

Grand Canyon Model Instructions, Part 1 (Teacher Master)

The canyon stream-table model is similar to using a regular stream-table model, but after two demonstrations, students will see that the water has carved out a main canyon and several side canyons. Students will use this model after they explore the Grand Canyon using the Google Earth virtual tour in lessons 3a and 3b. The model is intended to demonstrate how water can move materials like sand and soil out of a canyon.

Materials

- Plastic bin approximately 18" x 6" x 29" (to catch water)
 - Stream-table model (premade)
 - 3 or 4 large spray bottles filled with water (to simulate rain or melting snow)
 - Sand or a mixture of sand and soil (but not potting soil)
1. Place the canyon stream-table model in a plastic bin. Adjust the angle so the upriver end of the model is at least a couple of inches higher than the downriver end.
 2. Add sand and soil "mountains" across the upriver part of the model and on both sides of the upriver edges. This will ensure that the model more accurately reflects what actually happens to form the canyon: The snowmelt from the Rocky Mountains in Colorado flows across the Colorado Plateau in small streams that gradually combine to form the Colorado River as it cuts through the Colorado Plateau and carves out the Grand Canyon.



Photo courtesy of BSCS

3. Fill in the canyon area with diatomaceous earth or a mixture of brown sugar, sand, and soil. Make it somewhat level.



Photo Courtesy of BSCS

4. To run the rain demonstration, have several students use the spray bottles on the upper (higher) portions of the model to simulate snow melting and rain falling in the mountains. Make sure it “rains” all over the mountains.
5. Ask students to observe the effect of the rain on the model. Is anything changing? What is happening to the model?
6. The smaller streams should appear by the end of the demonstration and make side canyons. Ask students how this might relate to what they learned in lessons 3a and 3b.



Photo courtesy of BSCS

7. You can leave the model with the side canyons and beginnings of a river for the next lesson, when you’ll add the “river” using the drip system.