

Reading Dinosaur Evidence

A six-page classroom pack for ages 10-14. Students distinguish observations, estimates and interpretations while using timelines and size data.

45-60

MINUTES

AGES 10-14

PRINT OR PROJECT

Learning goals

Students will: place the three dinosaur periods in order; compare rounded size estimates; separate direct fossil observations from scientific interpretation; and write a claim supported by named evidence.

Materials

Print this pack and the Dinosaur Timeline and Size Chart. Optional: open extinctatlas.com/tools/dinosaur-timeline and extinctatlas.com/tools/dinosaur-size-comparison on a classroom display.

LESSON 1

Build a Dinosaur Timeline

Use the printable timeline. Work from dates, not movie scenes or popular groupings.

ACTIVITY 1A

Put the periods in order

Write 1, 2 and 3 beside: Cretaceous; Triassic; Jurassic.

ACTIVITY 1B

Calculate duration

Using the boundary ages on the timeline, calculate approximately how many million years each period lasted. Which lasted longest?

ACTIVITY 1C

Avoid a common misconception

Write one sentence explaining why Tyrannosaurus rex and Stegosaurus did not meet.

LESSON 2

Measure the Uncertainty

Size estimates depend on what is preserved and how missing body parts are reconstructed.

ACTIVITY 2A

Compare two dinosaurs

Choose two dinosaurs from the Size Chart. How many metres longer is one than the other? Express the difference as a percentage of the smaller dinosaur.

ACTIVITY 2B

Length is not mass

Explain why a long, lightly built animal might weigh less than a shorter animal with a broad torso.

ACTIVITY 2C

Write an honest caption

Rewrite 'Spinosaurus was exactly 14 metres long' so the sentence communicates estimation and uncertainty.

LESSON 3

From Fossil to Claim

Good science keeps observation, interpretation and uncertainty visible.

Evidence card	Observation	Possible interpretation	Important limitation
Healed bite mark	Bone grew around an injury	The animal survived a bite	The attacker may be uncertain
Footprint trackway	Repeated prints cross sediment	Direction and approximate speed	The trackmaker may be unknown
Feather impression	A vaned outline surrounds bone	Body covering or display	Colour and behaviour are rarely direct
Coprolite	Fossilised waste contains fragments	Diet and digestion	Identifying the producer can be difficult

ACTIVITY 3A

Evidence paragraph

Choose one card. Write a claim, name the observation that supports it, and finish with one limitation.

STUDENT CHALLENGE

Design an Evidence-led Species Card

Choose one species from Extinct Atlas Wiki. Do not copy a single number without its source.

Scientific name	
Geological period and age	
Discovery country	
Specimen or collection number	
One measurement with a range	
One paper DOI or museum record	
Direct observation	
Scientific interpretation	
Remaining uncertainty	

Answer Guide and Sources

Accept approximate calculations when students show their method and preserve uncertainty.

Suggested answers

1A: Triassic, Jurassic, Cretaceous. 1B: approximately 50.5, 58.3 and 77.1 million years using the chart boundaries; the Cretaceous is longest. 1C: Stegosaurus lived in the Late Jurassic, tens of millions of years before Late Cretaceous T. rex. 2C example: 'Some reconstructions estimate Spinosaurus at about 14 metres, but fragmentary specimens and changing models make the maximum uncertain.'

Assessment

Look for a named source, a clear distinction between observation and interpretation, and language such as about, estimated, range, specimen and uncertainty. Do not reward false precision.

SOURCES

International Commission on Stratigraphy: stratigraphy.org/chart. Natural History Museum Dino Directory: nhm.ac.uk/discover/dino-directory. Extinct Atlas Wiki teacher downloads, interactive tools and cited species records: extinctatlas.com/educators. Free to print for classroom use with attribution. Generated reconstruction images are not photographs or scientific plates.