



Science Objectives

- Students will analyze fossil characteristics to determine relative dating of fossil samples.
- Students will interpret patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth.

Vocabulary

- fossil
- fossil record
- evolution
- extinction
- relative dating
- radioactive dating
- fossilization

About the Lesson




- As a result of this lesson, students will:
 - Describe how the chronological order of fossilized organisms can provide evidence for evolution.
 - Identify the similarities between organisms to determine relative dating of fossils.

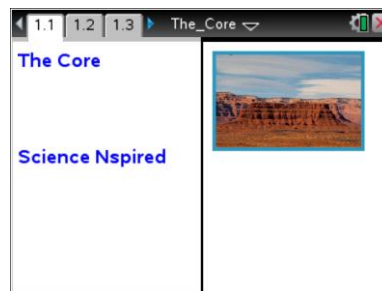


TI-Nspire™ Navigator™

- Send out the *The_Core.tns* file.
- Monitor student progress using Class Capture.
- Use Live Presenter to spotlight student answers.

Activity Materials

- Compatible TI Technologies:  TI-Nspire™ CX Handhelds,  TI-Nspire™ Apps for iPad®,  TI-Nspire™ Software



Tech Tips:

- This activity includes screen captures taken from the TI-Nspire CX handheld. It is also appropriate for use with the TI-Nspire family of products including TI-Nspire software and TI-Nspire App. Slight variations to these directions may be required if using other technologies besides the handheld.
- Watch for additional Tech Tips throughout the activity for the specific technology you are using.
- Access free tutorials at <http://education.ti.com/calculators/pd/US/Online-Learning/Tutorials>

Lesson Files:

Student Activity

- The_Core_Student.doc
- The_Core_Student.pdf

TI-Nspire document

- The_Core.tns



Discussion Points and Possible Answers

Have students read the background information stated on their activity sheet.

Move to page 1.2.

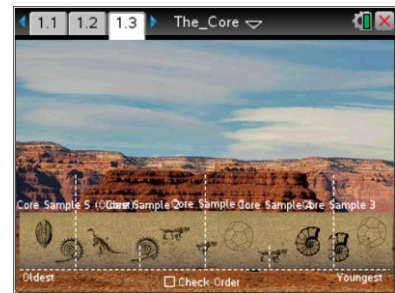
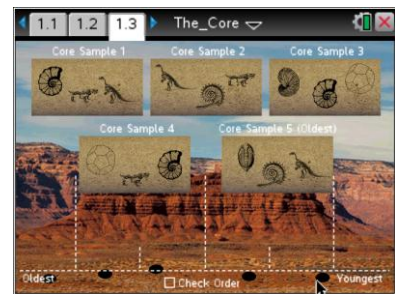
Have students answer question 1 in the .tns file, activity sheet, or both.



Q1. Which of the following is a fossil?



Answer: D. all of the above

Move to page 1.3.

1. Students should move the drill to the desert floor and select the drill to excavate a core sample. They should do this five times.
2. Once all 5 samples are present, the students should manipulate the samples by dragging them to the grid at the bottom of the screen in the correct order from **oldest to youngest**.



 **Tech Tip:** To access the Directions again, select  > **Core Sample** > **Directions**.

 **Tech Tip:** To access the Directions again, select or **Document Tools** () > **Core Sample** > **Directions**.

Move to pages 1.4 – 1.9.

Have students answer questions 2 - 7 in the .tns file, the activity sheet, or both.



Q2. What is the correct order of the fossil cores from oldest to youngest?

Answer: A. 5,2,1,4,3

Q3. How did you determine the order of the fossils?

Student answers may vary. Sample Answer: I started with the oldest sample and analyzed the fossils in this sample. Then, I found another sample that had the most similar fossils and placed it next to the older sample. I repeated this process until the fossils were arranged from oldest to youngest.

Q4. In which layer would you find the more complex fossils and why?

Sample Answer: The more complex fossils would be found near the surface or in the youngest layers of sediment. In general, as organisms evolve over time the fossils tend to become more complex.

Q5. Fossils are usually formed in which type of rock?

Answer: B. sedimentary

Q6. What is the difference between relative dating and radioactive dating?

Sample Answer: Relative dating compares fossils based on the layers of Earth's crust in which they are found. The oldest fossils would be in the lower layers and the youngest would be closer to the surface. Radioactive dating uses radioactive isotopes to obtain a more accurate date of when the sediment around the sample was formed.

Q7. What can the fossil record tell us about the evolution of organisms?

Answer: B. Organisms have become more complex over time.



TI-Nspire Navigator Opportunities

Make a student a Live Presenter to illustrate show how to manipulate the drill and core samples. Throughout the activity, monitor student progress. At the end of the activity, collect the .tns file and save to Portfolio.



Wrap Up

When students are finished with the activity, retrieve the .tns file using TI-Nspire Navigator. Save grades to Portfolio. Discuss activity questions using Slide Show.

Assessment

- Formative assessment will consist of questions embedded in the .tns file. The questions will be graded when the .tns file is retrieved. The Slide Show will be utilized to give students immediate feedback on their assessment.
- Summative assessment could consist of questions/problems on the chapter test or a performance assessment on evolution.