



Waterwheel

Water can be strong and powerful. Here is a design idea for something that can use the power of water to make it lift or move an object.

One way is by using a waterwheel.



Equipment

1. One egg carton (don't use a cardboard one - it won't work).
2. A Styrofoam cup (the kind used for holding hot drinks).
3. A Styrofoam block (you can buy this at any craft, or 'Do-it-yourself' shop).
4. A large drinking straw.
5. Four paper-clips.
6. A pencil and some string.
7. A pair of scissors.

Safety Stuff

Check with an adult before you begin any of these projects. You'll probably need their help at some stage and it's best if they know that in advance. Working with items such as scissors can be dangerous, so be very careful when you use them. Make sure that you never leave them open or lying around where smaller children can reach them.

Before starting, cover the work surface you're going to use with some newspaper or an old cloth, and make sure that you are wearing an apron or some old clothes. Gather together all the items you will need before you begin. That way everything stays organised!

When you have finished, don't forget to tidy up afterwards!

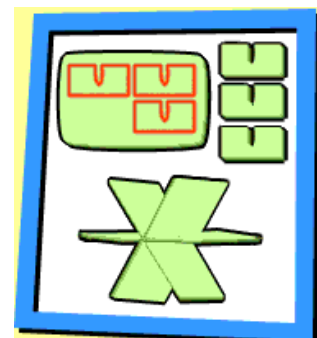
Steps

Step One

Cut three strips from the lid of the egg carton. Make sure that the three strips are all the same size.

Cut a narrow notch in the middle of each strip.

Then fit the three strips together to form a wheel shape, like this.

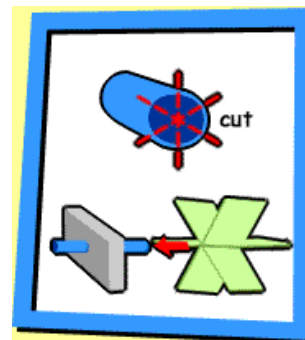


Step Two

Use a pencil to poke a hole right through the centre of the Styrofoam block. The hole should be slightly larger than the diameter of the drinking straw.

Carefully make several long cuts in one end of the drinking straw and then insert the straw into the Styrofoam block.

Push the centre of the wheel between the slits in the straw. Make sure it's mounted quite securely on the end of the straw.



Step Three

Straighten out the four paper-clips. Bend each one into an 'S' shape.

Hook three of the paper-clips around the rim of the Styrofoam cup (the bucket).

Then use the fourth paper-clip to link together the free ends of the other three, like this.



Step Four

Use the end of a straight paper-clip to make a small hole in the end of the straw.

Push one end of the string through the hole and knot it tightly.

Tie the other end of the string to the paper-clip.

Your waterwheel is now ready to use. Hold it under running water and see how the force of the water causes the wheel to spin. This in turn will move the cup at the bottom.



Step Five

See what happens if you turn the tap to make the water flow faster or slower. Can you also work out how to use the power of the water to raise and lower the Styrofoam cup? You could even try placing a small weight in the bottom of the cup and seeing if the wheel can still make it move.

See if you can think of any other ways that you could use this design. For example, can you adapt your design to bring water to dry land where plants might be growing? (That's called irrigation). You could even try adding moving blades to create a small water turbine, which can generate electricity - what we call hydroelectric power.