



SCIENCE EXPERIMENT LAB SHEET

Making Homemade Paper and Testing Its Strength

QUESTION

How does the number of paper layers affect the strength of homemade paper?

Name: _____ Date: _____

BACKGROUND

Paper is made from tiny fibers that stick together as the water dries. Thicker paper (more layers) should be stronger because it has more fibers holding it together. In this experiment, you will make your own paper and test how many layers make it the strongest.

HYPOTHESIS

If I increase the number of layers of homemade paper, then the paper will be able to hold more weight before it breaks.

MATERIALS

- Waste paper (printer paper, notebook paper, or scrap paper)
- Blender
- Water
- Screen or picture frame with mesh (or window screen)
- Sponge or dish towel
- Flat surface for drying
- Weights (such as books)
- Tape
- Scissors (optional)
- Ruler
- Small objects for the strength test (coins, washers, or small mass weights)

PROCEDURE

1. Tear waste paper into small pieces and place in a bowl. Cover with water and let it soak for 30 minutes.
2. Drain some water and blend the soaked paper with fresh water until it becomes a pulp (smooth and mushy).
3. Fill a tray or shallow pan with water. Stir the pulp and pour some into the tray.
4. Dip the screen/frame into the water, holding it level. Gently lift it up so the pulp spreads evenly on the mesh.
5. Let the water drain out. Press the screen on a towel or sponge to remove more water.
6. To make multiple layers, repeat steps 3–5, placing the new layer on top of the previous layer before drying.
7. Remove the wet paper sheet from the screen and place it between towels or paper towels.
Place weights on top and let it dry for at least 24 hours.
8. When dry, cut the paper into test strips (about 2 cm wide and 15 cm long).

TESTING STRENGTH

1. Tape each end of the paper strip to the edge of two tables or stacks of books, with a gap in between.
2. Hang a small container (cup) from the middle using a clip or tape.
3. Add small objects (coins or washers) one at a time to the cup until the paper breaks.
4. Record the total weight the paper held before breaking.
(Convert to grams if using washers or coins.)

DATA TABLE

Number of Layers	Weight Held Before Breaking (g)	Observations (How it looked / felt)
1 Layer		
2 Layers		
3 Layers		
4 Layers		
5 Layers		

ANALYSIS

1. What happened to the strength as you added more layers? _____
2. Why do you think more layers made the paper stronger? _____
3. If you did this experiment again, what would you try differently? _____

CONCLUSION

What did you learn from this experiment?



SCIENCE TIP: Keep your test fair! Use the same size strips and the same type of objects for each test.