



Lesson: Dinosaur Giants!

Age level: K-8

Lesson duration: 45 minutes

Background:

- *Compsognathus* (“pretty jaw”): tiny, swift, two-legged meat eater with a small head, sharp teeth, long neck, and long legs in proportion to its body
- *Orodromeus* (“mountain runner”): small, two-legged plant eater that averaged 6 feet in length, with a horny beak and a long, stiff tail
- *Triceratops* (“three-horned face”): a four-legged plant eater that averaged 20 feet in length and weighed approximately six tons. It had a short tail, bulky body, and a massive head.
- *Apatosaurus* (“deceptive lizard”): large four-footed plant eater that averaged 70 feet in length, 14 feet in height, and weighed more than 20 tons. It had a stocky body, massive legs, and a long tail.
- *Brachiosaurus* (“arm lizard”): one of the largest and tallest dinosaurs, it averaged 82 feet in length, 52 feet in height, and weighed roughly fifty tons!

Kit materials:

- Pictures of T-Rex, Diplodocus, Troodon, and Deinonychus
- Sidewalk chalk (for outdoors) or sticky labels (indoors)
- Cloth replicas of dinosaur femurs, horse femur, and elephant femur
- Laminated pictures of *Compsognathus*, *Triceratops*, *Apatosaurus*, and *Brachiosaurus*
- Casts of *Maiasaura* adult and hatchling femurs
- Tape measure

Lesson objectives:

- Students will discover the sizes of four dinosaurs in the MOR collection
- Students will gain an understanding of how size affected each dinosaur
- Students will use mathematical skills by using measuring devices and estimating size
- Students will make observations about the sizes of different dinosaur femurs, and compare them to elephant and horse femurs

Lesson procedure:

- Tell students that you are going to be estimating the sizes of four very different dinosaurs. The reason that we have an idea how big these dinosaurs were is because we know how big some of their bones and skeletons were!
- Look at pictures of each dinosaur and have students guess if each dinosaur is bigger or smaller than a school bus. Tell them that a school bus is 48 feet long. If they think the dinosaur was smaller than that, ask if they think it was bigger than themselves.
- Have the children measure out the full length of Diplodocus (175 feet long, 16 feet tall). Ask them to record these measurements on their worksheet. Repeat this with T-Rex (40 feet long, 17 feet tall), Deinonychus (11 feet long, 3 feet tall), and Troodon (7.5 feet long, 3 feet tall). **For older grades, ask students to calculate how many school buses would fit inside of each dinosaur's length. Another good variation is to ask older students to determine how big of a crate you would need to ship each dinosaur (they will have to calculate how many cubic feet that dinosaur needs based on its height and length).**
- Discuss how the size of each dinosaur may have affected its lifestyle and diet. Have students write a short statement on their worksheet with their ideas.
- Ask students if their ideas about the size of dinosaurs changed as a result of the activity.
- Place the cloth dinosaur femurs and Maiasaura femurs around the room at different "stations." Divide the class into 6 groups and send each group to a station. Explain to them that their job is to measure and record the length of each femur **(for kindergarten and first grade, this can be done as a class)**. For each dinosaur, the group should record the following observations:
 1. How big was this dinosaur? Was it bigger or smaller than an elephant?
 2. What did this dinosaur eat?
 3. Was this dinosaur fast or slow?
 4. How heavy was this dinosaur?
 5. **Older students should also calculate the percentage by which each femur compares to the one before it**

Each group should also draw a picture of the dinosaur.

- Gather as a class. Bring out the horse and elephant femurs, and have students make comparisons between these and the dinosaurs.
- Reveal the images of each dinosaur. How close was each group's guess to the actual size?