651-6215 (EM-50) Stream Table, Deluxe

Remove the styrofoam packaging before use!

All Stream Tables are leak tested before leaving our facility. If, however, during shipping slight damage has occurred please call. We will be happy to help resolve the problem without the Stream Table being returned. To avoid warranty complications please water test Stream Table upon receipt.

Introduction: Stream tables are an essential part of any earth science classroom. The processes of erosion, sediment deposition, and river behavior are all core concepts. Watersheds are very important, both geologically and ecologically speaking. If students have a strong grasp of how water behaves, they will be better able to understand landscapes.

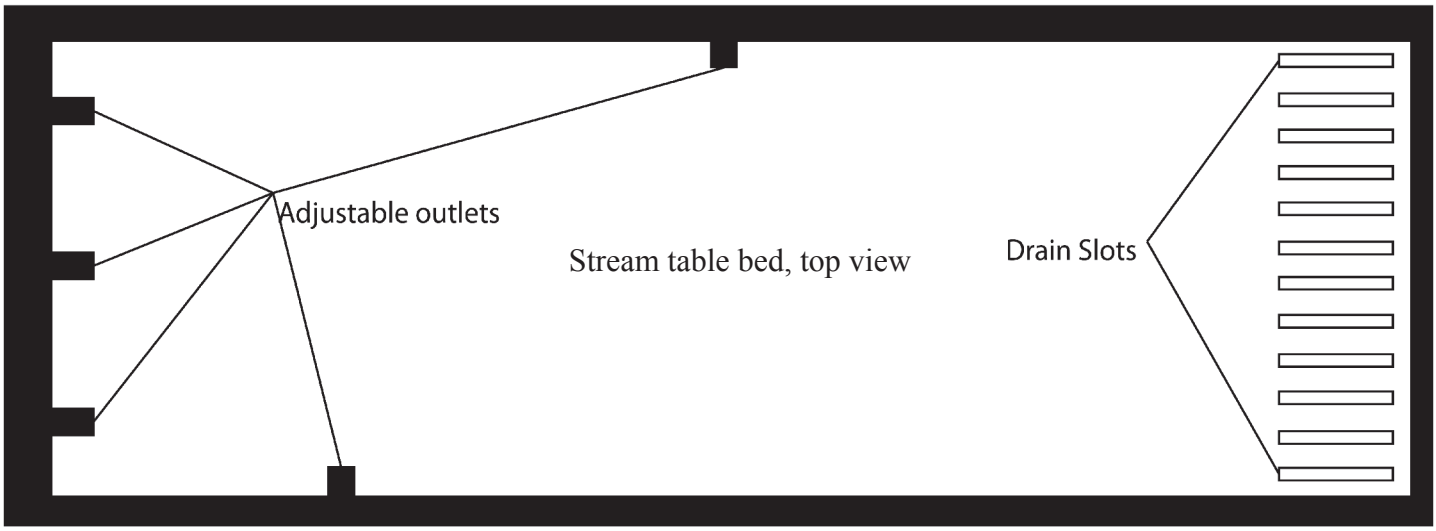
Unfortunately, while real rivers are very impressive, they are slow. The evolution of a river is a process that takes place on a very long time scale. For example, the New River in West Virginia is over 100 million years old! It has taken all that time for the river to reach its present state. It will look much different 100 million years hence. Obviously, students cannot observe a river on that kind of time line. How then to understand one?

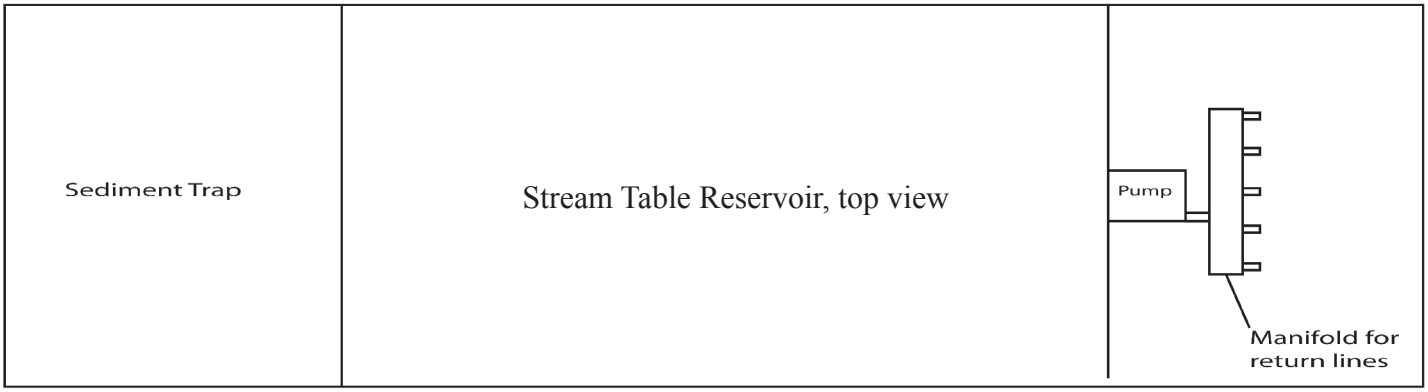
That is what makes stream tables so popular. With one, you can build a river in miniature right inside the classroom. You can watch the evolution of a river unfold at a vastly accelerated rate. Better yet, this model river is easily altered, allowing you to show students the effect of dams, earthquakes, and other large scale events.

Your stream table comes preassembled. Included with your set should be the following:
- The bed: this has clear sides.
- The lower reservoir: this has black sides and an integrated prop at one end.
- A small pump
- A manifold that fits onto the pump and feeds the five return lines.
- Tubing for the return lines.
- A bar to hold the stream table at an angle.
- Sediment dam, to form lakes.

Required, but not included:
- Water. Ordinary tap water is fine.
- Sediments. You can use play sand, soil, gravel, clays, or any type of sediment. Real rivers usually have a mixture of all of these, which settles out as time progresses.
- You may also wish to obtain some small rocks to help divert the flow of water.

Warranty and Parts:
We replace all defective or missing parts free of charge. Additional replacement parts may be ordered toll-free. We accept MasterCard, Visa, checks and School P.O.s. All products warranted to be free from defect for 90 days. Does not apply to accident, misuse or normal wear and tear. Intended for children 13 years of age and up. This item is not a toy. It may contain small parts that can be choking hazards. Adult supervision is required.





- The reservoir area has a strong lip around the top edge. Take the bed of the stream table and place it on this lip.
- Lift one edge of the stream table and connect the pump to the manifold. The outlet on the pump is a piece of gray rubber that slides over the intake on the manifold.
- Mount your pump. You will see four suction cups on the bottom. These attach to the tab in the center of the reservoir.
- Connect the fiver return lines to the manifold. The clear tubing will slide over the nipples on the manifold.
- There are two semicircular clips mounted in the reservoir. Slide the tubing manifold under these to hold it in place.
- Run the cord for the pump out of the slot on the back of the unit.
- Lower the bed of the stream table down.
- On the side of the stream table, you will see five semicircular grooves. This is the prop to hold the stream table at an angle. They are numbered from 1-5, which corresponds to the degree of the angle.
- Lift the end of the bed and slide the white plastic bar into the desired groove. This will hold the bed at the chosen angle.
- The assmebled stream table will have the bed on top of the reservoir, with the slots on the bed at the opposite end from the prop.

Adding water and sediments:

- Fill the reservoir by pouring water into the bed. It will drain out through the slots and fill the reservoir. You will need about 12 gallons of water.
- When all the water has drained out, add your sediments. It is usually best to start with a layer about 3 inches thick, covering 2/3 of the bed. Other arrangements will yield other effects, please see the activities guide for more ideas.

• Plug in the pump. Water will now emerge from the outlets, flowing through the sediment bed. It will cut channels and canyons, just like a real river. You can trace out paths for the water to go with your fingers, or allow it to flow naturally.

Suggested activities:

• Using the sediment dam. This is a flat black piece of plastic with slots cut into it. These slots overlay the drain slots in the bed of the stream table. With the last third of the bed exposed, place the sediment dam over these slots. Angle the bed at setting 1. A shallow lake will now form at the end of the stream table. As sediments wash down, they will form a delta, and later, an alluvial fan. You can also stand the dam upright by wedging it against the clear sides. This will dam even more water for a bigger lake.
• Try cutting a path for a river in the sediment layers with your hand. You can cut curves and loops into it. Activate the center stream, and observe the behavior of the 'river'.
• Activate the three center outlets to form three separate streams. Cut guide channels to make them flow together. This shows how small tributaries come together to form a river.
• Place a small rock under one of the side outlets. Let the water flow. This shows how a mountain stream will flow downhill until it joins with a major river.
• Place small rocks in the center of the river you've created. Watch how the water swirls around them, creating deep pools. Eventually, the rock will cause the river to bend, altering its course entirely.
• Place the bed entirely flat (do not use the prop). Run one or more outlets. Observe how the water slowly spreads out. This is exactly how marshes form.
• Place the bed at setting 5 on your prop. Use small rocks to form a pool near the top. Water will overflow this pool, creating a waterfall.
• Mix a few different types of sediments together, such as sand, fine gravel, and soil. Make sure the mixing is thorough. Spread this mixture throughout the bed and activate the stream. The sediments will separate out by mass, forming layers. You can observe these layers through the clear sides.
• Using your hand, push sediments around to shift the course of the river quickly and drastically. This shows how an earthquake can affect the behavior of rivers.

Maintenance and tips:

• Your stream table will require little maintenance. The all plastic construction will not rot, rust, or warp under normal use.
• The stream table is intended to be run for days or even weeks. The sediment trap in the reservoir is designed to catch any sediments that wash through the drain slots. They will be held back by the retaining wall of the trap. It is possible that enough sediment can accumulate to escape the trap and clog the pump. If you plan to operate the stream table for a very long time, clean out the sediment trap every 2 to 3 days. The liberated sediments can be returned to the bed.
• When you are done using the stream table, clean out all the sediments and wipe down the interior. The unit should be clean and dry before storage.
• Do not use alcohol, ketones, or any other chemical to clean the stream table. This can damage the plastic.
• If you have any doubts about the integrity of your stream table, contact Science First for guidance.
• The clear acrylic sides on the bed are strong. However, they will crack if exposed to a sharp blow. Avoid dropping the unit and do not allow your students to hit it with anything.
• If the water level in the reservoir gets too low, the pump will burn out. Excessive air bubbles in the return lines indicate the water is too low. Add water as needed. In hot environments, evaporation can drastically lower the water level. If you plan to leave your stream table set up for an extended period of time, it is best to add a gallon or two of water every few days, to mitigate the effects of evaporation.