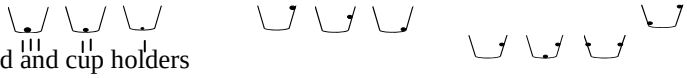
Water Dynamics

Materials Needed

Water Table
Clear plastic disposable cups* (some with holes drilled into the bottoms, some with holes drilled into the sides, and some with both side and bottom holes -- we make three sized holes, 1/8 inch, 1/4 inch & 1/2 inch)



Pegboard and cup holders
The cup holders are heavy wire circles welded onto peg board hooks

Purpose of the Activity

Water experimentation often surprises children and inspires them to reason in order to resolve contradictions between their expectations and the results of actions. The movement of water as it flows or drains offers children the opportunity to construct relationships (for example, the relationship between pouring water into cups with holes and the movement of the water as it drains out of the cups). As children think of and test new ideas, they not only construct knowledge of the properties of water, but also develop their reasoning, knowledge, and intelligence.

Interactions between children at the water table also inspire cooperation. By noticing how other children use materials, children find new ways of using them. By collaborating, they often construct more complex arrangements of cups that challenge their reasoning further than when they work alone.

Beginning the Activity

One way to begin the activity is to introduce the cups during group time. Show the cups with holes drilled in the bottom and ask, "What will happen if we pour water into these cups?" When children have ideas, you can suggest they try them out during activity time.

Another way to introduce this activity is simply to place the cups in the water table and allow the children to experiment. We color the water with food coloring to help children focus on the water streams from the cups. We usually start with cups with only one hole in the bottom (small, medium, or large). Later, we add cups with different sized holes in the sides, and still later, we add cups with both side and bottom holes.

An important piece of equipment for this activity is a pegboard with hooks that will hold the cups. Sometimes we provide the pegboard at the beginning of this activity and sometimes we add it after the children have had time to experiment with the cups alone. The ability to arrange the cups in a stable position frees the children's hands for pouring, and allows them to observe the relationships among the water, the different sized holes, the location of the holes, and the placement of the cups.

Questioning

Well-chosen questions at appropriate times help stimulate children to consider new problems. The following are some examples. "Where do you think the water will go?" "Which cup will work better on the top?" "Which cup do you like better on top? Why?" "Can you figure out a way to get the water to flow from here all the way down to there?" "What do you think will happen if you switch the cups?" "How can you move the cups so all the water will flow into one cup?" "I wonder why one cup is emptying before the others?"

* We use Solo brand 9 ounce cups.

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