



Sediments and Solution Caves: Part 1

Lesson Objective: After reading about sediments and the formation of solution caves, and making their own sedimentary rocks, students will be able to identify layers of sediments and determine the order in which they settled.

Key Concepts: sediments; sedimentary rocks; stratification; erosion; solution caves; carbonic acid; sulfuric acid; and dissolution.

Duration: 30 minutes (*Caves and Fossils* activity will take up the remaining class time).

Audience: Middle school and high school students



Sediments and Solution Caves:
Part 1

Teacher Copy
and
Answer Key

SEDIMENTS AND CAVES: PART 1 – TEACHER COPY

Sedimentation Activity Materials:

Each group needs:

- Various coarse and fine-grained sediments: sand, silt, mud, gravel/pebbles (using different colored sediments make differentiating between the sediments easier).
- Two-liter plastic soda bottle
- Cement solution: 1 cup water with $\frac{1}{2}$ cup Epsom salt
- Plastic funnel
- Organic matter: various shells, sticks (optional: mini plastic animals and insects).

Teacher Instructions:

1. Begin class by having the students read the introduction section and answer the following questions.
(10 minutes)
2. Demonstrate the Sedimentation Activity Procedure, as outlined on page 3 of the Student Copy of this activity.
(5 minutes)
3. Give the students time to complete the sedimentation activity.
(10 minutes).
4. Allow time for clean-up. Make sure that the students leave their bottles in an area that will not be disturbed.
(5 minutes)
5. Pass out the Caves and Fossils worksheet and give the students the remainder of the class period to complete it.

Answer Key

Questions:

1. What are the 3 main factors that influence the settling of sediments?

- *WIND*
- *WATER*
- *GRAVITY*

2. What binds sediments together to form a solid sedimentary rock?

DECAYING ORGANIC MATTER AND MINERALS FROM GROUNDWATER

3. What is “stratification”?

THE LAYERS OF SEDIMENTS THAT ACCUMULATE IN SEDIMENTARY ROCKS

4. Where are sedimentary rocks naturally weak and easily broken?

AT THE BOUNDARY BETWEEN THE SEDIMENTARY ROCK LAYERS

5. What are 2 types of acids that can dissolve rocks and form caves?

CARBONIC ACID AND SULFURIC ACID

6. What is dissolution?

THE ACT OR PROCESS OF DISSOLVING