

# Observe Giant Animals

## OVERVIEW

Students will practice their observation skills by studying the largest land animals that ever lived.

## BACKGROUND FOR EDUCATOR

For 140 million years sauropods — a group of humongous plant-eating dinosaurs — roamed the planet. Now extinct, sauropods were notable for their enormous size; they were the biggest land animals ever. They all walked on four legs, were covered in small bumps and scales, and had small heads. Smaller ones weighed as much as a cow, while *Argentinosaurus* was 15 times heavier than the modern African elephant!

All kinds of scientists use tools, and paleontologists (scientists who study ancient life) are no exception. To make sure their observations are accurate, paleontologists focus on details, take accurate measurements, and carefully document their findings.

## BEFORE YOUR VISIT

In these activities, students will get clues about how sauropods grew so huge, and prepare tools for their expedition to the Museum.

### Activity: How Big Were Dinosaurs?

[amnh.org/resources/rfl/pdf/dino\\_05\\_big.pdf](http://amnh.org/resources/rfl/pdf/dino_05_big.pdf)

Spark students' curiosity about these massive animals. Have students estimate how many of their own footprints would fit inside one sauropod footprint and conduct an experiment to test their estimate.

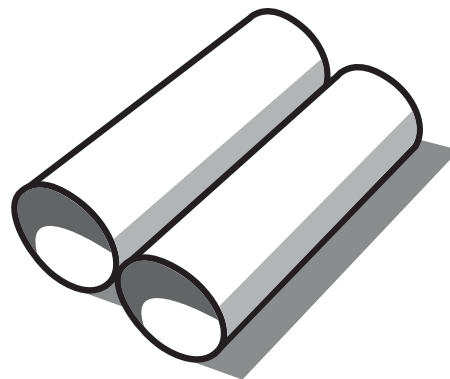
### Activity: Prepare for an Expedition

#### Part I: Make Your Own Paleontologist Viewfinder

Students will make their own special tools in preparation for their visit to *The World's Largest Dinosaurs*. Tell students that the scientists who study ancient dinosaurs are called paleontologists, and that they use special tools to make and record their observations. Ask students: What is a tool? Do you ever use tools? What do they help you do? Point out that tools — such as pencils and spoons, or hammers and wrenches — don't need to be complicated to be useful.

#### Materials:

- Paper clips
- Hole punch
- Markers
- One paper towel tube cut in half (or two toilet paper tubes) for each student
- 2-foot yarn or thick string for each student



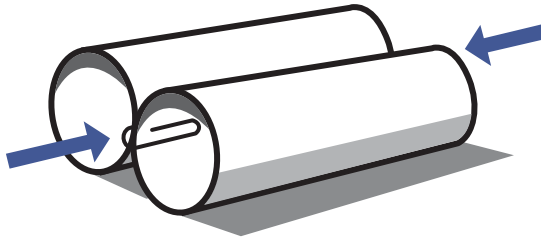
1. Place the two tubes parallel to each other.

### NYS Science Core Curriculum

**LE 3.1a:** Each animal has different structures that serve different functions in growth, survival, and reproduction.

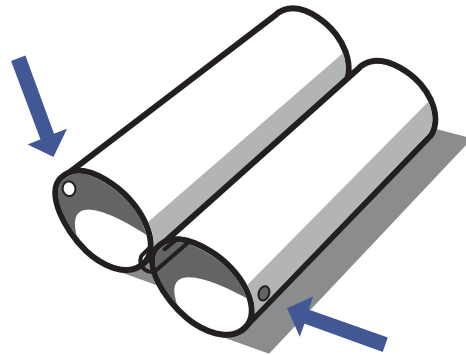
Plan how your students will explore *The World's Largest Dinosaurs* using the group worksheets. Plan to have students work in small groups facilitated by a teacher/parent chaperone as they explore the exhibition.

If possible, distribute copies of the worksheets to chaperones beforehand, and review them to make sure everyone understands the activities.

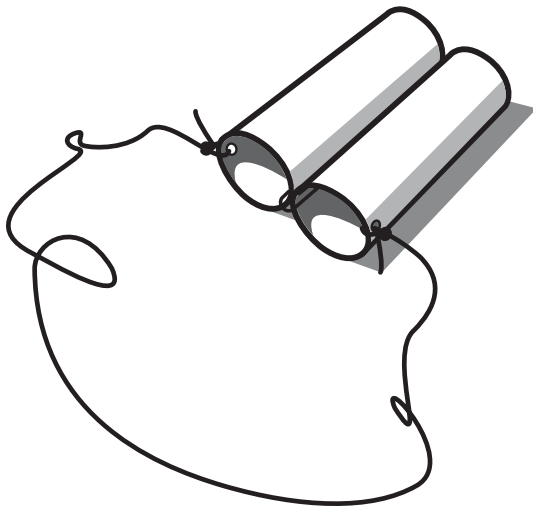


2. Clip the tubes together on both ends with paper clips.

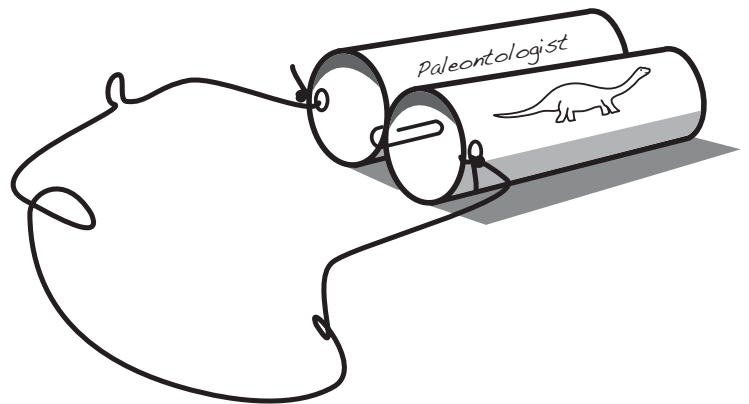
3. Use a hole punch to make two holes, one at each end of each tube.



4. Loop the yarn through the holes and tie knots. Hang the viewfinders around each student's neck, adjusting the length as necessary.



5. Have students write their names on one of their two tubes, and the word "paleontologist" on the other. (You may need to write the word on the board.) Encourage students to decorate the tubes with drawings of plants and animals, since they'll be using the viewfinders to spot animals during the expedition.



### Part II. Make Observations Using Viewfinders

Students will pair off and practice using their tools to make observations about animals that may be unfamiliar to them.

#### Materials:

- Paleontologist toolkits for students
- Pictures of dinosaurs (you can download illustrations at [amnh.org/resources/rfl/pdf/dino\\_16\\_illustrations.pdf](http://amnh.org/resources/rfl/pdf/dino_16_illustrations.pdf))
- Stuffed animals or animal models

#### Paleontologist Toolkit

If possible, have each child also assemble a "paleontologist toolkit" in a backpack. Contents should include: their viewfinders, a flashlight, a ruler, and a handheld magnifier.

Hold up an example of each tool in the toolkit. Discuss what it is and how a paleontologist might use it. Tell students that before heading to the Museum, they will use their tools in the classroom.

Split the class into pairs. Hang dinosaur pictures around the room, one for each student pair. Ask each pair to sit or stand 4-5 feet away from the picture. Taking turns, one student should illuminate the picture with the flashlight while his or her partner, using the viewfinders, makes observations about the dinosaur. (This may be more effective with the lights off.) Have students discuss their observations with each other, and if time allows, share their observations with the class.

Next, give one stuffed animal or animal model to each pair. Have students use magnifiers and rulers to measure and make close observations about the animal. Ask students to identify different body parts and explain their purpose. How does this body part help this animal live/survive? Is it different from the corresponding part of a human body? How? Have them discuss their observations with each other, and if time allows, share their observations with the class.

## DURING YOUR VISIT

### **The World's Largest Dinosaurs Exhibition**

#### **4th floor (45 minutes)**

Have small groups of students, each with an adult chaperone, embark on their expedition to learn about sauropod dinosaurs. As the students make observations and discoveries, have chaperones record the group's findings on the group worksheet. Encourage students to use their scientific tools to enhance their observations, and to be as detailed as possible in their descriptions. They can use their viewfinders and flashlights, as they did in the classroom, to study the huge *Mamenchisaurus* model. They can use magnifiers and rulers on the smaller touchable models and fossils, such as eggs and teeth.

### **Akeley Hall of African Mammals**

#### **2nd floor (20 minutes)**

Have students use the same methods to observe the elephant group in the center of the hall. Point out that while sauropods were the largest land animals that ever lived, elephants are the largest land animals alive today. Ask students to identify similarities and differences between sauropod bodies and those of these elephants. (*Answers will vary but may include that elephants have smaller bodies, larger heads, smaller tails, larger ears, trunks, etc.*)

## BACK IN THE CLASSROOM

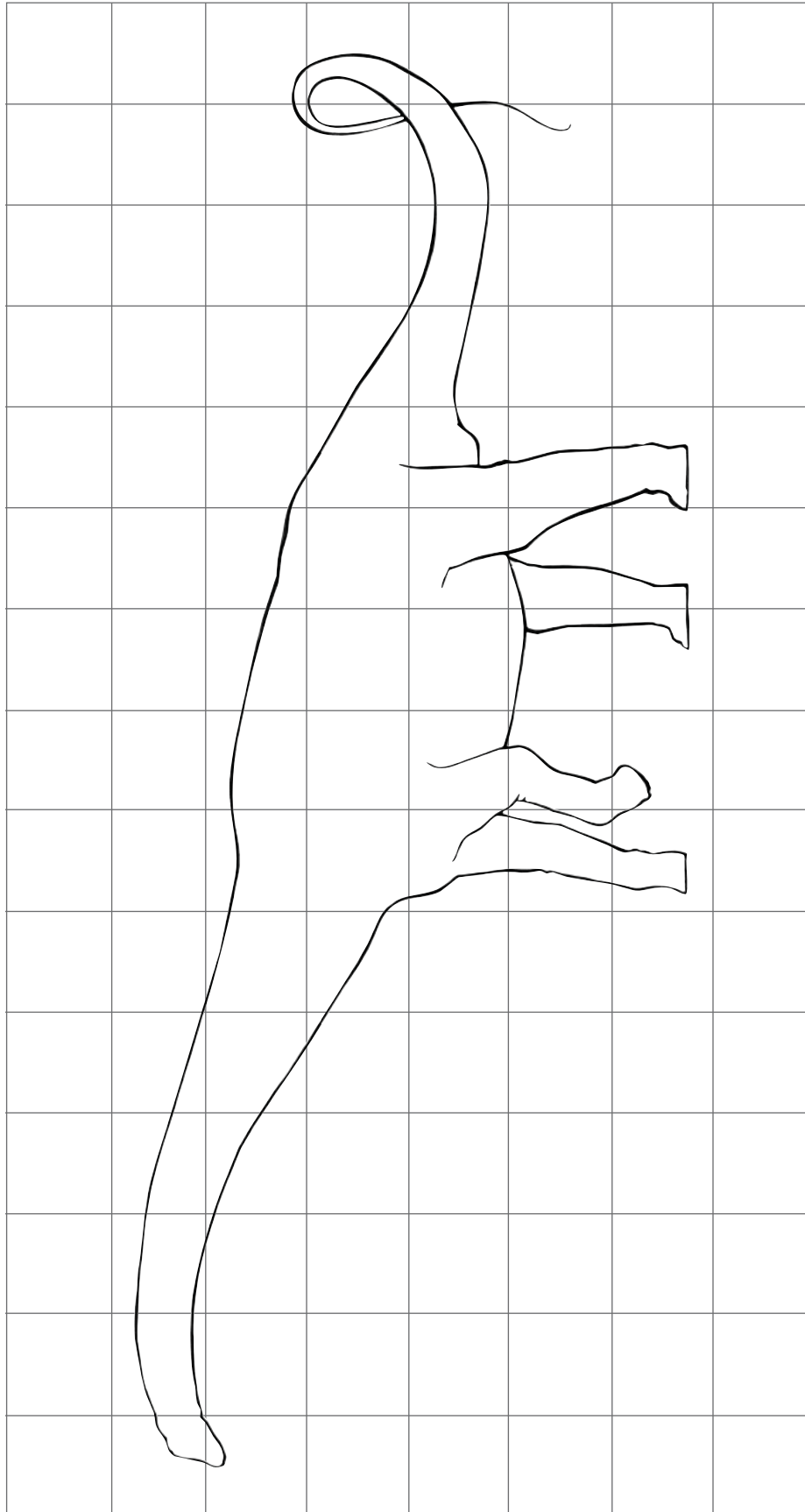
### **Activity: Sharing Observations & Recording Findings**

Have student groups present their paleontological findings. Post a large outline of a sauropod in front of the class. (You can draw your own using the sauropod outline on the next page.)

Have groups come up one at a time and fill in the details by drawing features and labeling the pictures. They can refer to group worksheets. They should add other details, such as eggs and footprints, along with any corresponding measurements. If you have younger students, you may want to read findings aloud and label the diagram, and have students add color and other details. When identifying parts of the animal's body, ask students how they helped the dinosaur live/survive; include this information on the outline.

### **Activity: Sauropod Structures & Functions**

Distribute pictures of *Barosaurus* and/or *Dipolodocus*. (You can download pictures at [amnh.org/resources/rfl/pdf/dino\\_16\\_illustrations.pdf](http://amnh.org/resources/rfl/pdf/dino_16_illustrations.pdf)) Tell students to color their picture and draw a background scene based on what they have learned about sauropods. Have them label the parts of the dinosaur's body and include what the dinosaur used those parts for.



# Group Worksheet

**Instructions for the adult facilitator:**

1. **Have students find models and images** of sauropods in the exhibition and use their tools to help them focus on particular parts of the dinosaur.
2. **Have all the students in your group observe the same thing at the same time** when possible. If students were not able to bring their own tools, encourage them to use the tools in the exhibition itself, e.g. the magnifiers in the egg section.
3. **Ask students to identify and describe what they are looking at.** For large models and fossils, encourage them to use their flashlights to illuminate and viewfinders to isolate the part of the animal they are observing. For touchable objects and models, students should be encouraged to use their rulers and magnifiers to measure and observe details.
4. **Encourage students to be as descriptive as possible,** and solicit contributions from all students. Count eggs as a body part too!
5. **Record as much as you can** of what students observe, including the tools they used to make their observations.

Body Part(s)	Tools Used	Observation / Description	What does the sauropod use this body part for? How does it help the sauropod?

# The World's Largest Dinosaurs • New York State Science Core Curriculum

Elementary School																	
Standard	Major Understandings	Introduction	The Importance of Size	Meet Mamenchisaurus	Eating	Brain	Neck & Biomechanics	Size of Sauropods	Reproduction	Skin	Trackways	Metabolism	Biology Theater	Circulation	Respiration	Dig Pit	Epilogue
LE 4	<b>3.1c:</b> In order to survive in their environment, plants and animals must be adapted to that environment.... animal adaptations include coloration for warning or attraction, camouflage, defense mechanisms, movement, hibernation, and migration.		X	X	X	X	X			X	X		X				
	<b>1.2a:</b> Living things grow, take in nutrients, breathe, reproduce, eliminate waste and die.	X	X		X		X	X	X			X	X	X			
	<b>3.2b:</b> Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to permit its survival. Extinction of species is common. Fossils are evidence that a great variety of species existed in the past.	X			X				X	X		X				X	X