FOSS Science Resources

Turn to “Colorado Plateau Map” on page 153.
FOSS Science Resources

Turn to “Landforms Vocabulary” on page 136.
This stream table is a model of the Colorado Plateau. A model is a representation of an object or a system that is too large, too small, too far away, too dangerous, too costly, too fast, or too slow to view directly.
Introduce model

Models give scientists an opportunity to explore objects, systems, and processes that they cannot easily observe in nature.
Focus question

• What happens to earth materials when water flows over landforms?
Introduce recording sheets

Notebook sheets 10–11, *Stream-Table Map* and *Stream-Table Questions*
Introduce vocabulary

• Erosion (verb to erode) is removal and transportation of loose earth material.
• Deposition (verb to deposit) is settling out of eroded earth material, usually in a basin.
Introduce vocabulary

- Sediments are the particles of earth material that are carried along by moving water; sediments settle out when the water slows or stops moving.
While waiting for your turn at the stream table, begin reading “Grand Canyon Flood!” on page 12.
As you read, think about these questions,

1. How is the Grand Canyon flood experiment like a stream-table experiment?

2. How could you set up a model stream table to demonstrate the effects of a flood?
Guide observations

Observe the stream table closely and describe the cause-and-effect relationships.
Guide observations

1. What landforms do you see forming?
2. What is happening to the material eroding from the stream channel?
3. Where is the water moving the fastest? Where does the water slow down?
4. What happens when the water slows down?
Guide observations

5. What color is the water that is flowing out of the stream table into the basin? What would cause it to have that color?

6. How does the flow and erosion change if a boulder blocks the stream? Where does that happen in nature?
Homework

Continue reading “Grand Canyon Flood!” as homework.

Answer the think questions in your notebook.
Homework

View the video *Glen Canyon Dam High Flow Experiment, USGS.*
Write a paragraph to summarize what you learned.
Review stream-table model

1. How was our stream-table model like the Colorado Plateau?
2. How were our earth materials different from the Colorado Plateau?
3. Why didn’t we use solid rock to represent the Colorado Plateau?
4. How would you describe the limitations of the model?
Review stream-table model

• What were some of the landforms that were created in the stream table?
Introduce sorting

• What happened to the particles that were eroded by the water?
• Did you notice any difference in the size of particles moved by the water?
• If we had some larger sediments, such as gravel in the stream table, what happened to the gravel? How might the larger sediments affect the erosion?
The process of separation of different sizes of earth materials is called **sorting**.

- What would happen to the earth material if we let the water run for several days?
Explain sorting

Turn to “Wentworth Scale of Rock Particle Sizes” in FOSS Science Resources on page 159.
Explain sorting

1. Which sediment was carried farther than the rest and took longer to settle out?

2. Which particles were the first to settle out and were not carried very far by the running water?
Explain sorting

3. How far were the fine sand particles carried in the stream table?
4. What size of particles would you expect to find deposited in a stream table between the sand and the clay?
**Compare sorting**

1. How are earth materials in nature sorted by size with water?
2. How would wind contribute to sorting?
Discuss Colorado Plateau

Notebook sheet 11, Stream-Table Questions
Discuss Colorado Plateau

5. Consider the Grand Canyon, and refer to the Colorado Plateau map in *FOSS Science Resources*. Where is the material eroded by the Colorado River deposited today?

6. Where do you think the material that was eroded by the Colorado River was deposited in the past?
Discuss Colorado Plateau

7. Which do you think came first, the Colorado Plateau, the Colorado River, or the Grand Canyon? Support your answer with evidence.
View videos

• What variables might have affected how much and how fast the earth material eroded away in the stream table?
View videos

Notebook sheet 12, Stream-Table Videos
Stream Table: High Flow vs. Low Flow

Stream Table Comparisons
Low Flow vs. High Flow

FOSS Earth History
Introduce differential erosion

Notebook sheet 12, *Stream-Table Videos*
2. In which stream table is the earth material eroding faster and deeper?
3. What is happening to the top sand/clay layer in the heterogeneous materials?
4. What is happening to the layer of red clay?
5. The bottom layer was made out of the same material as the top layer. Why didn’t it erode as quickly?
Review vocabulary

Spend a few minutes reviewing the vocabulary for this part. Update the vocabulary index and table of contents in your notebook.
Review vocabulary

- clay
- deposition
- differential erosion
- erosion
- model
- rock

- sand
- sediment
- silt
- sorting
Answer the focus question

• What happens to earth materials when water flows over landforms?
Homework

View the video *Stream Table: High Slope vs. Low Slope*. Write a summary of the differences when the angle of the stream table is changed.
Wrap-Up/Warm-Up

Discuss your answer to the focus question with a partner, using the crosscutting concept systems and system models.