

# Paper Towel Testing

Advertising influences the products that we purchase. Manufacturers often claim that their product is the best. This activity will help you evaluate the validity of their claims.

## PROBLEM:

Which paper towel is the strongest when wet?

## WHAT YOU NEED:

- 4 brands of paper towels (same ply)
- rubberband
- plastic cup
- eyedropper
- water
- 50 pennies
- magnifying lens

## PROCEDURE:

1. Identify one sheet of each brand of paper towel by marking it A, B, C, or D.
2. Using the magnifying lens, examine each brand of paper towel and observe the way in which the fibers are woven.
3. Draw and describe what you've observed on the chart.
4. Based on your observation, predict which towel, when wet, will be the strongest.
5. Place paper towel brand A over the cup, securing it with a rubber band.

6. Using the eyedropper, wet the paper towel covering the top of the cup with 20 drops of water.
7. One at a time, place pennies on top of the wet towel until the paper tears.
8. Record on the chart the number of pennies paper towel brand A was able to hold before it tore.
9. Repeat steps 5-8 for brands B, C, and D.
10. Based upon the data, is there a relationship between the strength of the paper towel and the weave?

Brand	Drawing of weave	Description of weave	Number of pennies
A			
B			
C			
D			

**SUMMARY:** The strength of a wet paper towel is directly related to its weave. Specific patterns are used when greater structural strength is desired. Examples of this can also be seen in furniture, towers and bridges.

## EXTENSIONS:

### *Further investigations:*

1. We also want a paper towel that will efficiently clean up spills. Design an investigation to determine which of the paper towels will pick up the most water. You will be investigating the concept of absorbancy.

### *Literacy Connections:*

Sneider, Cary I., Barber, Jacqueline, Bergman, Lincoln, *Paper Towel Testing*. 1999.

### *Mathematical Connection:*

When you clean up a spill, you must tear off at least one paper towel sheet. The next time your family buys paper towels, calculate the cost of each sheet.

### *Related Sites:*

- <http://www.sasked.gov.sk.ca/docs/midlsci/gr8ufmhc.html>
- <http://www.lbl.gov/MicroWorlds/Kevlar/KevClue2Act1.html>
- <http://www.dreamscape.com/kernanut/towel/page4.html>