

Name: _____ Date: _____ Pd: _____

Which Toilet Paper has the Greatest Strength When Wet? A Scientific Method Investigation with CER

Purpose:

Some scientists work for consumer testing agencies to help evaluate the effectiveness of consumer products. In this investigation, four brands of toilet paper are provided for evaluation. All groups will perform the same standard procedures. This experiment is just one possible way to determine which brand of toilet paper is the strongest when wet.

Materials (per group):

Toilet paper squares of four different brands	1 Large Beaker
Rubber bands	Water
Pipette	Pennies
1 small Beaker (to hold water)	

Procedure:

1. Make observations about each brand of toilet paper and record these observations in the section labeled below as “**Observations**”.
2. Hypothesize which brand will hold the most pennies when wet – EXPLAIN WHY you chose that brand. Write these ideas in the sectioned labeled below as “**Hypothesis**”.
3. Place a sheet of toilet paper A over the top of the larger beaker. Use the rubber band to firmly hold the toilet paper tight like a drumhead around the beaker. DO NOT put the perforated part of the toilet paper over the center of the beaker.
4. Fill the smaller beaker with water.
5. Using a pipette, add exactly 3 drops of water to the center of the toilet paper. (NOTE – the key here is to be consistent by adding the same number of drops of water to the toilet paper sample each time)
6. Wait 10 sec to allow the water to spread.
7. GENTLY place the pennies onto the center of the toilet paper, one at a time. Stop as soon as the paper breaks. Do not drop the pennies on the paper.
8. Count the pennies that fell into the beaker. Record this value on the Data table. Save the pennies for reuse.
9. Continue on to the next brand of toilet paper.
10. If time allows, repeat each brand of toilet paper a second time for more accurate data.
11. When the data collection is complete, clean up your area.

Observations:

Hypothesis:

DATA:

TOILET PAPER	TRIAL 1	TRIAL 2	AVERAGE
Paper A Brand: _____			
Paper B Brand: _____			
Paper C Brand: _____			
Paper D Brand: _____			

CONCLUSION: Answer the questions below using complete sentences.

1) What is the independent variable in this experiment?

2) What is the dependent variable in this experiment?

3) List at least three constants in this experiment.

a. _____

b. _____

c. _____

4) **Scientific Claim:** Create a scientific claim: Which brand was the strongest based on your data?

5) **Evidence:** What evidence did you use to support your claim?

6) **Reasoning:** Explain your reasoning and how the data supports your claim. Connect the data back to what you learned about toilet paper and strength. *What is the big picture?*

Graph: Complete the graph provided, making sure to include all elements of a proper scientific graph. Your graph should show your group average measurements for each brand of toilet paper.

