

Teacher Guide for the Lesson on **fossil**

Standard:

4.12(C)

Content Objective:

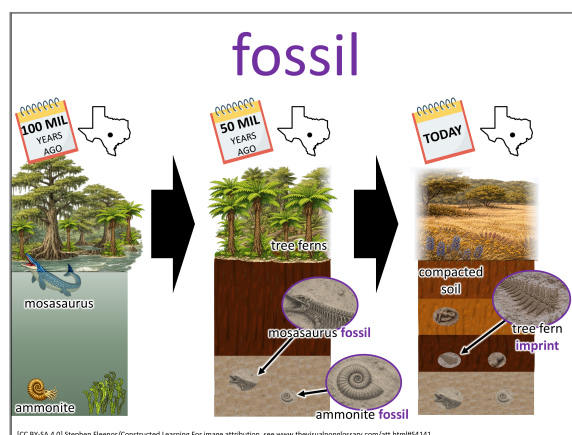
We can identify and describe past environments using fossils found in Texas as evidence.

Language Objective: Answer the following question in complete sentences using the sentence stem and the key vocabulary of the lesson:

What kind of information could **fossils** tell you about past **environments**? Why?

*Based on **fossils**, I could infer... about past **environments** because...*

Other key vocabularies: [living](#), [organism](#), [fossils](#), [environments](#)



By studying this visual, students might:

Notice	Wonder
Some fossils look like bones or shells from once living things	How long does it take for fossils to form?
An imprint can show the shape of a plant	Why are some living things preserved but others are not?
Fossils are found in layers of rock	What kind of environment existed when these fossils formed?
Different fossils may come from different environments	How do scientists know what the organism looked like?
Fossils can look similar to parts of an organism we see today	Can all plants and animals become fossils?

EXTENDING THE DISCUSSION

- After randomly calling on students, if there is anything from this list that was not mentioned, then ask the class, "Did anyone notice...?"
- After students have shared what they notice, ask the class, "Did anyone wonder...?" using the suggestions above or anything else you might think is interesting or relevant to the lesson.

Structured Conversation Prompts

OBSERVATIONAL	RELATIONAL	INFERENTIAL
How do fossils form? Fossils form by...	How is a fossil related to a living organism ? A fossil is related to a living organism because...	What kind of information could fossils tell you about past environments ? Why? Based on fossils , I could infer... about past environments because...

Example Student Responses to the Observational Question

Low-Level	High-Level
Fossils form by plants or animals getting covered by dirt.	Fossils form when the remains or imprints of a living organism are buried in sediment over time.

RESPONDING TO RESPONSES

Emphasize and celebrate each student's use of the key vocabulary to support a culture of "no wrong answers."

STRUCTURING STUDENT CONVERSATIONS

Have students list observations from the visual as a warm-up, then use the Q-SSS-A process to guide small-group conversations. In the slide decks, brackets can be moved to prepare the structured conversation. In the example to the right, students will be instructed: [Q-SSS-A](#).

- To put a thumb up, then lower their hand when they are ready to answer the question
- To share with their elbow/shoulder partner, and that the student with the darkest shoe will share first
- That they will be randomly called on after the conversation



[Here is an example](#) of structuring a conversation with Q-SSS-A.

Note: the inferential question is the same as the language objective. It is recommended that students answer the inferential question in a small-group discussion before answering it individually as the closure or exit ticket of the lesson.

Structured Reading

READING PURPOSE	PAT LIST	POST-READING DISCUSSION
<i>The purpose for reading is to understand how fossils provide evidence about past environments.</i>	• How fossils are formed over time • Examples of fossils found in Texas • How fossils give clues about past environments	How can fossils help us understand past environments? Fossils help us understand past environments because they show... An example is...

STRUCTURING THE READING

Communicate the purpose of reading to the students and instruct them to make a note every time they see something on the PAT ("Pay Attention To") list. How you have students note items on the PAT list is up to you. This could include:

- Putting an asterisk in the margin
- Underlining text that supports the PAT list
- Putting a comment in the margin

Follow the reading with the post-reading discussion. Structure this discussion using the Q-SSS-A process just like the structured conversations in this lesson.

Note: you might find the relational question is better discussed before or after the reading. This depends on whether the relational question is directly related to the reading or might make connections across units.

DIFFERENTIATING THE READING

You will notice that three different reading passages are provided with this lesson. Look at the shapes in the top-left of each passage to determine the grade level.

BELOW GRADE LEVEL	ON GRADE LEVEL	ABOVE GRADE LEVEL
 <i>Triangle is bottom-left</i>	 <i>Square is bottom-left</i>	 <i>Circle is bottom-left</i>

In a class with students at diverse reading level proficiencies, you can give the appropriate reading passage to different students, while having all students follow the same PAT list and post-reading discussion.