

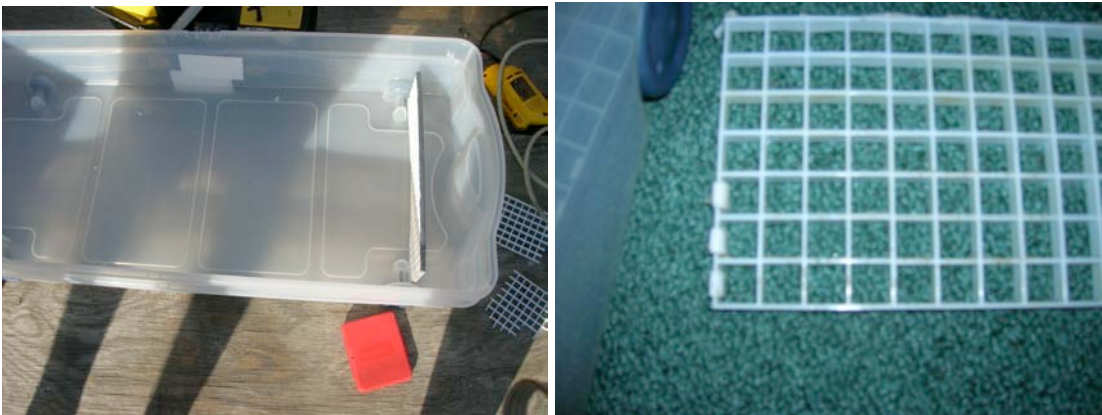
Stream Table Directions

Materials:

- (1) Clear plastic open lidded box approximately 3 feet long, 1.5 feet wide and 1 foot deep
 - (3) Hose connectors 3/8-inch outer diameter
 - (1) Elbow pipe 3/8-inch outer diameter
 - (1) 5 foot clear plastic tubing
 - (1) 18 inch acrylic tubing
 - (1) Tube of adhesive glue that is non water soluble and will adhere to plastic and metal
 - (1) Acrylic egg crate **ceiling tile** (Check to be sure that the acrylic tubing you are using can pass through the squares of the egg crate ceiling tile.)
 - (1) 5 gallon bucket
 - (1) Water fountain pump with the ability to pump 4 feet vertically
 - (2) Bags of play Sand
 - (1) Roll of duct tape
 - (1) Pair of old pantyhose
 - (1) Sharpie or other permanent marker
 - (1) Package rubber bands
 - (1) Drill
- Optional:
- (1) Q-tip with the cotton removed
- blocks of wood or books for adding a gradient to the stream table

Instructions:

1. Start by laying the plastic box out on a work area that provides plenty of elbowroom. Measure the inside width of the plastic box and cut a piece of the acrylic tile to fit snugly inside the plastic box. See figure 1 and 2. (Note: wrapping duct tape around the edges of the acrylic egg crate ceiling tile will help the piece of the tile to fit tightly. See figure 3.)



Figures 1 and 2.



Figure 3.

2. Once the acrylic egg crate ceiling tile is in place, cut a piece of the vinyl tubing to a length 1 inch greater than the distance between the edge of the box and the acrylic sheet. See figure 4. Once this tubing is cut insert it through egg crate section and push the tubing flush with the outside of the box.



Figure 4.

3. Use a sharpie or other permanent marker to outline the diameter of the tubing on the outside of the box. See figures 5.



Figures 5 and 6.

4. This should be done three times, once near the bottom, middle and top of the box. See figure 6.

5. Using an electric drill, punch out the holes where marked for the hose connectors to pass through. See figure 7.



Figure 7.

6. Wrap a small piece of duct tape around the middle of each hose connector so that when the hose connector is pushed through the holes in the box a very snug fit is established. Turning the hose connector, while pushing, will help to get the hose connector in place. See figures 8 and 9.



Figures 8 and 9.

7. After pushing each hose connector through the holes and verifying a snug fit, slip the acrylic tubing through the acrylic egg crate ceiling tile and connect it to the hose connector. See figure 10.



Figure 10.

8. At the opposite end of the box near the bottom about two inches up mark and drill another 3/8" hole. The elbow pipe should then be wrapped slightly with duct tape around the bend and inserted into this hole in the same manner that the hose connectors were pushed through. This will function as the drain. See figures 11 and 12.



Figures 11 and 12.

9. Once all the connectors are in place, apply the adhesive. A Q-tip with the cotton tip stripped off works well for this. Make sure the working area is well ventilated if the fumes from the particular glue you are using are toxic. Apply the glue around all openings including the hose connectors and plastic box both inside and out, the sides of the egg crate section to the inside of the plastic box etc. Leave the glue to dry overnight. See figure 13.



Figure 13.

10. After the glue has dried, cut 4 square pieces 2"X 2" out of an old pair of pantyhose. Place the pantyhose over the ends of each acrylic tube and drain inside the table. Use the rubber bands over the panty hose and tubing to secure the panty hose in place. This prevents coarse-grained sediments from clogging the tubes and drain.

11. The 5-gallon bucket should be filled with water and placed below the stream table. It may help to put the stream table on a short table and place the bucket on the floor. When deciding where to place the stream table, make sure you are near an electric outlet and if possible, a source of water.

12. Cut the 5-foot plastic tubing in half. One half of the tubing will connect to the drain on one end to the 5-gallon bucket on the other. The water fountain pump should then be placed inside the 5-gallon bucket and the bucket should be filled with water.

13. The other half of the plastic tubing should be connected to the water fountain pump. Note: When buying materials, make sure the connection for the water fountain pump and the clear plastic tubing are the same size. For example the water fountain pump connection should have an outside diameter of 3/8" if the inner diameter of the clear tubing is 3/8". If the sizes do not match, adapters may be purchased.

14. After the tubing is hooked up to the water fountain pump, attach the other end to one of the three hose connectors on the stream table. If you choose the two connectors closest to the bottom of the box, water will be entering beneath ground level and the stream table will model ground sapping and artesian springs. The top hose connector will simulate above ground recharge or run-off.

15. To achieve different stream gradients, place books or blocks of wood under the connector end of the stream table. When the stream table is resting at the desired angle, empty the play sand into the stream table and level the sand to just below the top hose connector.

16. Plug in the pump and turn it on. If the pump is not strong enough to pump the water when there is air in the tube, fill the tube with water first and then turn on the pump. As always, exercise caution when dealing with water and electricity.