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POWERZONE
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Hydro-Power Experiment Activity

Ready to get started with this activity? To keep track of your progress, check off the instructions for each step below as they are completed.

Consider this: Dams are built with hydroelectric turbines to take advantage of the high pressure of the water at the bottom of a reservoir. The water is funneled through a shaft called a penstock. This focuses the water pressure on the blades of the turbine. The turning of the turbine blades generates electricity.

Water has weight. In our experiment, we'll see how more weight presses down as we get closer to the bottom of the milk carton. More weight creates more water pressure. This increased water pressure can be observed by looking at how far the water streams reach. The further away from the carton, the more pressure.

This science experiment will explore the force of water and help you get a better understanding of how dams are constructed to produce electricity.

☐ 1. Gather Your Materials

- Gallon of water
- Large nail
- Masking tape
- Ruler
- Pair of scissors
- Permanent marker or pen
- Pad of paper and pencil to make notes
- Half gallon paper milk/juice carton (empty and washed out)

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2. Prepare Your Milk Container and Measure

- Open the top of the milk carton or cut off the top.
- From the bottom of the milk carton, measure up ½ inch and make a mark with the permanent marker. Then repeat this, making a mark at 2 ½ inches and 4 ½ inches.

3. Punch Holes Using a Nail

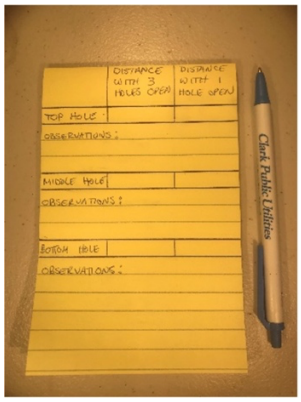
- Using the large nail punch a hole into the side of the carton at each mark.
- Make sure to push the nail all the way through but do not enlarge the hole. You will want all the holes the same size.

4. Apply Tape

- Mark a line on the inside of the carton near the top. Always fill or refill the milk carton with water to that same line.
- Using one long piece of tape, tape over all of the holes.

5. Assemble Your Ruler and Charts

- Place a ruler in the sink so you can measure how far from the carton the water streams reach.
- Make a chart to record the distance of each stream.



6. Record Your Observations

- Now, remove the tape that is covering all the three holes and observe what happens.
- Record the distance of each stream on your chart.
- Let all the water empty out. What happens to the streams of water as the water level drops? Record your observations.

7. Repeat and Record

- Next, tape up each hole with a separate piece of tape.
- Put the carton back on the sink edge. Refill the carton and remove the bottom tape. Measure how far out the stream goes.
- Re-tape the hole and refill the carton with water. Un-tape the next hole up; measure how far away the stream goes.
- Refill the carton a third time and repeat.

8. Things to Think About

- How far away did the streams of water reach from the carton?
- Was there a difference between the stream from the bottom hole than from the others?
- If there was a difference, can you think of a reason why?