

Name _____

Date _____ Period _____

Paper Towel Absorption Lab

Purpose: To practice the skills used to design experiments

Problem: Many brands of paper towels claim that they can pick up the most amount of liquid. How do we determine which towel does?

Background Information: Since paper towels are used to pick up liquids, the volume of liquid it can hold is important. The amount of liquid a towel can absorb can be measured by the volume of liquid it picks up.

The Task: To design an experimental investigation (a fair test) to test the strength of three different brands of paper towels. You will have these materials to conduct the experiment:

3 Brands of paper towels	Water	Graduated cylinder
Plastic cup	Tweezers	Beaker
Ruler	Scissors	Lab tray

Step One: Identify Variables

Paper Towel Brands - make observations

Brand A	Brand B	Brand C

Independent Variables [what you will change, or the difference between the groups]. Look at the three different paper towels you have in front of you. What differences do you notice? Do you think one of these differences is related to the absorbency of the paper towel? Choose one to be your IV and write it here:

Dependent Variable [what you will observe and measure, the data that you will collect]
In this lab, our dependent variable will be the volume of liquid the paper towel can hold.

Step Two: Write a Hypothesis

Write a **HYPOTHESIS** that shows the expected relationship between the variables. Use an **IF, THEN** statement.

If _____,

then _____.

Step Three: Procedure

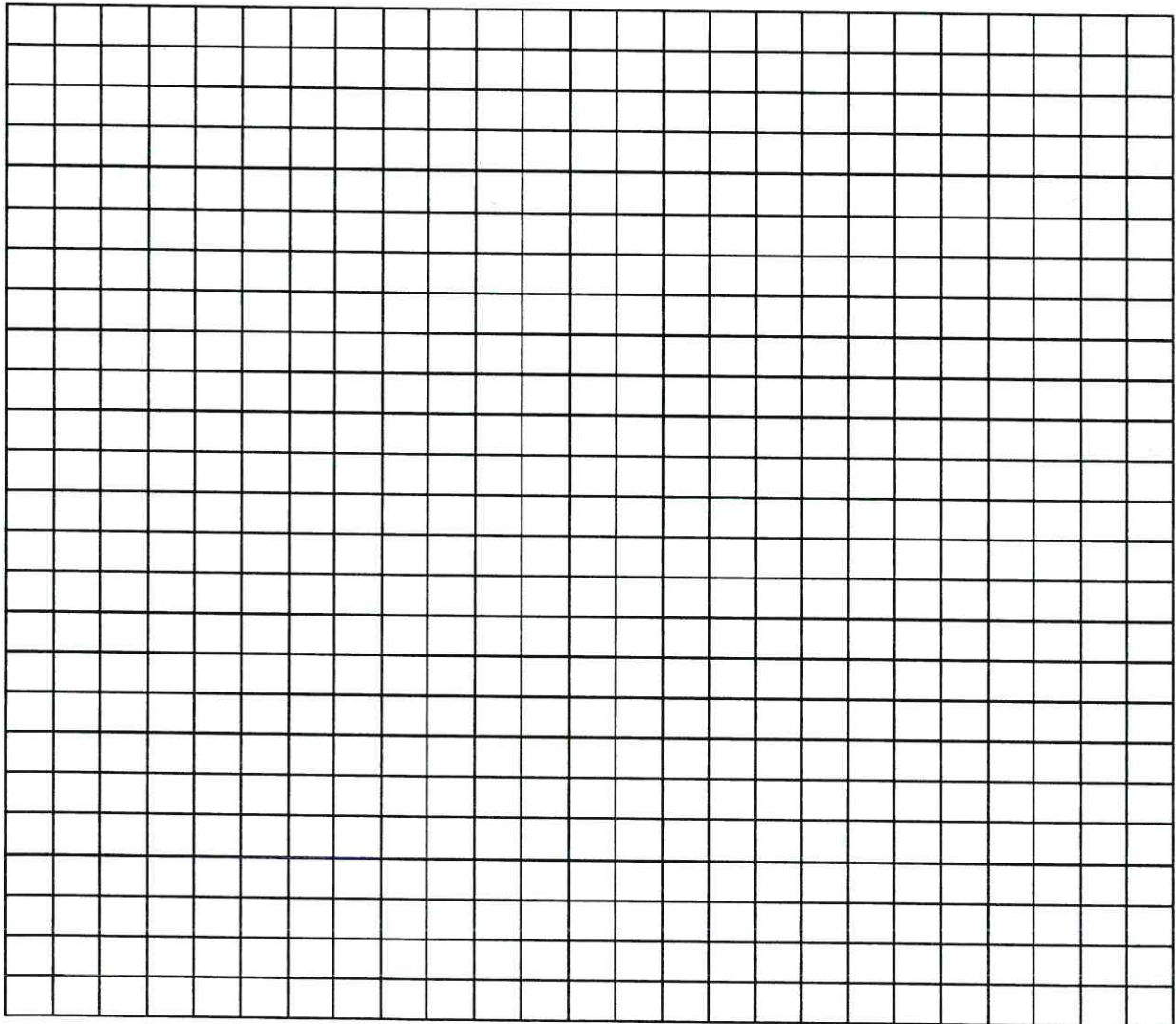
1. Cut 2 cm by 28 cm strips of each towel.
2. Fill a beaker with 100 ml of water.
3. Put the strip in the water.
4. Allow the paper towel to absorb the water.
5. Take the paper towel out of the water.
6. Measure how much water remains in the beaker.
7. Subtract how much water remaining in the beaker from 100ml. This will tell you how much water the paper towel absorbed.
8. Record your data in the data table.
9. Repeat 4 more times and average your trials.

Step Four: Record your data

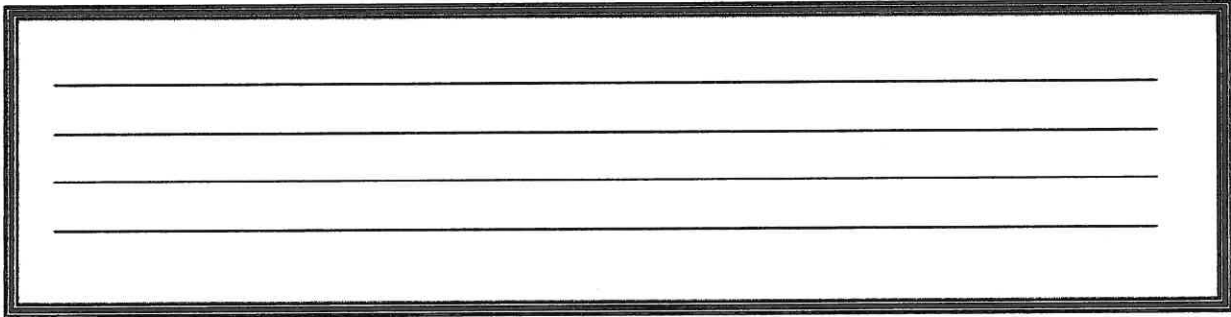
(volume of water in ml)	Brand A	Brand B	Brand C
Trial 1			
Trial 2			
Trial 3			
Trial 4			
Trial 5			
Average			

Step Five: Graph your data.

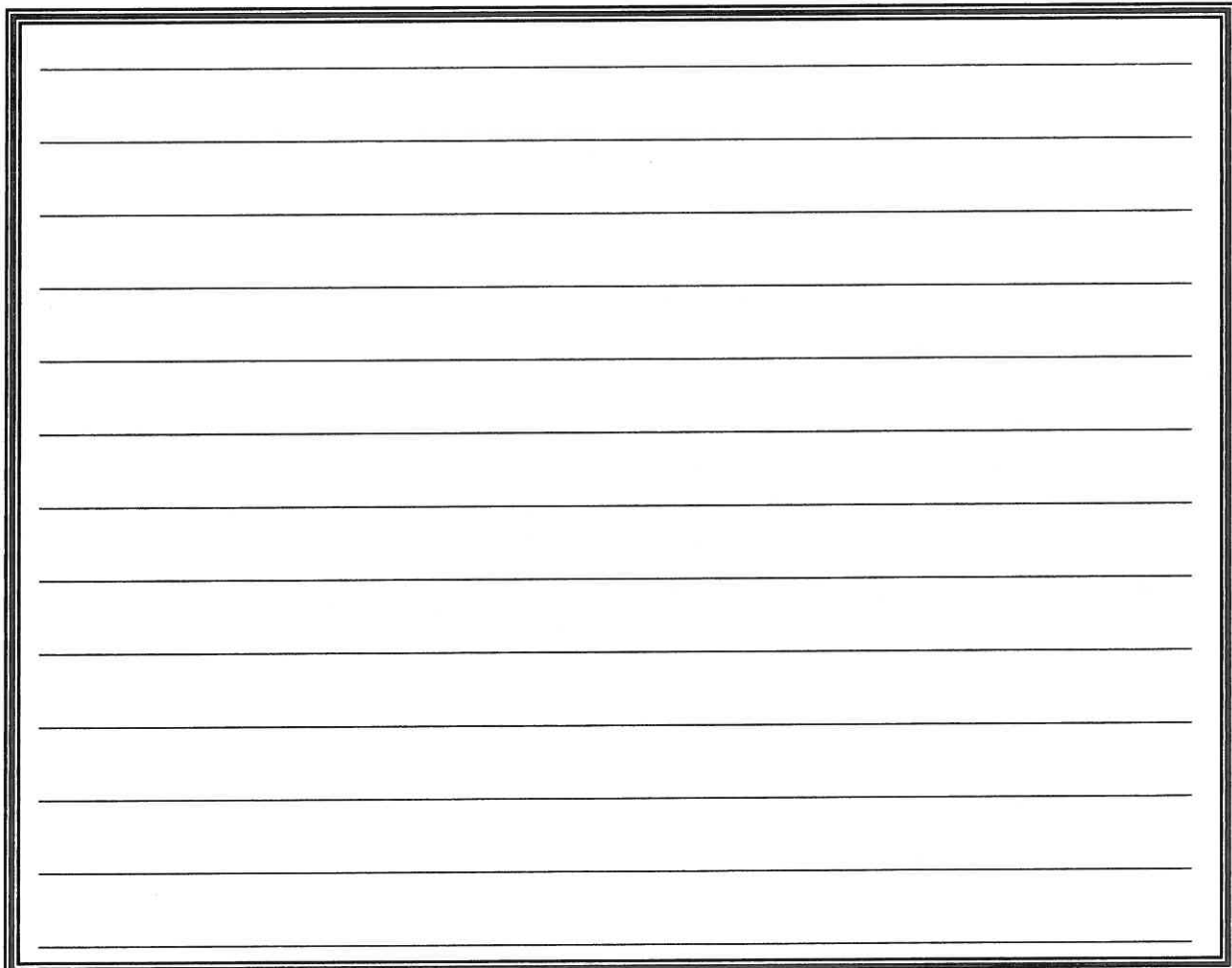
Create a bar graph of your reduced (averaged) data. Make sure you include a title, label the x and y-axis and use an appropriate scale for your averaged data.

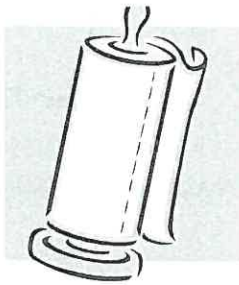


Step 6: ANALYZE your data: What story does the graph tell? What do you know about the effect of the independent variable on the dependent variable? Do you see a relationship?



Step 7: Write a CONCLUSION. Answer you original question. (Which paper towel absorbed the most liquid?) Accept or reject your hypothesis. Use actual data [real numbers] to provide evidence for what you say. Identify any sources of error.





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Ruler	Scissors	Lab tray

Step One: Identify Variables

qualitative / quantitative

Paper Towel Brands - make observations

Brand A	Brand B	Brand C
<i>Member's Mark</i>	<i>Bounty</i>	<i>Up & Up</i>

Independent Variables [what you will change, or the difference between the groups]. Look at the three different paper towels you have in front of you. What differences do you notice? Do you think one of these differences is related to the absorbency of the paper towel? Choose one to be your IV and write it here:

thickness, thirst pockets design, softness

Dependent Variable [what you will observe and measure, the data that you will collect]

In this lab, our dependent variable will be the volume of liquid the paper towel can hold.

Control Variables:

Step Two: Write a Hypothesis

Write a **HYPOTHESIS** that shows the expected relationship between the variables. Use an **IF, THEN** statement.

If the thickness of the towel is related to absorbency
then the thickest towel (Brand A) will absorb the most $\frac{100}{5}$.

Step Three: Procedure

1. Cut 2 cm by 28 cm strips of each towel.
2. Fill a beaker with 100 ml of water.
3. Put the strip in the water.
4. Allow the paper towel to absorb the water.
5. Take the paper towel out of the water.
6. Measure how much water remains in the beaker.
7. Subtract how much water remaining in the beaker from 100ml. This will tell you how much water the paper towel absorbed.
8. Record your data in the data table.
9. Repeat 4 more times and average your trials.

Step Four: Record your data

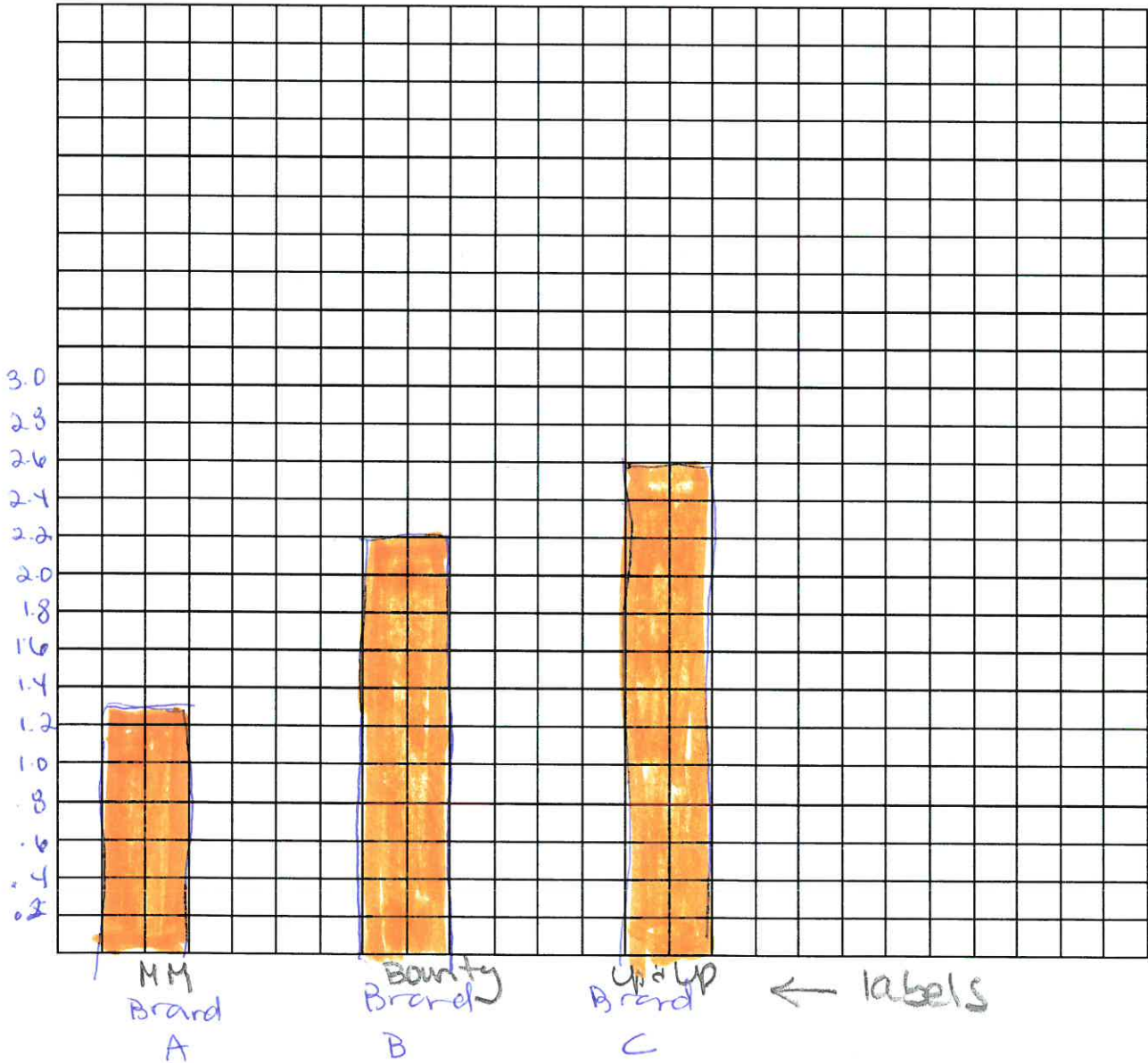
(volume of water in ml)	Brand A	Brand B	Brand C
Trial 1	1	2	3
Trial 2	1.5	2	2.5
Trial 3	1	2	2
Trial 4	1	3	2.5
Trial 5	2	2	3
Average	$6.5/5 = 1.3$	$11/5 = 2.2$	$13/5 = 2.6$

Step Five: Graph your data.

Create a bar graph of your reduced (averaged) data. Make sure you include a title, label the x and y-axis and use an appropriate scale for your averaged data.

amount of H₂O (ml) ← title: unit of measurement

Thickness of Towel & Absorbency ← title



Brand of Paper Towel ← title

