

Notes to the Future
Dancing Drops

a. Supplies: We got most of our supplies from Home Depot. We used wood for the base and the stand with nails and L-brackets to hold it together. For tubing we found thin, clear, flexible tubing from the irrigation section at Home Depot. The tubing needs to be flexible so that it can be compressed. We also found a small clamp and some caulking glue. For the tank, we used a large plastic water bottle. The strobe light can be supplied by Mr. Baird. We also found a small water pump, the kind used in fish tanks, from a website called KidWind.

b. Construction: One of the main difficulties with this exhibit is maintaining a constant drip speed. For this, we used three different tubes. The first is used as a siphon. It will rest in the bottom of the tank and will drip with its open end hanging horizontally to the bowl of tray you are using to catch the water. Place the clamp on the stand and compress this tube against the stand to put pressure on the water flow. The tighter you clamp it, the slower the flow of drips that will come out of the open tube. With the second tube, you should connect it to the water pump which will rest in the bowl that collects the water. Then this tube will climb back up into the bottle to recycle the water and maintain that the water level within the tank does not run out. To make this work, you need batteries and alligator clips. Our water pump required 3 batteries, but we didn't have a 3 battery case, so we made one out of a paper towel roll. We placed a spring on the bottom for conductivity and an aluminum rod on top. Then we connected the two wires with alligator clips to the wires coming from the water pump. Next, in order to maintain a constant water level in the tank, you need to create an overflow passage. To do this, drill a hole in the water tank at a level somewhere above the midline the level does not matter). This hole should fit around your tubing fairly tightly. Use your third tube by sticking it into this hole so that only about an inch of it is inside the tank, and the other end is in the water-collecting bowl. As the water pump pumps water back up into the tank, the water that flows up to the level of the overflow tube will pass out of the tank and back into the bowl, thus creating a steady water level. This is important because it helps to maintain a constant drip speed with a constant pressure head. After you have inserted the overflow tube, fill the spaces with caulking to prevent leaking. After you have created this setup, the one variable of drip speed will be fairly easy to control, and all you will have to concern yourself with is adjusting the strobe light speed.

c. Suggestions for Improvement: Unfortunately, our exhibit was not very attractive. It was plain wood with metal and tubing. We were under a misconceived notion that, because we would be in the dark room, no one would be able to see the artistic flaws of our exhibit. In actuality, the dark room is not all that dark, so we suggest that Future Dancing Drops exhibitors make an attempt to beautify the exhibit.

d. Dealing with Kids: Kids were very fascinated with the dancing drops, particularly when they moved upward. If you have good control over the strobe light, you should be able to easily change from the drops moving down, to being still, to moving up. In addition, the back of ours strobe light was facing the area where the kids stood, and some of them thought that they were supposed to play with the knobs on it. We recommend putting a small sign that says “Do not touch” to prevent any confusion.

e. Previous Advice: Some of the previous exhibitors suggested going to Emeigh hardware. Other than that, our design for Dancing Drops is fairly different from previous designs. Any of the methods will probably work, but with ours you will probably get the most control over the drip speed.

f. Extra Information: Don’t get discouraged, there are so many ways to make this work. If one way doesn’t work, try another. Also, it might be a good idea to practice with the strobe light and the drip rate before the day of the exhibit. We found that during the exhibit day, we became more skilled with adjusting the strobe light to create the best effect. If we had practiced just a little beforehand, we may have been able to more skillfully handle the exhibit.