

Lesson Plan: Stegosaurus

Summary

In this session Blade sketched a Stegosaurus model while sharing trivia about the dinosaur. He described Stegosaurus as Jurassic plant eaters found on every continent except Antarctica, discussed their four tail spikes, small brain cavities, and the old myth of a second brain in the hips. He explained that their plates grew from the skin, not the skeleton, and may have been used for heat regulation or display, with differences between males and females. He also covered how the name “roof lizard” came from early misinterpretations during the Bone Wars, and compared their race car posture with Brachiosaurus.

https://www.youtube.com/live/NqTT_e3EFLs?si=9NIHMVeR3PQYGekv

Objective

Students will learn about Stegosaurus, its anatomy, adaptations, and historical interpretation, and connect how scientific understanding evolves over time.

Standards

- NGSS MS-LS4-1: Analyze and interpret data for patterns in the fossil record.
- CCSS.ELA-LITERACY.RST.6-8.1: Cite specific textual evidence to support analysis of science texts.
- C3 Framework D2.His.16.6-8: Organize applicable evidence into a coherent argument about the past.

Materials

- Vetted 9 Fun Facts: Stegosaurus
- Worksheet (included below)
- Optional: paper, pencils, whiteboard for group discussion

Activity

Students will read the 9 Fun Facts and use the worksheet to reinforce understanding. In groups, they can discuss why early paleontologists misinterpreted Stegosaurus and how modern reconstructions differ.

Introduction

Introduce Stegosaurus as one of the most recognizable dinosaurs of the Jurassic. Explain that for many years scientists misunderstood its anatomy, but ongoing discoveries have changed the picture. Emphasize how fossil evidence and scientific debate shape our knowledge.

Assessment

Evaluate student responses on the worksheet for accuracy and completeness. Observe group discussions for understanding of how scientific knowledge evolves.

Rubric

Criteria	Excellent (3)	Satisfactory (2)	Needs Improvement (1)
Content Knowledge	Accurate and detailed answers using evidence	Mostly accurate answers, minor errors	Incomplete or inaccurate answers
Participation	Actively engages in discussion and activity	Participates with some prompting	Rarely participates
Critical Thinking	Connects facts to broader scientific themes	Some connections made	Few or no connections made

9 Fun Facts

1. Killer tail (the thagomizer) Stegosaurus's tail ended in four long spikes that scientists now call the *thagomizer*. The name actually came from a Gary Larson *Far Side* cartoon in the 1980s and was later adopted by paleontologists. One Allosaurus fossil shows a punctured tail bone that matches perfectly with a stegosaur spike strike.

<https://www.smithsonianmag.com/science-nature/watch-out-for-that-thagomizer-98891562>

2. Plates with purpose The plates were not attached to the skeleton. They were osteoderms, bony structures growing out of the skin, similar to those on crocodiles. Some individuals had wide, rounded plates and others tall, spiky ones, likely for display or sexual dimorphism.

<https://www.popsci.com/male-and-female-stegosaurus-may-have-had-different-plates>

3. Tiny brain, huge body Stegosaurus weighed over three tons, but its brain was only about 80 grams, around the size of a walnut or lemon. This led to the myth that it had a "second brain" in its hips, but scientists have shown this was just an enlargement of the spinal cord, not a brain.

<https://www.smithsonianmag.com/science-nature/the-double-dinosaur-brain-myth-12155823>

4. Odd body build The back legs were much longer than the front, forcing the head low and the tail high. This gave Stegosaurus its distinctive slope-backed look. Reconstructions now show the tail held clear off the ground, unlike the old dragging-tail dinosaur art.

<https://www.sciencefocus.com/nature/stegosaurus>

5. Plant shredder It had a beak at the front of its jaws for clipping vegetation and small flat teeth further back for chewing. Its bite was weak, so it likely ate softer plants like ferns and cycads instead of woody material.

<https://www.smithsonianmag.com/science-nature/stegosaurus-week-the-weak-bite-of-stegosaurus-81190502>

6. Jurassic neighborhood Stegosaurus lived in the Late Jurassic and shared its world with other famous dinosaurs like Allosaurus, Apatosaurus, Brachiosaurus, and Diplodocus.

<https://www.nhm.ac.uk/discover/dino-directory/timeline/late-jurassic/gallery.html>

7. Name confusion “Stegosaurus” means “roof lizard” because early scientists thought the plates lay flat on its back like roof shingles. Later studies showed they stood upright, alternating or staggered down the spine.

<https://www.nhm.ac.uk/discover/dino-directory/stegosaurus.html>

8. Bone Wars drama Stegosaurus was discovered during the 19th-century Bone Wars between O.C. Marsh and Edward Cope. Marsh originally misinterpreted it as a turtle-like animal with plates forming a shell. Early reconstructions even gave it eight tail spikes, but later research corrected this to four.

<https://www.smithsonianmag.com/science-nature/the-myth-of-the-eight-spiked-stegosaurus-165459353>

9. Global spiky cousins Stegosaurus had relatives all over the world: Kentrosaurus in Africa with more spikes, Wuerhosaurus in China with blockier plates, and Gigantospinosaurus with massive shoulder spikes. Together they show how diverse the stegosaur family really was.

<https://www.sciencefocus.com/nature/stegosaurus>

Worksheet

Name: _____ Date: _____

Review

1. What is the name of Stegosaurus's tail weapon, and how did it get that name?
2. How were the plates of Stegosaurus attached to its body?

Discussion

3. Why might Stegosaurus have developed different plate shapes between males and females?

Data Analysis

4. Scientists once believed Stegosaurus had a second brain. What evidence led them to this idea, and what is the current explanation?

Reflection

5. What does the story of Stegosaurus show about how scientific knowledge changes over time?