Hydropower: Lifting Bolts with Different Pressures
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Abstract
How do different pressures effect how heavy of a load a water wheel could lift? Less pressures cannot lift as much weight as a higher pressure could lift. Medium pressures will be different.

Introduction
Hydropower is about using water to be an alternative energy. In my experiment, I used water to lift a heavy load of bolts. I timed how many seconds it took to completely lift, measured the volume, and found averages.

Hypothesis
I think when we apply more pressure we can lift faster, lift heavier items, and use less water while doing it. When we use medium pressure it will have similar results to highest pressure when using more bolts. When we raise the amount of bolts medium’s outcome will be closer to lowest pressure. Also, when we use lowest pressure, it will lift lighter weights, lift the items slower, and use more water and be less productive. Lastly, highest pressure will be able to lift around 6-8 bolts. Medium will be able to lift about medium bolts. The lowest pressure will be able to lift about 1-5 bolts.
Materials
4 Aluminum pie plates
4 Sharpie
Drill w/ 3/8 drill bit
Epoxy glue
Scotch tape
Wood dowel
Rack that weight approx. 377.1 g

Method
1. Collect supplies
2. Take scissors and cut the flat parts of 4 pie plates.
3. Epoxy glue the 4 plates together.
4. Follow “Figure A” (draw lines and cut the solid lines)
5. Carefully bend each paddle along the dotted lines
6. Drill a 5/16-inch hole through the middle of the wheel.
7. Glue the nylon spacer on in the hole with Epoxy glue.
8. Push the wooden dowel through the spacer.
9. Apply thin pieces of tape to one side of the dowel.
10. Test your hose with nozzle
11. Run your project three times each with different weights and pressures.
12. Record your data.

Scissors
Ruler
Nylon Spacers
Plastic bucket (removable handles)
String (support weight)
Metal bolts
Hose
Hose nozzle with settings
Acknowledgements: Sierra would like to thank her science teachers, Mrs. Jo and Dr. Tetz, and her stepmom, Melissa A. Farrow, Ph.D., for teaching her everything she knows and making her a way better scientist.

About the Author: Sierra is a fourth-grade student at Dan Mills Elementary School.