

Lesson Plan Nigersaurus

The transcript captures Blade's early morning sketch of a Nigersaurus toy skull and his discussion of its scientific significance. He explains that Nigersaurus lived around 110 million years ago, measured about 30 feet long by 8 feet tall, and had a fragile skull reconstructed using CT scans in the 1990s. He notes only one mostly complete skull exists among a few dozen specimens, describes its 500 constantly replacing teeth, and compares its size to African elephants and rubber ducks. He also discusses paleoartistry, reconstruction methods, and the modern replica market that supplies museums and raises equity questions for fossil source communities.

<https://www.youtube.com/live/WY0uLtrCGrk?si=-1I3FQW6w-ZwevRf>

Objective

Students will learn about Nigersaurus anatomy, discovery, and reconstruction, evaluate evidence versus inference in paleoecology, and understand how paleoartistry and replicas influence public knowledge.

Materials

9 Fun Facts handout (provided)

Worksheet (provided)

Optional: images of Nigersaurus skull, CT scans, and paleoart reconstructions

Introduction

Introduce Nigersaurus as a mid-Cretaceous sauropod with an unusual squared jaw and over 500 replaceable teeth. Emphasize that its fragile skull required CT scans to reconstruct, marking the first time this technology was used extensively in dinosaur paleontology.

Activity

1. Read and analyze the 9 Fun Facts as a class.
2. Discuss the role of CT scans in reconstructing fragile fossils.
3. Debate whether fossil evidence shows actual habitat or just preservation conditions.
4. Explore paleoartistry and the economics of fossil replicas.

Assessment

Students complete the worksheet and participate in class discussions. Teachers evaluate understanding based on recall of facts, critical thinking about evidence, and thoughtful reflection.

Rubric

Criteria	Excellent (4)	Good (3)	Fair (2)	Needs Improvement (1)
Understanding facts	Recalls all 9 Fun Facts accurately	Recalls most Fun Facts	Recalls some Fun Facts	Recalls few or none
Evidence vs inference	Clear, consistent distinctions with examples	Some distinctions with examples	Few distinctions	No distinctions
Participation	Fully engaged in activities and discussion	Participates with some prompting	Limited participation	No participation
Worksheet	Complete and correct	Mostly correct	Partial completion	Incomplete or inaccurate

9 Fun Facts

1. Discovery and naming

Nigersaurus fossils were collected in Niger in the 1970s but were too incomplete to classify. In 1999, Paul Sereno and colleagues returned and recovered better material. The species was named Nigersaurus taqueti in honor of French paleontologist Philippe Taquet.

<https://record.umich.edu/articles/u-m-researchers-study-toothy-ground-feeding-dinosaur/>

2. Size and build

Nigersaurus was about 30 feet long and relatively small for a sauropod. Its bones were lightweight and its skull was so thin that light could pass through it. These traits made recovery and reconstruction more difficult.

<https://www.nationalgeographic.com/science/article/what-dinosaur-has-500-teeth-nigersaurus>

3. Skull and teeth

It had a wide, squared muzzle with more than 500 tiny replaceable teeth. These were arranged in dense dental batteries and cycled rapidly as older teeth wore out. This unusual design earned it the nickname vacuum cleaner dinosaur.

<https://paulsereno.uchicago.edu/discoveries/nigersaurus/>

4. Feeding style

Nigersaurus was a low browser rather than a high-reaching grazer. Its anatomy suited sweeping wide areas of ground-level plants without moving its heavy body much. This made it efficient in consuming soft vegetation.

<https://www.nationalgeographic.com/science/article/what-dinosaur-has-500-teeth-nigersaurus>

5. Habitat

Fossils were found in the Gadoufaoua region of Niger in floodplain deposits. They were discovered alongside crocodile relatives and fish-eating theropods like Suchomimus. This shows Nigersaurus lived in a lush riverine system with seasonal flooding.

<https://paulsereno.uchicago.edu/discoveries/nigersaurus/>

6. Fossil record

Only one mostly complete skull and several dozen partial specimens have been recovered. This sample confirmed the unusual skull was not a single oddity. All specimens date to the mid-Cretaceous about 110 million years ago.

<https://record.umich.edu/articles/u-m-researchers-study-toothy-ground-feeding-dinosaur/>

7. Continental context

By 110 million years ago, the supercontinent had already fragmented. Shifting tectonics altered coastlines, climates, and habitats across Africa. These long-term changes contributed to the disappearance of Nigersaurus and its relatives.

<https://record.umich.edu/articles/u-m-researchers-study-toothy-ground-feeding-dinosaur/>

8. Paleoartistry and reconstruction

Fragile bones required CT scanning and digital modeling to reconstruct the skull accurately. Paleoartists collaborated with scientists to combine anatomy and posture from these scans. Their work shaped how Nigersaurus is seen by scientists and the public.

<https://www.nationalgeographic.com/science/article/what-dinosaur-has-500-teeth-nigersaurus>

9. Economic role of replicas

Paleoartisans support science and education by producing fossil replicas. Bone Clones in California sells casts of the Taung Child (*Australopithecus africanus*) from Taung, South Africa, for a little over two hundred dollars. These replicas help spread knowledge but raise questions about benefits to local communities.

<https://boneclones.com/product/australopithecus-africanus-skull-taung-child-BH-016>

Worksheet

Name: _____ **Date:** _____

Review

1. When and where were the first Nigersaurus fossils collected, and when was it officially named?
2. How long and tall was Nigersaurus compared to modern animals?
3. What technology was essential to reconstruct its fragile skull?

Discussion

4. Why is Nigersaurus often called the vacuum cleaner dinosaur?
5. What evidence places it in a riverine floodplain environment?

Data Analysis

6. Only one complete skull has been found. What challenges does this create for scientists studying Nigersaurus?
7. Identify one fact supported by direct evidence and one that is more inferential.

Reflection

8. How do CT scans and paleoartistry affect how the public understands extinct animals?
9. Should communities near fossil sites benefit financially from replicas? Give one argument for and one against.