# WALKING WATER EXPERIMENT

NAME

CLASS / DATE

## 01 QUESTION

**Which selected paper-towel product moves water farthest along a matched bridge in 60 minutes?**

## 02 PREDICT BEFORE YOU MEASURE

**WHICH SELECTED PRODUCT MAY MOVE WATER FARTHEST ALONG THE TOWEL IN 60 MINUTES?**

○ thin, low-cost ○ thick, select-a-size ○ recycled ○ not sure yet

Predict before starting; towel structure and the measured setup can affect the result.

## 03 VARIABLES

| I CHANGE (INDEPENDENT) | I MEASURE (DEPENDENT) |
|---|---|
| | |

I KEEP THE SAME (CONTROLLED) · CHANGED: SELECTED TOWEL PRODUCT (RECORD NAME AND PLY). THREE TRIALS PER PRODUCT. MEASURE WET-FRONT DISTANCE ALONG THE TOWEL AT 15, 30 AND 60 MIN; SEPARATELY RECORD FIRST CHECK WITH A RECEIVING-CUP DROP. MATCH CUPS, LIQUID, STRIP SIZE AND GAP.

## 04 MATERIALS

- ☐ 18 matching plastic or glass cups (9 pairs)
- ☐ 1.35 L water and 27 dye drops
- ☐ Three strips each from three selected towel products
- ☐ Ruler, measuring cup, product/trial labels and timer
- ☐ Level covered tray or washable surface

## 05 PROCEDURE

**SAFETY** Food coloring can stain hands and countertops. Work over a covered, washable surface, keep all 18 cups on a stable tray and wipe spills promptly. Use plastic or glass cups rather than paper cups so the cups do not absorb water or collapse as the test runs.

1 **LABEL AND MATCH** Record the three product names and supplied ply. Prepare three pairs per product with identical plastic or glass cups. ☐

2 **BUILD NINE BRIDGES** Add 150 mL and 3 dye drops to each source cup. Cut matched strips, fold them the same way and keep the same cup gap. ☐

3 **START AND MEASURE** Record each bridge's contact time. Measure the wet front along the towel in centimeters at 15, 30 and 60 elapsed minutes. ☐

4 **TRACK FIRST ARRIVAL** After 15, 30 and 60 minutes, check at 2, 4 and 6 hours. Record the first check with a visible drop and preceding dry check, or write not reached by 6 h. ☐

5 **COMPARE AND CLEAN** Compare three distances per product using mean and range at 60 minutes. Keep arrival as a bounded interval; explain capillarity and gravity, then wipe spills. ☐

# DATA AND EXPLANATION

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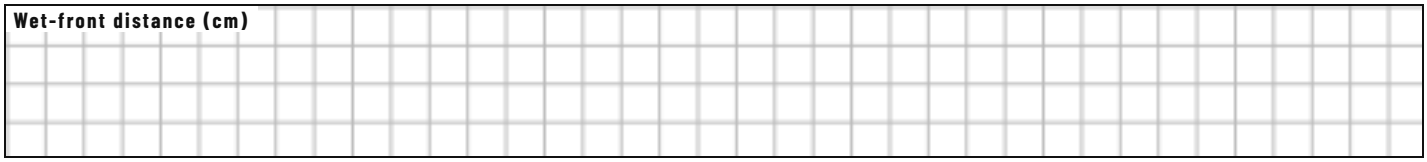
## 06 RECORD YOUR OBSERVATIONS

| PRODUCT · TRIAL | 15 MIN FRONT (CM) | 30 MIN FRONT (CM) | 60 MIN FRONT (CM) | ARRIVAL INTERVAL (LAST DRY TO FIRST WET, MIN) |
|---|---|---|---|---|
| Thin · 1 | | | | |
| Thin · 2 | | | | |
| Thin · 3 | | | | |
| Thick · 1 | | | | |
| Thick · 2 | | | | |
| Thick · 3 | | | | |
| Recycled · 1 | | | | |
| Recycled · 2 | | | | |
| Recycled · 3 | | | | |

Mark the point where source water meets the towel; measure from that mark along the towel path to the leading wet edge in centimeters. Check cup arrival at 15, 30 and 60 minutes, then 2, 4 and 6 hours. Use the preceding dry check and first wet check to state an interval; record "not reached by 6 h" if needed.

SHOW ONE CALCULATION

## 07 WET-FRONT DISTANCE BY SELECTED PRODUCT




Plot each product's three bridge readings at 15, 30 and 60 minutes. Preserve the individual trials; compare the three-trial mean and range at 60 minutes.

X: Elapsed time (min)

## 08 EXPLAIN IT WITH EVIDENCE

**CLAIM**

**EVIDENCE**

**REASONING**

Reasoning must use: paper towel type · wet front · centimeters · arrival interval · capillary action

## 09 THINK FURTHER

What would happen to travel time if the same towel bridge had a wider gap between the two cups?