUE	10:10 YELLOW	9:30 BLUE
11:05 RED	9:30 BLUE	10:10 YELLOW	9:30 BLUE
11:05 RED	9:30 BLUE	10:10 YELLOW	10:10 YELLOW
11:05 RED	9:30 BLUE	10:10 YELLOW	10:10 YELLOW
11:05 RED	9:30 BLUE	10:10 YELLOW	10:10 YELLOW
11:05 RED	9:30 BLUE	10:10 YELLOW	10:10 YELLOW

# FOOD CARDS

Daily Dinosaur 1—Level 3

8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	8 hrs. 40 min. RED
8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	8 hrs. 40 min. RED
8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	8 hrs. 40 min. RED
8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	16 hrs. 20 min. BLUE
8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	16 hrs. 20 min. BLUE
8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	16 hrs. 20 min. BLUE
8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	8 hrs. 10 min. YELLOW
8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	8 hrs. 10 min. YELLOW
8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	8 hrs. 10 min. YELLOW
8 hrs. 40 min. RED	16 hrs. 20 min. BLUE	8 hrs. 10 min. YELLOW	8 hrs. 10 min. YELLOW

# FOOD CARDS

Daily Dinosaur 2—Level 1

7:30 GREEN	2:00 BLUE	11:30 YELLOW	7:30 GREEN
7:30 GREEN	2:00 BLUE	11:30 YELLOW	7:30 GREEN
7:30 GREEN	2:00 BLUE	11:30 YELLOW	7:30 GREEN
7:30 GREEN	2:00 BLUE	11:30 YELLOW	2:00 BLUE
7:30 GREEN	2:00 BLUE	11:30 YELLOW	2:00 BLUE
7:30 GREEN	2:00 BLUE	11:30 YELLOW	2:00 BLUE
7:30 GREEN	2:00 BLUE	11:30 YELLOW	11:30 YELLOW
7:30 GREEN	2:00 BLUE	11:30 YELLOW	11:30 YELLOW
7:30 GREEN	2:00 BLUE	11:30 YELLOW	11:30 YELLOW
7:30 GREEN	2:00 BLUE	11:30 YELLOW	11:30 YELLOW

# FOOD CARDS

Daily Dinosaur 2—Level 2

6:15 GREEN	6:50 BLUE	9:45 YELLOW	6:15 GREEN
6:15 GREEN	6:50 BLUE	9:45 YELLOW	6:15 GREEN
6:15 GREEN	6:50 BLUE	9:45 YELLOW	6:15 GREEN
6:15 GREEN	6:50 BLUE	9:45 YELLOW	6:50 BLUE
6:15 GREEN	6:50 BLUE	9:45 YELLOW	6:50 BLUE
6:15 GREEN	6:50 BLUE	9:45 YELLOW	6:50 BLUE
6:15 GREEN	6:50 BLUE	9:45 YELLOW	9:45 YELLOW
6:15 GREEN	6:50 BLUE	9:45 YELLOW	9:45 YELLOW
6:15 GREEN	6:50 BLUE	9:45 YELLOW	9:45 YELLOW
6:15 GREEN	6:50 BLUE	9:45 YELLOW	9:45 YELLOW

# FOOD CARDS

Daily Dinosaur 2—Level 3

1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	1 hr. 5 min. GREEN
1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	1 hr. 5 min. GREEN
1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	1 hr. 5 min. GREEN
1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	4 hrs. 20 min. BLUE
1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	4 hrs. 20 min. BLUE
1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	4 hrs. 20 min. BLUE
1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	1 hr. 18 min. YELLOW
1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	1 hr. 18 min. YELLOW
1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	1 hr. 18 min. YELLOW
1 hr. 5 min. GREEN	4 hrs. 20 min. BLUE	1 hr. 18 min. YELLOW	1 hr. 18 min. YELLOW

# FOOD CARDS

Daily Dinosaur 3—Level 1

5:00 ORANGE	7:30 RED	4:00 GREEN	5:00 ORANGE
5:00 ORANGE	7:30 RED	4:00 GREEN	5:00 ORANGE
5:00 ORANGE	7:30 RED	4:00 GREEN	5:00 ORANGE
5:00 ORANGE	7:30 RED	4:00 GREEN	7:30 RED
5:00 ORANGE	7:30 RED	4:00 GREEN	7:30 RED
5:00 ORANGE	7:30 RED	4:00 GREEN	7:30 RED
5:00 ORANGE	7:30 RED	4:00 GREEN	4:00 GREEN
5:00 ORANGE	7:30 RED	4:00 GREEN	4:00 GREEN
5:00 ORANGE	7:30 RED	4:00 GREEN	4:00 GREEN
5:00 ORANGE	7:30 RED	4:00 GREEN	4:00 GREEN

# FOOD CARDS

Daily Dinosaur 3—Level 2

8:25 ORANGE	2:15 RED	7:55 GREEN	8:25 ORANGE
8:25 ORANGE	2:15 RED	7:55 GREEN	8:25 ORANGE
8:25 ORANGE	2:15 RED	7:55 GREEN	8:25 ORANGE
8:25 ORANGE	2:15 RED	7:55 GREEN	2:15 RED
8:25 ORANGE	2:15 RED	7:55 GREEN	2:15 RED
8:25 ORANGE	2:15 RED	7:55 GREEN	2:15 RED
8:25 ORANGE	2:15 RED	7:55 GREEN	7:55 GREEN
8:25 ORANGE	2:15 RED	7:55 GREEN	7:55 GREEN
8:25 ORANGE	2:15 RED	7:55 GREEN	7:55 GREEN
8:25 ORANGE	2:15 RED	7:55 GREEN	7:55 GREEN

# FOOD CARDS

Daily Dinosaur 3—Level 3

20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	20 hrs. 55 min. ORANGE
20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	20 hrs. 55 min. ORANGE
20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	20 hrs. 55 min. ORANGE
20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	55 min. RED
20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	55 min. RED
20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	55 min. RED
20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	59 min. GREEN
20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	59 min. GREEN
20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	59 min. GREEN
20 hrs. 55 min. ORANGE	55 min. RED	59 min. GREEN	59 min. GREEN

# FOOD CARDS

Daily Dinosaur 4—All levels

12:05 RED	9:30 BLUE	40 min. YELLOW	12:05 RED
12:05 RED	9:30 BLUE	40 min. YELLOW	12:05 RED
12:05 RED	9:30 BLUE	40 min. YELLOW	12:05 RED
12:05 RED	9:30 BLUE	40 min. YELLOW	9:30 BLUE
12:05 RED	9:30 BLUE	40 min. YELLOW	9:30 BLUE
12:05 RED	9:30 BLUE	40 min. YELLOW	9:30 BLUE
12:05 RED	9:30 BLUE	40 min. YELLOW	40 min. YELLOW
12:05 RED	9:30 BLUE	40 min. YELLOW	40 min. YELLOW
12:05 RED	9:30 BLUE	40 min. YELLOW	40 min. YELLOW
12:05 RED	9:30 BLUE	40 min. YELLOW	40 min. YELLOW

# TYRANNOSAURUS CARD



# QUESTION CARDS—EGGS

Team \_\_\_\_\_

1. What is a dinosaur?

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Team \_\_\_\_\_

2. What does the word dinosaur mean?

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Team \_\_\_\_\_

3. How big did dinosaurs get?

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Team \_\_\_\_\_

4. How fast did dinosaurs move?

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Team \_\_\_\_\_

5. What size were the smallest dinosaurs?

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# QUESTION CARDS—EGGS

Team \_\_\_\_\_  
6. What was a dinosaur's skin like?

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Team \_\_\_\_\_  
7. How many kinds of dinosaurs were there?

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Team \_\_\_\_\_  
8. What are the two main groups of dinosaurs?

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Team \_\_\_\_\_  
9. What do the terms "warm blooded" and "cold blooded" mean?

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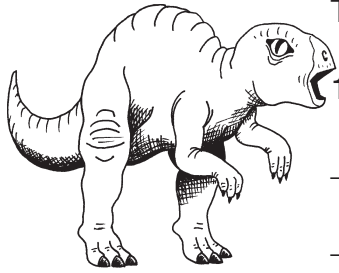
Team \_\_\_\_\_  
10. Were dinosaurs warm blooded or cold blooded?

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# QUESTION CARDS—HATCHLING

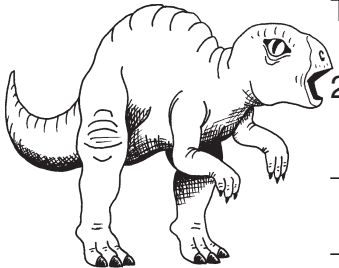


Team \_\_\_\_\_

1. How did dinosaurs select the plants they ate?

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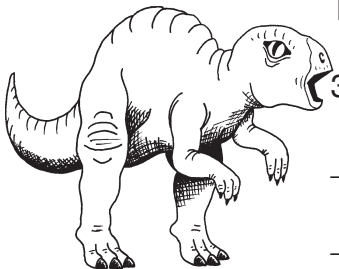


Team \_\_\_\_\_

2. Did plant eaters travel alone or in herds?

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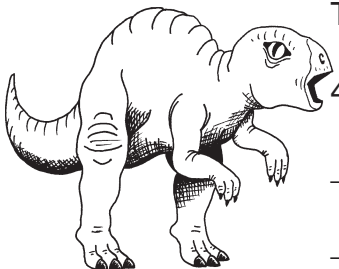


Team \_\_\_\_\_

3. How did plant-eating dinosaurs protect themselves?

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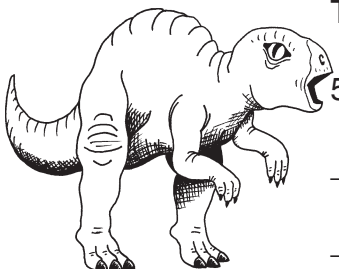


Team \_\_\_\_\_

4. How did meat-eating dinosaurs hunt?

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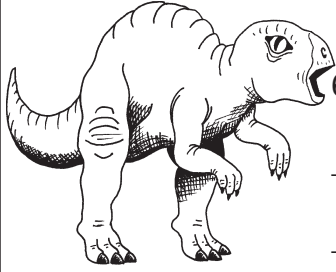
Team \_\_\_\_\_

5. What diseases and dangers bothered the dinosaurs?

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# QUESTION CARDS—HATCHLING

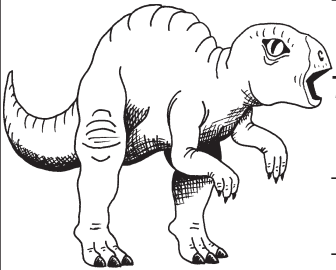


Team \_\_\_\_\_

6. Where did dinosaurs build their nests?

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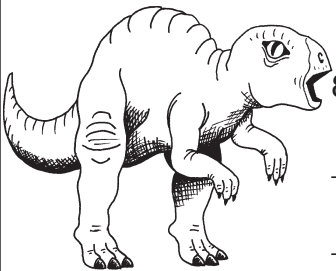


Team \_\_\_\_\_

7. How did dinosaurs take care of their eggs?

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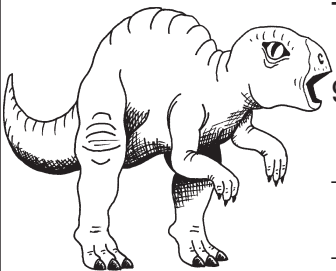


Team \_\_\_\_\_

8. How did dinosaurs take care of their babies?

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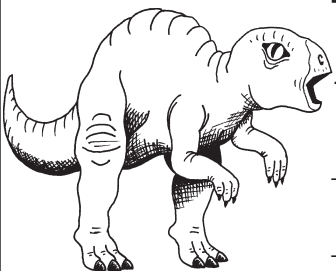


Team \_\_\_\_\_

9. Did all dinosaurs hatch from eggs?

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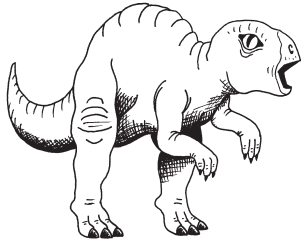
Team \_\_\_\_\_

10. What is the “Good Mother Lizard”?

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# QUESTION CARDS—NESTLING

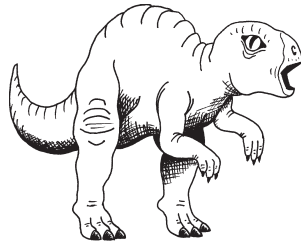


Team \_\_\_\_\_

1. Did all dinosaurs live at the same time?

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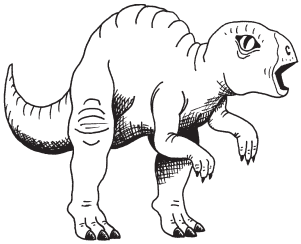


Team \_\_\_\_\_

2. What was the land like during the Triassic Period?

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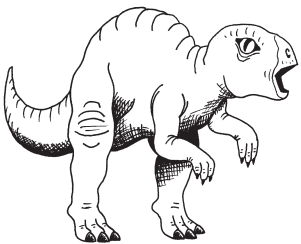


Team \_\_\_\_\_

3. What plants and animals were alive during the Triassic Period?

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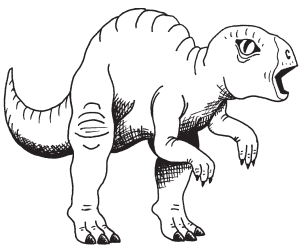


Team \_\_\_\_\_

4. What dinosaurs were alive during the Triassic Period?

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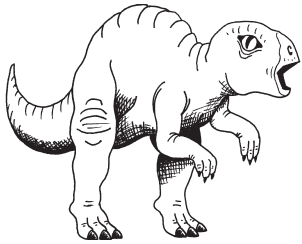
Team \_\_\_\_\_

5. What was the land like during the Jurassic Period?

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# QUESTION CARDS—NESTLING

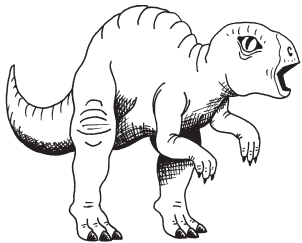


Team \_\_\_\_\_

6. What plants and animals were alive during the Jurassic Period?

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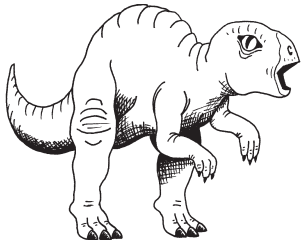


Team \_\_\_\_\_

7. What dinosaurs were alive during the Jurassic Period?

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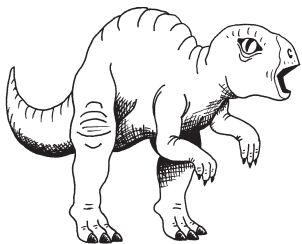


Team \_\_\_\_\_

8. What was the land like during the Cretaceous Period?

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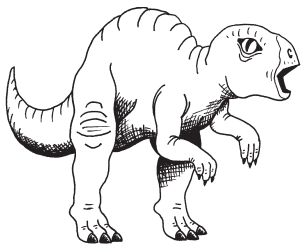


Team \_\_\_\_\_

9. What plants and animals were alive during the Cretaceous Period?

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Team \_\_\_\_\_

10. What dinosaurs were alive during the Cretaceous Period?

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# NEST CARDS: Level 1—Egg Questions

Dinosaurs were reptiles. They lived millions of years ago. They lived on land and laid eggs. But dinosaurs were different than the reptiles of today. Most of today's reptiles walk with their bellies dragging on the ground. Dinosaurs had legs under their body like an elephant's. They walked with their body off the ground. Dinosaurs were also larger. Some were taller than a two-story house. Some were longer than a school bus. Dinosaurs were amazing animals.

Dinosaurs had scaly, bumpy skin. Their skin may have been brightly colored with spots and stripes.

Dinosaur means "terrible lizard." Most dinosaurs were not terrible. They were mostly peaceful plant eaters.

There were many kinds of dinosaurs. More than 600 different kinds of dinosaurs have been discovered. New ones are found each year.

Some dinosaurs were very big. One of them was 80 feet long. It was 40 feet tall. It weighed as much as 10 elephants. Some new dinosaurs have been found that are even larger. One of these is 140 feet long. Another weighed 160,000 pounds. Dinosaurs are now the largest animals known to have lived on earth.

Dinosaurs are divided into two groups. One group had hips like a lizard. The other group had hips like a bird.

Large dinosaurs walked 4 mph. Some smaller ones could go more than 20 mph.

Warm-blooded animals keep warm by burning the food they eat. Mammals, birds, and humans are warm blooded. Cold-blooded animals are warmed by the air around them. They are warm when it is warm. They are cold when it is cold. Snakes, lizards, and most other animals are cold blooded.

Not all dinosaurs were big. Some were no bigger than chickens. There were others smaller than pigeons.

Some scientists think dinosaurs were cold blooded. Other scientists think they were warm blooded. No one knows for sure.

# NEST CARDS: Level 2—Egg Questions

Dinosaurs are reptiles that lived from 220 million years ago to 65 million years ago. They had the same type of skin, bones, and teeth as many of today's reptiles. They lived on land and laid eggs on land. Dinosaurs were different from today's reptiles. Most reptiles have legs that go out from the sides. They walk with their bellies dragging across the ground like lizards and crocodiles. Dinosaurs were larger. Their legs were under the body like an elephant's. They walked with their body off the ground.

Dinosaurs were one of the most successful animals that ever lived. They roamed the earth for more than 160 million years. When they were first discovered they were named "dinosaur." It means "terrible lizard." Most dinosaurs were not terrible. They were not lizards. They were mostly peaceful plant eaters.

Dinosaurs were the largest animals to ever live on earth. The Brachiosaurus (BRACK-ee-o-SORE-us) was 80' long, 40' tall, and weighed from 85,000 to 100,000 pounds! That's as much as 10 elephants. Recently scientists have found dinosaurs even larger. The Ultrasaurus (UL-tra-SORE-us) was 60' tall and weighed 160,000 pounds. The Supersaurus (SU-per-SORE-us) may have been 125' long. Scientists are currently excavating a 140-foot-long Seismosaurus (SIZE-mo-SORE-us).

The design of the dinosaur's body allowed it to move easily. By studying the fossils of footprints scientists think the dinosaurs moved from 4 mph for the large dinosaurs to more than 20 mph for the smaller ones.

When someone mentions dinosaurs visions of huge monsters come into people's minds. Most dinosaurs were less than 30 feet long. Some were no bigger than chickens. There may have been thousands of different kinds of dinosaurs about the size of pigeons.

Scientists believe the body of a dinosaur was covered with a scaly, bumpy skin. The pattern of scales and bumps differed from dinosaur to dinosaur. Scientists also believe dinosaurs may have been brightly colored with spots and stripes.

Dinosaurs roamed the earth for more than 160 million years. During this time there were many kinds of dinosaurs. Only a small fraction of them have been discovered. More than 600 different kinds of dinosaurs have been discovered and more are found each year.

Dinosaurs are divided into two groups. Dinosaurs with hips shaped like those found in a lizard are called Saurischian (sore-RIS-key-un). The Brachiosaurus (BRACK-ee-o-SORE-us) and Tyrannosaurus (tie-RAN-o-SORE-us) were both lizard-hipped dinosaurs. The second group is called Ornithischian (OR-nuh-THIS-key-un). These dinosaurs had hips shaped like birds. These bird-hipped dinosaurs were plant eaters. The Stegosaurus (steg-o-SORE-us) and Ankylosaurus (an-KILE-lo-SORE-us) are examples of bird-hipped dinosaurs.

The body temperature of most animals changes with their surroundings. If they stay in the sun, their temperature may get very high. If they stay in a cold spot, their temperature will get very low. Animals whose body temperature changes with the surroundings are called cold-blooded. Other animals are warmblooded. Their bodies have a steady temperature that does not change. Warm-blooded animals produce heat by burning the food they eat. Mammals, birds, and humans are warmblooded

Scientists used to think dinosaurs were cold-blooded and moved slowly. Some scientists now disagree with this idea. They say dinosaur bones have canals in them that are similar to warm-blooded animals. These scientists believe dinosaurs were warmblooded. Other scientists say the dinosaurs were coldblooded, but were so big that once they got warmed up they were active like warm-blooded animals. No one knows for sure.

# NEST CARDS: Level 1—Hatchling Questions

Dinosaurs ate plants that were easy to reach. Big dinosaurs with long necks ate leaves and twigs from tall trees. Small dinosaurs ate plants that were close to the ground.

Many dinosaurs built their nests in colonies. The nests were built close to each other. They were dug in mud or sand.

Many plant eaters traveled in herds. They spent most of their time eating. After eating the plants in one area, they would move to another. Staying together in herds was a safe way to travel.

The dinosaurs kept their eggs warm. They either buried them in the sand or covered them with plants. They protected their eggs.

Plant eaters stayed together in groups for protection. They also had weapons on their body. Some had horns on their head. Some had clubs and spikes on their tails. Others had hard plates that covered their bodies. Even their large size was enough to scare away some meat-eating dinosaurs.

Dinosaurs fed their babies until they were strong enough to get food on their own. They may have carried the babies in their mouths. Babies stayed in the center of the herd where they had the most protection.

Some meat-eating dinosaurs hunted alone. Others hunted in packs. There were even meat-eating dinosaurs that did not hunt at all. They ate animals that were already dead.

Dinosaur eggs came in many shapes. They came in many sizes. Some were as large as footballs. All dinosaurs came from eggs.

Dinosaurs had many illnesses. They had bone diseases. Insects bothered them. Many dinosaurs were hurt in fights. Life was hard for the dinosaurs.

The “Good Mother Lizard” is the name of a dinosaur that took care of its babies.

# NEST CARDS: Level 2—Hatchling Questions

Dinosaurs ate plants that were easy to reach. Big dinosaurs with long necks ate leaves and twigs from tall trees. Small dinosaurs ate plants that were close to the ground.

Many dinosaurs built their nests in colonies. The nests were dug in mud or sand in the shape of a bowl. They were built close enough for protection but far enough away so the adults can move easily between them.

Many plant eaters traveled in herds. They spent most of their time eating. After eating the plants in one area, they would move to another. Staying together in herds was a safe way to travel.

The dinosaurs kept the eggs warm. They either buried them in the sand or covered them with plants. They had to protect the eggs from egg-stealing mammals and other dinosaurs.

Plant-eating dinosaurs had several ways to protect themselves from meat eaters. First, by staying together in herds the group offered them protection. Second, if one was attacked it could fight back by whipping its tail. Some dinosaurs had defensive weapons such as clubs, spikes, horns, and armored plates. Third, their huge size was often enough to scare some of their attackers away.

Dinosaurs cared for their babies. They fed them until they were strong enough to get food on their own. They may have carried the babies in their mouths to avoid predators. When the babies were old enough to travel they stayed in the center of the herd where they had the most protection.

Some meat-eating dinosaurs hunted alone. Others hunted in packs. There were even meat-eating dinosaurs that did not hunt at all. They ate animals that were already dead.

Dinosaur eggs came in many shapes and sizes. Some were as large as footballs. Scientists believe that all dinosaurs hatched from eggs.

Dinosaurs had many illnesses. They had bone diseases. Insects bothered them. Many dinosaurs were hurt in fights. Life was hard for the dinosaurs.

Fourteen dinosaur nests were discovered in 1978. The location was called Egg Mountain. This discovery showed that some dinosaurs were caring mothers that fed and protected their babies. The name given to this dinosaur is *Maiasaura* (MY-a-SORE-a). It means "Good Mother Lizard."

# NEST CARDS: Level 1—Nestling Questions

Dinosaurs lived on earth for about 160 million years. There were many kinds of dinosaurs. Some kinds had died out before other kinds were born. Not all dinosaurs were alive at the same time.

The land of the Jurassic Period was very green. There were ferns, palmlike trees, and forests. The first birds appeared. Dinosaurs ruled the land.

During the Triassic Period the land was warm. It was all joined together into one land mass.

Apatosaurus, Brachiosaurus, Diplodocus, and Stegosaurus were plant eaters of the Jurassic Period; Allosaurus and Compsognathus were meat eaters of the Jurassic Period.

During the Triassic Period trees and ferns covered the land. There were animals like turtles, crocodiles, and mammals. Grasshoppers, ants, beetles, and spiders were also alive. The world at this time did not have birds and flowers.

The land of the Cretaceous Period moved farther apart. It was like the land of today, but much of it was underwater. It was warm and getting drier.

Mussaurus, Melanorosaurus, and Plateosaurus were plant eaters of the Triassic Period; Coelophysus, Herrerasaurus, and Staurikosaurus were meat eaters of the Triassic Period.

During the Cretaceous Period there were shrubs and small trees. Flowers appeared. New trees like walnuts, maples, and oaks began to grow. Bees, moths, and snakes appeared. Dinosaurs still ruled the land.

The Jurassic Period was warm and moist. The land began to split apart. New mountains grew. New oceans formed.

Maiasaura, Iguanodon, and Triceratops were plant eaters of the Cretaceous Period; Tyrannosaurus, Deinonychus, Spinosaurus, and Troodon were meat eaters of the Cretaceous Period.

# NEST CARDS: Level 2—Nestling Questions

Dinosaurs lived during the Mesozoic Era. It is divided into three periods. The Triassic Period lasted from 225 million years ago to 180 million years ago; the Jurassic Period from 180 million years ago to 130 million years ago; the Cretaceous Period from 130 million years ago to 65 million years ago. Most dinosaurs did not live through all three periods. The huge Apatosaurus (ah-PAT-uh-sore-us) lived during the late Jurassic Period. So did the Stegosaurus (steg-o-SORE-us). Neither one was living when Tyrannosaurus (tie-RAN-o-SORE-us) was on earth during the Cretaceous Period. So not all dinosaurs were alive at the same time.

During the Triassic Period all of the land on earth was connected. This land was called Pangaea. It had two parts—a northern part called Laurasia and a southern part called Gondwana. The land was warm. Even the polar lands were free of ice.

Ferns and trees covered the land during the Triassic Period. There were large trees like spruce and pine, and smaller ones like ginkgoes. Horsetails and cycads covered the drier areas. Flowering plants were absent from the land. They had not developed yet. Also absent from the land were birds. A reptile called a pterosaur could fly from tree to tree. There were turtles, crocodiles, and mammals. Grasshoppers, ants, beetles, cockroaches, and spiders lived during this period.

The Mussaurus (mus-OR-us), Melanorosaurus (MEL-an-or-o-SORE-us), and Plateosaurus (PLAT-ee-o-SORE-us) are plant eaters of the Triassic Period. The meat eaters from the time are Coelophysis (seal-o-FLI-sis), Herrerasaurus (eh-ray-rah-SORE-us), and Staurikosaurus (stor-ick-o-SORE-us).

Pangaea began to break up during the Jurassic Period. Africa began to split from South America. The Atlantic Ocean formed. Mountains grew in North America and South America. The world was warm and moist.

The land during the Jurassic Period was covered with many kinds of plants. The most common were ferns and horsetails. Palmlike trees were everywhere as were forests of tall conifers. The land was greener than it ever had been during the Triassic Period. Early kinds of birds began to appear. The best-known was Archaeopteryx (ark-ee-OP-ter-icks). Many animal from the Triassic Period were still present, but this period was dominated by dinosaurs.

Apatosaurus (ah-PAT-uh-SORE-us), Brachiosaurus (BRACK-ee-o-SORE-us), and Diplodocus (di-PLO-de-kus) were three of the giants that lived during the Jurassic Period. Vegetation was plentiful for these enormous dinosaurs to eat. Other plant eaters like the Stegosaurus (steg-o-SORE-us) were alive at this time. The Allosaurus (al-o-SORE-us) was the frightening meat eater of the Jurassic Period. It was 16 feet tall and weighed four tons. A much smaller meat eater was Compsognathus (COMP-sog-NAY-thus) It was only two feet tall and weighed less than 10 pounds.

During the Cretaceous Period the large land masses moved even farther apart. They began to look like the continents of today, but much of the land was under water. The Rocky Mountains were formed at this time. The climate was warm but the land became drier.

The first flowering plants appeared during the Cretaceous Period. Shrubs and small trees grew. Walnuts, maples, and oaks began competing with conifers. Snakes appeared on land. In the air, moths and bees appeared and the largest flying animal, the Pteranodon, flew across the sky. Mammals began to multiply, but dinosaurs still ruled the land.

The biggest meat-eating animal of all, Tyrannosaurus (tie-RAN-o-SORE-us), lived during the Cretaceous Period. Other meat eaters of the time included Deinonychus (die-NON-i-kus), Spinosaurus (SPINE-o-SORE-us), and Troodon (TRO-odon). Oviraptor (OH-vi-RAP-tor), the egg-stealing dinosaur, lived in this period. Large plant eaters were replaced by smaller dinosaurs, except for the Brachiosaurus (BRACK-ee-o-SORE-us), like Maiasaura (MY-a-SORE-a), Iguanodon (ig-WAN-odon) and Triceratops (tri-SERRA-tops).

# SIX FOSSIL SITES

**Directions:** Listed below are descriptions of the six fossil sites and the kind of dinosaur that is believed to have been discovered at each one. Read each description and then list in order all sites beginning with the one your team would most like to work at to the one your team would least like to work at. You will use this list to help you chose your team’s fossil site.

## **Fossil Site 1: North America**

The dinosaur at this site is from the Cretaceous Period. It appears to be between 20 and 29 feet long and has unusual growths on its hands.

## **Fossil Site 2: Africa**

From what has been uncovered there is enough evidence to believe that this is a giant dinosaur from the Cretaceous Period.

## **Fossil Site 3: Asia**

Scientists have found the skull of an odd looking dinosaur from the Cretaceous Period. This small dinosaur was probably not much bigger than a man.

## **Fossil Site 4: Europe**

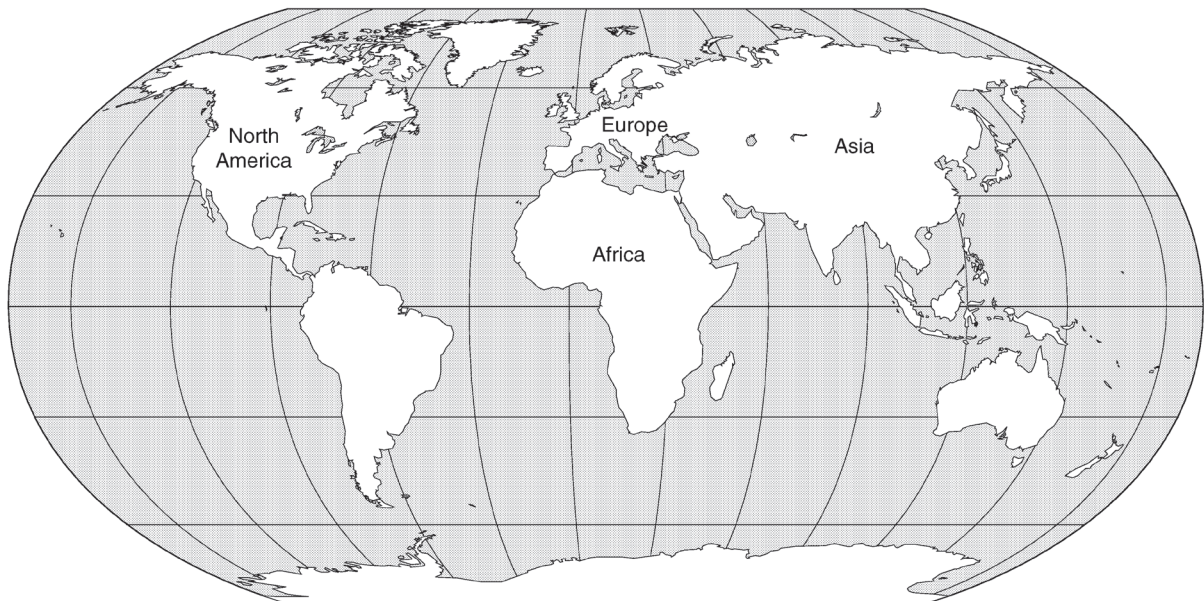
The workers here are quite excited. They believed they may have discovered a meat eating dinosaur from the Jurassic Period.

## **Fossil Site 5: North America**

This dinosaur, from the Cretaceous Period, is at least 30 feet long. Hundreds of small teeth have been found near the fossils. Scientists are not sure if the teeth belong to this dinosaur.

## **Fossil Site 6: Asia**

A dinosaur with a very long tail has been discovered in China. Early reports say this dinosaur was long and thin. It has what appears to be a very unusual skull. Scientists believe it might be one of the “terrors” from the Jurassic Period.





# Certificate of Appreciation

Presented to \_\_\_\_\_

on \_\_\_\_\_

from the Dinosaur Research Project

Diana Saurus



# Certificate of Appreciation

Presented to \_\_\_\_\_

on \_\_\_\_\_

from the Dinosaur Research Project

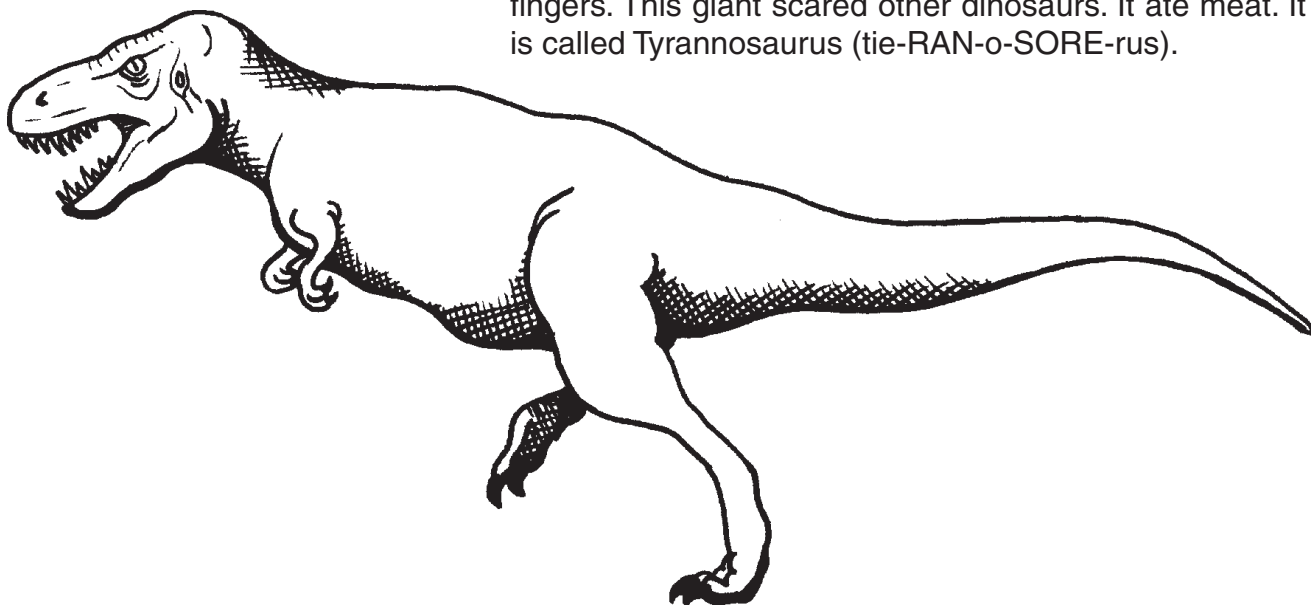
Diana Saurus





# DAILY DINOSAUR 5—Level 1

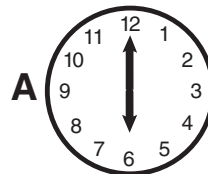
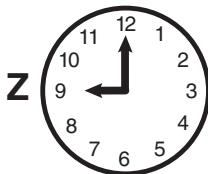
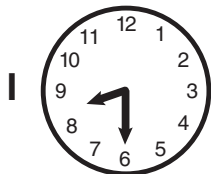
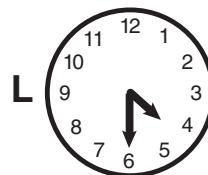
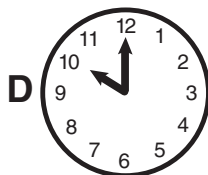
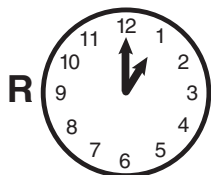
This dinosaur was big. It was taller than a house. It was as long as a bus. Its sharp teeth were longer than your fingers. This giant scared other dinosaurs. It ate meat. It is called Tyrannosaurus (tie-RAN-o-SORE-rus).



**Directions:** Each clock has a letter next to it. Put this letter on the line above the time shown on the clock.

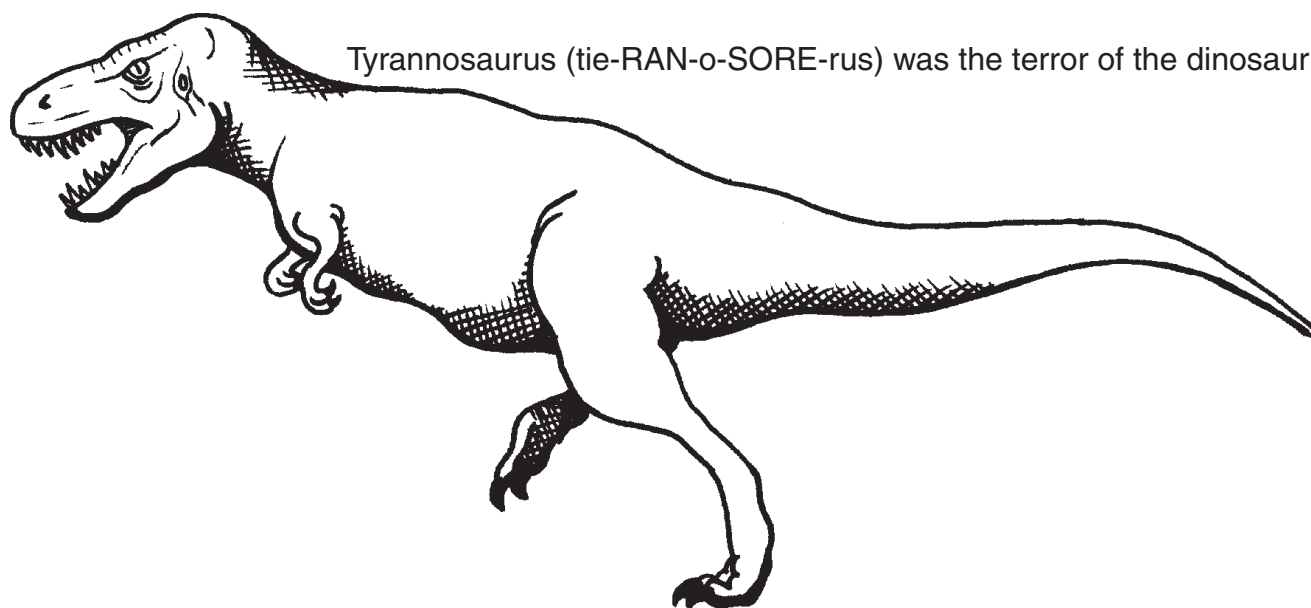
This dinosaur's name means "Tyrant

\_\_\_\_\_ " .  
4:30                      8:30                      9:00                      6:00                      1:00                      10:00



# DAILY DINOSAUR 5—Level 2

This was the largest meat-eating dinosaur. Its teeth were six inches long. The sides of the teeth were like the blade of a saw. This giant dinosaur stood as high as a two-story building. It was 50 feet long and weighed 10 tons. The other dinosaurs must have been frightened by it. It is called Tyrannosaurus (tie-RAN-o-SORE-rus).

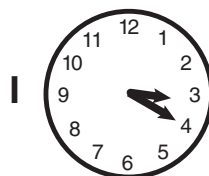
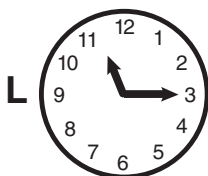
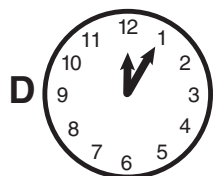
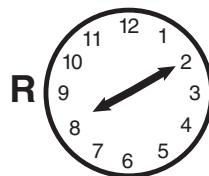
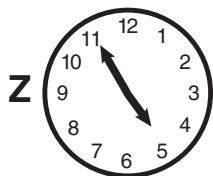


Tyrannosaurus (tie-RAN-o-SORE-rus) was the terror of the dinosaur

**Directions:** Each clock has a letter next to it. Put this letter on the line above the time shown on the clock.

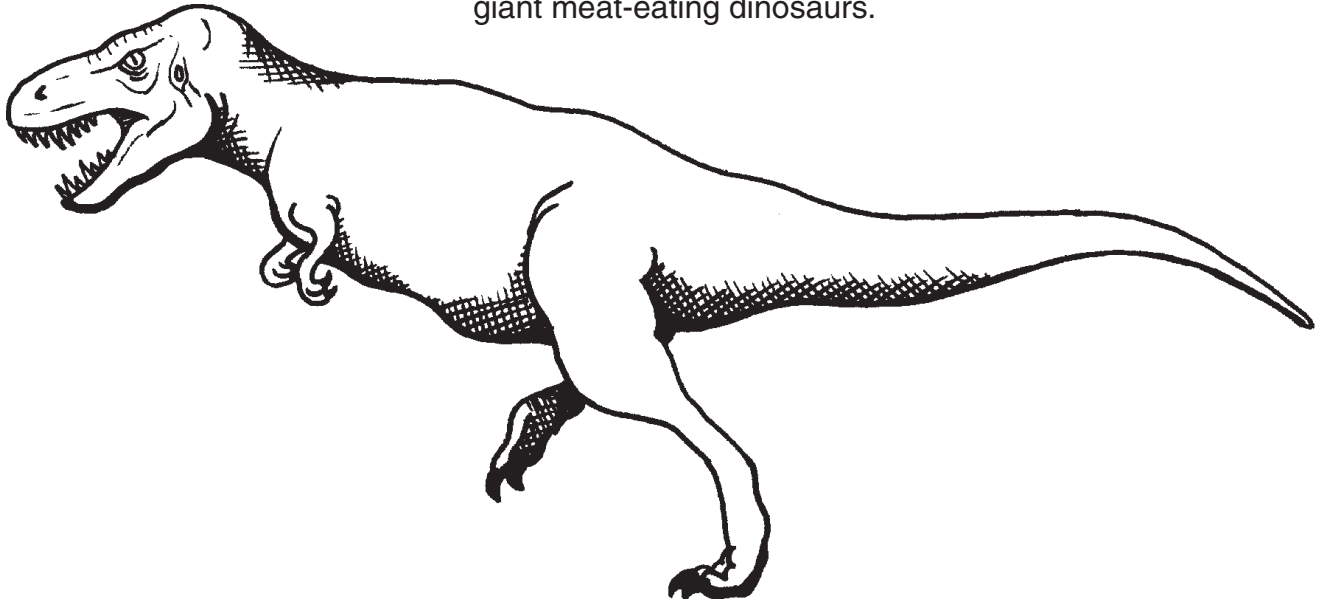
This dinosaur's name means "Tyrant

\_\_\_\_\_ " .  
 11:15                  3:20                  4:55                  7:40                  8:10                  12:05



# DAILY DINOSAUR 5—Level 3

world. The other animals must have been afraid of it. This giant was 50 feet long, stood as high as a two-story building, and weighed six tons. Its teeth were six inches long and had edges like the blade of a saw. It could rip large chunks of meat from its victims. Tyrannosaurus was the last of the giant meat-eating dinosaurs.



**Directions:** Add the hours and minutes in the problems below. Then place each problem's letter above its correct total.

This dinosaur's name means "Tyrant

\_\_\_\_\_ .  
9 hrs. 35 min.      6 hrs.      10 hrs.      3 hrs. 10 min.      10 hrs. 50 min.      9 hrs.

**L**  
6 hrs. 15 min.  
+ 3 hrs. 20 min.

**R**  
8 hrs. 40 min.  
+ 2 hrs. 10 min.

**Z**  
5 hrs. 30 min.  
+ 4 hrs. 30 min.

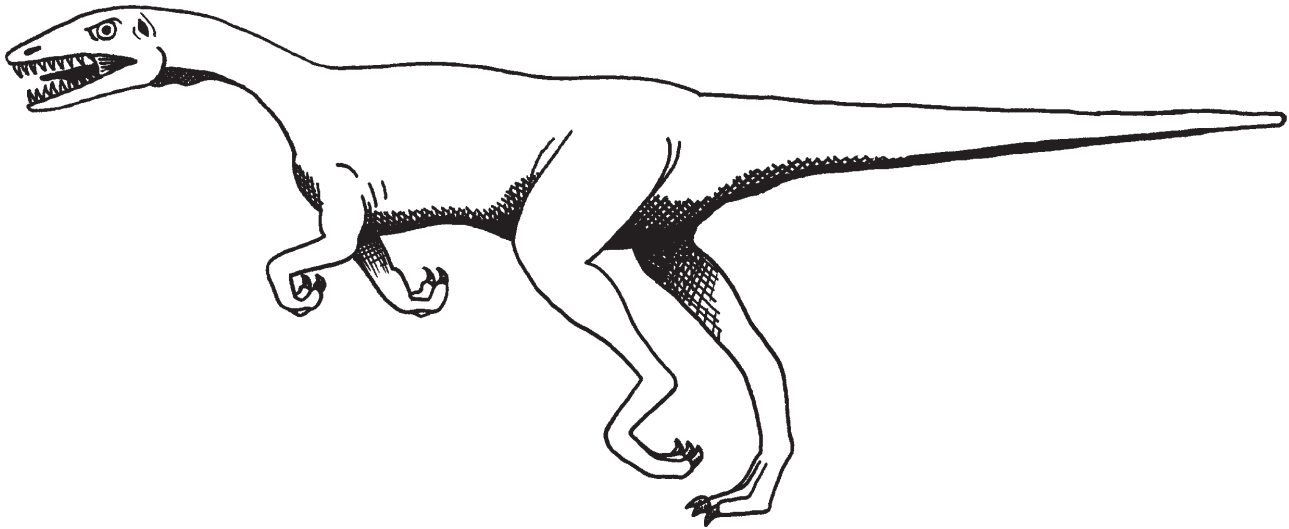
**D**  
7 hrs. 20 min.  
+ 1 hr. 40 min.

**A**  
1 hr. 45 min.  
+ 1 hr. 25 min.

**I**  
2 hrs. 15 min.  
+ 3 hrs. 45 min.

# DAILY DINOSAUR 6—Level 1

This dinosaur was small. It lived on land. It ate plants. It ate bugs. Its name is Compsognathus (COMP-sog-NAY-thus).

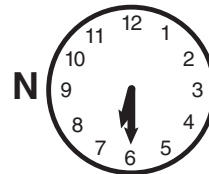
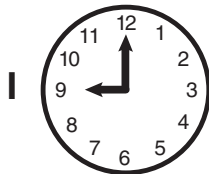
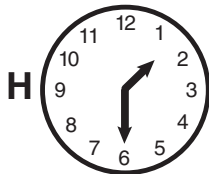
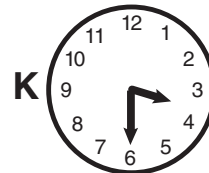
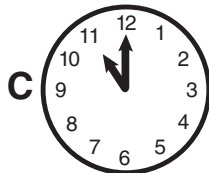
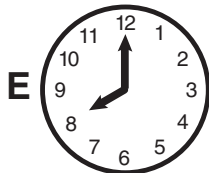


**Directions:** Each clock has a letter next to it. Put this letter on the line above the time shown on the clock.

Compsognathus was as small as a

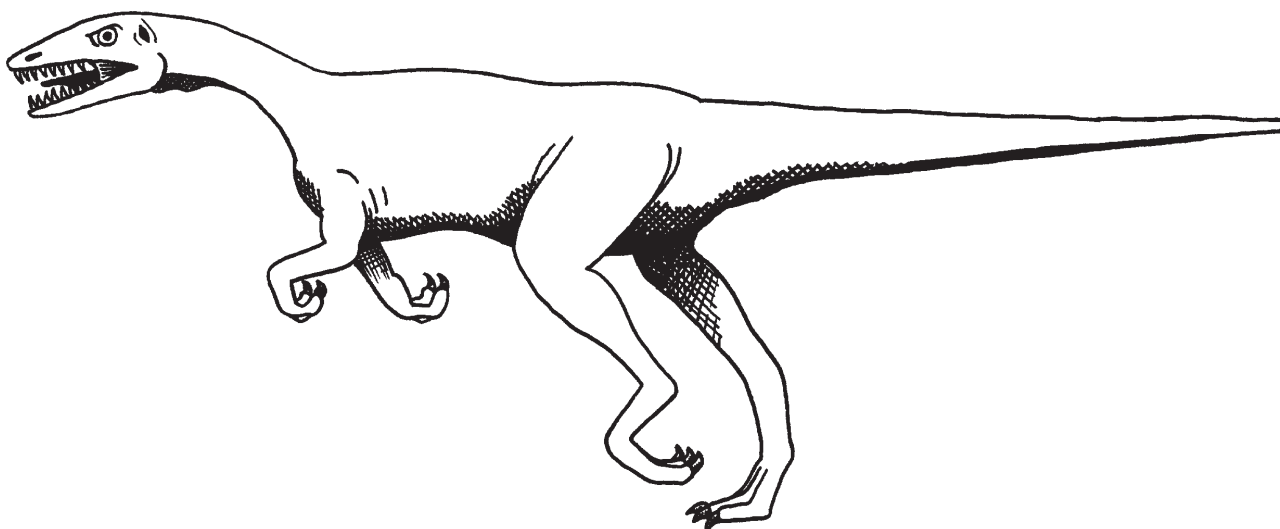
\_\_\_\_\_

11:00      1:30      9:00      11:00      3:30      8:00      6:30



# DAILY DINOSAUR 6—Level 2

Compsognathus (COMP-sog-NAY-thus) is one of the smallest dinosaurs ever discovered. It ate insects and small animals. It ate plants and lived on land.

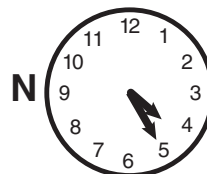
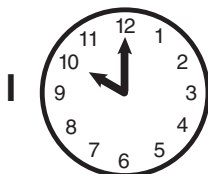
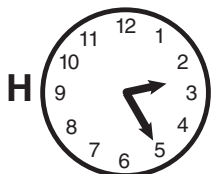
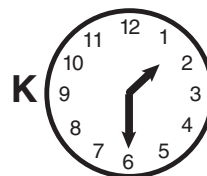
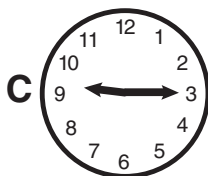


**Directions:** Each clock has a letter next to it. Put this letter on the line above the time shown on the clock.

Compsognathus was as small as a

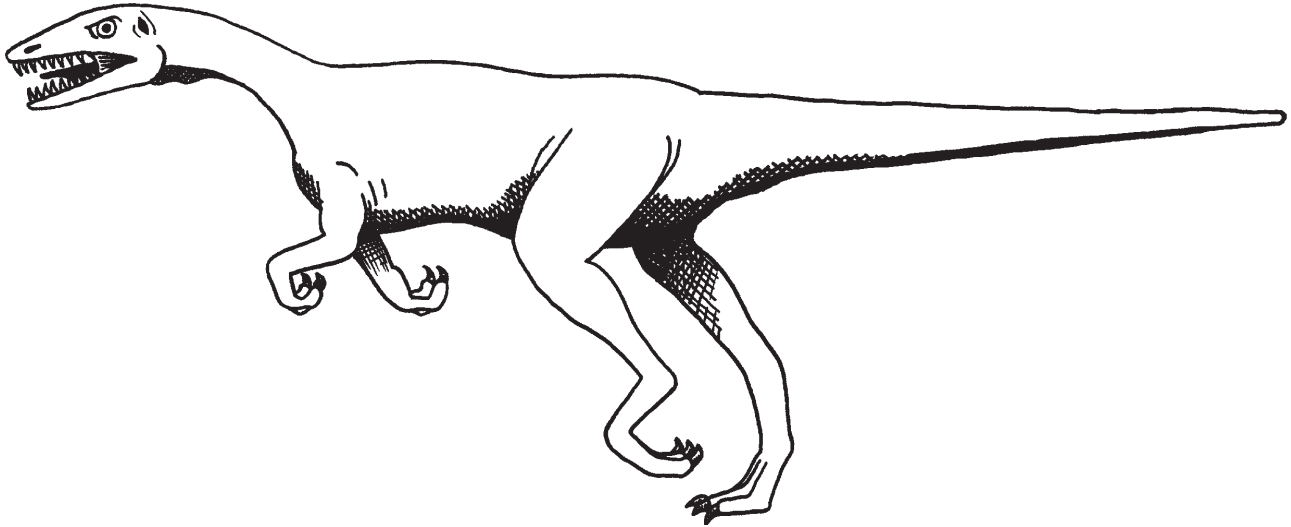
\_\_\_\_\_

9:15                      2:25                      10:00                      9:15                      1:30                      8:35                      4:25



# DAILY DINOSAUR 6—Level 3

Some people think all dinosaurs were gigantic. This is not true. Many were the size of animals living today. One of the smallest dinosaurs ever discovered ate insects and small animals. Its name is Compsognathus (COMP-sog-NAY-thus).



**Directions:** Subtract the hours and minutes in the problems below. Then place each problem's letter above its correct total.

Compsognathus was as small as a

3 hrs. 40 min.

6 hrs. 50 min.

1 hr. 35 min.

3 hrs. 40 min.

1 hr. 50 min.

2 hrs. 55 min.

2 hrs. 30 min.

**N**

8 hrs. 40 min.  
- 6 hrs. 10 min.

**I**

7 hrs. 50 min.  
- 6 hrs. 15 min.

**C**

6 hrs. 10 min.  
- 2 hrs. 30 min.

**K**

9 hrs. 40 min.  
- 7 hrs. 50 min.

**H**

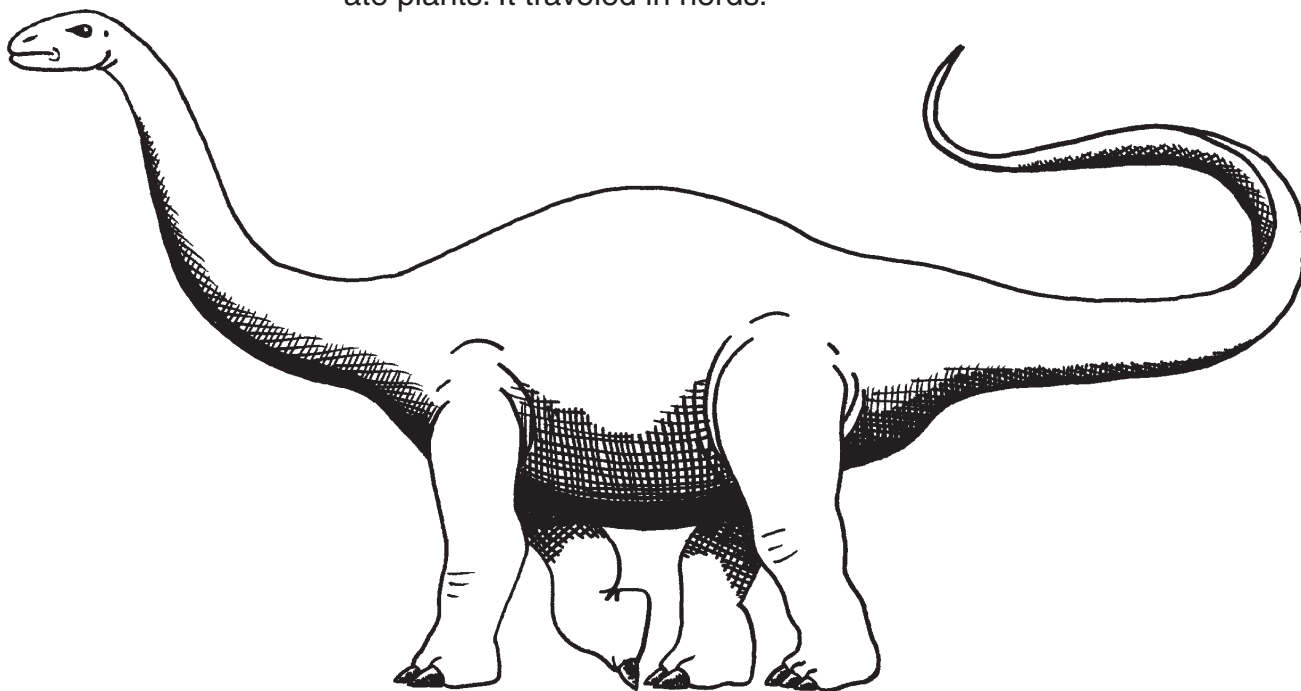
8 hrs. 05 min.  
- 1 hr. 15 min.

**E**

9 hrs. 00 min.  
- 6 hrs. 05 min.

# DAILY DINOSAUR 7—Level 1

The Apatosaurus (ah-PAT-uh-SORE-us) was gigantic. It was 70 feet long. It weighed as much as four or five elephants. The Apatosaurus ate plants. It traveled in herds.

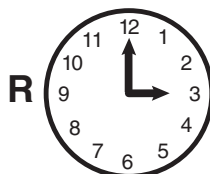
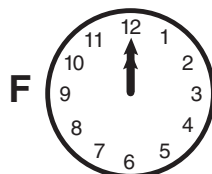
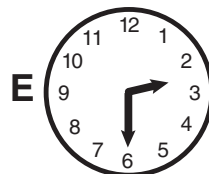
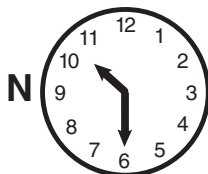
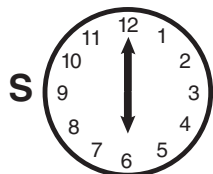


**Directions:** Each clock has a letter next to it. Put this letter on the line above the time shown on the clock.

This dinosaur spent most of its time eating leaves and

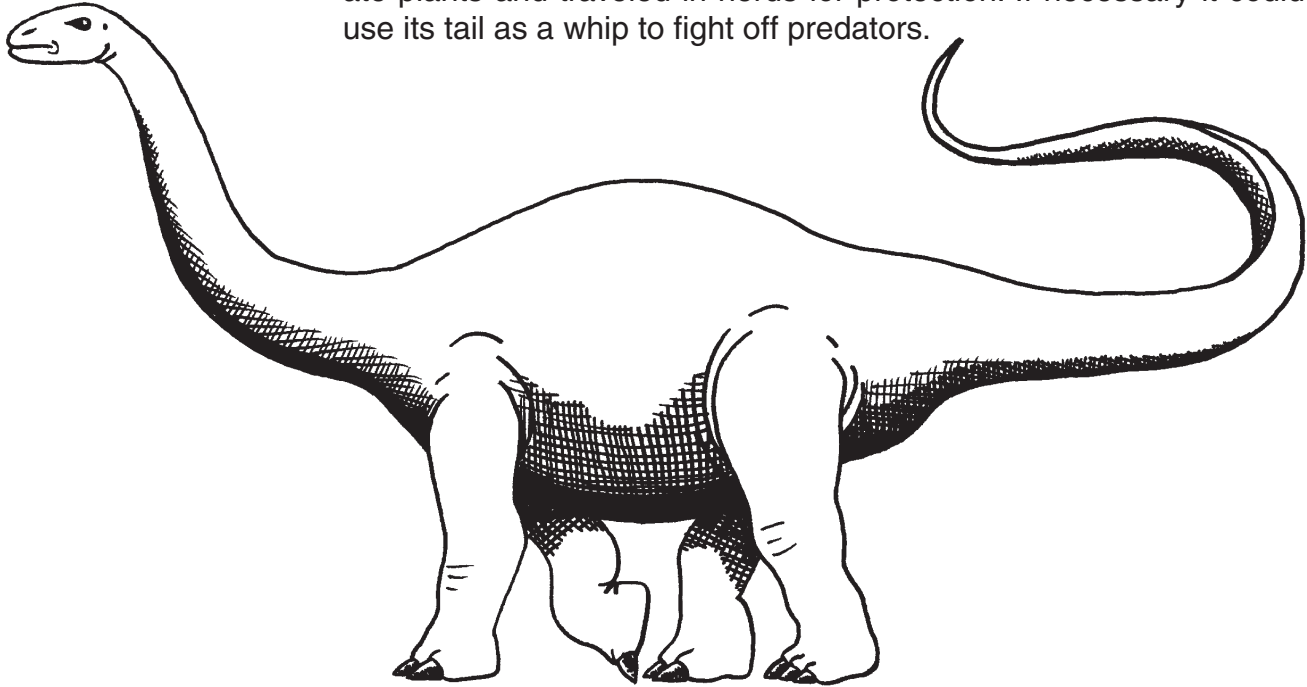
\_\_\_\_\_

12:00                      2:30                      3:00                      10:30                      6:00



# DAILY DINOSAUR 7—Level 2

The Apatosaurus (ah-PAT-uh-SORE-us) was gigantic. It was 70 feet long and weighed as much as four or five elephants. The Apatosaurus ate plants and traveled in herds for protection. If necessary it could use its tail as a whip to fight off predators.



**Directions:** Each clock has a letter next to it. Put this letter on the line above the time shown on the clock.

This dinosaur spent most of its time eating leaves and

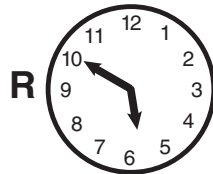
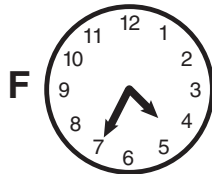
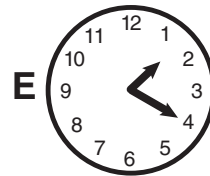
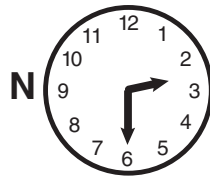
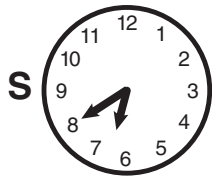
4:35

1:20

5:50

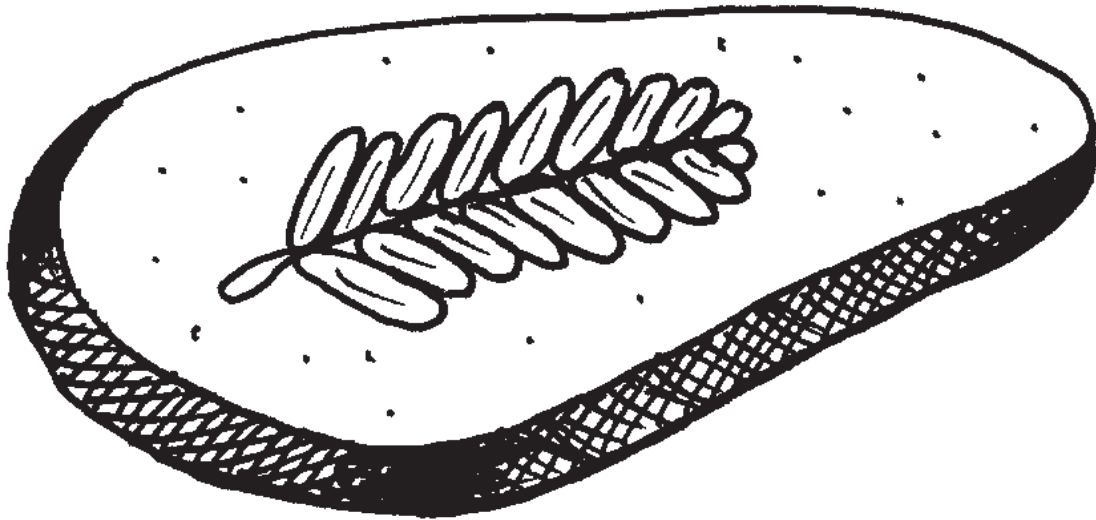
2:30

6:40



## DAILY DINOSAUR 7—Level 3

The Apatosaurus (ah-PAT-uh-SORE-us) was a gigantic plant eater. It was 70 feet long and weighed as much as four or five elephants. The Apatosaurus traveled in herds for protection, but could use its tail as a whip to fight off enemies. It used to be called Brontosaurus. The name was changed when scientists discovered that the fossils were the same as those of a previously discovered dinosaur named Apatosaurus.



**Directions:** Solve each problem and put the letter on the line above the matching answer.

This dinosaur spent most of its time eating leaves and

6 hrs. 10 min.

0 hrs. 35 min.

19 hrs. 10 min.

2 hrs. 55 min.

14 hrs. 0 min.

**S**

10 hrs. 45 min.  
+ 3 hrs. 15 min.

**N**

5 hrs. 15 min.  
- 2 hrs. 20 min.

**F**

11 hrs. 0 min.  
- 4 hrs. 50 min.

**R**

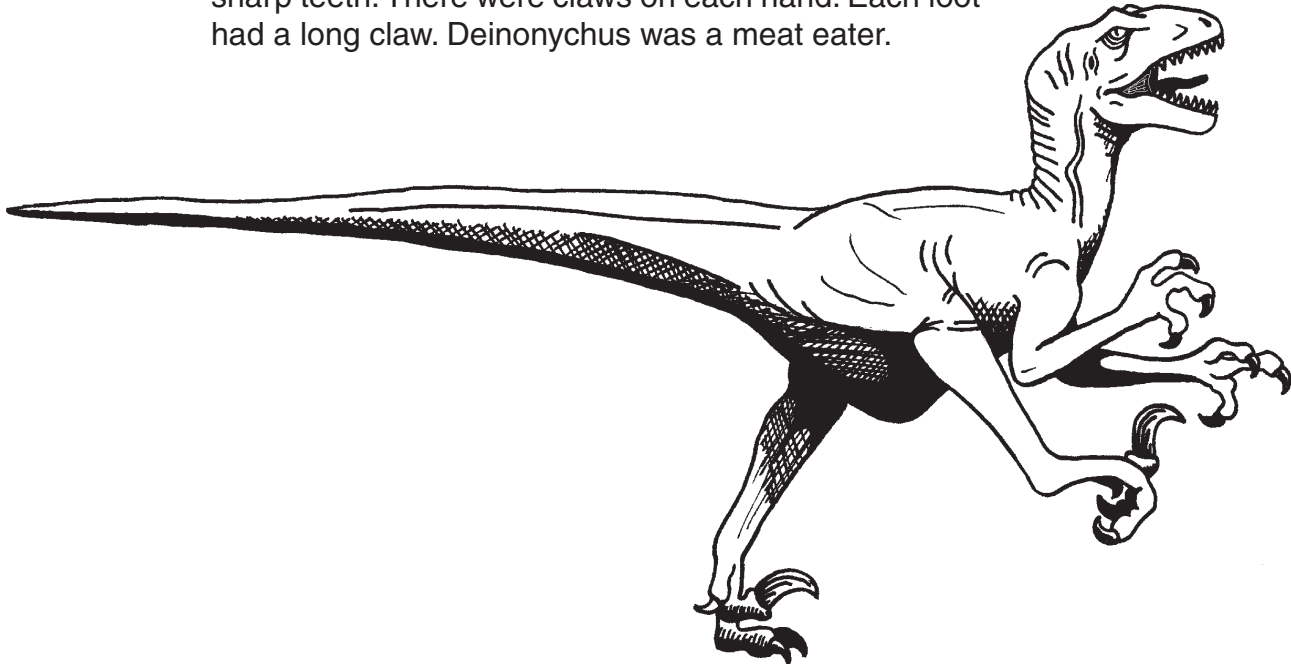
12 hrs. 30 min.  
+ 6 hrs. 40 min.

**E**

2 hrs. 10 min.  
- 1 hr. 35 min.

# DAILY DINOSAUR 8—Level 1

Deinonychus (dye-NON-i-kus) was a small, but frightening dinosaur. It weighed 130 pounds. It had jaws full of sharp teeth. There were claws on each hand. Each foot had a long claw. Deinonychus was a meat eater.



**Directions:** Each clock has a letter next to it. Put this letter on the line above the time shown on the clock.

Scientists believe Deinonychus hunted in

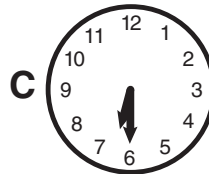
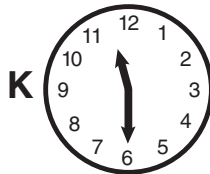
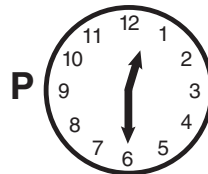
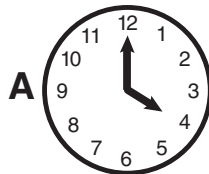
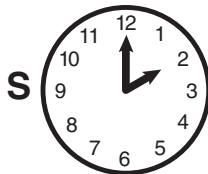
12:30

4:00

6:30

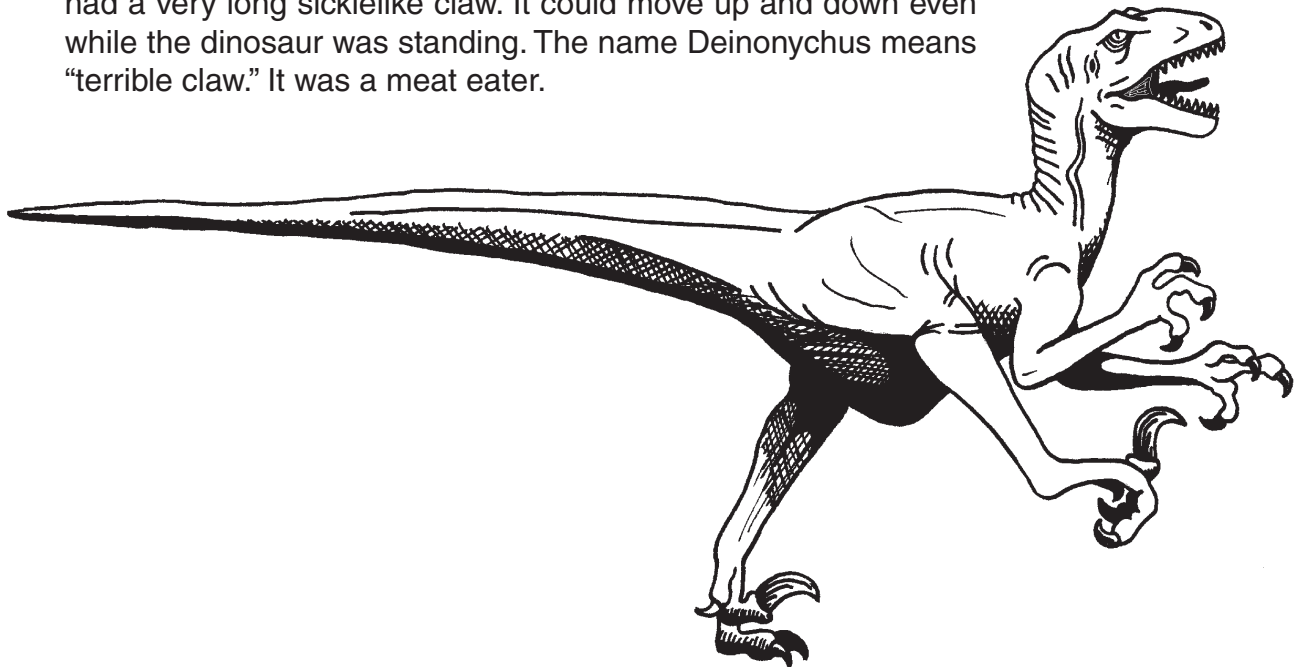
11:30

2:00



# DAILY DINOSAUR 8—Level 2

Deinonychus (dye-NON-i-kus) was a small, but frightening dinosaur. It was 10 feet long and weighed 130 pounds. Its powerful jaws were filled with daggerlike teeth. Each hand had a curved claw used for tearing and grasping. The second toe on each foot had a very long sicklelike claw. It could move up and down even while the dinosaur was standing. The name Deinonychus means “terrible claw.” It was a meat eater.

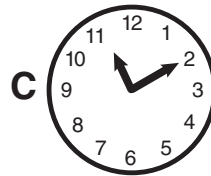
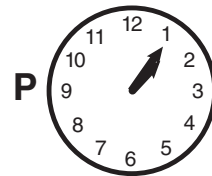
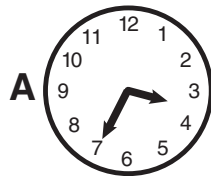
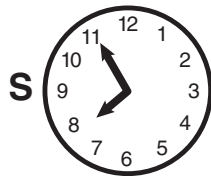


**Directions:** Each clock has a letter next to it. Put this letter on the line above the time shown on the clock.

Scientists believe Deinonychus hunted in

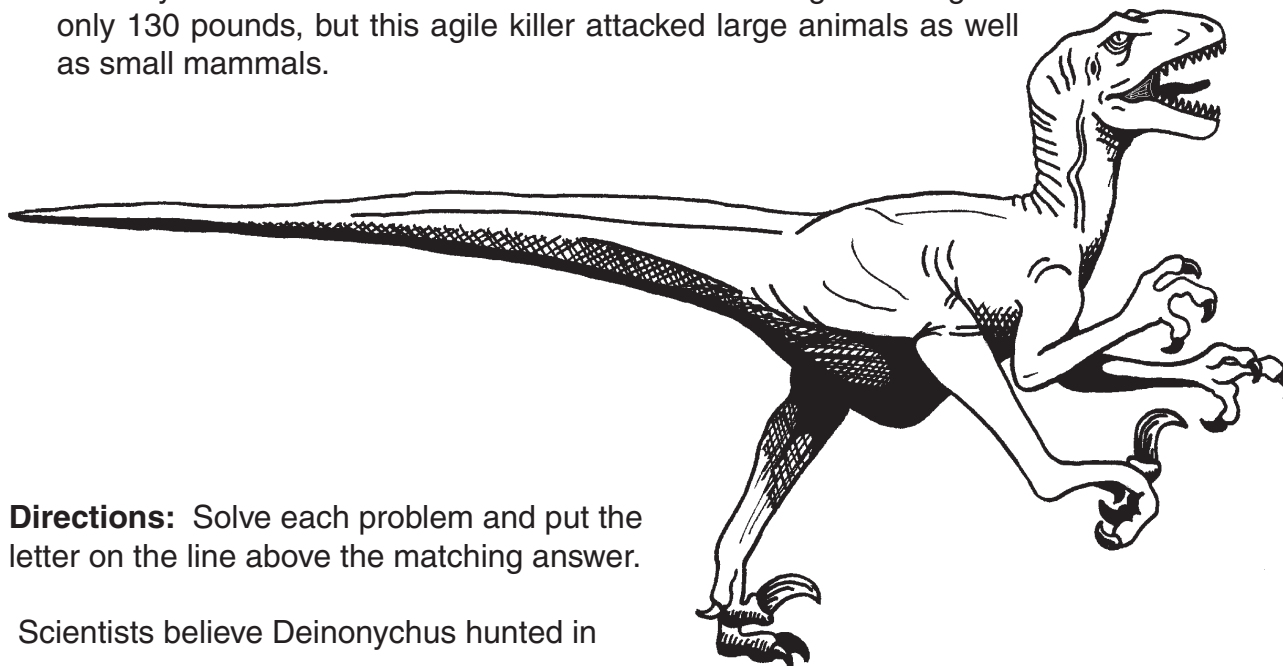
\_\_\_\_\_

1:05                      3:35                      11:10                      4:20                      7:55



## DAILY DINOSAUR 8—Level 3

Deinonychus (dye-NON-i-kus) was more dreadfully armed than almost any dinosaur of its kind. Its powerful jaws were filled with dagger-like teeth and each hand had a curved claw used for tearing and grasping. The second toe on each foot had a very long sicklelike claw that could move up and down even while the dinosaur was standing. The name Deinonychus means “terrible claw.” It was 10 feet long and weighed only 130 pounds, but this agile killer attacked large animals as well as small mammals.



**Directions:** Solve each problem and put the letter on the line above the matching answer.

Scientists believe Deinonychus hunted in

\_\_\_\_\_

15 hrs. 15 min.

\_\_\_\_\_

2 hrs. 35 min.

\_\_\_\_\_

6 hrs. 50 min.

\_\_\_\_\_

13 hrs. 35 min.

\_\_\_\_\_

7 hrs. 25 min.

**A**

4 hrs. 50 min.  
- 2 hrs. 15 min.

**P**

9 hrs. 40 min.  
+ 5 hrs. 35 min.

**S**

10 hrs. 20 min.  
- 2 hrs. 55 min.

**K**

4 hrs. 55 min.  
+ 8 hrs. 40 min.

**C**

12 hrs. 05 min.  
- 5 hrs. 15 min.

# THE STORY OF FOSSILS

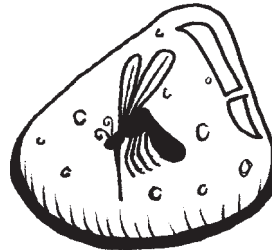
A fossil is the remains of a plant or animal that lived a long, long time ago. Almost everything we know about dinosaurs comes from studying fossils. There are six types of dinosaur fossils.

**Permineralized** fossils are formed when water seeps into bones and deposits minerals. Over time the bone turns into stone.



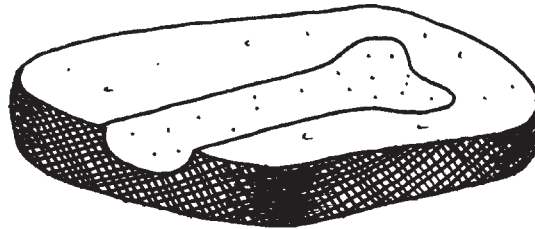
Dinosaur bone that turned into stone.

**Preserved** fossils are the real remains of animals. The animal is trapped in the sap from a tree or is buried under frozen soil. The bones are lightweight and chemically the same as when the animal died.



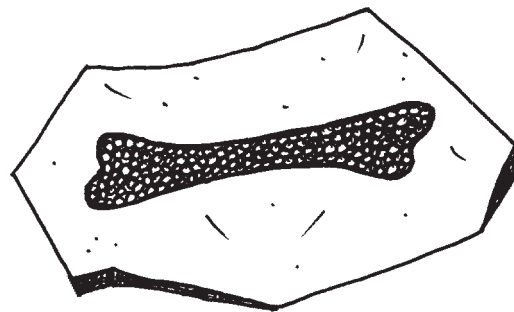
Insect trapped in sap from a tree

**Mold** fossils are created when water dissolves the bone inside the rock and leave a hollow space. Scientists can fill this space with latex rubber to create a replica of the bone.



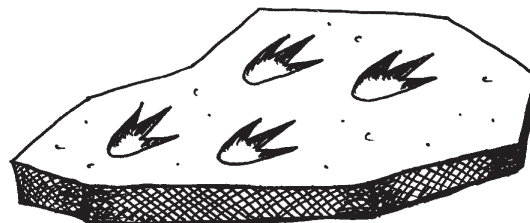
Hollow space created when bone dissolved

**Cast** fossils are formed when a bone dissolves and the mold is slowly filled with minerals brought in by water. The minerals build up and create a stone model of the bone.



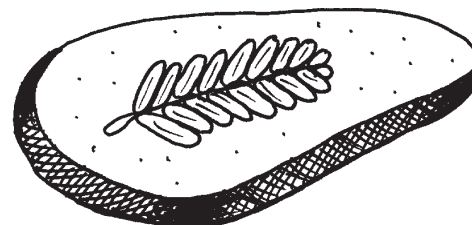
Hollow space filled with minerals to create a stone model of the bone

**Trace** fossils show tracks, footprints, eggs, and shells. They are not parts of the animal, but instead show activities such as walking.



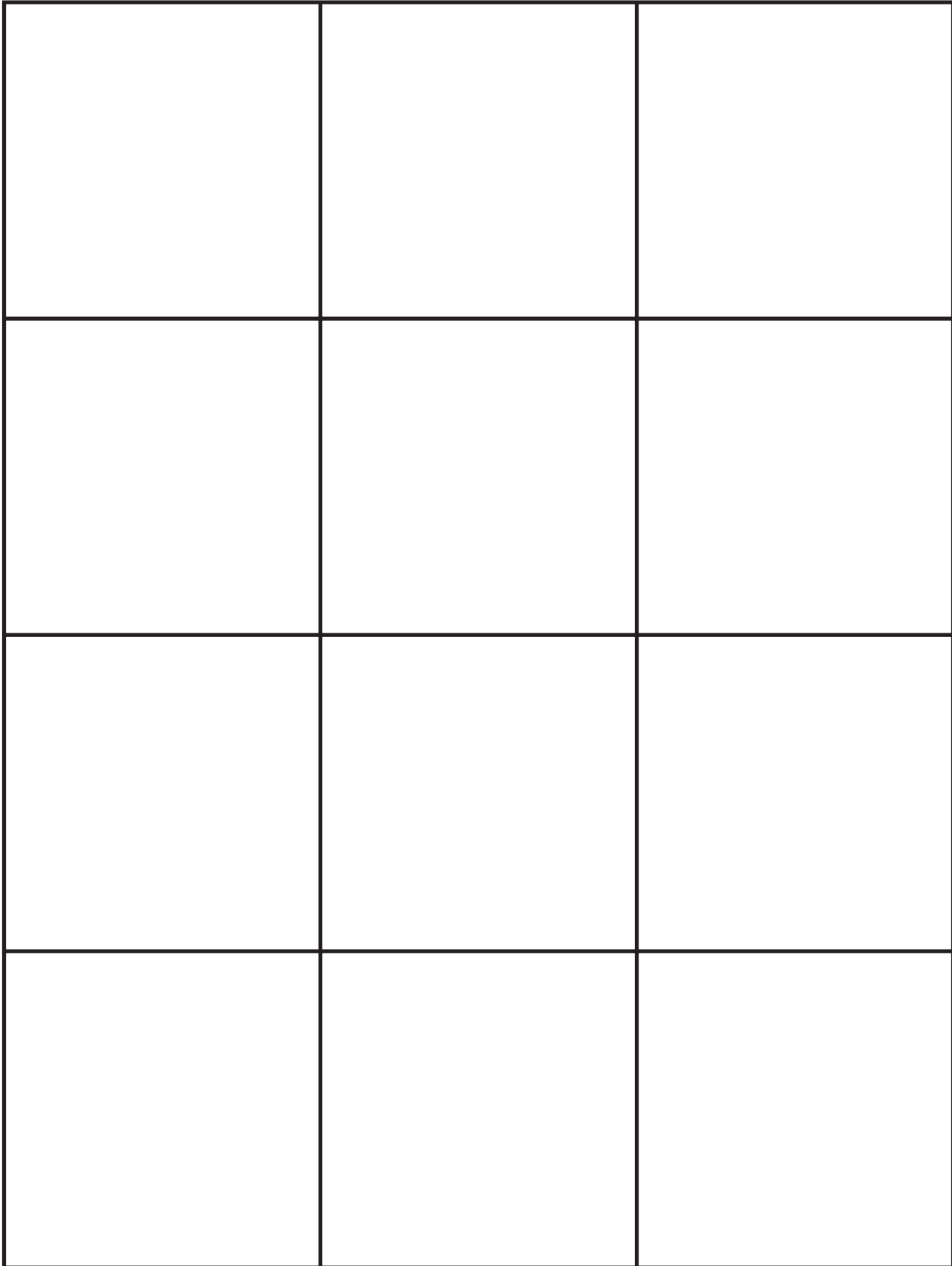
Dinosaur tracks in stone

**Impressions** are fossils that leave imprints of plants or animals on rocks. Although rare, imprints of dinosaur skin have been found.

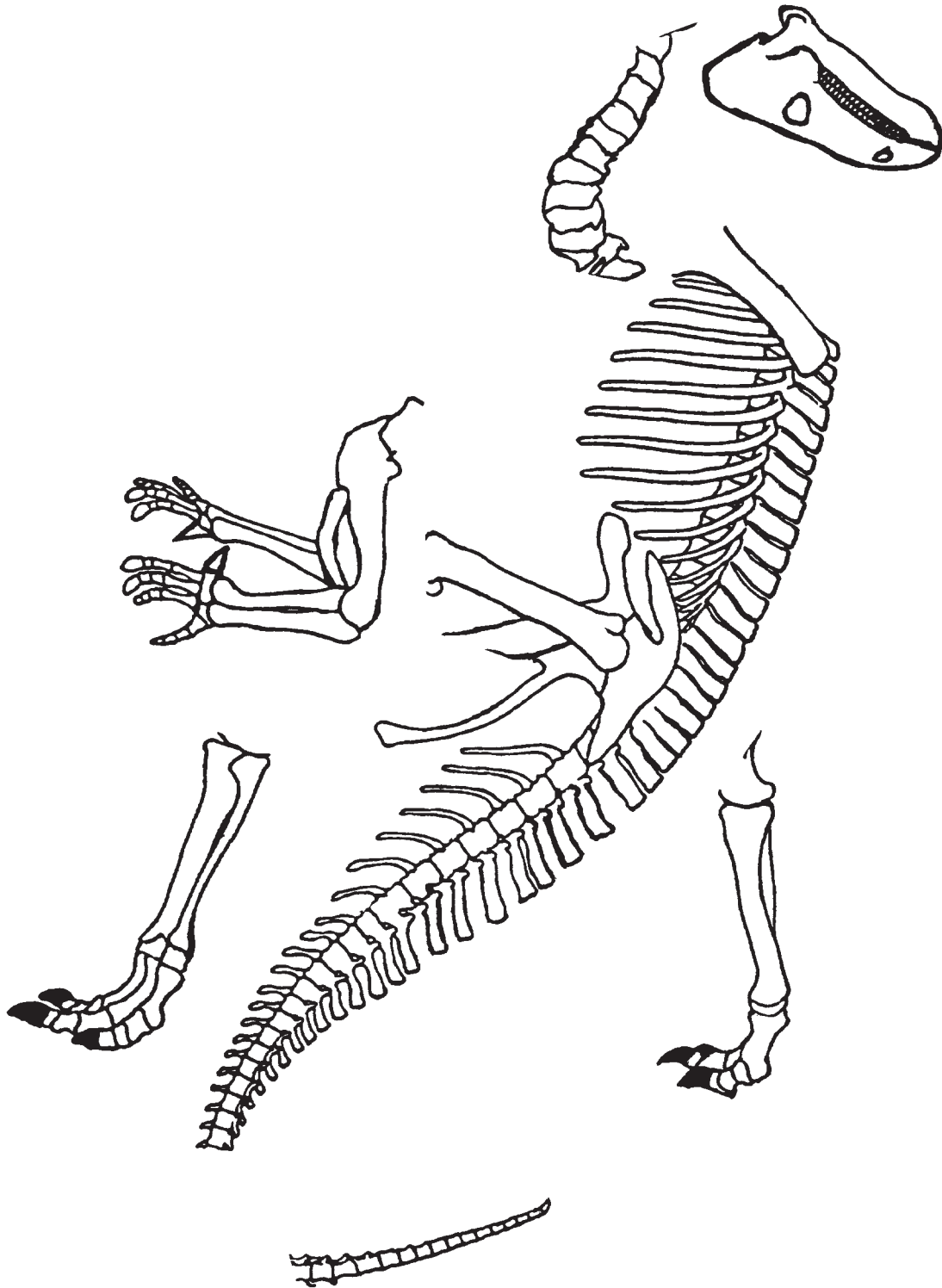


Imprint of a leaf

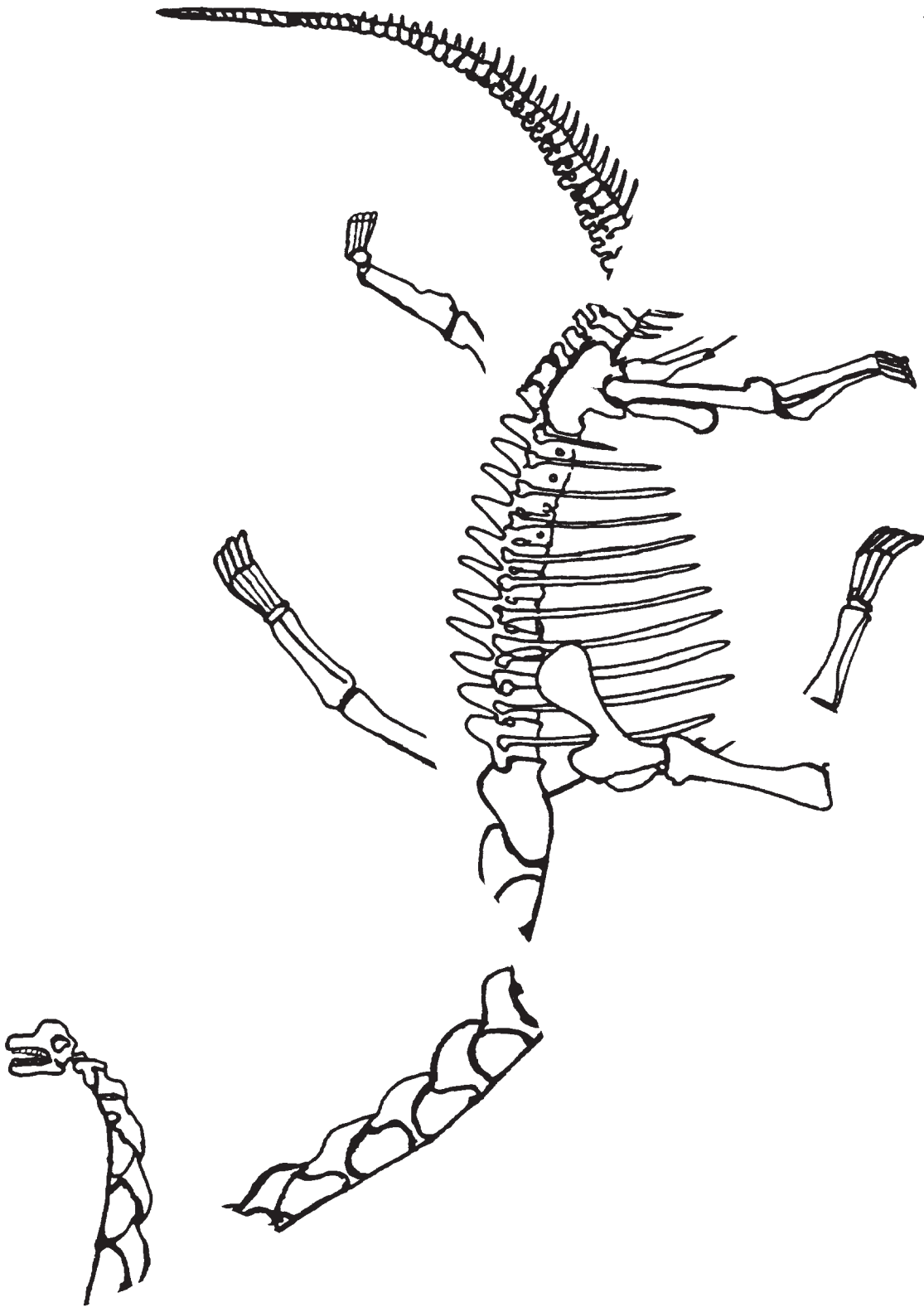
# FOSSIL SITE GRID MAP



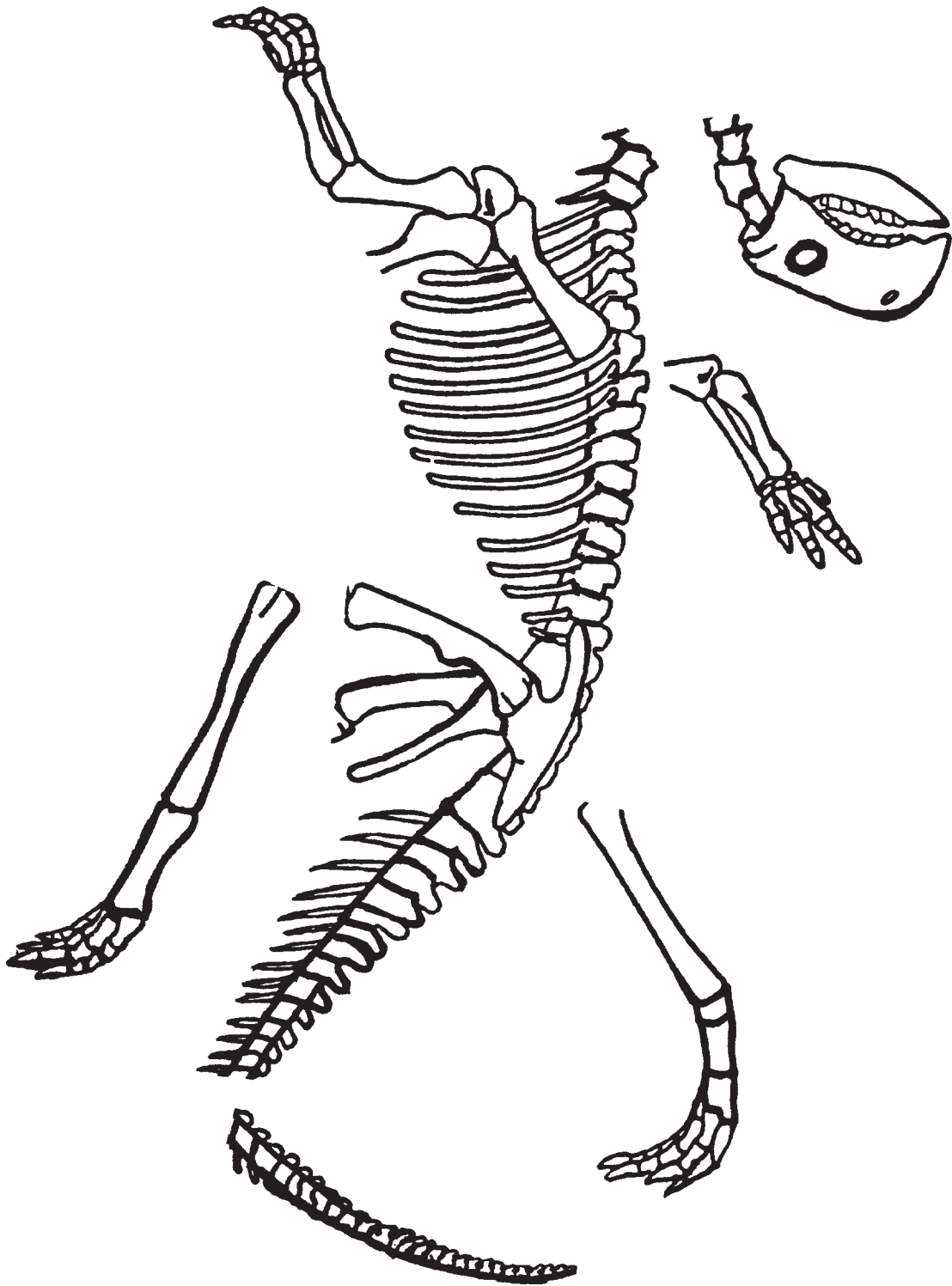
# FOSSIL SITE 1



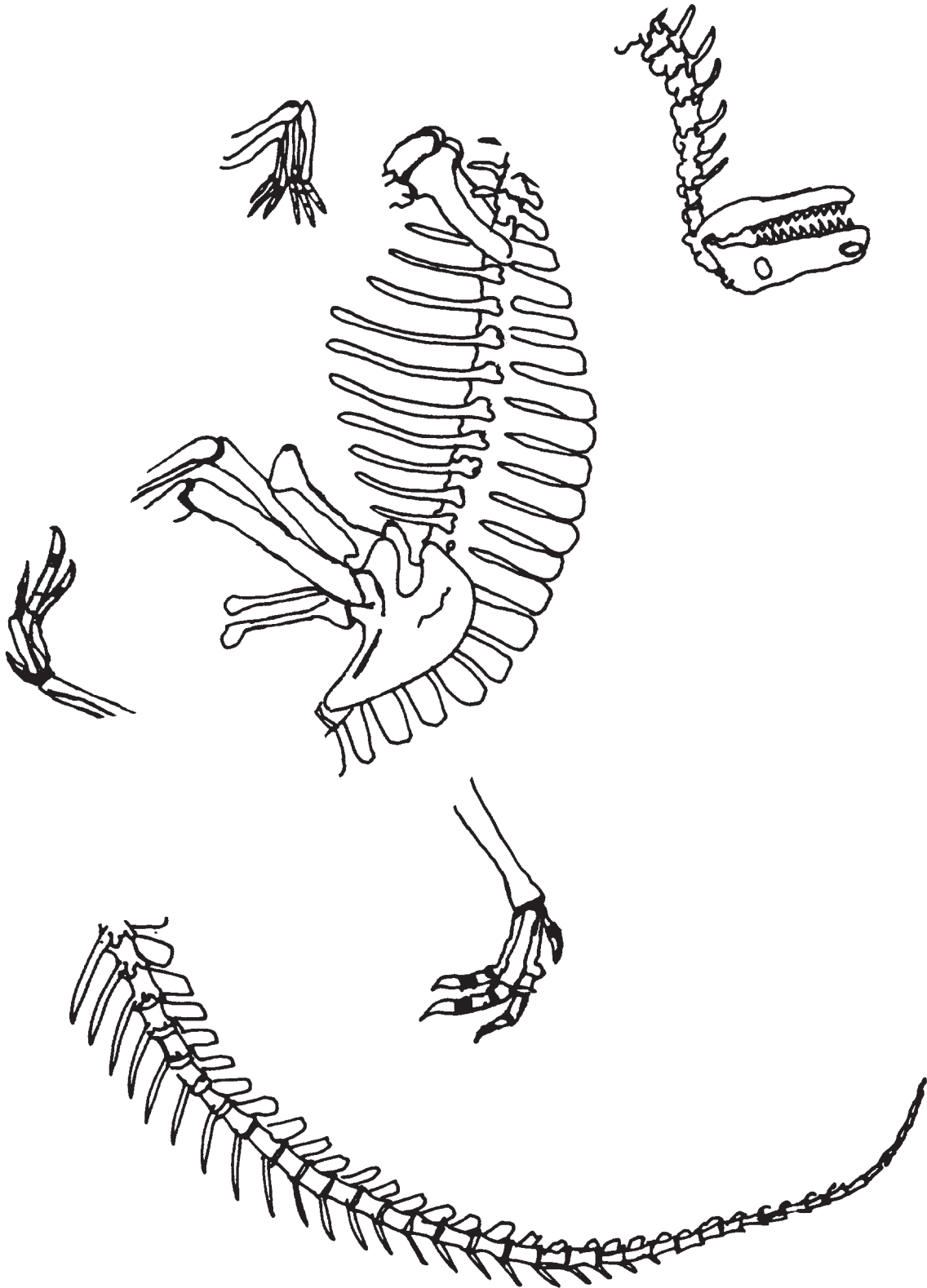
# FOSSIL SITE 2



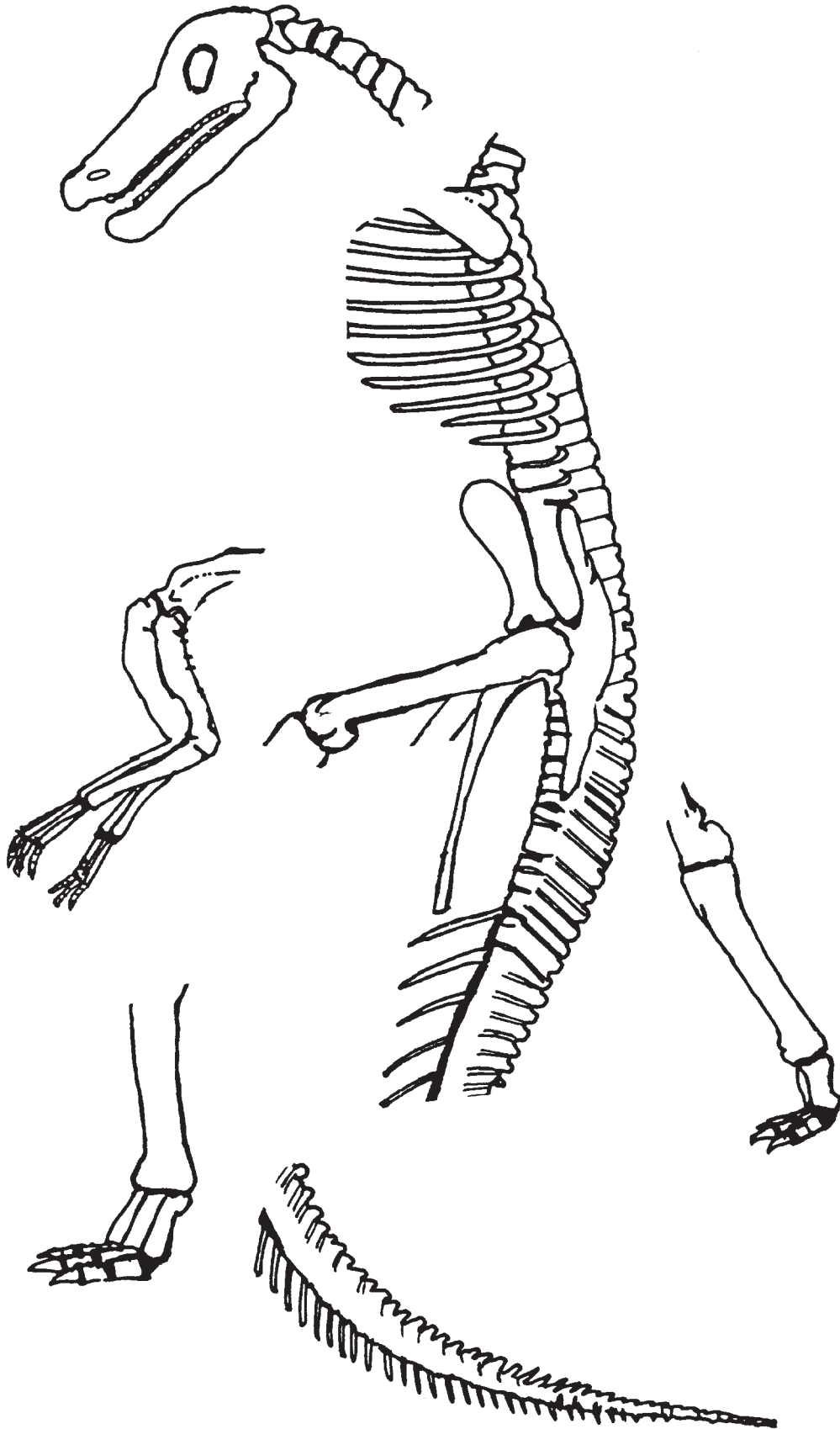
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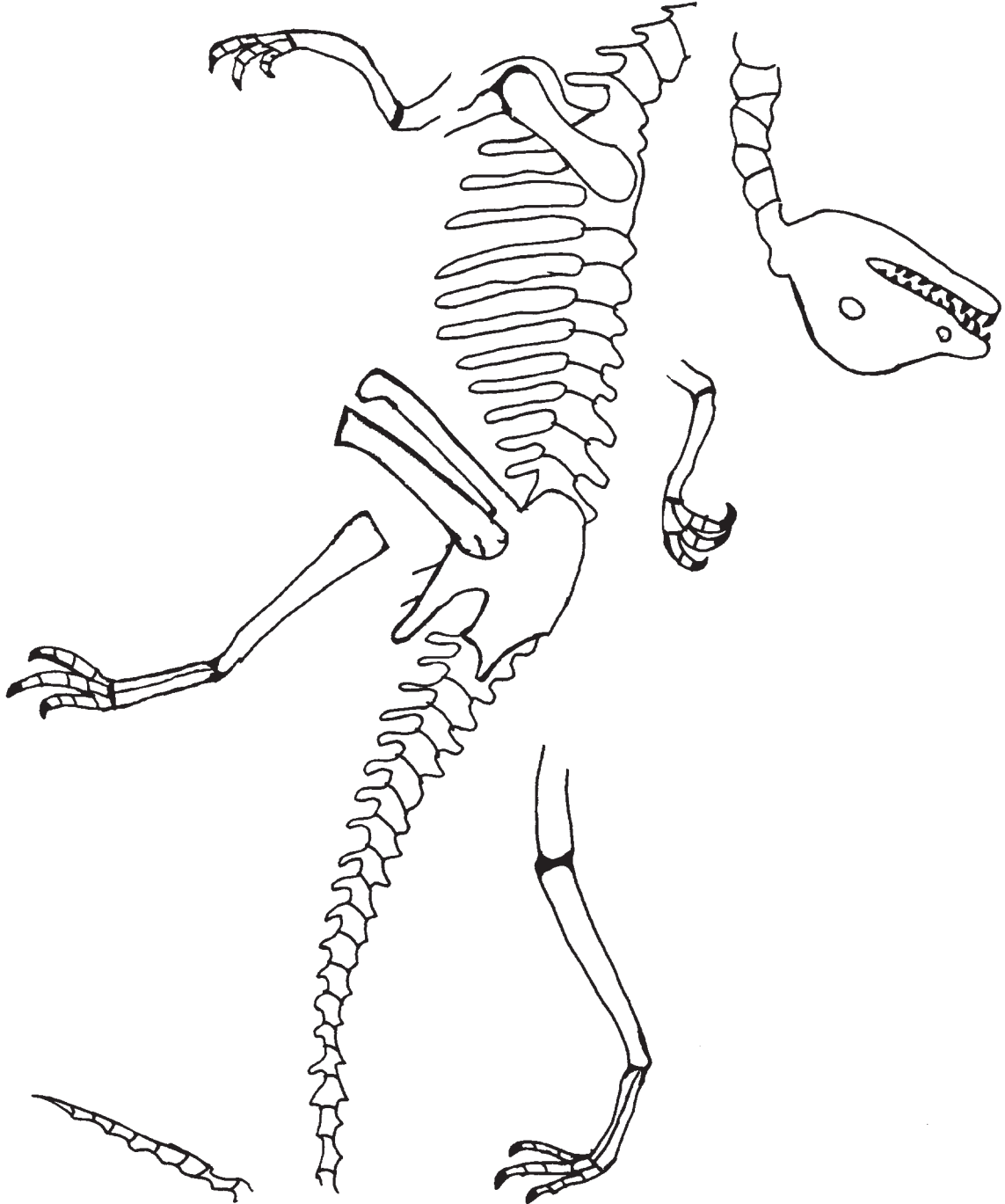
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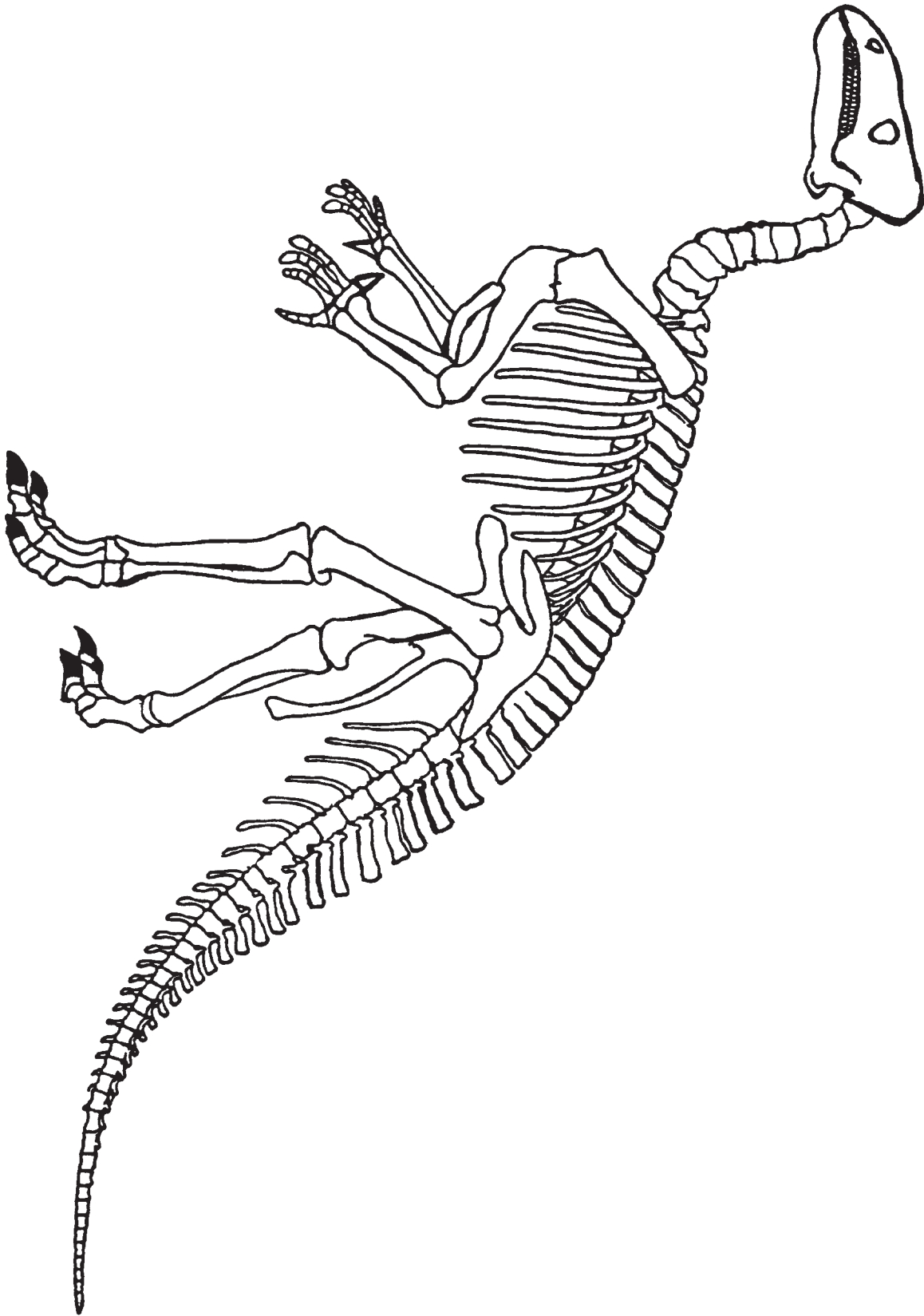
# FOSSIL SITE 5



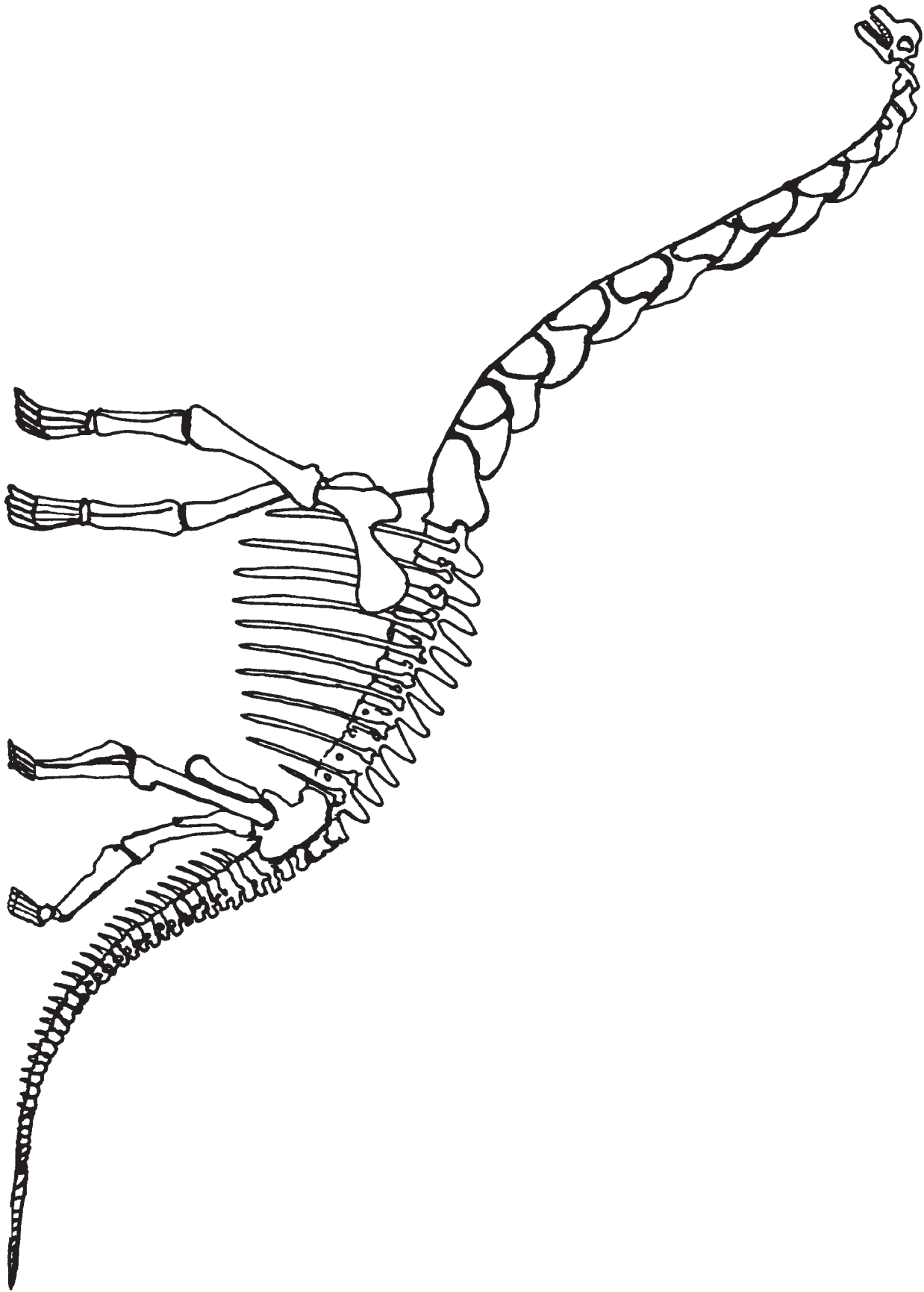
# FOSSIL SITE 6



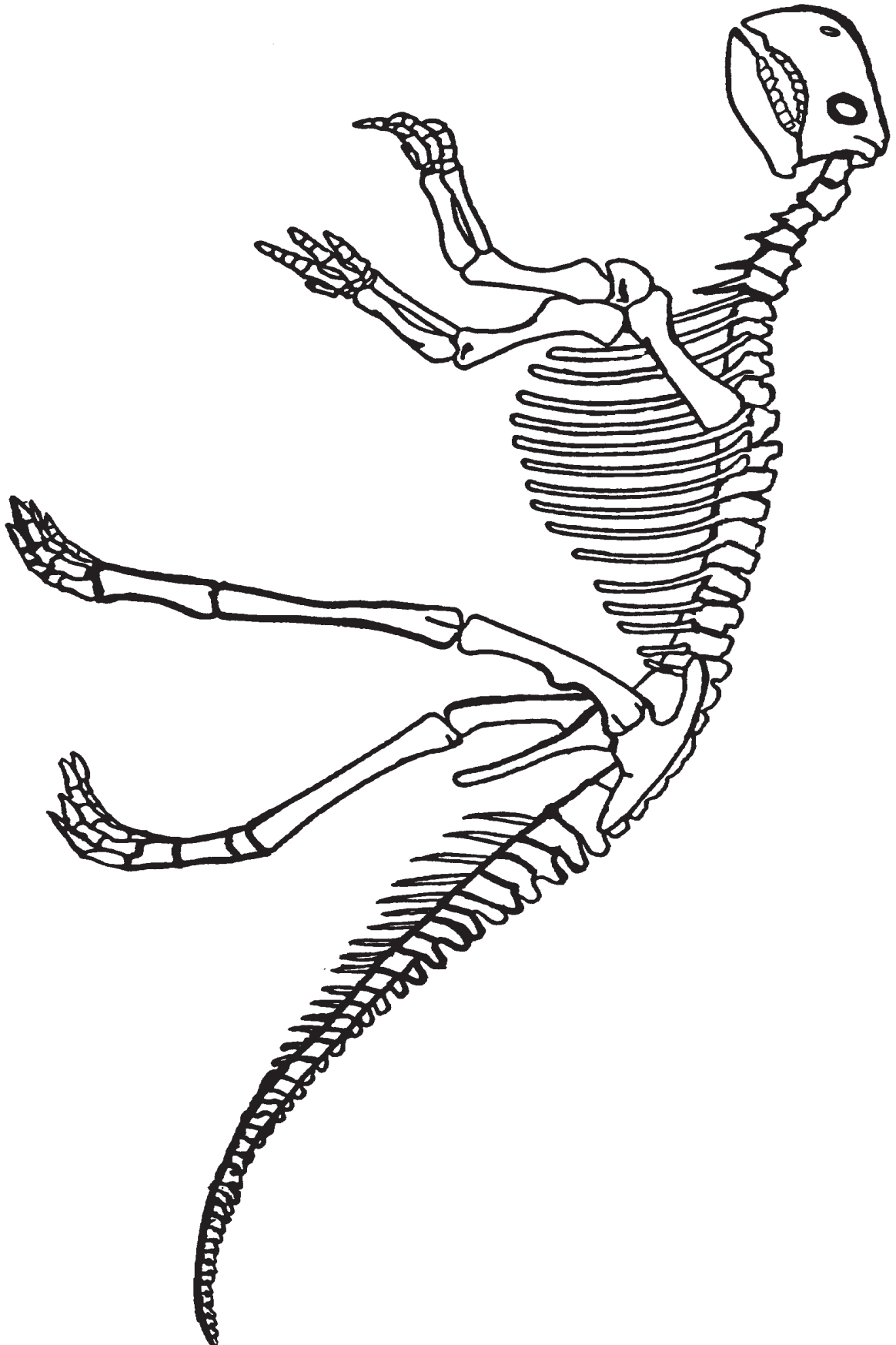
# FOSSIL SITE 1 (Key)



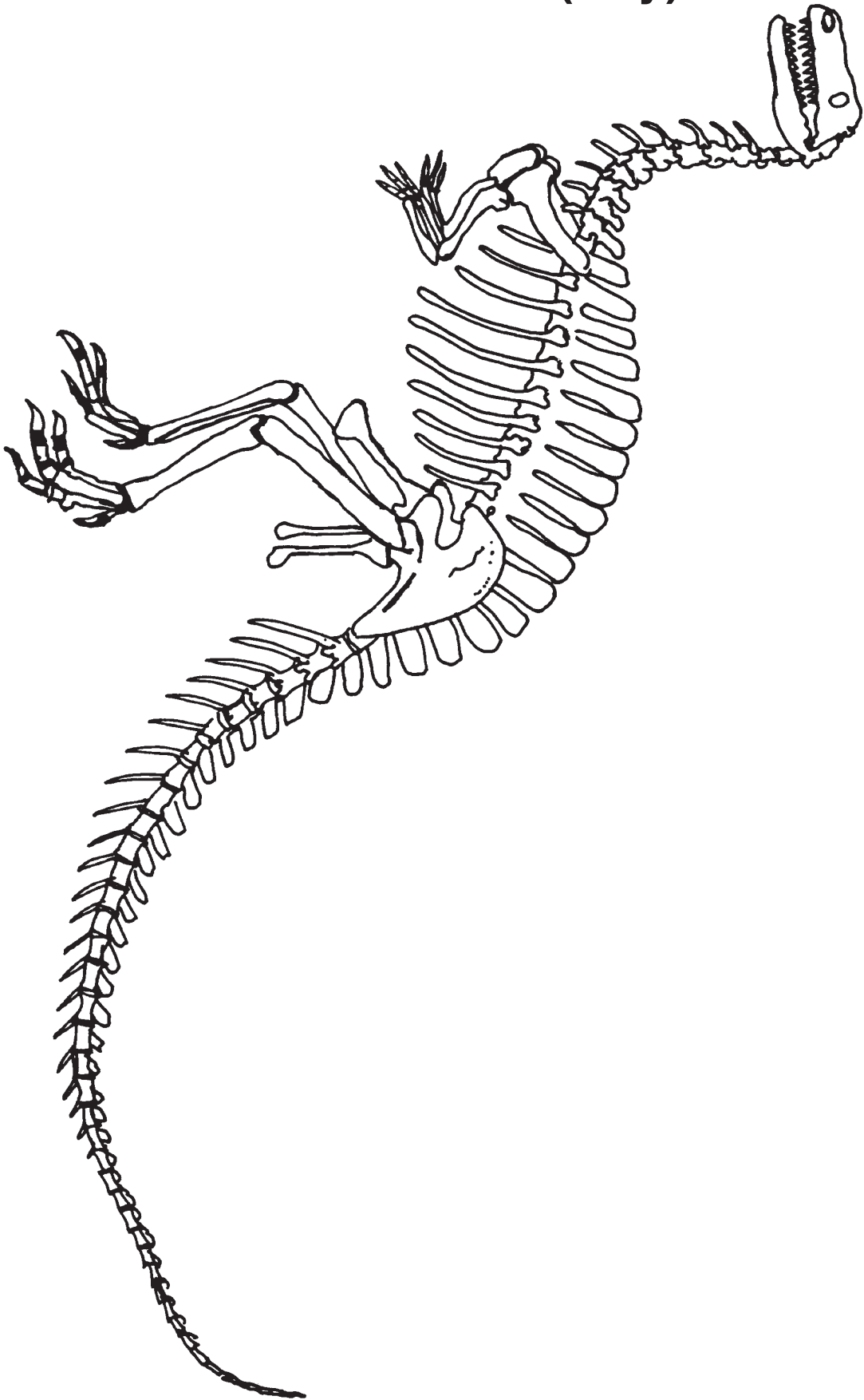
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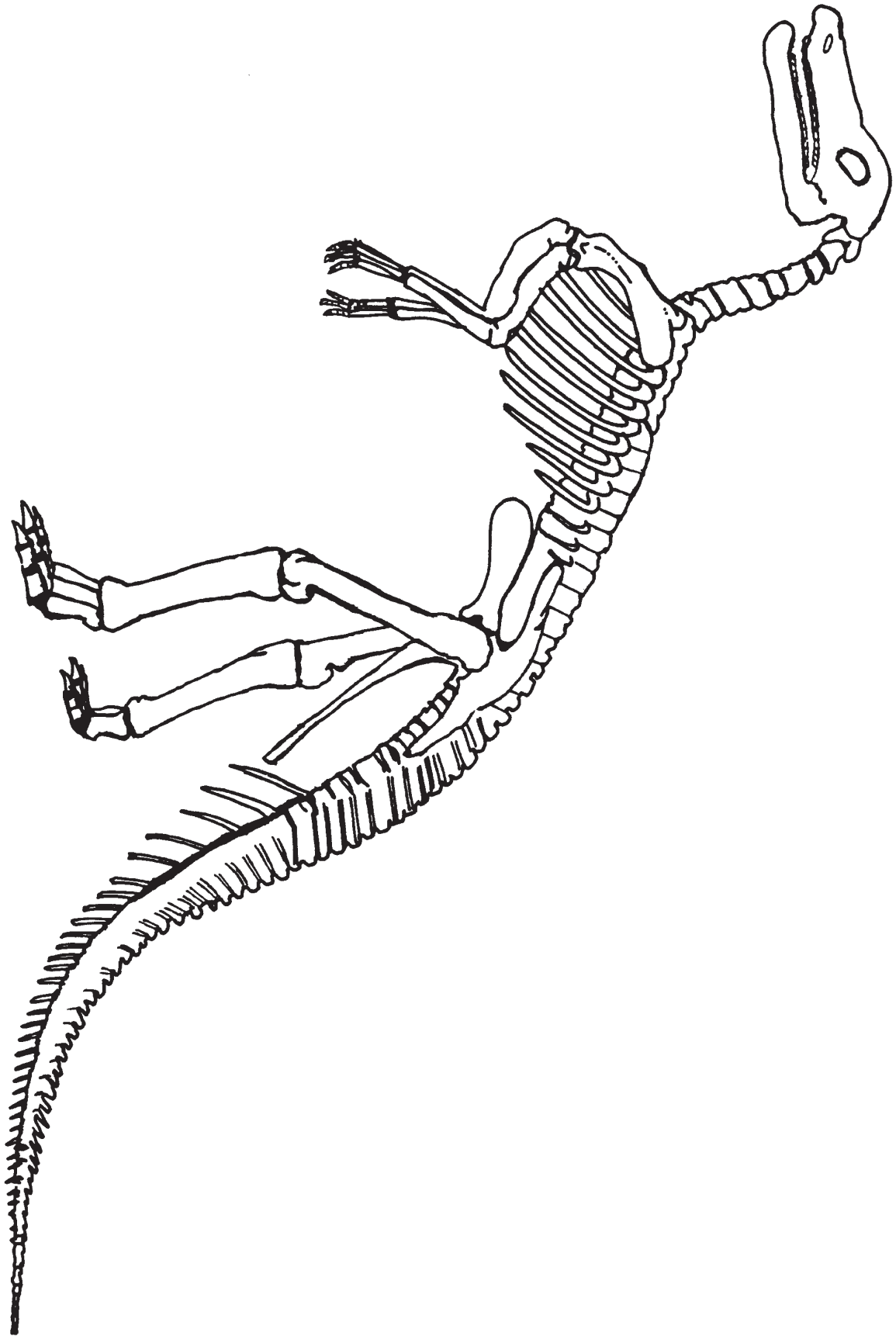
# FOSSIL SITE 3 (Key)



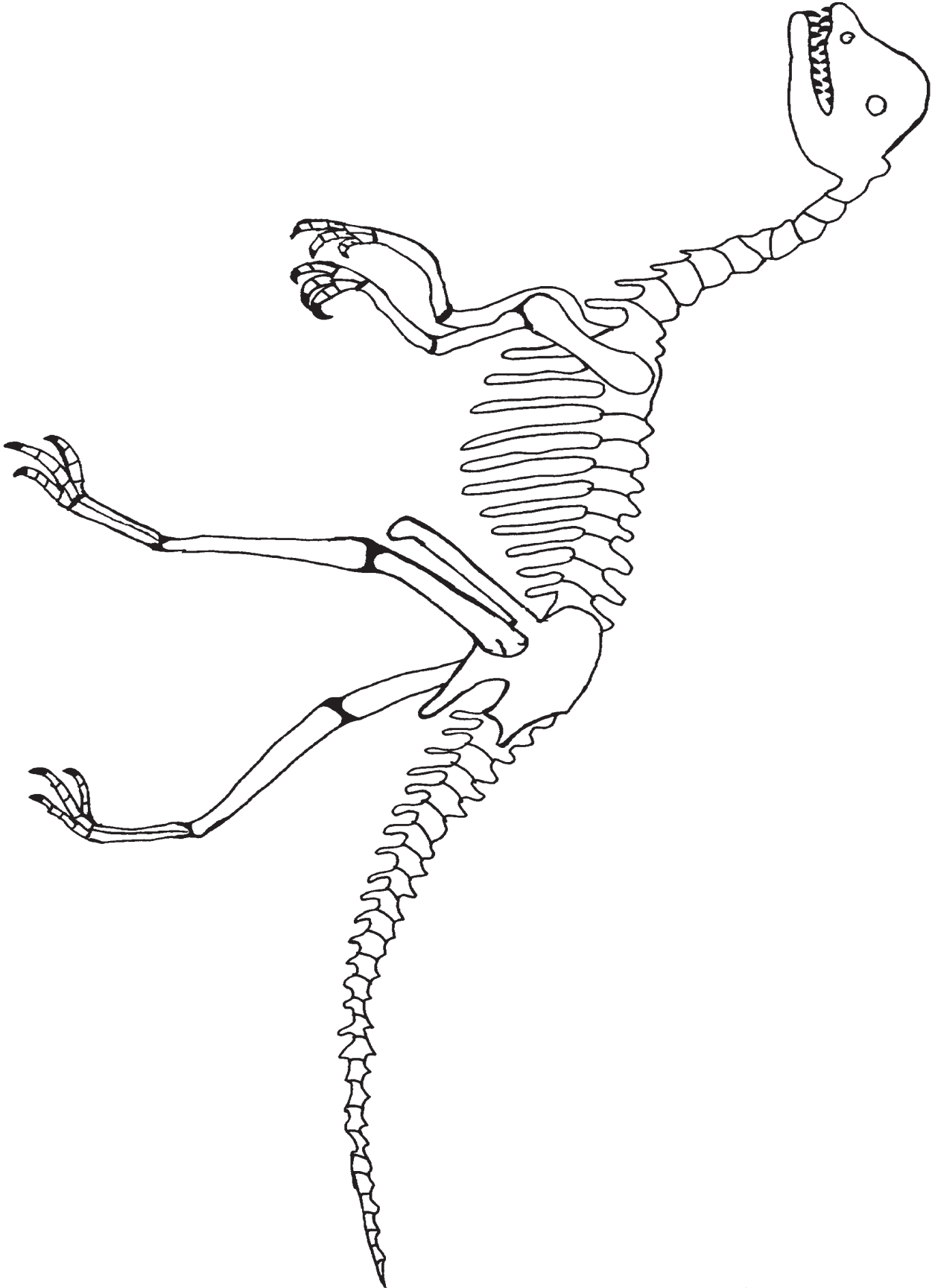
# FOSSIL SITE 4 (Key)



# FOSSIL SITE 5 (Key)



# FOSSIL SITE 6 (Key)



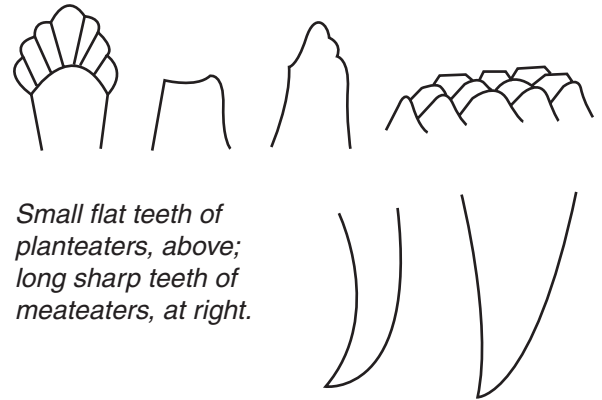




# WHAT FOSSILS TELL US

## Teeth

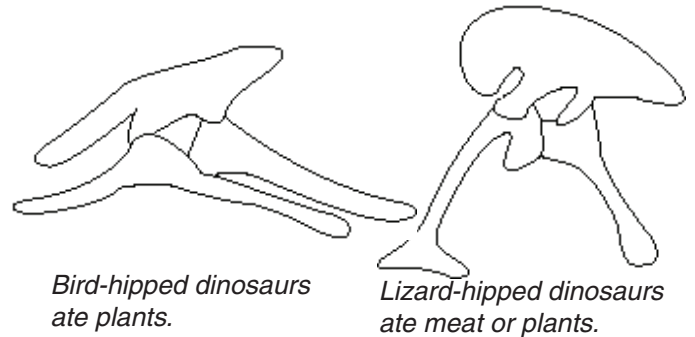
The fossils of teeth tell us what dinosaurs ate. The teeth of meat eating dinosaurs were very similar. They were long, sharp, and pointed. Some were like the blade of a saw that helped cut through flesh. The teeth of plant eaters were smaller and came in different shapes. By looking closely at a dinosaur's teeth it is possible to tell what it ate.



*Small flat teeth of plant eaters, above; long sharp teeth of meat eaters, at right.*

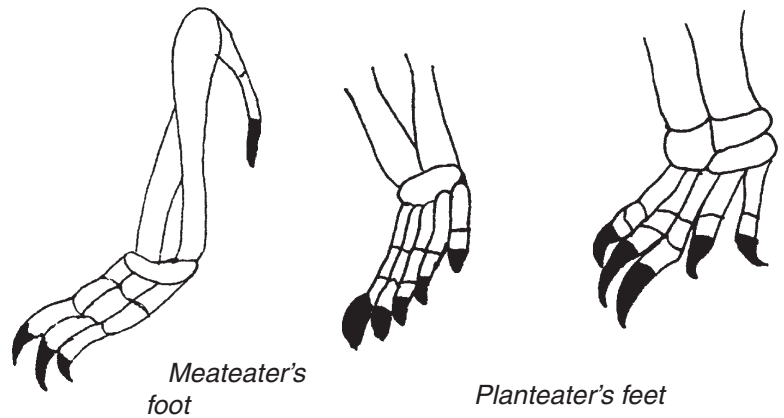
## Hips

Dinosaurs are divided into two groups. One group is called lizard-hipped because they have hips like most reptiles. The second group is called bird-hipped because they have hips like birds. All dinosaurs with bird-hips were plant eaters. All meat eating dinosaurs had lizard-hips and some plant eating dinosaurs had lizard-hips.



## Feet

Dinosaurs had different kinds of feet. They had three to five toes. Meat eating dinosaurs usually (but not always) had three toes on the ground and one higher up the foot by the ankle. The feet of plant eaters varied. Some had feet that ended in claws. Others had feet that ended in hoofs.

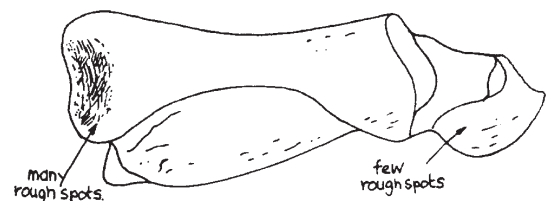


## Fossil markings

Rough spots on the ends of bones show where the muscles went. If there are many rough spots on the bone, then that bone had a large powerful muscle. If there are few rough spots then the muscle was small and weak.

## Skeleton

The skeleton tells us how tall and how long the dinosaur was. The size of the bones tells us how heavy the dinosaur was. It shows us how it protected itself and any special features it had.



# DINOSAUR DISCOVERY REPORT

Fossil Site \_\_\_\_\_

Report Prepared By \_\_\_\_\_

1. Describe your dinosaur's teeth. \_\_\_\_\_

\_\_\_\_\_

2. Describe your dinosaur's hips. \_\_\_\_\_

\_\_\_\_\_

3. Describe your dinosaur's feet. \_\_\_\_\_

\_\_\_\_\_

4. Where does your dinosaur have its largest muscles and bones? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Describe anything unusual about your dinosaur. \_\_\_\_\_

\_\_\_\_\_

6. What did you name your dinosaur? \_\_\_\_\_

7. Write about your dinosaur. Use the information you got from looking at the fossils to make guesses about its size, where it lived, what it ate, how it walked, and other information you want to share. Then, on another sheet of paper draw a picture of how you think your dinosaur looked.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

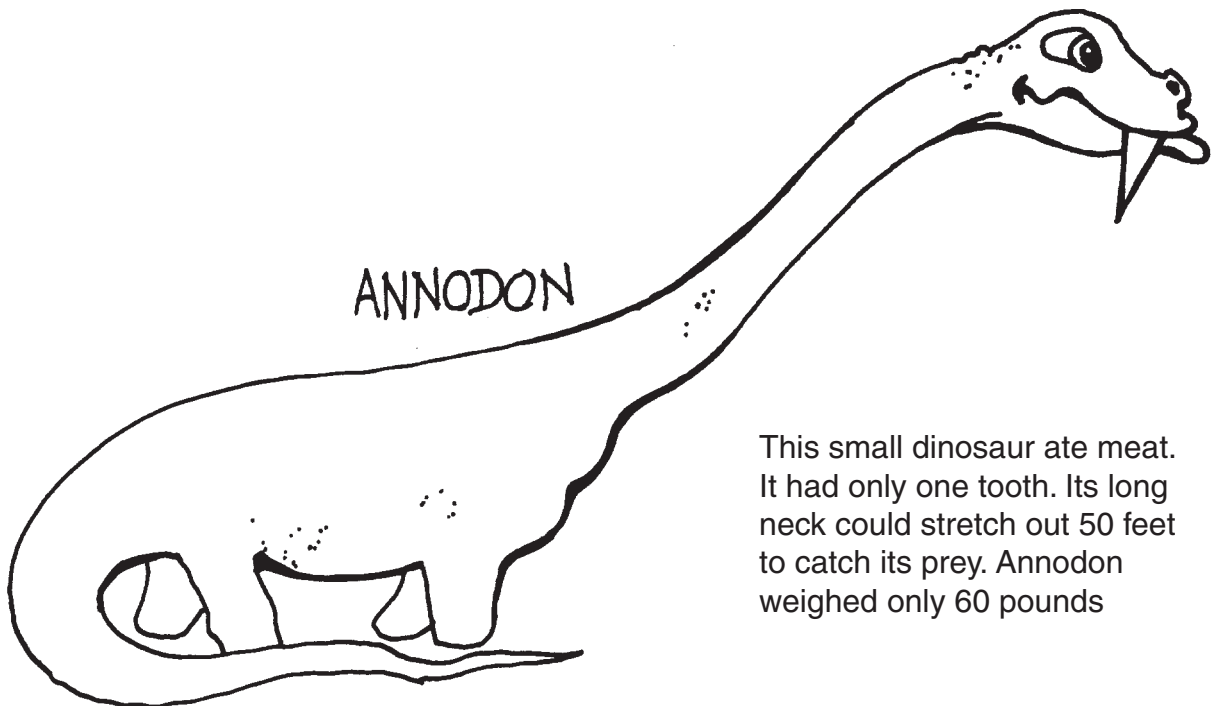
\_\_\_\_\_

\_\_\_\_\_

# CREATE YOUR OWN DINOSAUR

**Directions:** You have studied many dinosaurs. Now it is time to make up one of your own. Here is how to do it.

1. Draw a large colorful dinosaur. Make it different from any dinosaur you have seen.
2. Name your dinosaur. Use your first name. Add one of these endings to it. Notice how a girl named Ann did this.
  - saurus* = lizard
  - ceratops* = horn face
  - mimus* = like
  - odon* = tooth
  - Annosaurus* = Ann lizard
  - Annceratops* = Ann horn face
  - Annmimus* = Like Ann
  - Annodon* = Ann tooth
3. Write the name you have chosen above your dinosaur.
4. Print some information under your dinosaur. *What does it eat? How big is it? What makes your dinosaur special from all other dinosaurs? What is unusual about your dinosaur?*



# MAKE A DINOSAUR BOOK

You have learned many new things about dinosaurs. When scientists learn something new they put it in a book. Today you get to make your own dinosaur book. Here is how to do it:

## Making your book

- Put the papers your teacher has given you together in the following order.
  - two blank sheets of paper
  - eight DAILY DINOSAURS
  - DINOSAUR DISCOVERY REPORT
  - the dinosaur you created
  - a blank sheet of paper
- Fold the piece of construction paper in half and put the papers inside.
- Write the page number of each piece of paper.
- On the first blank page write the title of your book and your name.
- On the second blank page make a Table of Contents for your book. Your teacher will help you with this.
- Write the word Index on the last page. Your teacher will show you how to make a dinosaur index.

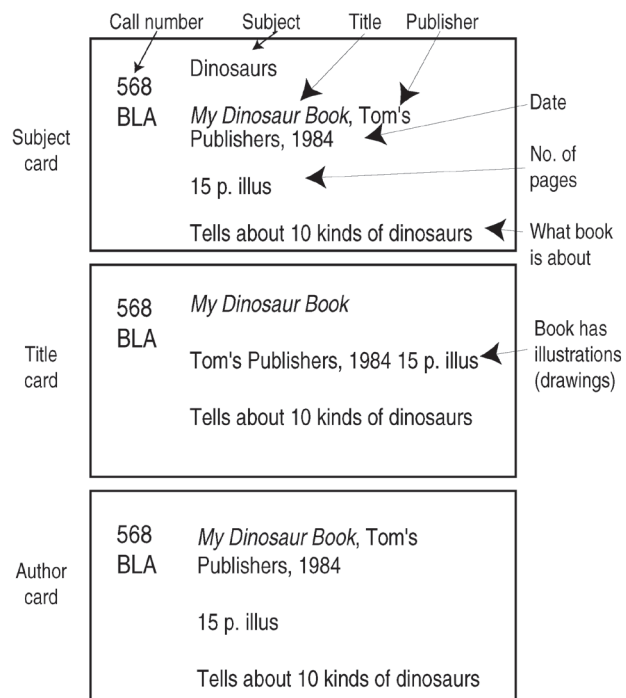
- Write the title of your book and your name on the front cover. Staple or use fasteners to bind your book together. *You now have your very own dinosaur book.*

**Making library cards** Now you can make library catalog cards for your book. Each book in a library is listed on three cards: an author card, a subject card, and a title card. These cards give information about the book and tell where it can be found in the library. To make your cards, do the following:

- Give your book a call number. This is a number librarians use to classify and locate books. Since your book is about science, it will have a 500 number. All books about

science have this number. It is also about fossils so that makes it a 560 number. And it is about dinosaurs, so it should have a 568 or 569 number. Write one of these numbers on the upper left-hand corner of your book. Under this number write the first three letters of your last name. Your call number is now complete.

- The next thing to do is make up the name of a publishing company. A publishing company is the company that prints the book. Since you made this book yourself, use your name. For example, a boy named Tim could have his book published by Tim's Publishing Company.
- On a piece of scratch paper write the name of the publisher and the title of your book. Also tell in a few words what your book is about.
- Now you have all the information you need to make subject, title, and author cards.
- Using the examples shown below, make three catalog cards. You may even get a chance to put your book in a library.







# THE DINOSAUR STORY - 1

**Purpose** The Dinosaur Story is a shadow play that uses drama and art as a culminating activity to DINOSAUR. A shadow play is a puppet show that uses back lighting to create shadows on a screen. The audience sees only the shadow so the puppets are simple silhouettes. This unique format easily captures your students' attention, is fun to perform, and delights audiences. While other kinds of plays may take weeks to get ready this one can be performed in just a few days. The script and directions that follow may be altered as desired.

**Overview** This play is about a group of four students that go to a museum to see the dinosaur exhibits. During the first scene a tour guide tells them about two dinosaur skeletons that are on display and then explains that the rest of the tour is self guided. The play continues with the students (puppets) watching several programs about dinosaurs. These programs take place on a second screen. The action alternates between the second screen where the programs are presented and the first screen where the students discuss what they saw.

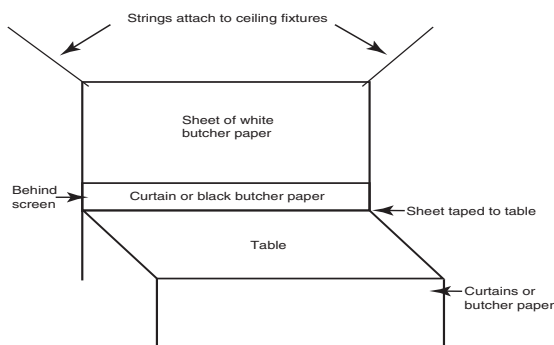
## Shadow play elements

**Alternating scenes** This play has 11 scenes. The odd-numbered scenes take place on Screen 1. The cast at Screen 1—the students and tour guide—is always the same. The even-numbered scenes are presented on Screen 2. Each of these scenes requires a different group of narrators. So while the action is taking place on Screen 1 the next group of narrators moves on to Screen 2. By alternating screens and moving students in this way it is easy to have an entire class participate in the play.

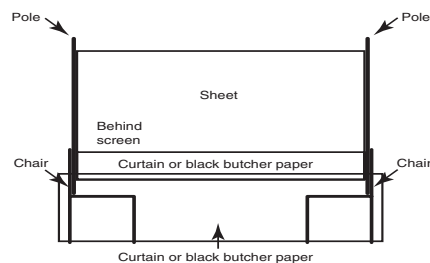
**Stage** The shadow play stage consists of two screens. The screens are made from white sheets or white butcher paper. They are held up with strings attached to ceiling fixtures

or are tied to poles. The illustrations at left show how this is done.

### Shadow Puppet Stages (examples)



Ceiling Attachment

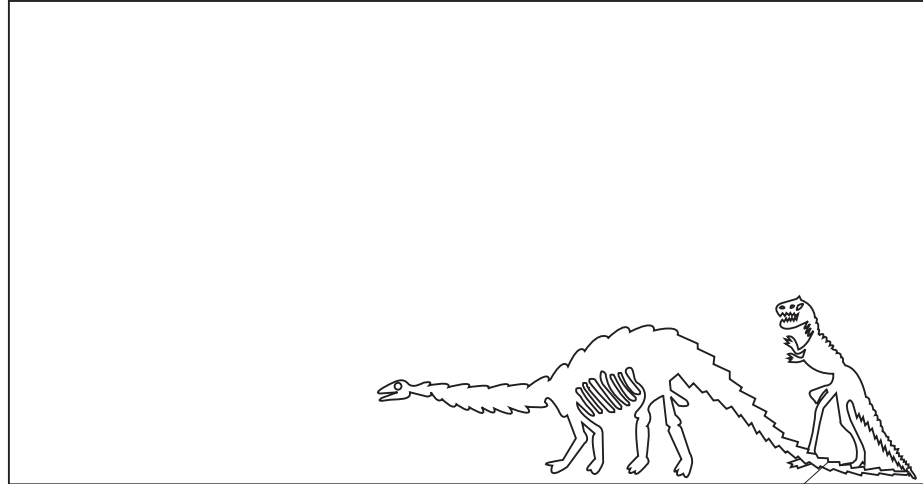


Pole Attachment

## THE DINOSAUR STORY - 2

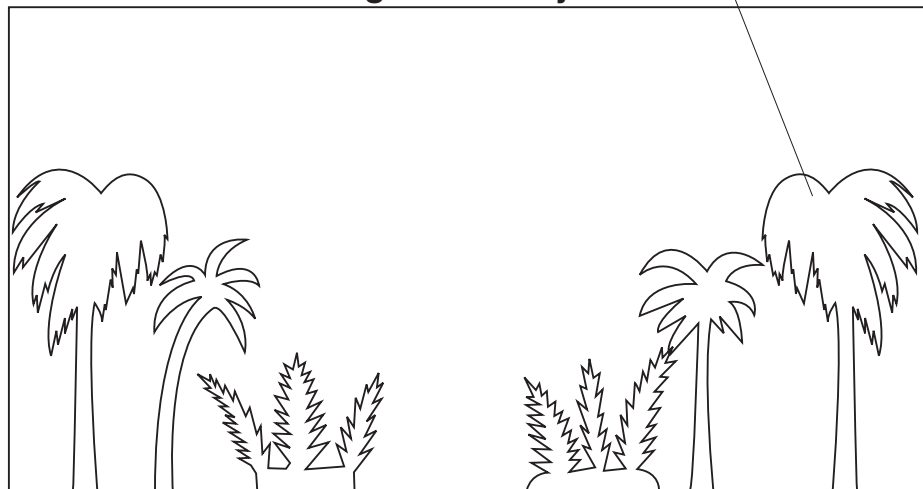
**Scenery** All scenery is taped to the back of the sheet. The scenery remains the same throughout the play. The scenery for each stage is shown below.

### Stage 1 Scenery



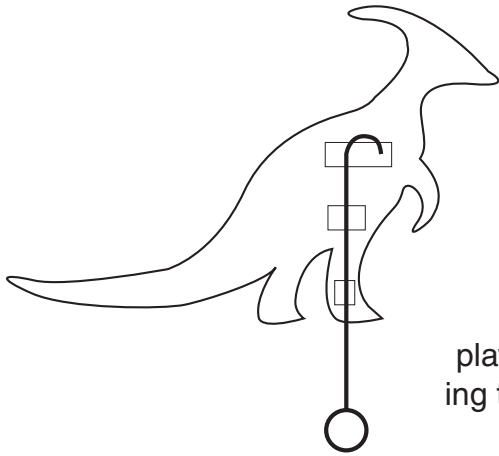
Tape to back of sheet

### Stage 2 Scenery



**Lighting** Each screen is illuminated with a single 100-watt bulb. When one light is on, the other one is off. Screen 1 always uses a white light. Screen 2 uses a white light, but many scenes require color. To create the colors needed for these scenes a colored film (transparency film, colored cellophane, or colored transparent report covers) is held in front of the light.

# THE DINOSAUR STORY - 3



**Puppets** The puppets are silhouettes cut out of stiff paper or cardboard. Attached to the back side is a 10-inch piece of galvanized wire. Eyes may be added by cutting out a small hole and covering it with colored cellophane. See illustration at left.

**Music** The Screen 2 scenes are enhanced with background music that is mysterious or eerie. It should be played during all of the Screen 2 scenes and turned off during the Screen 1 scenes. The sound track to Jurassic Park is one example of the music you can use.

## Initial setup directions

1. Read the script then assign students their parts. (Note: This play has six basic scenes that need a cast. You need one cast for all of the odd-numbered scenes and a different cast for each of the even-numbered scenes. You may give each of the dinosaur teams their own scene and have the students select the parts they want.)
2. Make seven copies of the entire script. Then make six copies of each of the even-numbered scenes. (Note: It is not necessary for each student to have the entire script, but it is more convenient so if you have a good paper supply run off a copy of the script for each student.)
3. Make copies of the shadow puppets and scenery as indicated. For most of these one copy is enough, but some require several copies. (To make this play even more exciting enlarge the copies to make the dinosaurs even bigger but remember they must fit behind your screen.)
4. You will need the following materials for later use:
  - Two single-bed sized white sheets or two six-foot lengths of white butcher paper
  - Black butcher paper
  - String or yarn
  - Tape
  - Stiff paper or cardboard (file folders work fine)
  - Approximately 50' of galvanized wire
  - Wire cutter
  - Two lamps with 100-watt bulbs
  - Red, yellow, blue, and green transparency film (transparent report covers found in school supply sections work fine)

# THE DINOSAUR STORY - 4

## Daily Lesson Plans

### Day 1

#### Materials

1. Scripts for each student.
2. Copies of shadow puppets.
3. Stiff paper (tagboard or file folders) for each student
4. Scissors and tape

#### Procedure

1. Tell your students they are going to present a shadow play. If necessary show them how a shadow puppet works. Then read aloud The Dinosaur Story to your students.
2. Tell your students the parts they have or let them choose their own.
3. Give out the entire script to the Tour Guide and Students 1-4. Keep one for yourself and set aside the seventh one in case a script gets lost. Next, give the casts of the even-numbered scenes their scripts (cast of Scene 2 gets the Scene 2 script, etc.).
4. If your students are not familiar with scripts explain to them how they are read (don't read the italicized part) and encourage them to read with expression.
5. Move your students into groups, by scenes, and have them practice their parts for 15 minutes. Ask parent volunteers or older students to help weak readers with their lines and some students may need to practice at home.
6. While the students are still in groups explain to them that they are going to make their shadow puppets, and they need to watch carefully as you demonstrate how this is done.
7. Demonstrate the following: Cut out the tall tree from Scene 4. Put this tree on top of a sheet of stiff paper (tag board or file folder paper) and carefully trace around it. Next, label it by writing a large 4 (scene number) on the tree trunk and the words "tall tree" (name of scenery or puppet) and your name.

# THE DINOSAUR STORY - 5

8. Tell your students they are going to make shadow puppets just as you did. Distribute the shadow puppets and scenery to your students. Be sure that each student gets at least one dinosaur puppet. Explain to your students that they will get to keep the puppets they make, but during the shadow play another student may be using one of their puppets. This is necessary because some scenes use more dinosaurs than others.
9. Give each student a sheet of stiff paper. Then distribute the shadow puppets and scenery. Have your students cut out the puppets and scenery and trace it on the stiff paper. If students have difficulty tracing it may be necessary to tape the copy to the stiff paper. Remind students to label their puppets with their name, the scene number, and the description of the puppet.
10. Collect the puppets and save. They will be finished tomorrow.

## Day 2

### Materials

1. Scripts for each student.
2. Shadow puppets students made during Day 1
3. Galvanized wire cut into 10" lengths
4. Scissors and tape

### Procedure

1. Have your students move into groups according to scenes and practice reading their lines for 15 minutes.
2. Show your students how to finish making their shadow puppets. First cut out the tree you traced yesterday. Then, tape the galvanized wire to the back of the puppet and form a loop at the end of the wire as shown on page 3.
3. Return the puppets to your students. While they cut out the puppets give each student a 10" length of wire and a 5"-6" piece of tape.
4. Collect the puppets and scenery.
5. Have your students practice the play again, but this time each group of students will read aloud their scene(s) in front of the entire class. Do this twice.

# THE DINOSAUR STORY - 6

## Day 3

### Materials

1. Scripts for each student
2. Tape recorder and blank cassette tape

### Procedure

1. Today you are going to record the play. While your students are busy with a quiet seat work activity call them up scene by scene and record the play.
2. After the play is recorded you need to set up the two screens. You may do this after school by yourself or use class time and have your students help you. See the illustrations in the Stage section of the Shadow Play Elements and the Stage Area on page 15.



#### TEACHING TIP

*Recording the play ahead of time makes it easier for the students to concentrate on working the puppets rather than trying to read the lines and move the puppets at the same time.*

## Day 4

### Materials

1. Screens for the shadow plays
2. Two lights and transparency film (red, green, blue, yellow)
3. Two tape recorders
4. Mysterious or eerie music

### Procedure

1. Assign two students to work the Screen 1 light and the tape recorder with the music. These students will not work the puppets.
2. Assign two students to work the Screen 2 light. These students will not work the puppets.
3. Put the puppets for Scene 1 and Scene 11 behind Screen 1. Group the rest of the puppets according to scene behind the two screens where they can easily be reached.
4. Practice having your students find their puppets, go to the screen, and return the puppets. The movement of students from one scene to the next should go smoothly.
5. Next practice the play with the puppets, recorded script, music, and lights. Be sure the students keep their puppets just above the black paper or curtain. In some scenes students may have to work two

# THE DINOSAUR STORY - 7

puppets at once. You control the tape recorder with the recorded voices and should be in a position to see the students working the tape recorder with the music. This is important because you may have to signal the student to raise or lower the volume as the music changes.

6. Continue to practice until you are satisfied with the presentation then invite parents and other classes to watch your shadow play.

## Day 5

Performances of The Dinosaur Story.

# The Dinosaur Story

A Shadow Play

## Cast

Students 1-4

Tour Guide

Narrators 1-25

*Screen 1 light goes on. Students enter.*

## Scene 1

Student 1: Hurry up you guys. We're gonna be late.

Student 2: I'm hurrying.

Student 3: Can't we get something to eat first?

Student 4: No, there's not enough time.

Student 1: Come on, the tour's already started.

Tour Guide (*entering*): The large skeleton you see is that of an Apatosaurus (ah-PAT-uh-SORE-us). Most of you know it by its old name Brontosaurus (BRON-tuh-sore-us). Next to the Apatosaurus is ...

Student 2 (*interrupting*): Tyrannosaurus (tie-RAN-o-SORE-us) Rex!

Tour Guide: No, this is an Allosaurus (al-oh-SORE-us). It's a meateater like Tyrannosaurus, but smaller. The Allosaurus had a remarkable jaw that could move outward as well as up and down.

Student 3 (*whispering*): I'd like to get my jaw working on something good to eat.

Students 1, 2, 4: Shhhhhhhhh!

Tour Guide: Dinosaurs had three to five toes. Meat-eating dinosaurs usually had three toes on the ground and one up high like the ones on the Allosaurus. The planteaters had all of their toes on the ground. There are other differences too like the kind of hips they had and the length of their necks.

Student 4: Are there any more dinosaurs like these?

Tour Guide: No, these are the only dinosaur skeletons we have in the museum, but we have several displays and programs you can watch. Come right this way please, and I'll show you what we do have.

Student 3: We'll never get to eat.

Tour Guide: The rest of the tour is self guided. When you find a display you like push the button and you'll hear a recorded message. I need to start the next tour so I will leave you here on your own. *(Exits)*

Student 2: Let's try this one.

## Scene 2

*Screen 1 light goes off. Red lighting goes on Screen 2 and music begins.*

Narrator 1: Millions and millions of years ago dinosaurs appeared on earth. The name "dinosaur" means "terrible lizard," and there were many different kinds.

Narrator 2: Some were gigantic. *(Gigantic dinosaur moves across screen)*

Narrator 3: Others were small. *(Small dinosaur moves across screen)*

Narrator 4: Some were terrifying hunters with sharp claws and teeth. *(Terrifying hunter moves across screen)*

Narrator 5: But most dinosaurs were peaceful planteaters. *(Peaceful planteater moves across screen)*

Narrator 1: They lived on earth for 160 million years before they mysteriously vanished. By the time the first humans appeared all of the dinosaurs were gone. All that remained were their fossils.

*Screen 2 light goes off. Screen 1 light goes on*

## Scene 3

Student 1: Hey, that was kind of interesting.

Student 2: It's weird. Dinosaurs were here all that time and then they just disappeared. That's really strange.

Student 1: I wonder what happened to them?

Student 3: I wonder what will happen to me if I don't get anything to eat.

Student 4: Be quiet! I've been thinking. If the dinosaurs died out before there were any people then people couldn't fight dinosaurs. Right? So all those movies that show cavemen fighting dinosaurs and stuff like that are really fake.

Student 1: Come on, everyone knows that. Let's see what this one is about.

Screen 1 light goes off. Screen 2 green lighting goes on.

## Scene 4

Narrator 6: Millions and millions of years ago the earth was warmer than it is today. All of the land was connected. Only small trees, ferns, and palmlike plants grew. Into this world came the first dinosaurs. *(First dinosaur moves across the screen)*

Narrator 7: During the next 40 million years the world had changed. The large land mass began breaking apart. The earth was warm and moist. Plants grew easily. *(Tall tree rises)* It was a time when the large plant-eating dinosaurs dominated the earth.

Narrator 8: Diplodocus (di-PLO-de-kus) was nearly 90 feet long. That's about the same as three school buses. *(Diplodocus moves across the screen)*

Narrator 9: The Apatosaurus (ah-PAT-uh-SORE-us) was even larger. *(Apatosaurus moves across the screen)*

Narrator 10: And the Ultrasaurus (UL-tra-SORE-us) was enormous. *(Ultrasaurus moves across the screen)* It weighed the same as 20 elephants.

Change lighting from green to yellow.

Narrator 7: Between 144 and 65 million years ago the world was getting drier. Forests became thinner. The first flowering plants appeared. Small planteaters replaced the huge dinosaurs and more kinds of dinosaurs appeared at this time than ever before.

Narrator 8: The Parasaurolophus (para-SORE-o-LOAF-us) was one of the large planteaters. It weighed about the same as an elephant. *(Parasaurolophus moves across the screen)*

Narrator 9: There were other planteaters too, like Triceratops (tri-SERRA-tops), and Monoclonius (mon-o-KLO-nee-us). *(Triceratops and Monoclonius move across the screen)*

Narrator 10: There were the 100-pound "egg thieves" called Oviraptors (oh-vi-RAP-tors). *(Oviraptor moves across the screen)*

Narrator 6: And there was Tyrannosaurus (tie-RAN-o-SORE-us). *(Tyrannosaurus head moves across the screen)*—perhaps the largest meateater to have ever lived. It was longer than a school bus, taller than a two-story house, and as heavy as an elephant. Its teeth grew up to seven inches long and the sides of the largest teeth were like saw blades. When one tooth fell out it was replaced with another.

Narrator 7: Then, 65 million years ago something happened and the dinosaurs were gone.

*Screen 2 light goes off. Screen 1 light goes on.*

## Scene 5

Student 3: I know what happened.

Student 4: What?

Student 3: They starved to death like I'm going to do unless I get something to eat.

Student 4: Can't you think of anything besides food?

Student 1: Hey, look at this.

Student 2: It's all about meat-eating dinosaurs.

Student 3: How about a snack of something?

Student 2: Quiet! It's starting.

*Screen 1 light goes off. Screen 2 yellow light goes on.*

## Scene 6

Narrator 11: The meat-eating dinosaurs had sharp claws and razor sharp teeth. Tyrannosaurus (tie-RAN-o-SORE-us) was the largest of these dinosaurs, but there were other frightening ones. (*Tyrannosaurus moves across the screen*)

Narrator 12: The Carnotaurus (car-no-TORE-us) weighed one ton (*Carnotaurus moves across the screen*) and the Allosaurus (al-uh-SORE-us) weighed up two tons (*Allosaurus moves across the screen*), but there were small meateaters too.

Narrator 13: Deinonychus (die-NON-i-kus) had long sharp teeth and three claws on each hand. (*Deinonychus moves across the screen*) But its most fearsome weapon was a long claw on each foot that could move up and down. Its name means "terrible claw." It weighed less than 150 pounds, but for its size it was more dangerous than just about any other dinosaur.

Narrator 14: An even smaller meateater was Compsognathus (COMP-sog-NAY-thus). (*Compsognathus moves across the screen*) It was two to four feet in length and weighed less than seven pounds. It ate lizards, insects, and small mammals.

## SCRIPT - 5

Narrator 15: Meateaters like Tyrannosaurus (tie-RAN-o-SORE-us) could easily attack large animals. (*Tyrannosaurus attacking large planteater*) The smaller dinosaurs like Deinonychus (dye-NON-i-kus) may have hunted in packs (*Three Deinonychus dinosaurs attack large planteater*)

Screen 2 light goes off. Screen 1 light goes on.

### Scene 7

Student 2: I wouldn't want to be a planteater. You wouldn't have a chance if one of those meateaters attacked you.

Student 3: I'd be happy to eat anything.

Student 1: We know, now stop complaining.

Student 4: Hey, look at this. Animal Defenses. Let's see what it's about.

Screen 1 light goes off. Green light goes on.

### Scene 8

Narrator 16: The plant-eating dinosaurs were peaceful animals, but if they were attacked or if their young were threatened they would fight. How could they defend themselves against a killer with razor sharp teeth and claws?

Narrator 17: One way was their size. Some of them were so big that even the largest meateaters would stay away. (*Meateater goes toward large planteater, turns, and moves away.*)

Narrator 18: If attacked they could also swing their enormous tails like a whip and deliver a bone crushing blow to its attacker. (*Meateater goes toward dinosaur with club on tail. Tail swings at meateater. Meateater leaves.*)

Narrator 19: Some dinosaurs had special weapons on their tails like clubs or spikes. (*Spikes-on-tail dinosaur moves across screen*)

Narrator 20: Others had horns on their heads. (*Dinosaur with horns moves across screen*)

Narrator 16: And some had no weapons at all. Their bodies were covered with hard plates. (*Dinosaur with plates moves across screen*)

Narrator 17: Perhaps the best protection was staying together in large groups. (*Four herd dinosaurs move across screen*)

*Screen 2 light goes off. Screen 1 light goes on.*

## Scene 9

Student 1: I would still rather be a meateater than a planteater.

Student 3: I would just like to get something to eat.

Student 4: Not yet! There's one more thing to see.

Student 2: It's about what happened to the dinosaurs.

Student 3: I told you already. They starved to death. Just like I'm going to do.

Student 1: I read somewhere that they all died because the earth's climate changed.

Student 4: That's not right. My teacher said a comet hit the earth and that's what killed them.

Student 2: Let's just see what this one says.

*Screen 1 light goes off. Screen 2 light goes on.*

## Scene 10

Narrator 21: Dinosaurs ruled the earth for millions and million of years. Then about 65 million years ago they were gone. What caused them to vanish?

Narrator 22: One idea is that the earth was struck by a comet or asteroid. *(Comet moves across the sky and crashes to the ground)* This caused a cloud of dust to cover the world. *(Cloud of dust rises covering trees. Darken skies with red lighting)* The skies darkened. Plants died. Without plants the dinosaurs lost their supply of food and could not survive.

Narrator 23: Another idea is that the earth changed. *(Switch to yellow lighting)* Mountains were growing and continents were moving apart. *(Mountains rise, cutting off dinosaur from food supply.)* Dinosaurs may have become trapped and cut off from their food supply.

*Switch to blue lighting.*

Narrator 24: Some scientists believe the earth became too cold for the dinosaurs. Others say they could not eat the new kinds of flowering plants that were growing. *(Flowering plant rises)*

*Switch to yellow lighting.*

Narrator 25: Perhaps small mammals may have eaten dinosaur eggs so that fewer and fewer dinosaurs were born each year. *(Small mammal eating dinosaur egg)*

## SCRIPT - 7

Narrator 21: Whatever happened to the dinosaurs remains a mystery, but have all dinosaurs disappeared? Some scientists say no. They believe that birds .... (*Voices suddenly stop*)

*Screen 2 light goes off.  
Screen 1 light goes on.*

### Scene 11

Student 1: What happened?

Student 2: I think the tape broke.

Student 3: Great! It's chow time! (*Exits*)

Student 4: Ah, just when it was getting to the good part. Do you think it was going to say that dinosaurs are still alive?

Student 2: No, it was just going to say that birds are related to dinosaurs. I read somewhere that dinosaurs slowly changed into birds so in a way they are still with us.

Student 1: Well I think it's still possible that a dinosaur is still alive somewhere.

Student 2: There's no way a dinosaur could be alive today.

Student 1: There could be one frozen somewhere. And it could come to life.

Student 2: You've been watching too many movies. There's no way a dinosaur could be alive today.

Student 3 (*returning being chased by Tyrannosaurus*): Heeeeelp! I just wanted a snack. I don't want to be a snack. (*Runs across screen with Tyrannosaurus following. The four scream and exit. Tyrannosaurus is center screen*)

Tour Guide (*entering*): Okay, you can stop right there. That's perfect! We'll leave this Tyrannosaurus model here for now while we close up the museum. May I have your attention please. The museum is now closed. Please follow the signs to the nearest exit. Thanks for coming. We hope you enjoyed the program.

The end

# STAGE AREA

Puppet storage area (Puppets stored by scene)

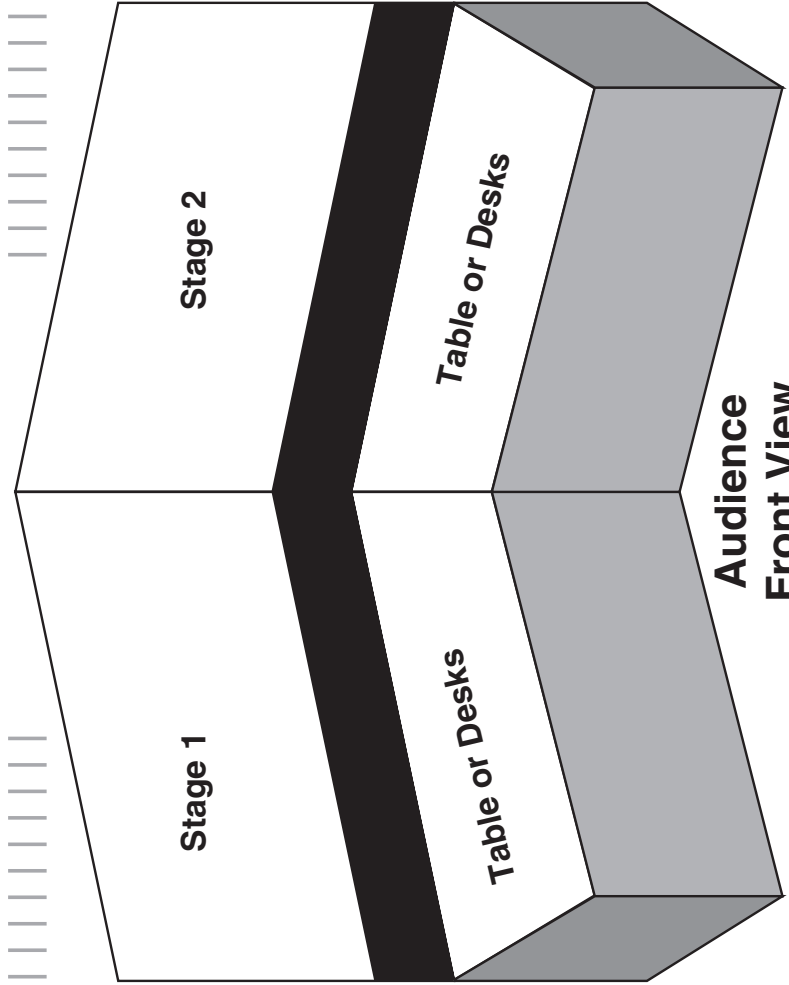
Back Wall

Colored film or  
cellophane

2 4 6 8 10

Screen 1  
Light source

Screen 2  
Light source



Stage 1  
Performers  
wait here

Stage 2  
Performers  
wait here

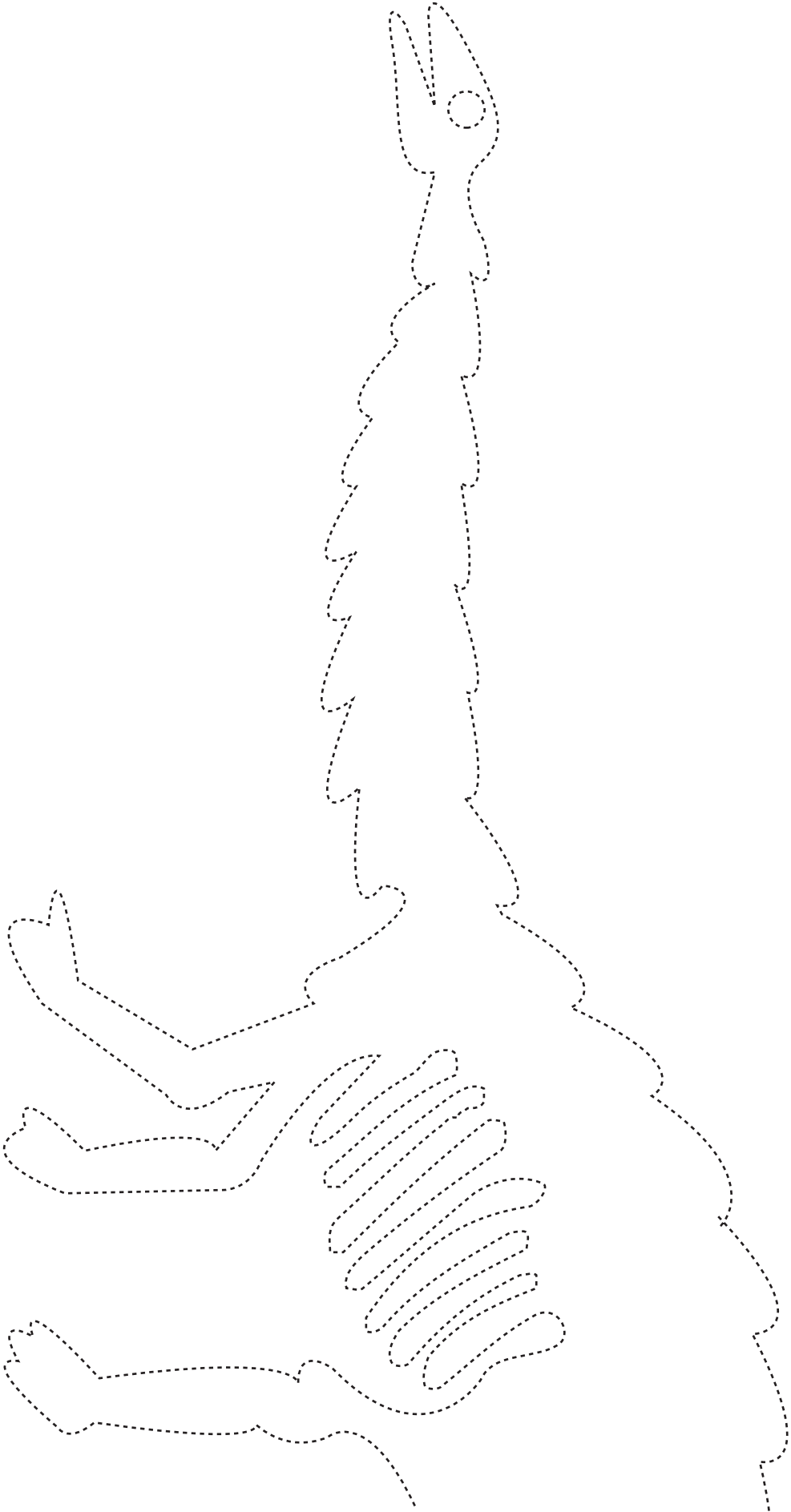
Table or Desks

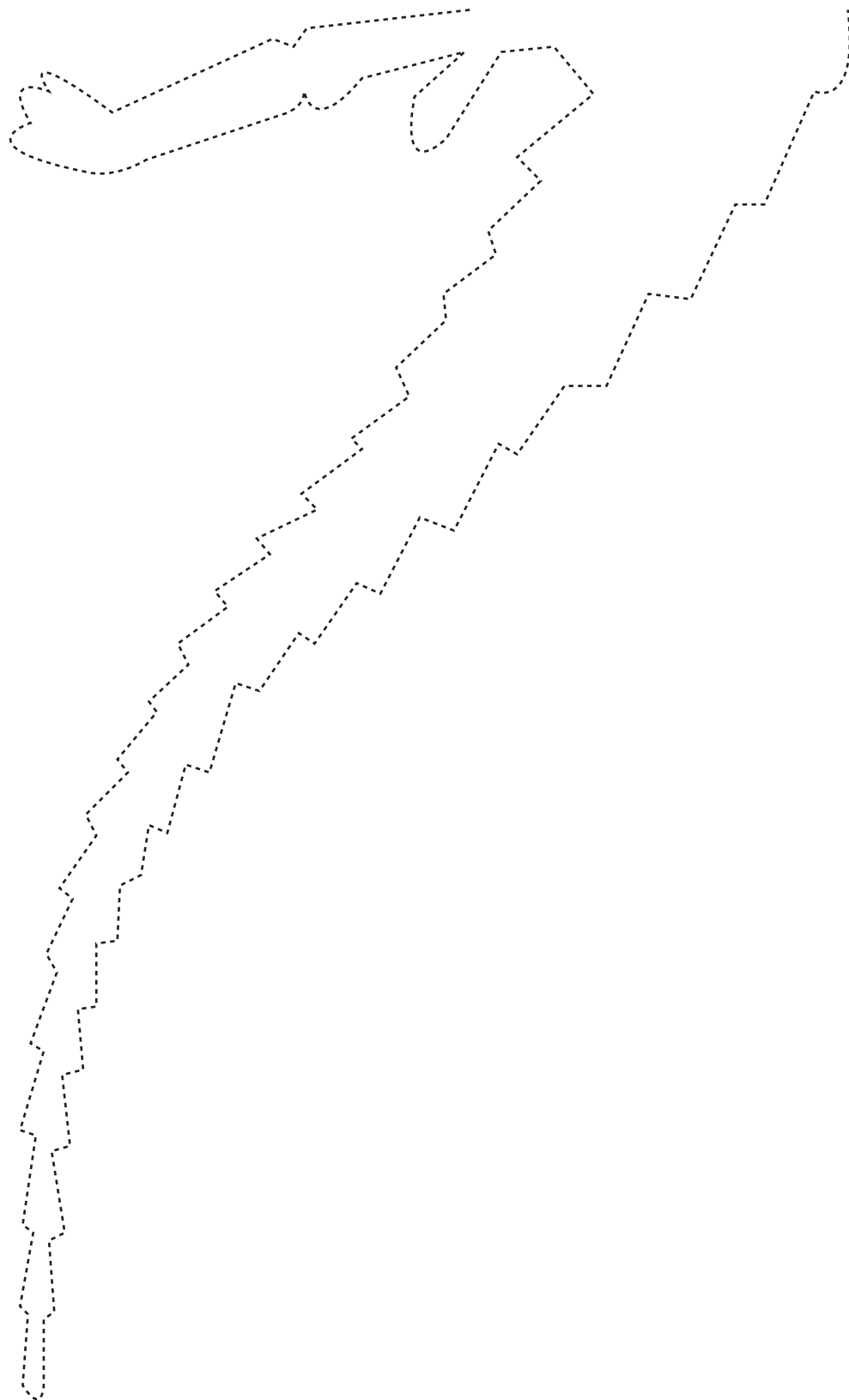
Table or Desks

Black paper or  
curtain goes behind  
the screen

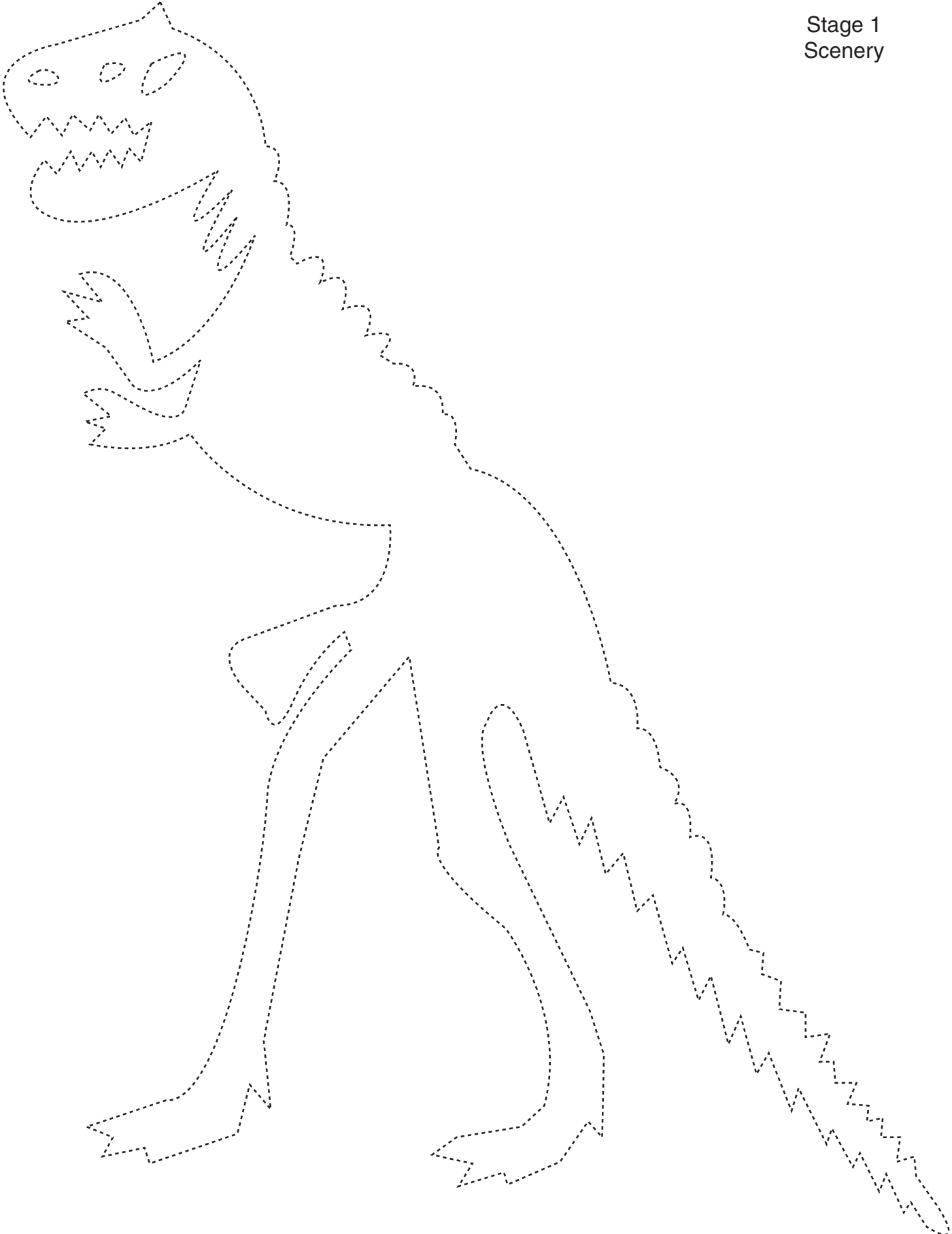
Audience  
Front View

Stage 1  
Scenery

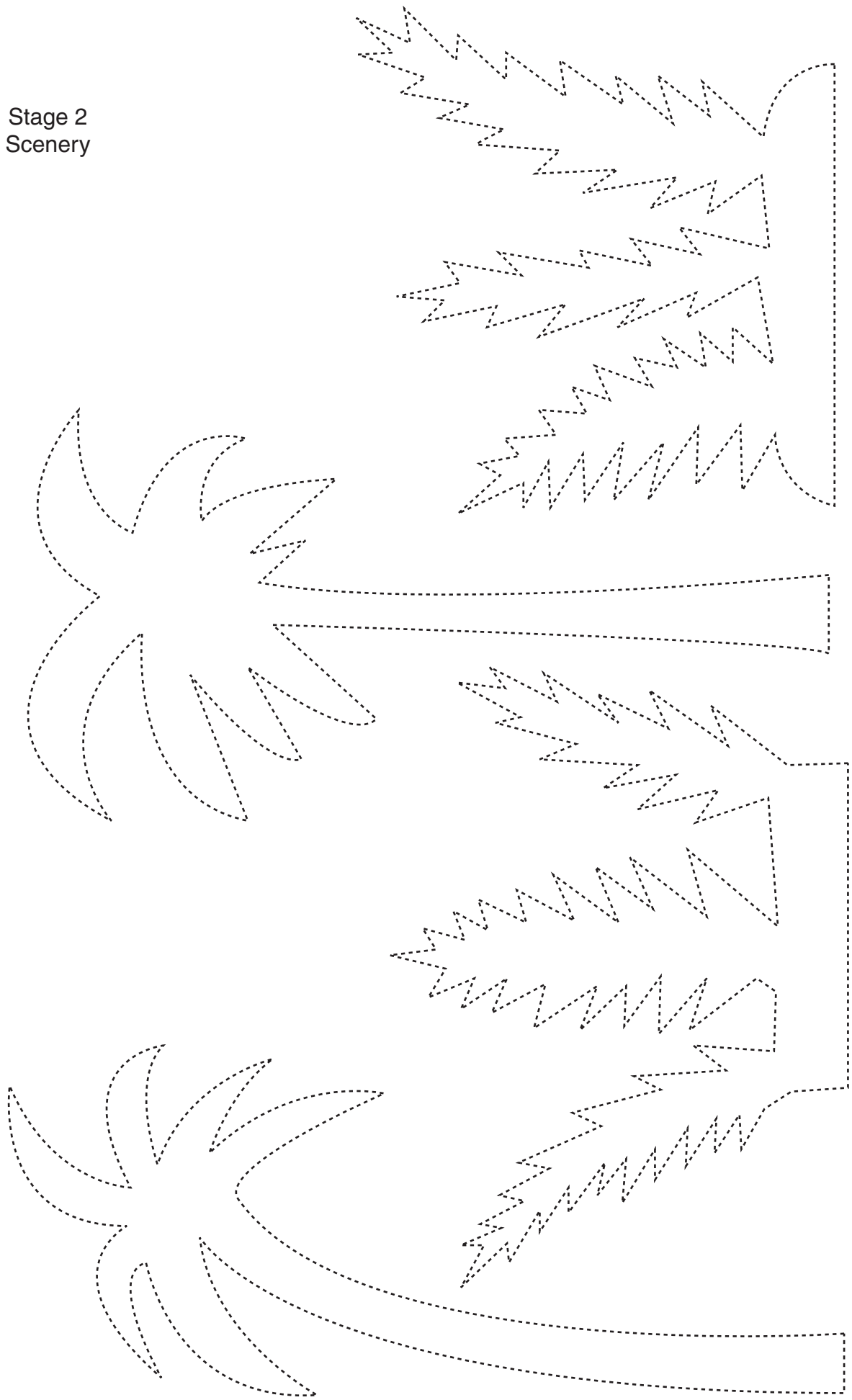




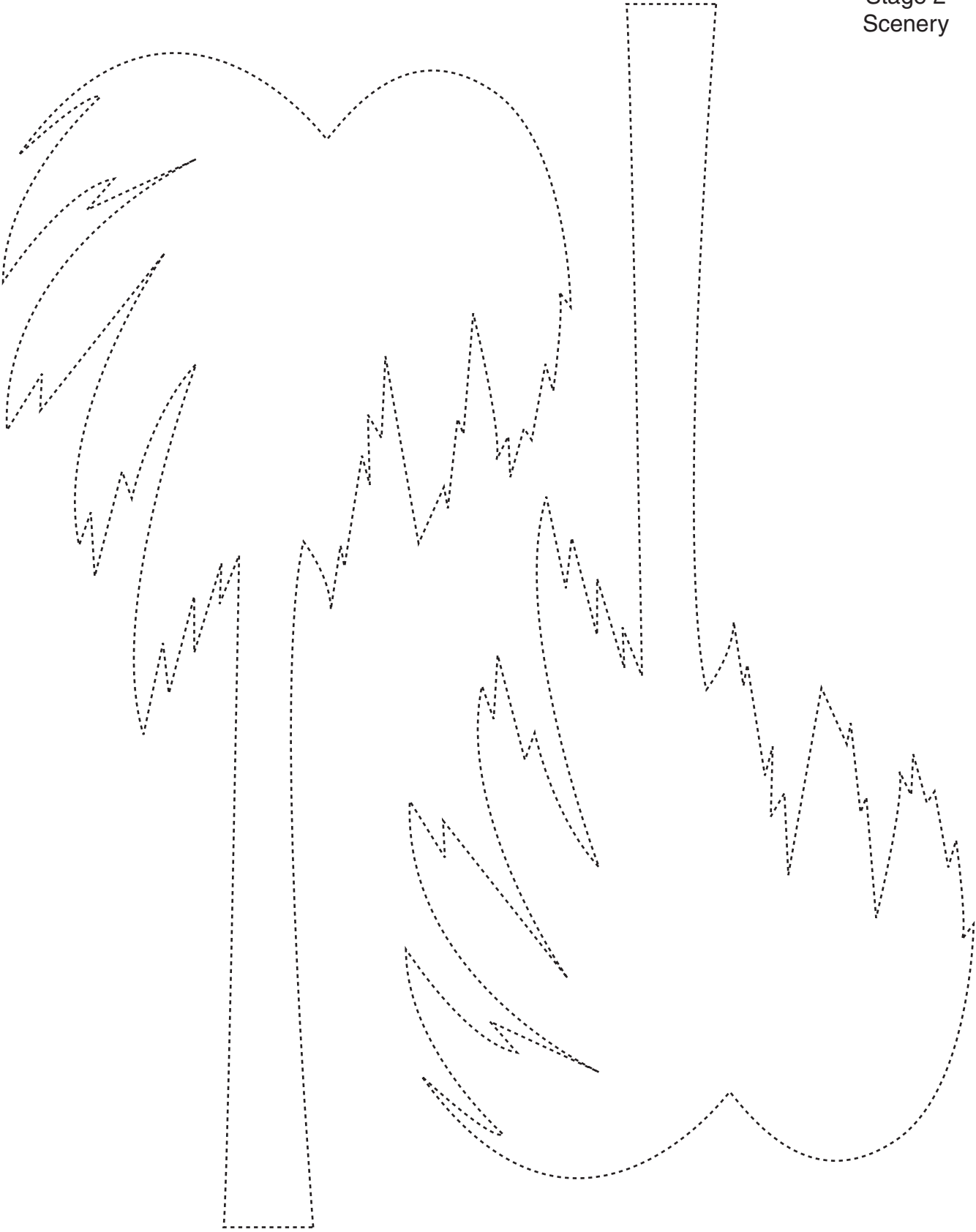
Stage 1  
Scenery



Stage 2  
Scenery



Stage 2  
Scenery



Scenes 1, 3, 5, 7, 9, 11  
Tour guide  
Students 1-4

**Tour guide**

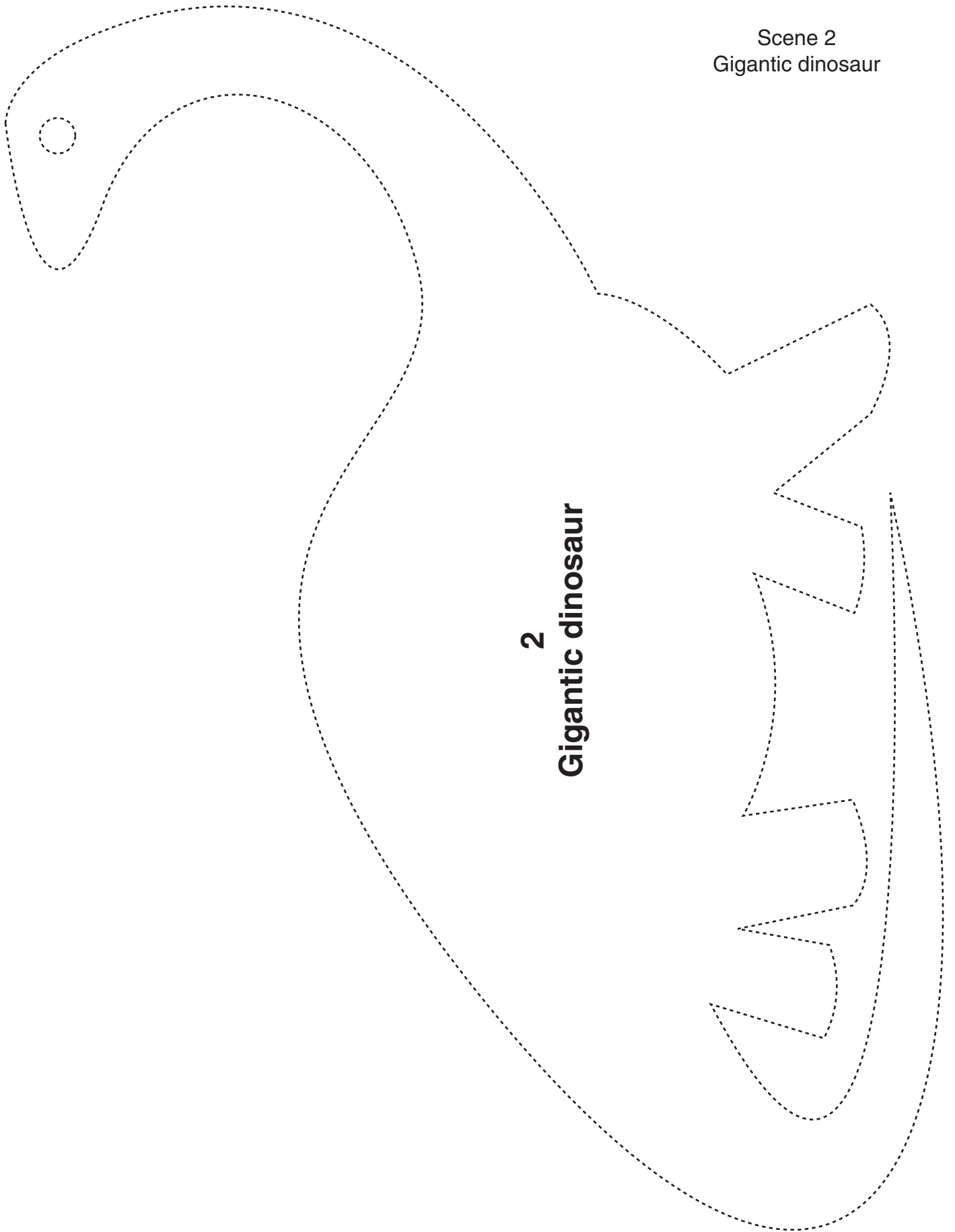
**Student 4**

**Student 3**

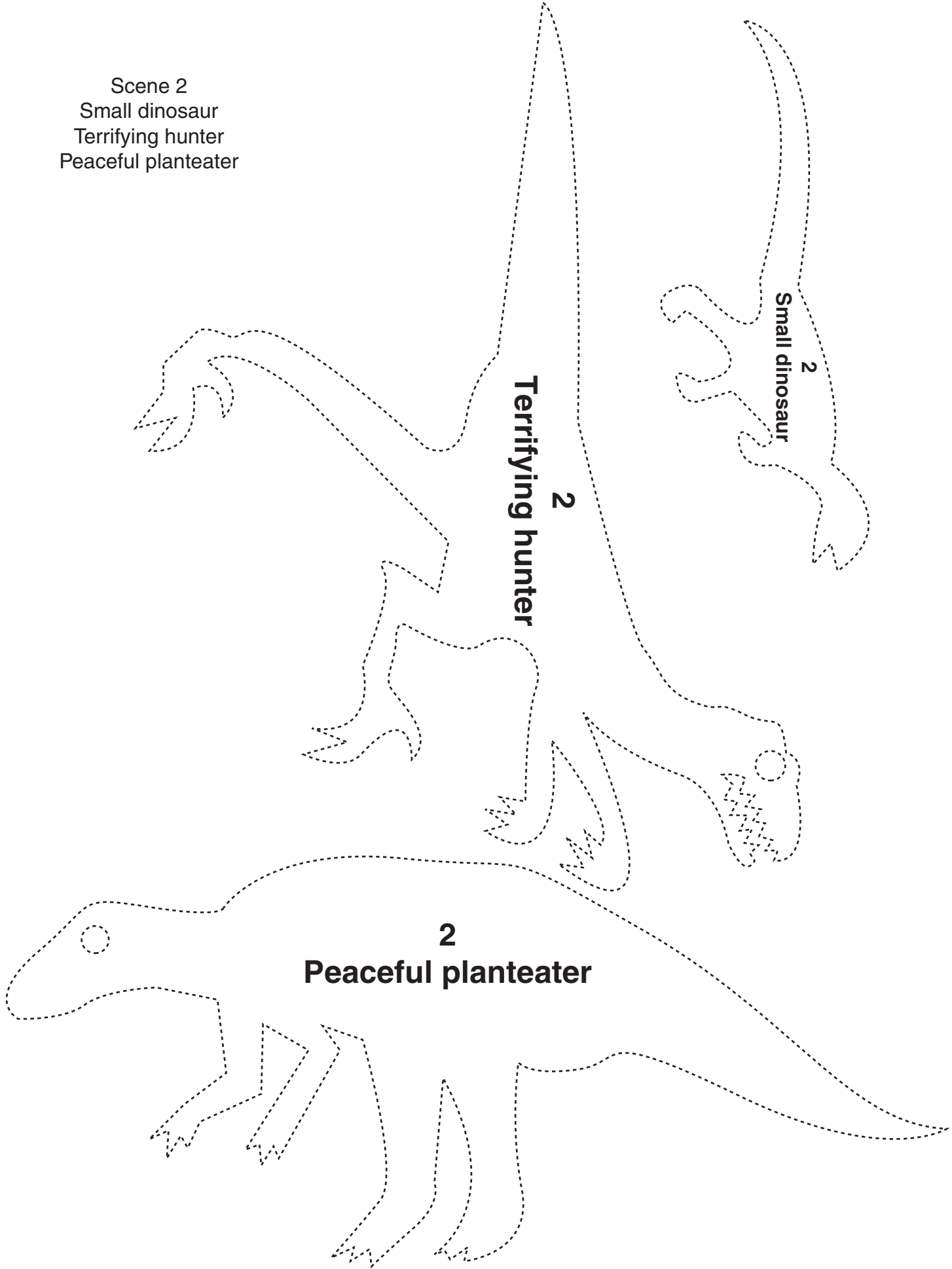
**Student 2**

**Student 1**

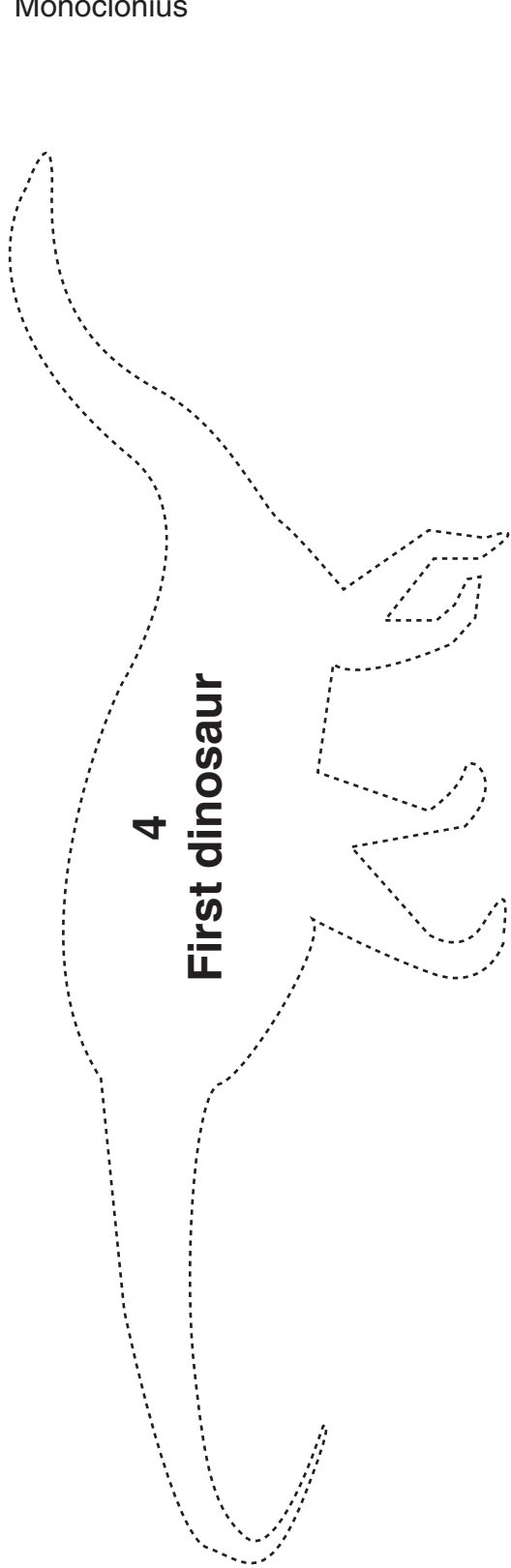
Scene 2  
Gigantic dinosaur



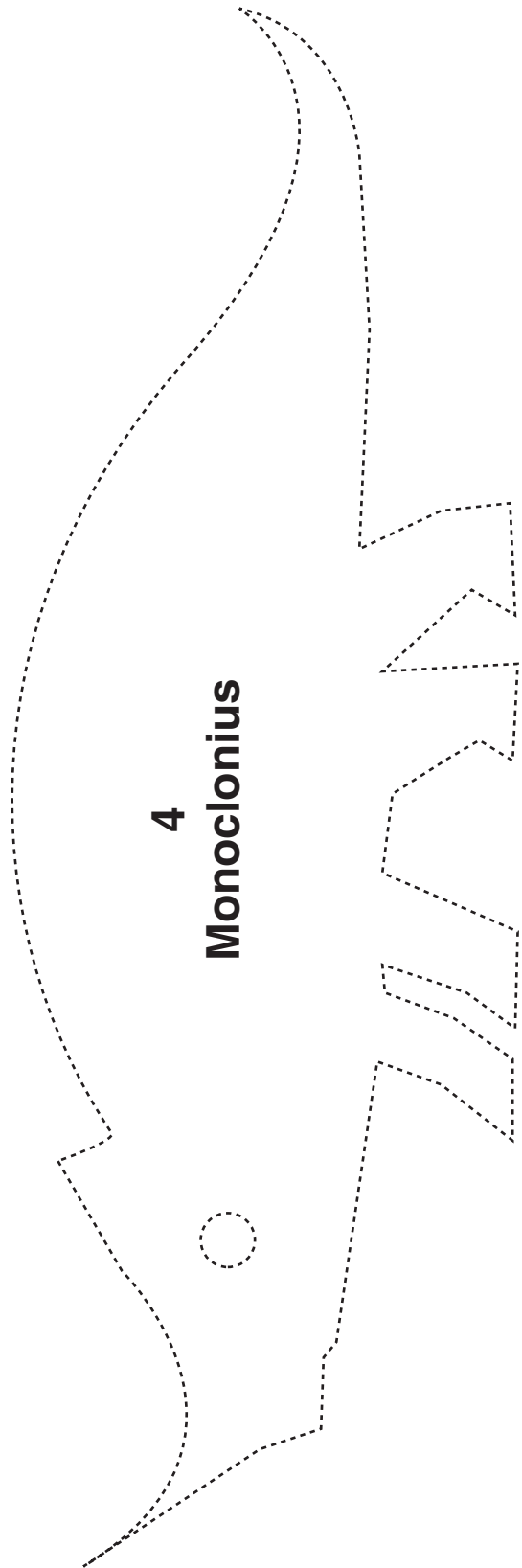
Scene 2  
Small dinosaur  
Terrifying hunter  
Peaceful planteater



Scene 4  
First dinosaur  
Monoclonius

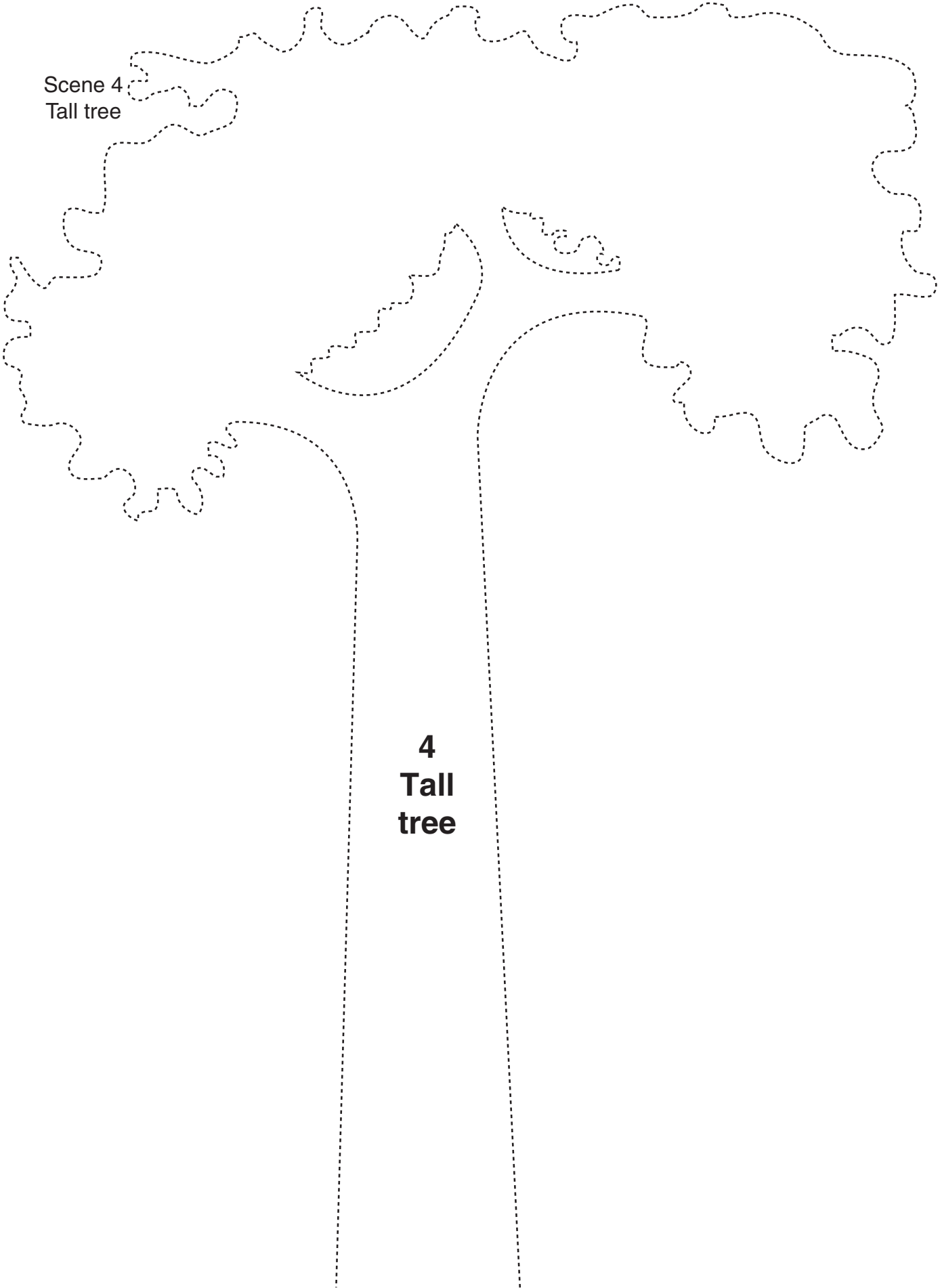


4  
First dinosaur



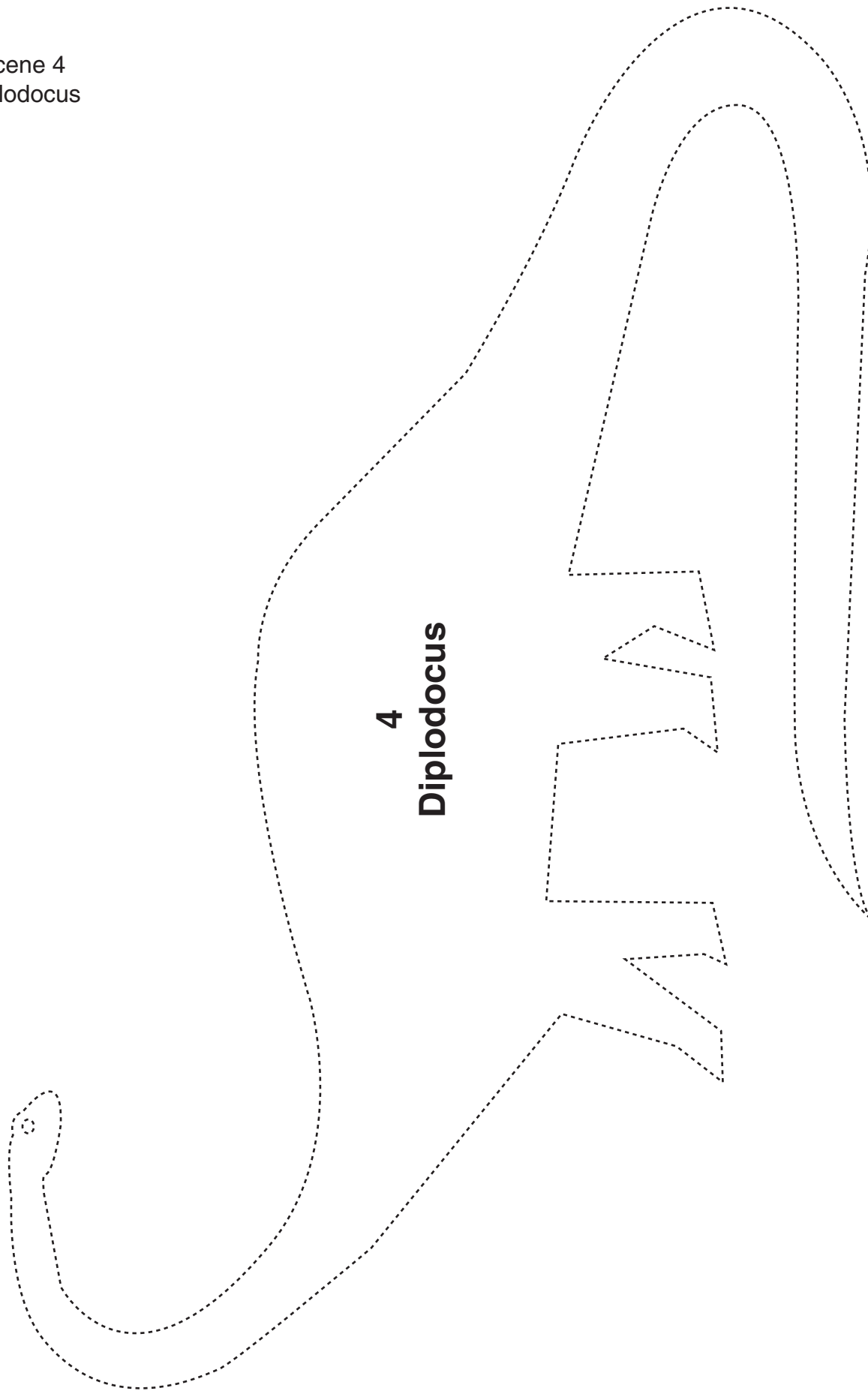
4  
Monoclonius

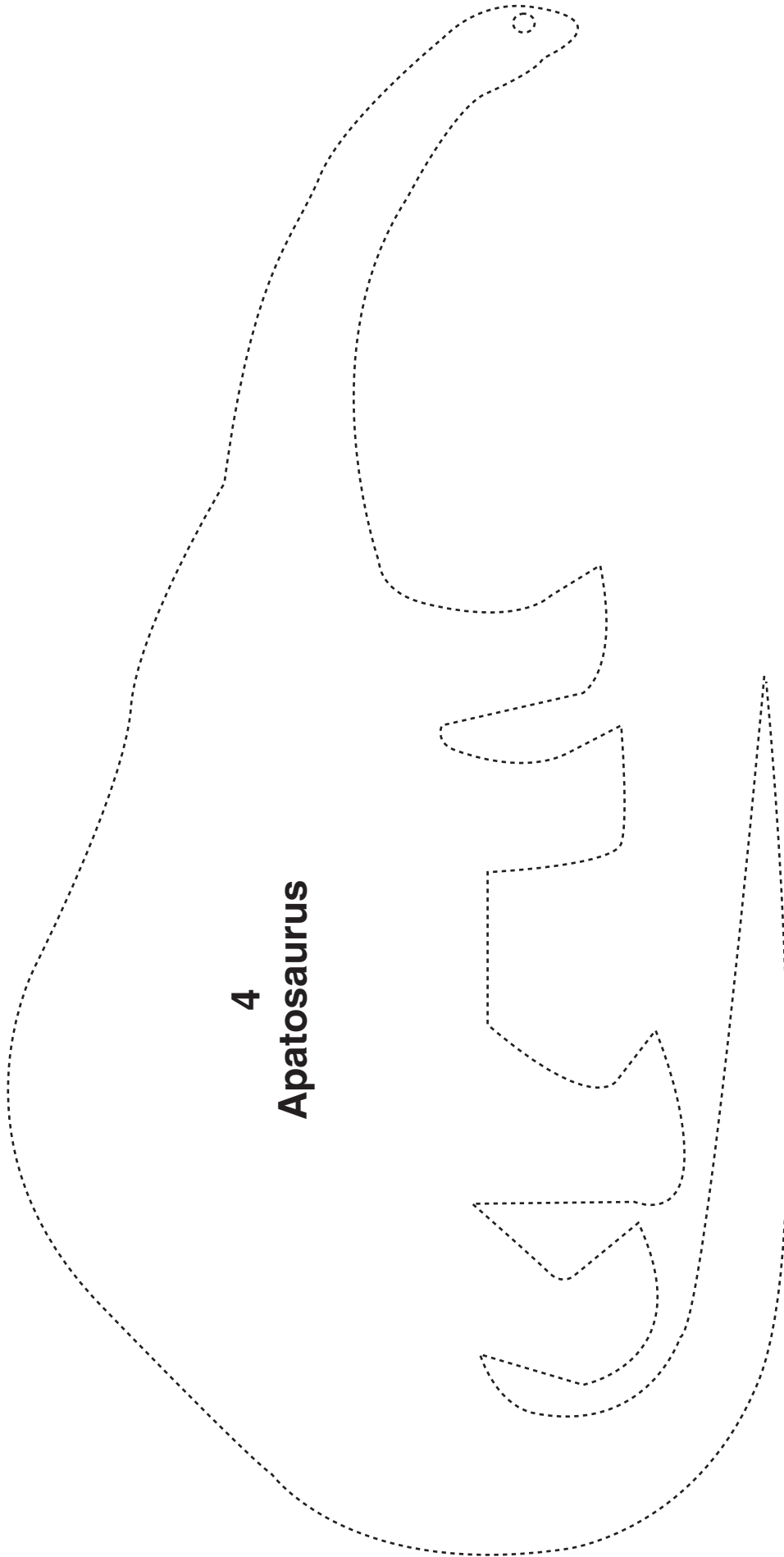
Scene 4  
Tall tree



**4  
Tall  
tree**

Scene 4  
Diplodocus

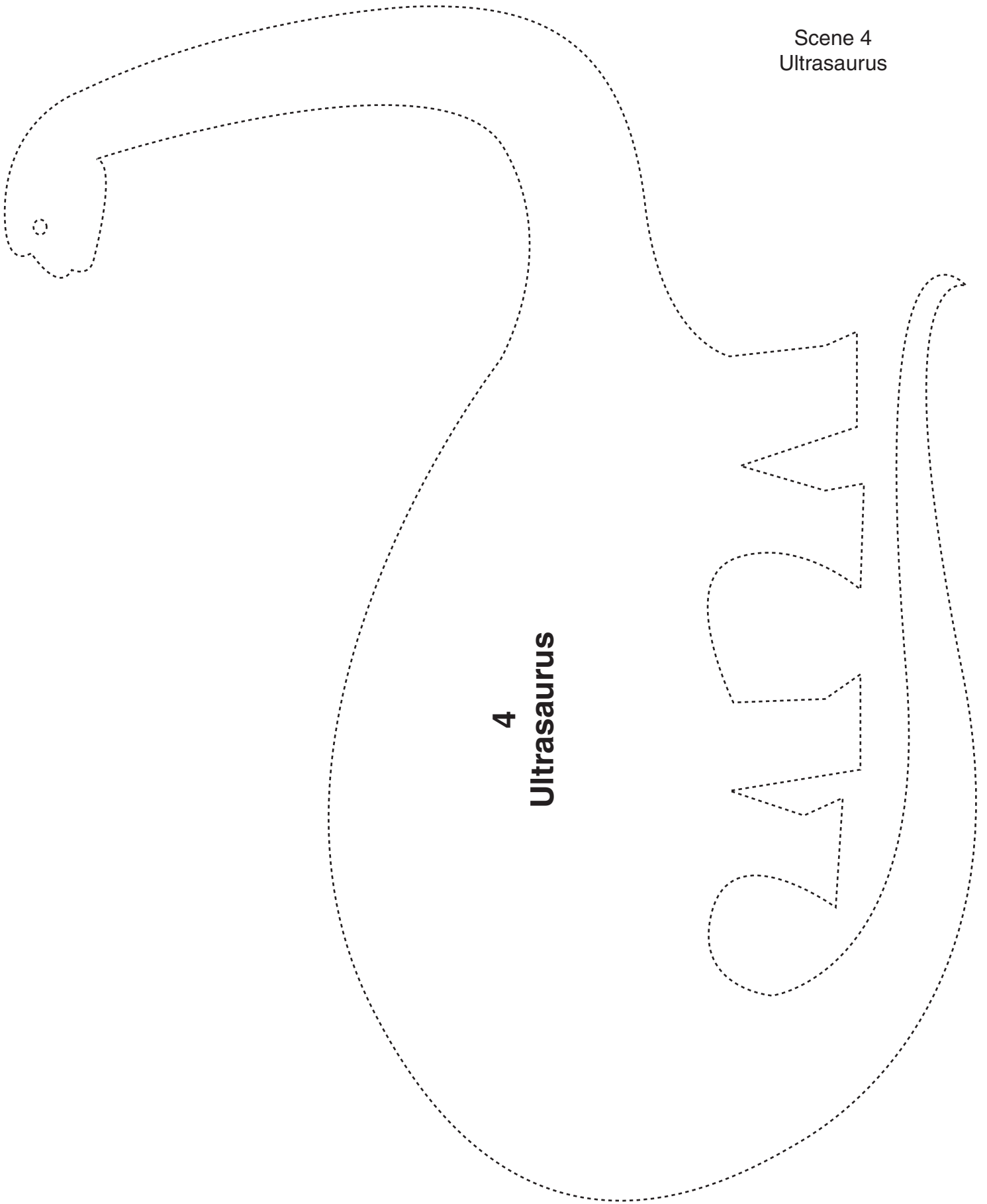




4  
Apatosaurus

Scene 4  
Ultrasaurus

**4**  
**Ultrasaurus**

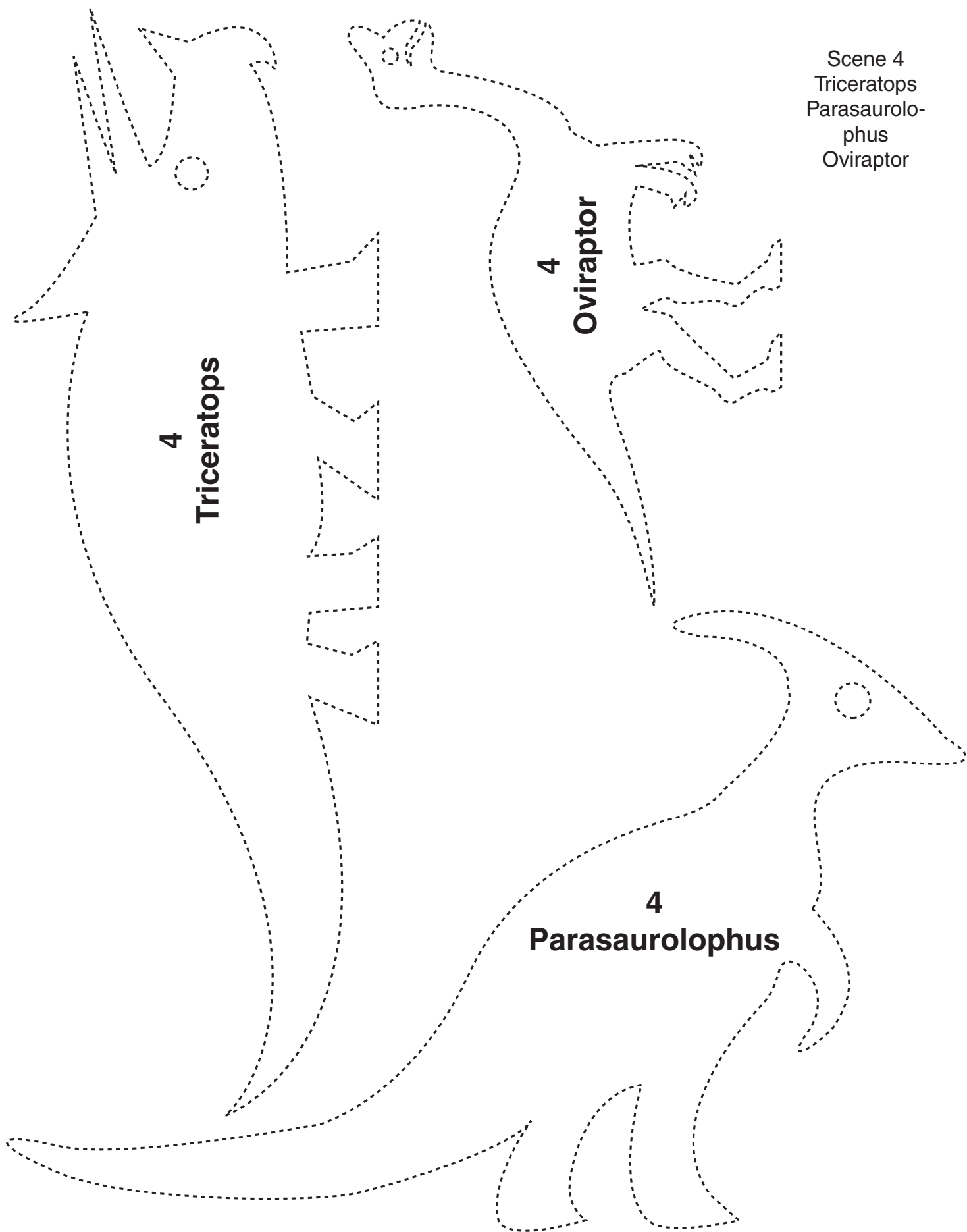


Scene 4  
Triceratops  
Parasaurolophus  
Oviraptor

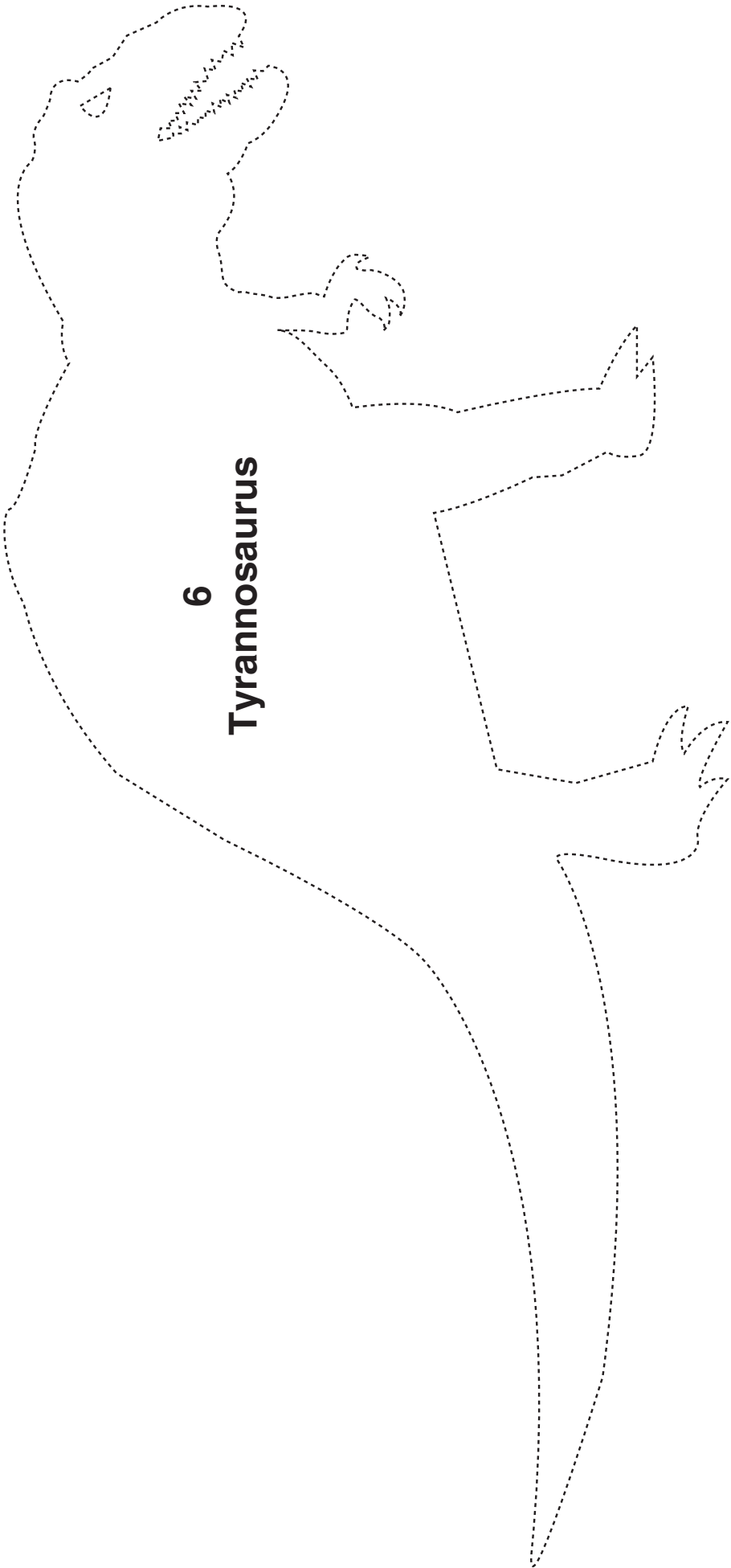
4  
Triceratops

4  
Oviraptor

4  
Parasaurolophus

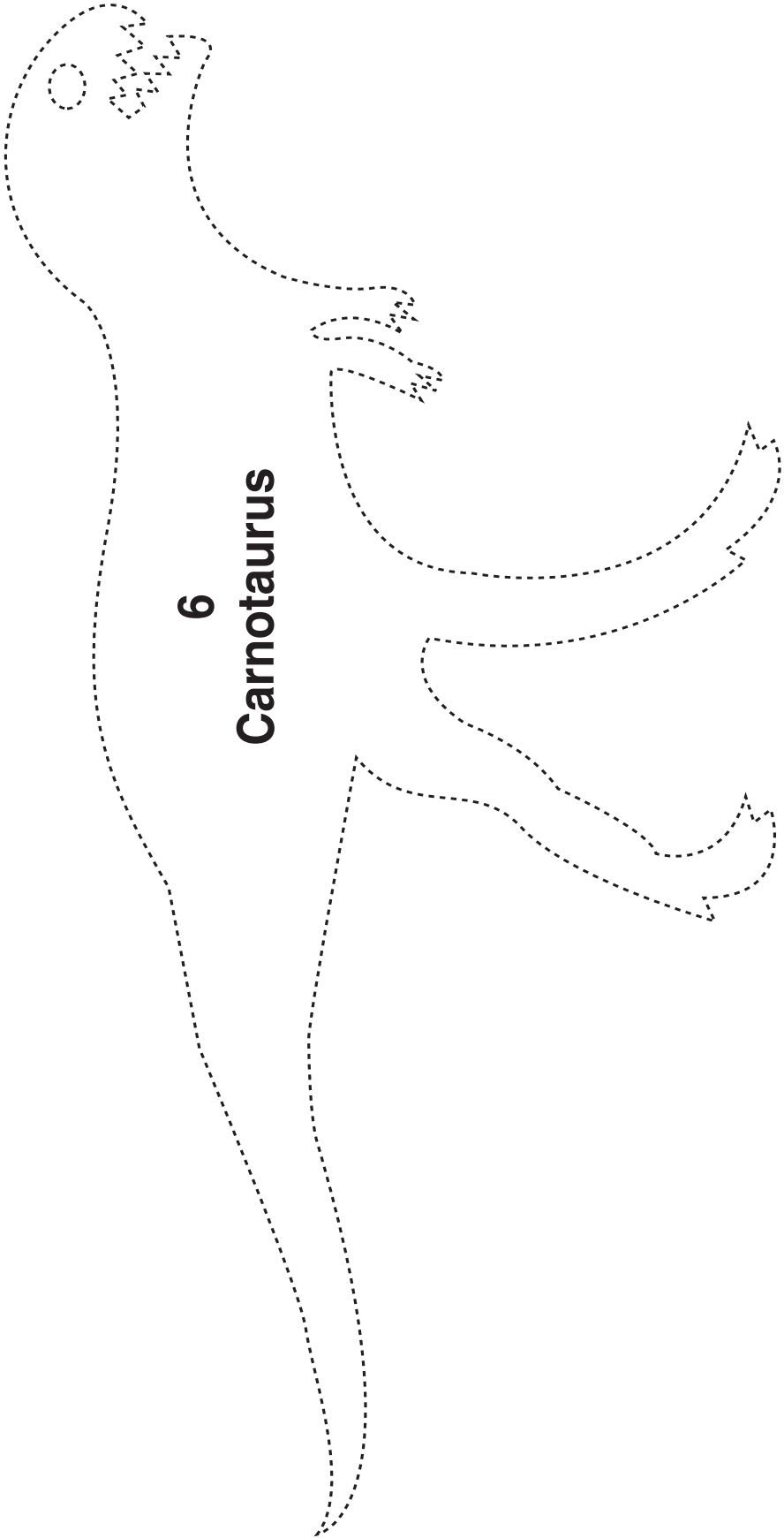


Scenes 4 and 6  
Tyrannosaurus

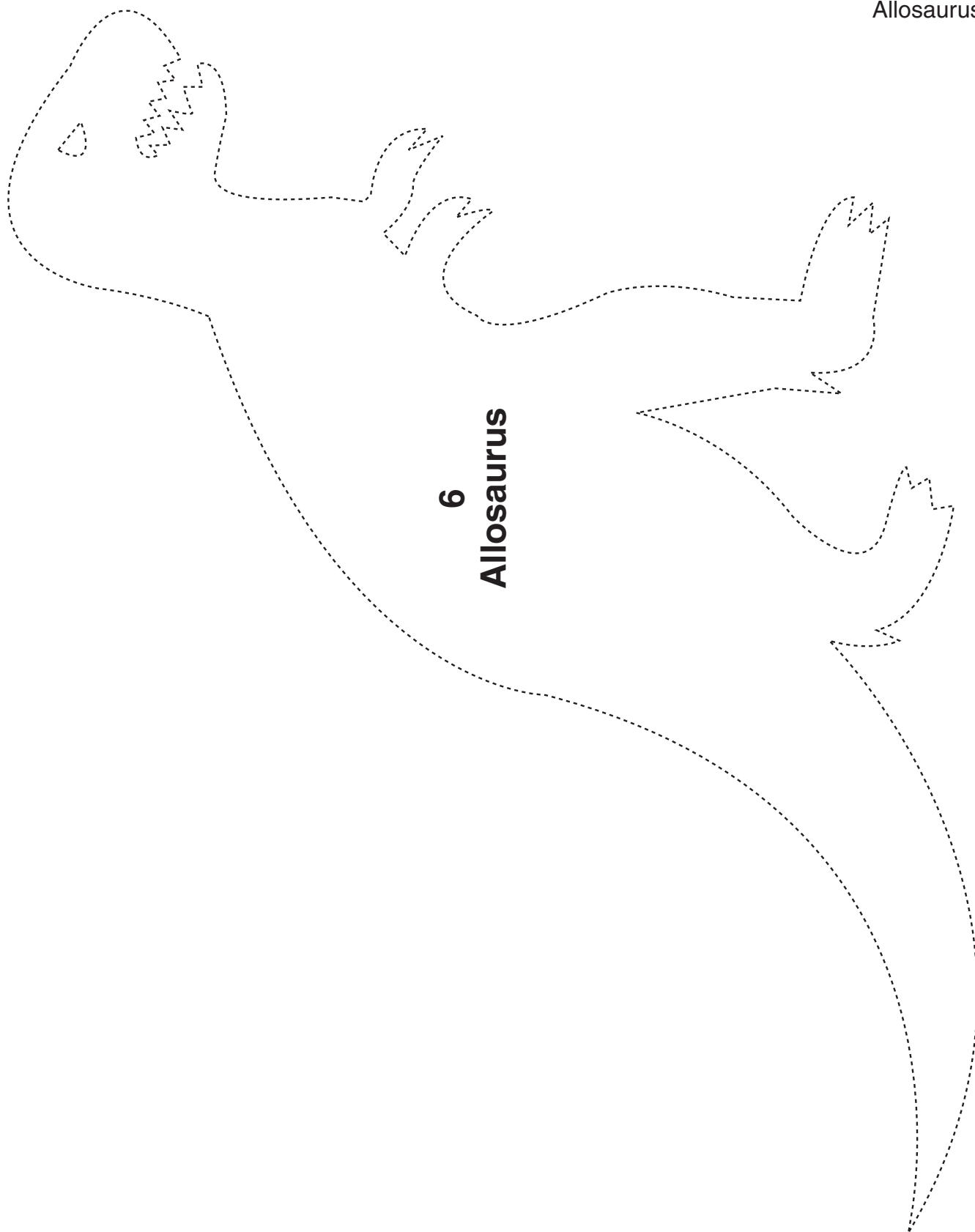


**6**  
**Tyrannosaurus**

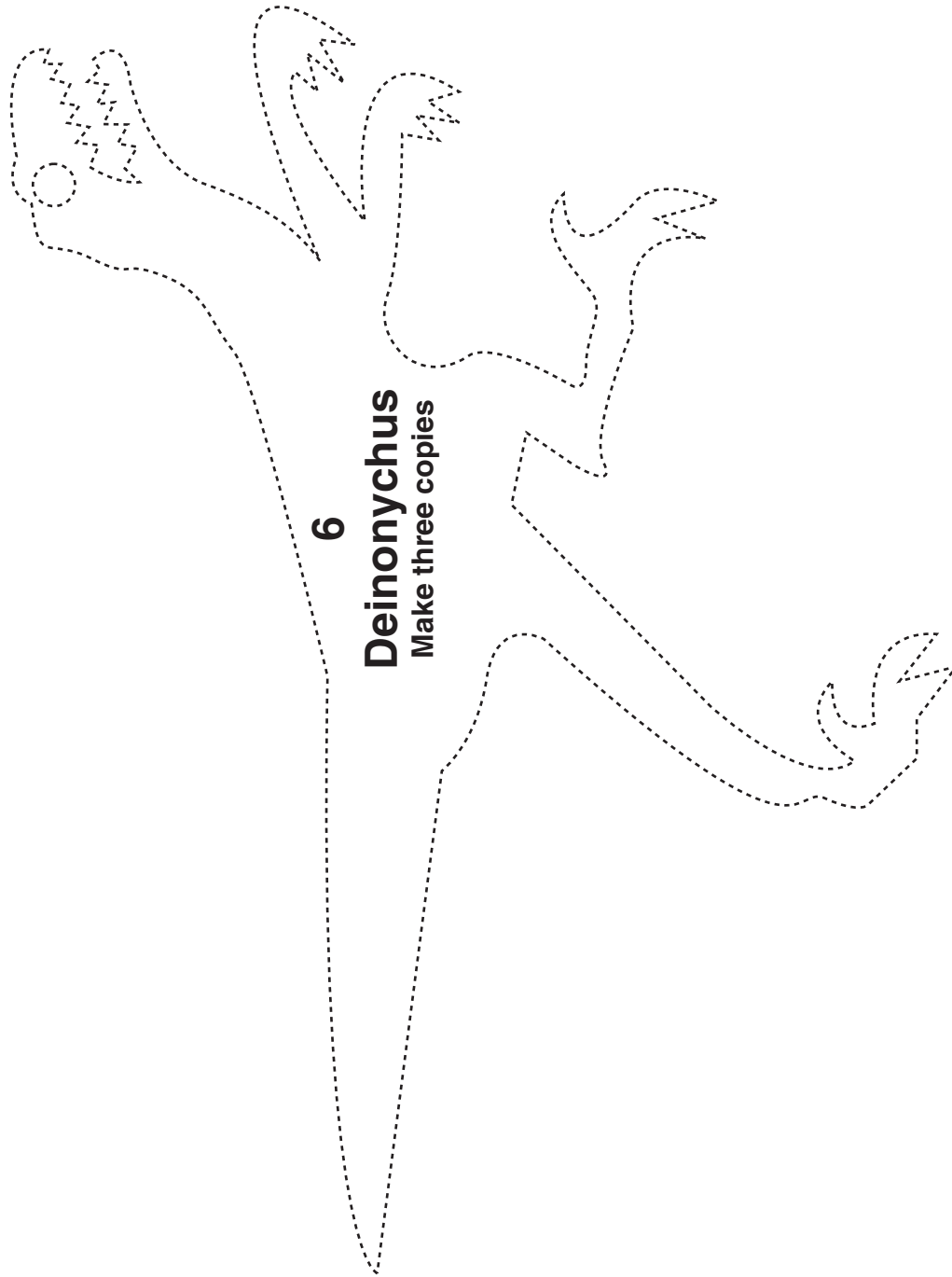
Scene 6  
Carnotaurus



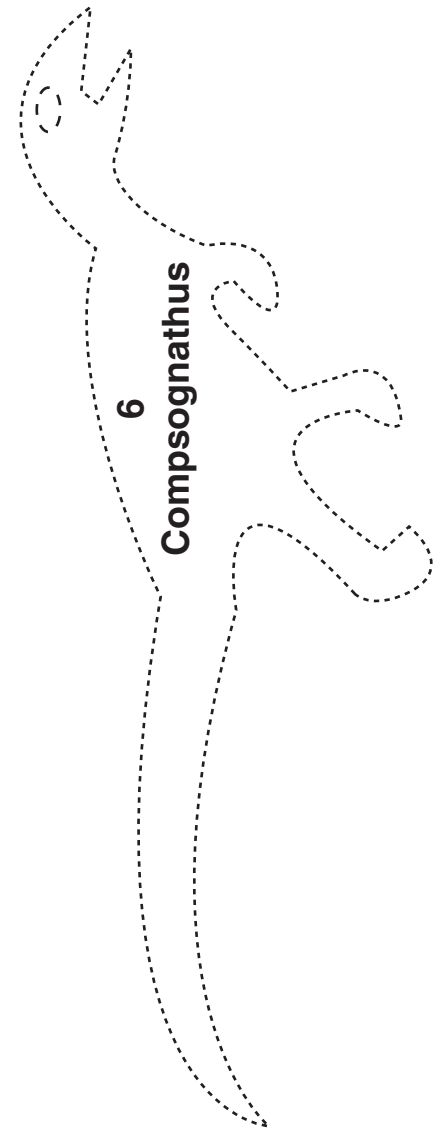
**6**  
**Allosaurus**



Scene 6  
Deinonychus  
Compsognathus

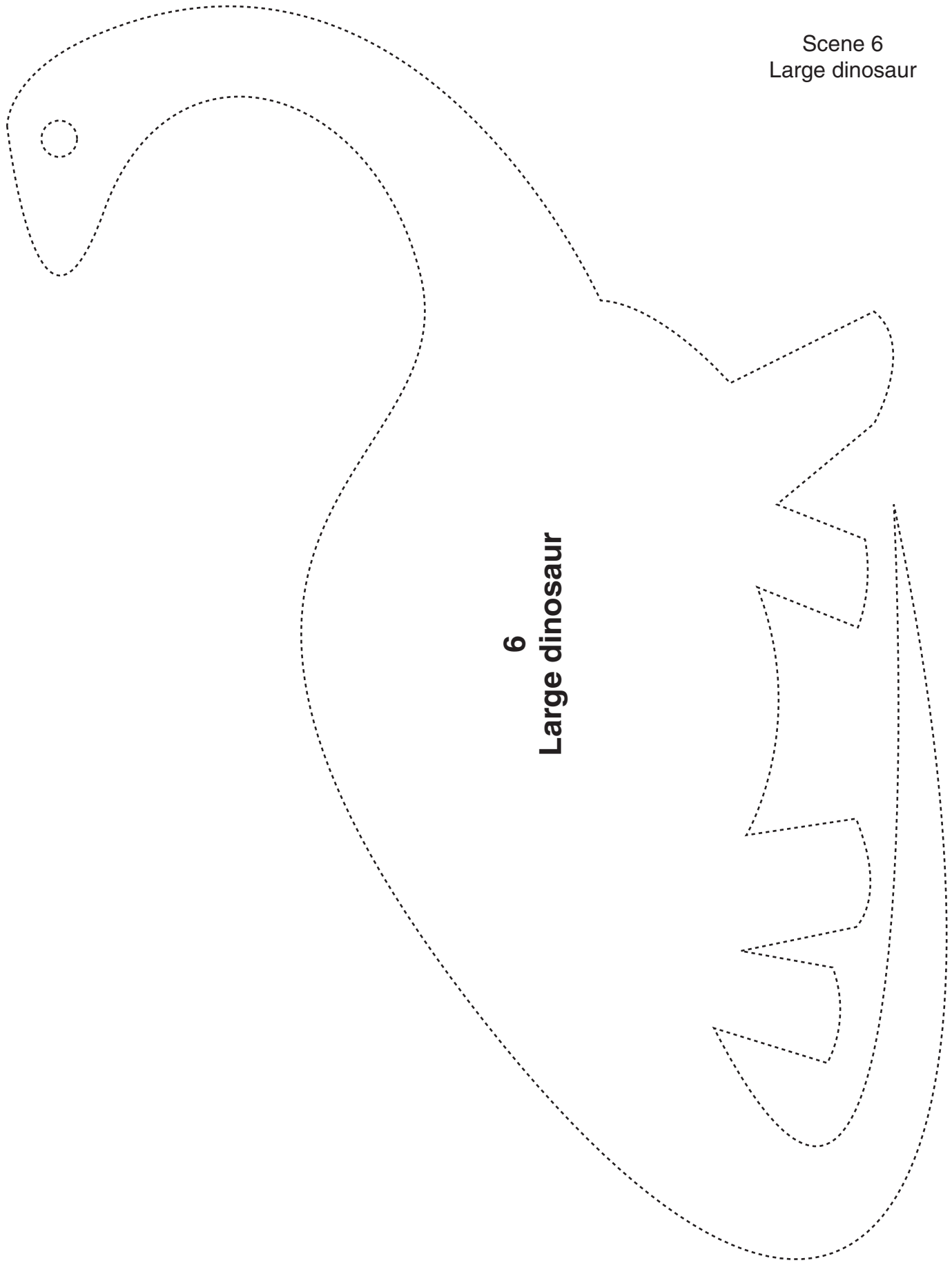


**6**  
**Deinonychus**  
Make three copies

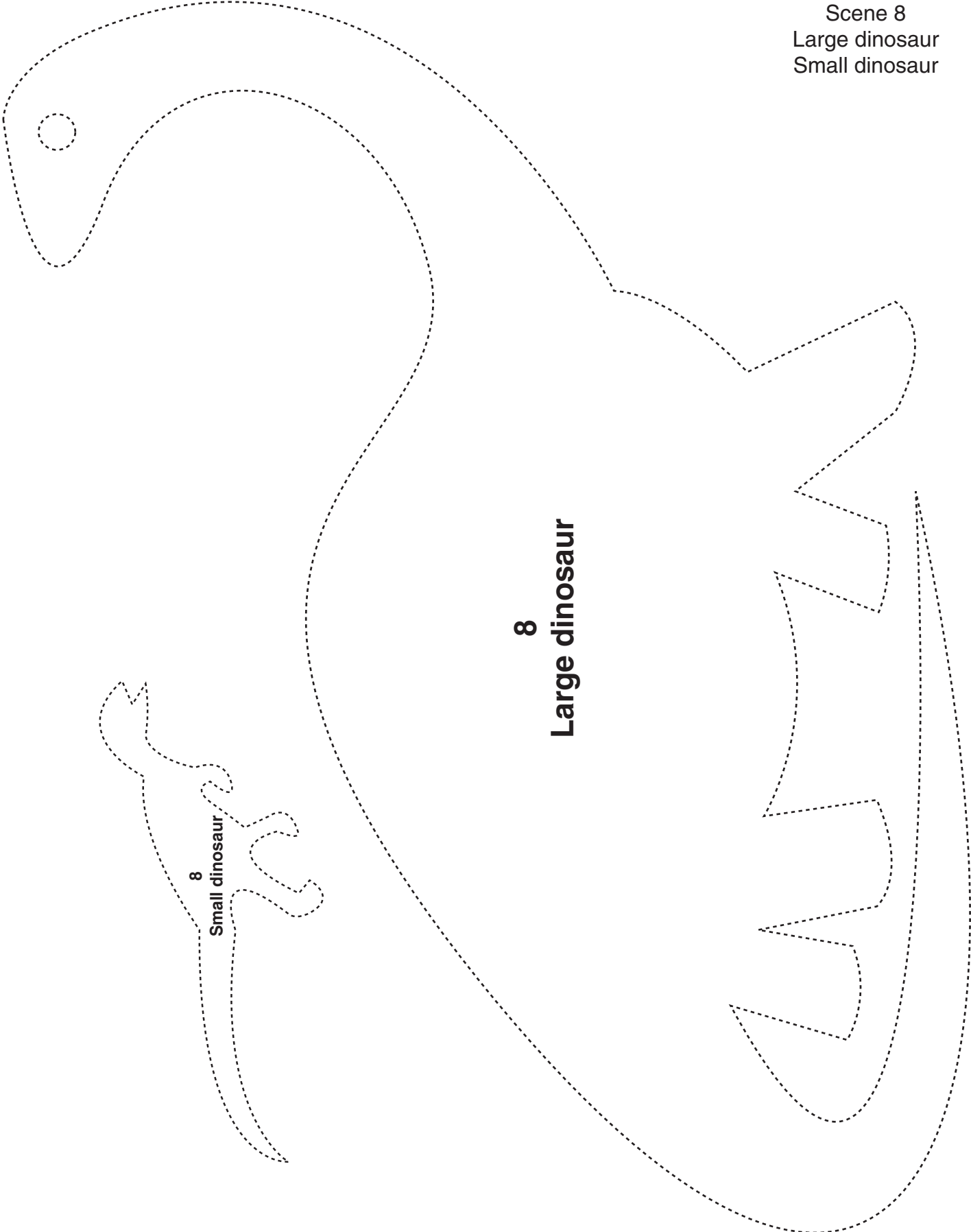


**6**  
**Compsognathus**

Scene 6  
Large dinosaur

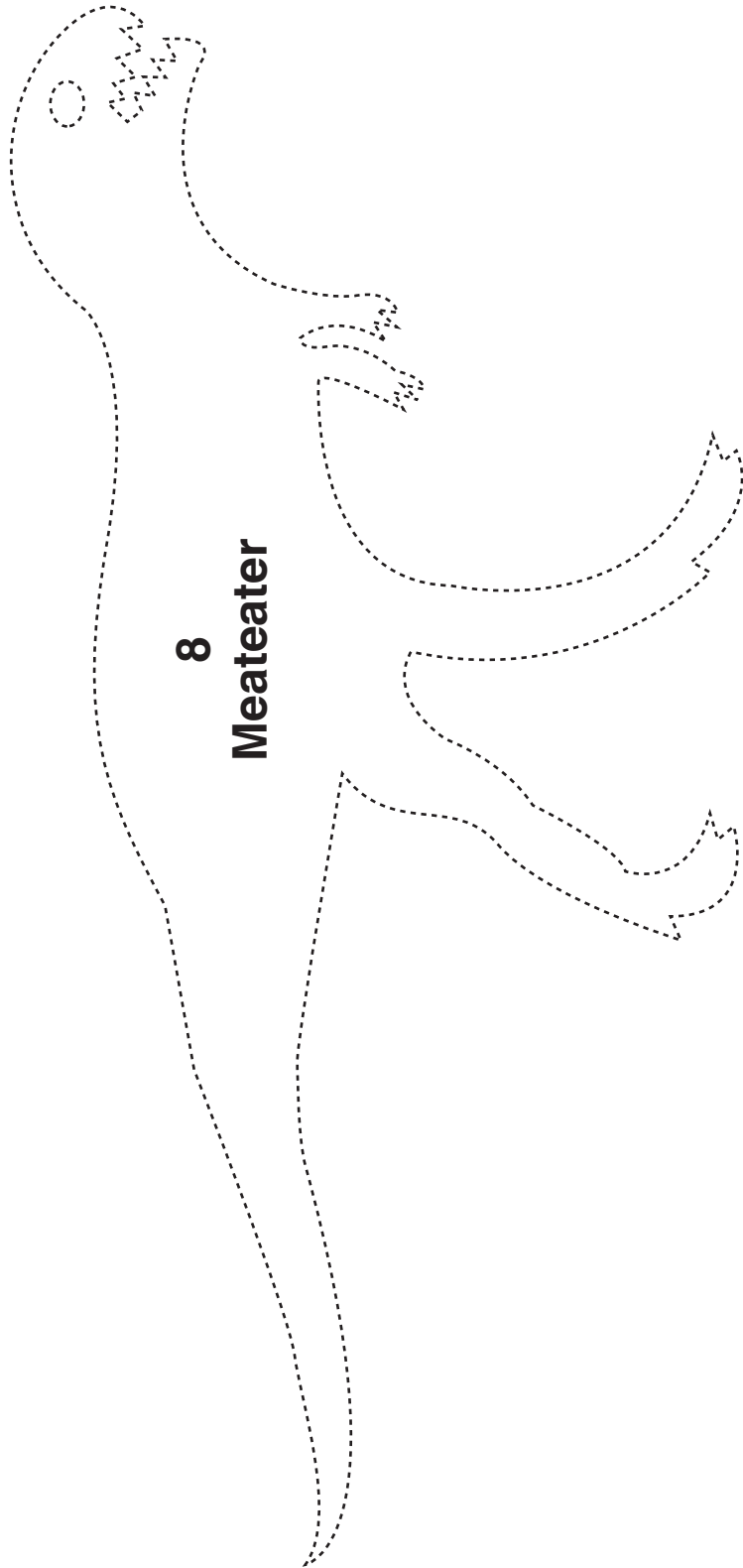


Scene 8  
Large dinosaur  
Small dinosaur

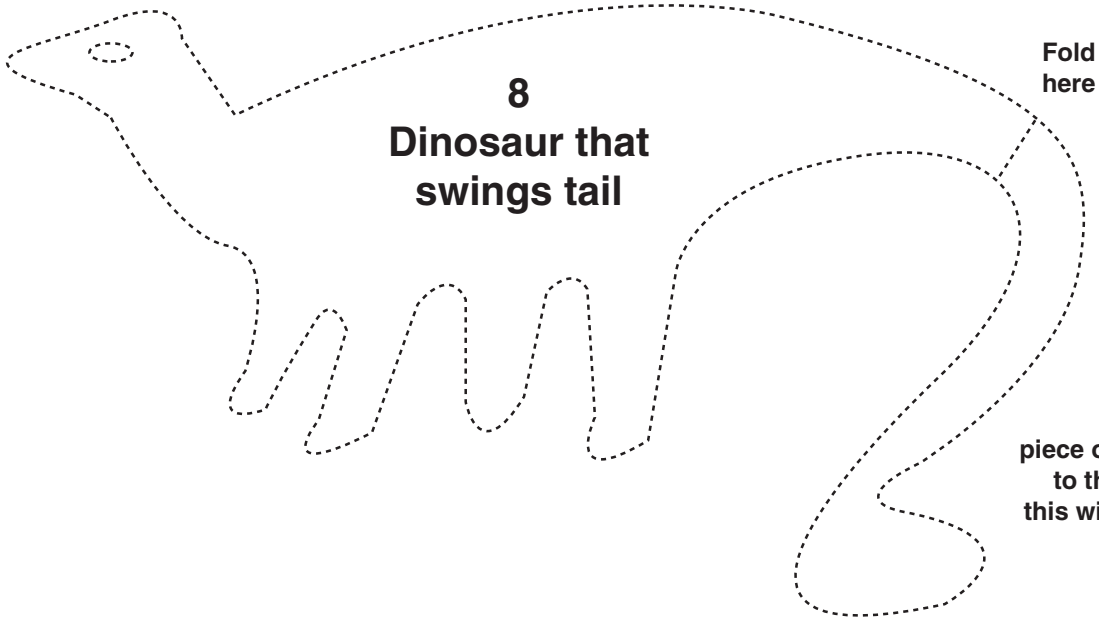


8  
Small dinosaur

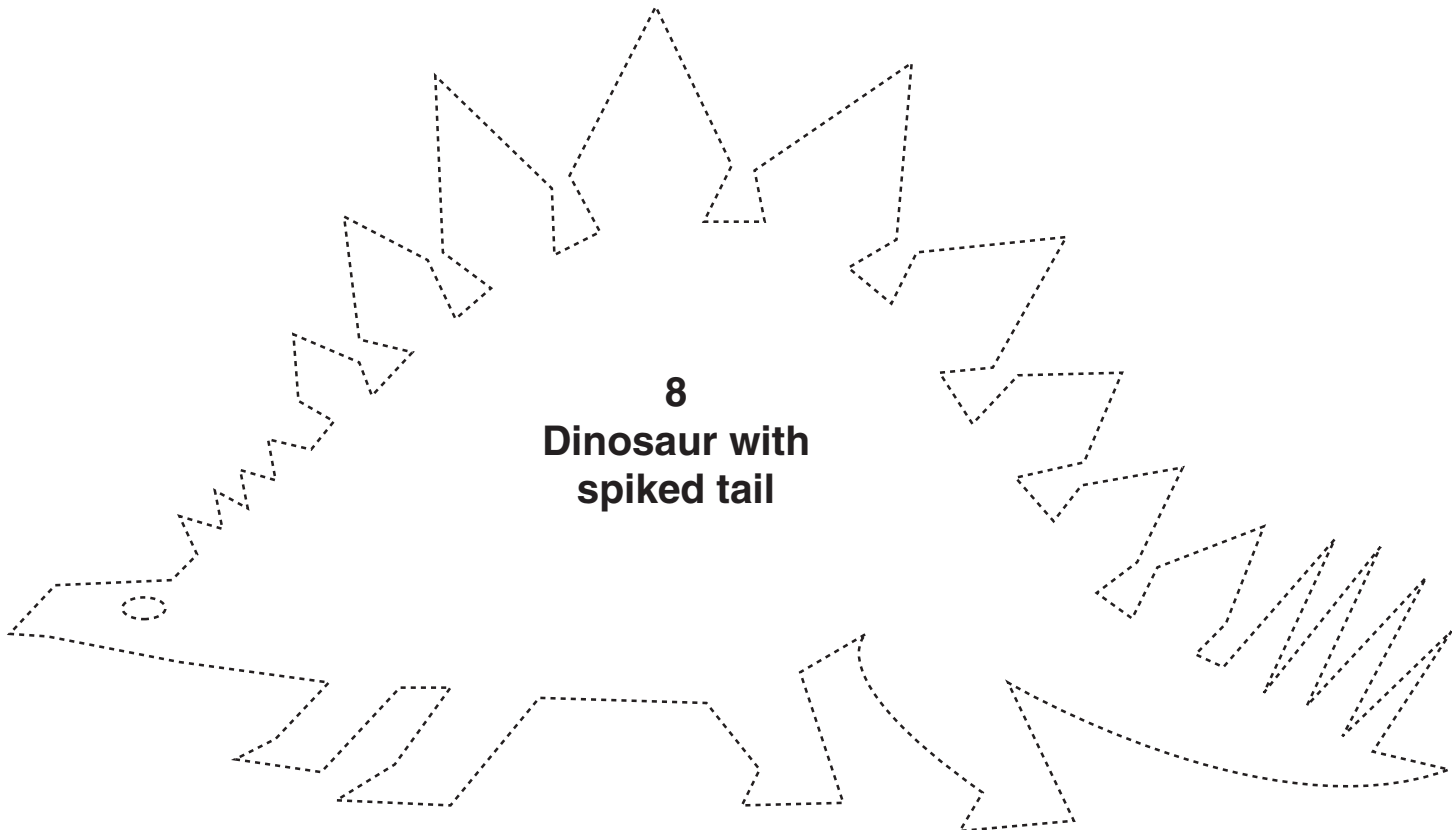
8  
Large dinosaur



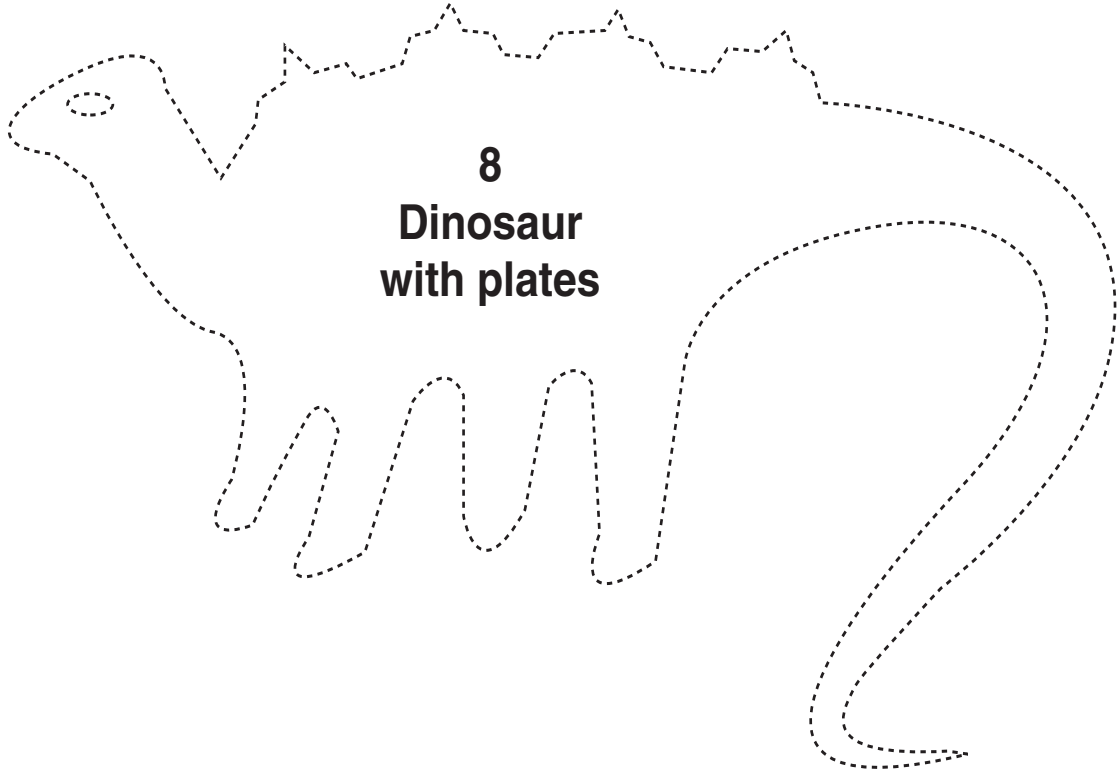
Scene 8  
Dinosaur that swings tail  
Dinosaur with spikes on tail



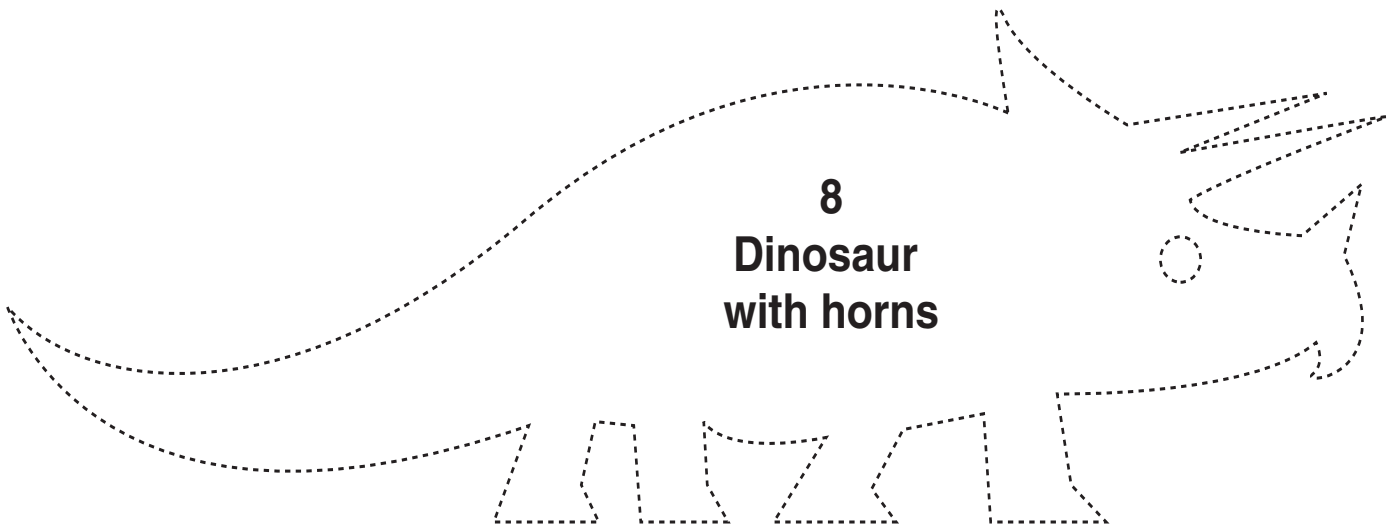
Attach a second piece of galvanized wire to the tail. By moving this wire the tail moves.



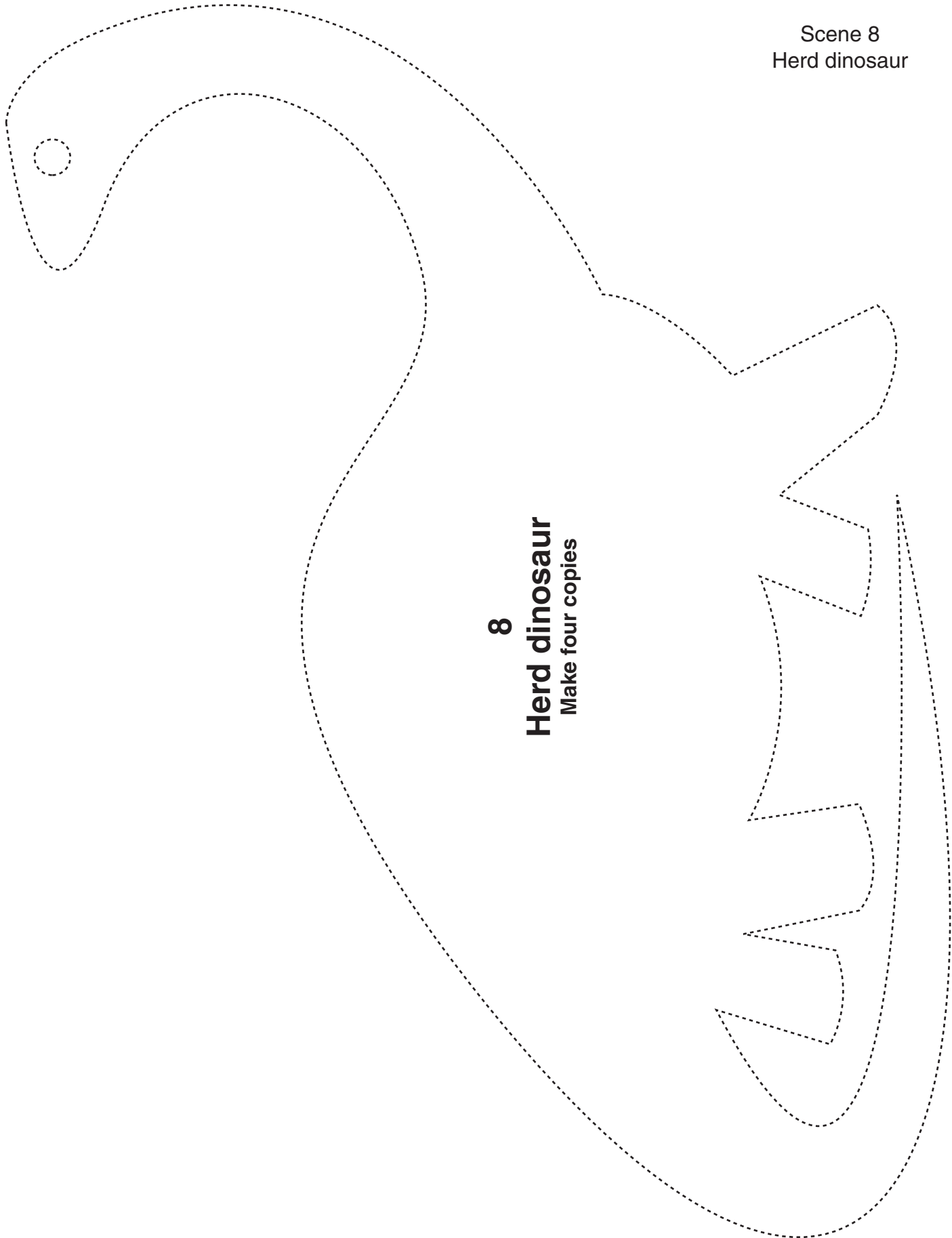
Scene 8  
Dinosaur with plates  
Dinosaur with horns



**8**  
**Dinosaur**  
**with plates**

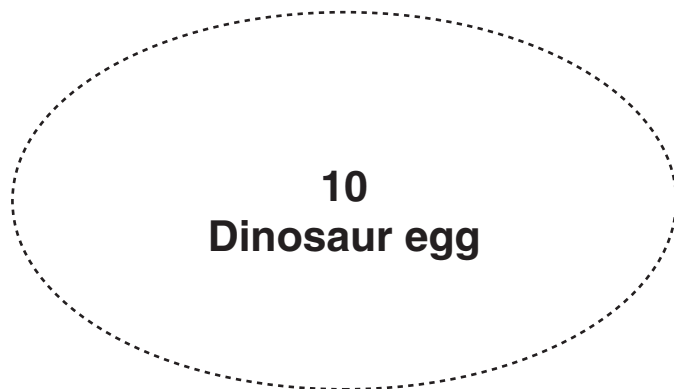
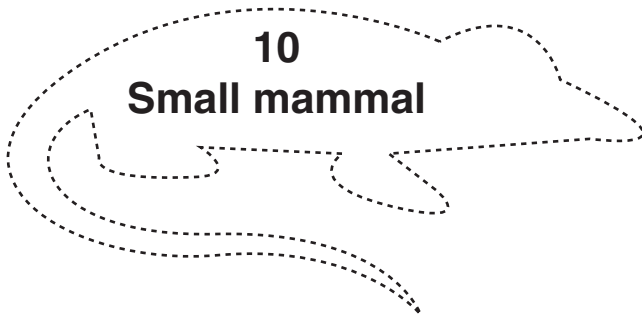
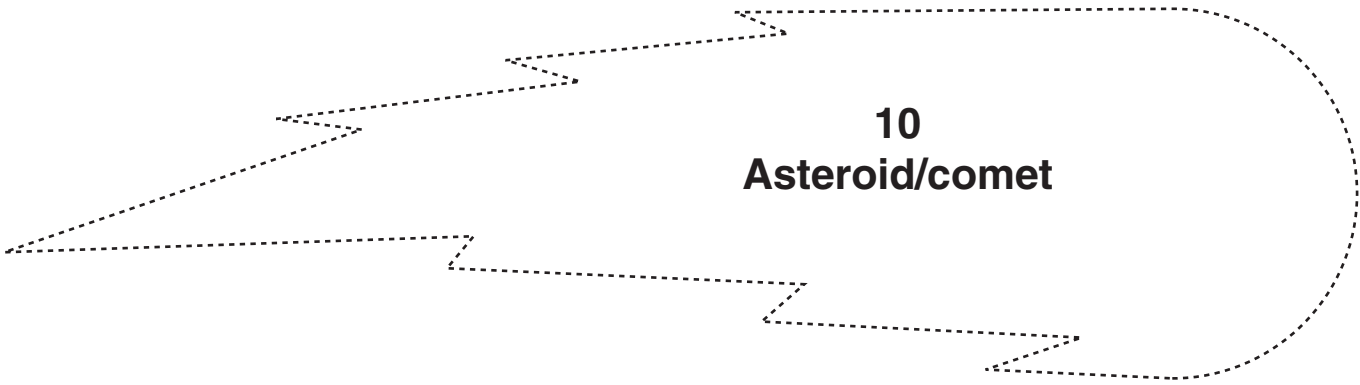


**8**  
**Dinosaur**  
**with horns**



**8**  
**Herd dinosaur**  
Make four copies

Scene 10  
Asteroid/comet  
Small mammal  
Dinosaur egg



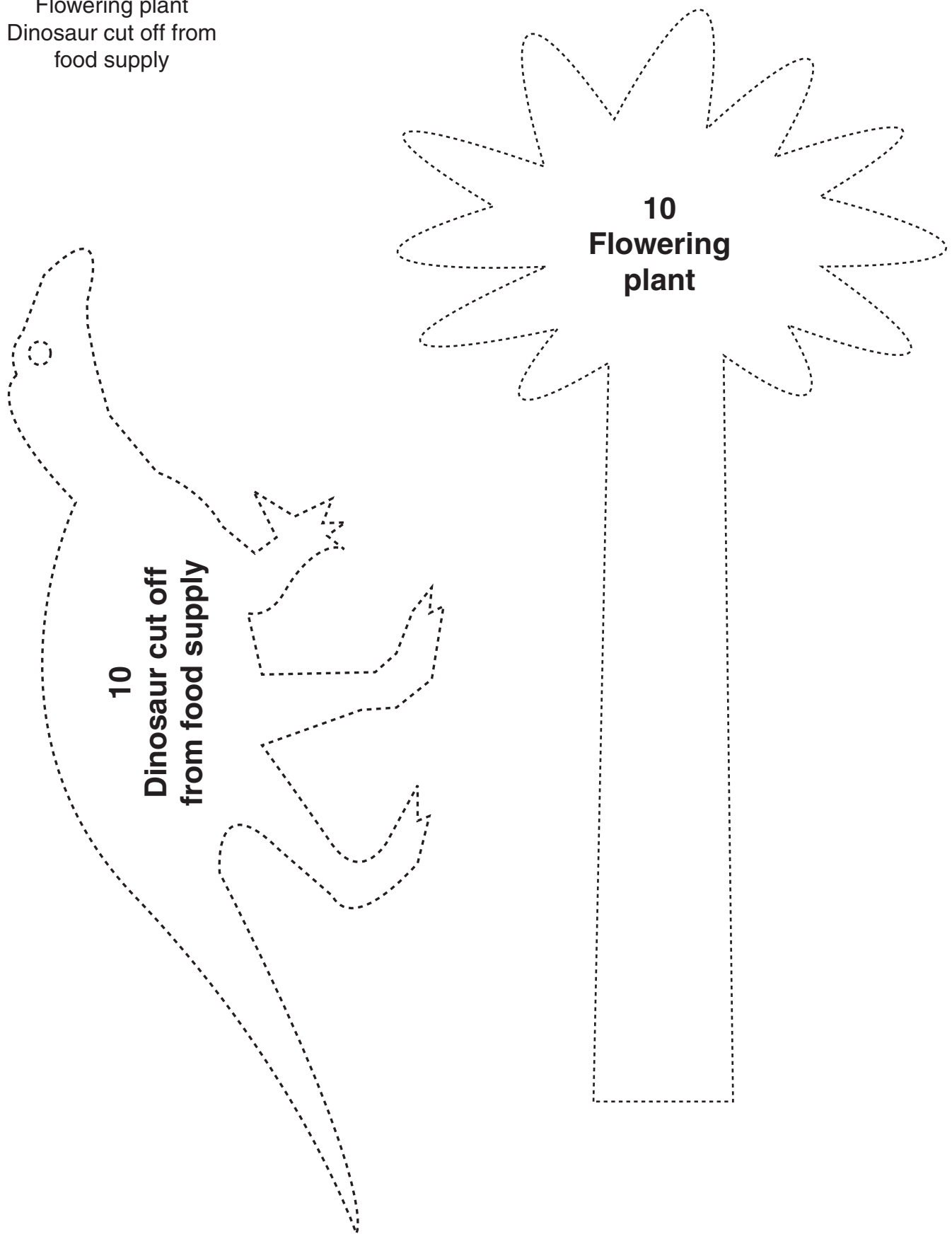
Scene 10  
Cloud of dust

**10**  
**Cloud of dust**

Scene 10  
Mountains

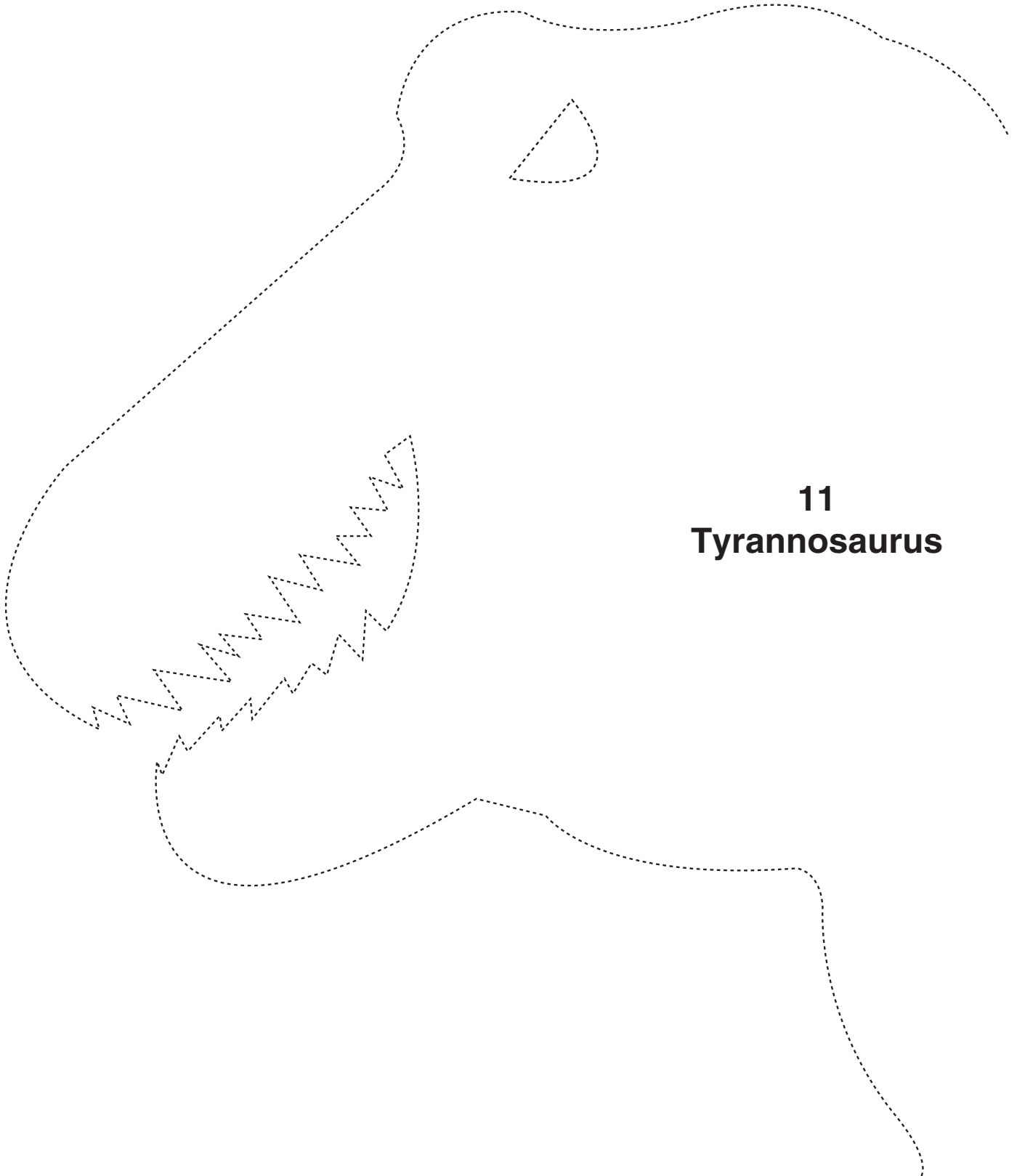
**10**  
**Mountains**

Scene 10  
Flowering plant  
Dinosaur cut off from  
food supply



**10**  
**Dinosaur cut off**  
**from food supply**

**10**  
**Flowering**  
**plant**



**11**  
**Tyrannosaurus**

# Teacher Feedback Form

At Interact, we constantly strive to make our units the best they can be. We always appreciate feedback from you—our customer—to facilitate this process. With your input, we can continue to provide high-quality, interactive, and meaningful instructional materials to enhance your curriculum and engage your students. Please take a few moments to complete this feedback form and drop it in the mail. Address it to:

**Interact** • Attn: Editorial  
10200 Jefferson Blvd. • P.O. Box 802  
Culver City, CA 90232-0802

or fax it to us at **(800) 944-5432**

or e-mail it to us at **access@teachinteract.com**

***We enjoy receiving photos or videotapes of our units in action!  
Please use the release form on the following page.***

Your Name: \_\_\_\_\_

Address: \_\_\_\_\_

E-mail: \_\_\_\_\_

Interact Unit: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Release Form for Photographic Images

**To Teachers:**

To help illustrate to others the experiential activities involved and to promote the use of simulations, we like to get photographs and videos of classes participating in the simulation. Please send photos of students actively engaged so we can publish them in our promotional material. Be aware that we can only use images of students for whom a release form has been submitted.

**To Parents:**

I give permission for photographs or videos of my child to appear in catalogs of educational materials published by Interact.

Name of Student: \_\_\_\_\_ (print)

Age of Student: \_\_\_\_\_ (print)

Parent or Guardian: \_\_\_\_\_ (print)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Address:

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Phone: \_\_\_\_\_

**Interact**  
10200 Jefferson Blvd.  
Culver City, CA 90232-0802  
310-839-2436