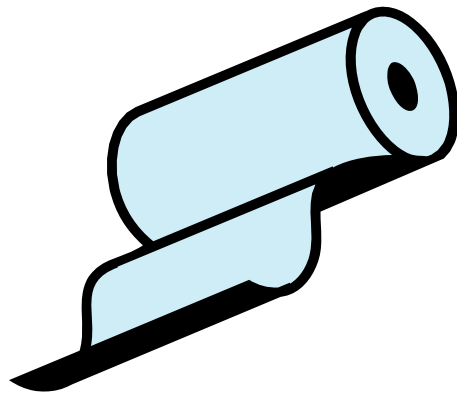


**Bridgeport Public Schools  
Science Department**

**Embedded Performance Task**



**Soggy Paper**

**Student Materials**

# Soggy Paper

## A Guided Exploration of Properties of Different Papers

### ENGAGE:

Look around the room. How many things can you see that are made of paper? Is all paper the same? Can you find different kinds of paper?

### EXPLORE:

In this activity, you will explore some of the properties of different kinds of paper.

1. GATHER these materials for your group:

- |                                      |                                 |
|--------------------------------------|---------------------------------|
| 12 squares of paper towel            | Magnifying lens (1 per student) |
| 12 squares of tissues                | Ruler (1 per student)           |
| 12 squares of napkin                 | Crayons or colored pencils      |
| 1 plastic graduated cylinder (25 mL) | Damp sponge (1)                 |
| 1 plastic forceps                    | Scissors (1 per student)        |
| 3 zip-loc plastic bags               |                                 |
| 3 plastic cups                       |                                 |
| 1 plastic bottle of water            |                                 |
| 3 plastic plates                     |                                 |

2. OBSERVE the properties of the different papers with and without the hand lens.  
Record your words and drawings in the following table:

PAPER TYPE	Properties Observed Without Magnifier	Properties Observed With Magnifier
Paper towel		
Tissue		
Napkin		

3. THINK about the properties you observed. Which properties might be related to how well the paper can hold water? This property is called “**absorbency**”.

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4. PREDICT which paper type might hold the MOST water, and which one might hold the LEAST water:

Most: \_\_\_\_\_ Least: \_\_\_\_\_

I think this because I noticed that \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Now you're ready to test your prediction.



**EXPERIMENT #1: WHICH TYPE OF PAPER HOLDS THE MOST WATER?** In this activity, you are going to pour 25ml of water onto a plate. Then you will count how many squares of each paper type it takes to soak up all the water.

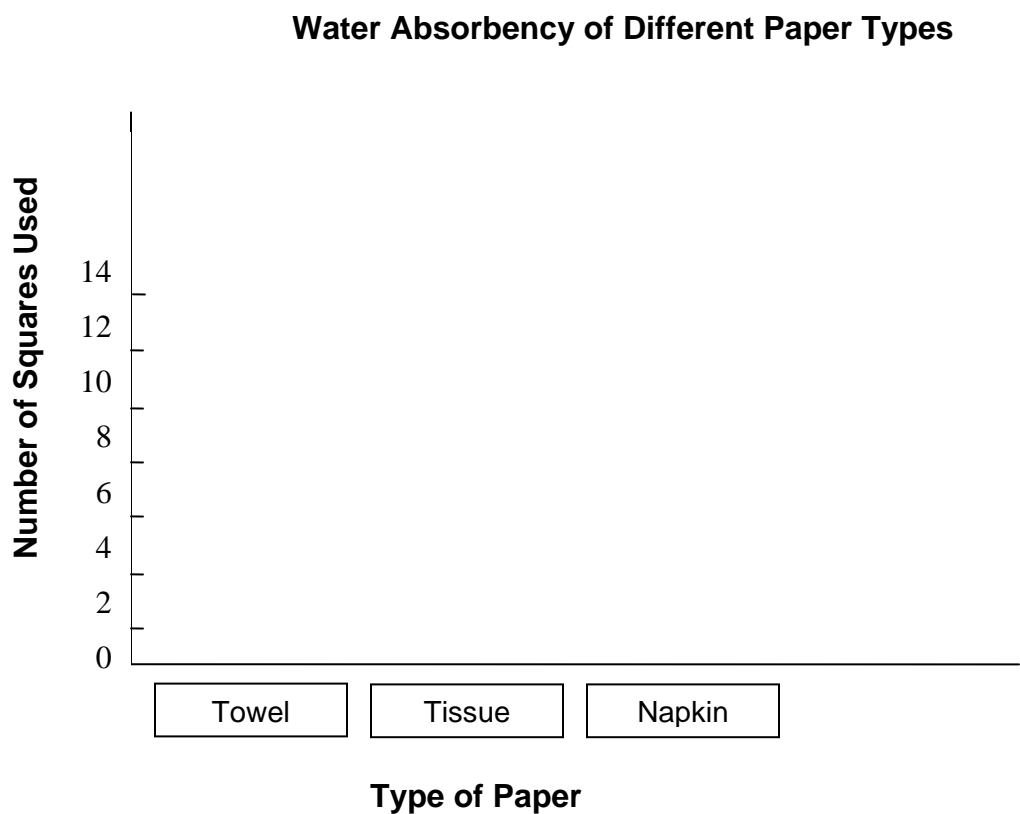
1. Label three plastic cups: “towel”, “tissue” and “napkin”. You will use the cups for storing the wet paper squares.
2. Measure 25 milliliters (mL) of water into the graduated cylinder. Decide which paper you want to test first.
3. Pour 25 mL of water onto the plastic plate.
4. Lay one paper square over the water spill, and leave it there until you can tell that it is not absorbing any more water.
5. Pick up the wet paper square with the forceps, and hold it over the plate until it stops dripping. Put the wet paper square in the labeled cup.
6. Keep using squares until there is no more water left in the plate.
7. Count how many paper squares you use to soak up all the spilled water. Record the number of squares you use for each paper type in a data table:

Type of Paper	Amount of Water Spilled	Number of Squares Used
Paper Towel	25 mL	
Tissue	25 mL	
Napkin	25 mL	

8. Repeat Steps 3 to 7 with the other paper types.

**Graph Your Data:**

Make a bar graph to compare how many squares of each paper type were needed to absorb 25 mL of water:



**EXPLAIN**

**Think About Your Data:**

1. Which paper type used the fewest squares to soak up all the water? \_\_\_\_\_

Which paper type used the most squares to soak up all the water? \_\_\_\_\_

2. Which paper type is the most absorbent? \_\_\_\_\_

Which paper type is the least absorbent? \_\_\_\_\_

Explain your conclusion: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3. What properties did the absorbent paper have that the less absorbent paper did not have? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

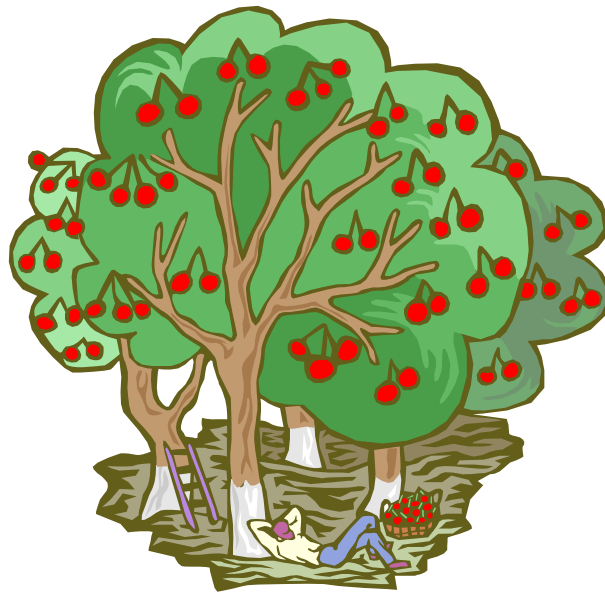
4. SHARE your data and discuss your conclusions with the whole class.

### **Learn more about paper, trees and conservation**

Many things we use every day are made of paper. We cut down trees and chop them into tiny pieces to make different kinds of paper. It takes many trees to make enough paper for all the things we use.

Trees are important to people and our environment in many other ways. People and animals eat the nuts and fruits that grow on trees. Birds, squirrels and other living things make their homes in trees. The roots of trees keep the soil from being washed away by rain. Many other plants grow in the soil.

We can conserve trees by using less paper. This can be done by recycling old paper or by reducing the amount of paper we use.



## ELABORATE

### **EXPERIMENT #2: WHICH PAPER TOWEL BRAND IS BEST?**

You may have seen TV commercials that claim that a certain brand of paper towel is the “quicker picker upper”. But, can you believe everything you hear on TV? Is one brand of paper towel really better than the others? In this experiment, you will use what you learned in Experiment #1 to find out more about the properties of different paper towels.

1. Cut squares from several brands of paper towels. Gather the same materials you used for Experiment #1.
2. OBSERVE and COMPARE the properties of different brands of paper towels. Make an observation chart in your science notebook, and record your observations. TALK with your partners about which properties might make the paper towels absorbent.
3. PREDICT which towel brand will be the most absorbent. To make your prediction, think about the results of Experiment #1 and your observations of the different paper towels.
4. WRITE the question you are investigating in your science notebook.
5. PLAN an experiment that will compare different brands of paper towels to find out which brand is the most absorbent. Talk with your partners about your plan.
6. WRITE in your science notebook a list of the steps you will follow.
7. DO your experiment, and record your findings in an organized way in your science notebook. Your data table from Experiment #1 will give you ideas for making your new data table.
8. SHOW your paper towel absorbency data in a bar graph in your science notebook.

9. What **conclusion** can you make based on your data? Are all paper towels the same? Is the most expensive brand also the most absorbent? **WRITE** about your findings in your science notebook. Then share and compare your findings with those of other groups in your class.



**Communicate Your Learning:**

You now have some important information to share with the person in your family who shops for groceries! Write a letter to this person and tell:

- What questions about paper products you explored;
- What you did to find answers to your questions;
- What you found out about different types and brands of paper products. Tell about some of the data you recorded in your experiments;
- What type of paper you recommend for use in the kitchen, and which brand you recommend buying;

You may want to draw a diagram of your experiment to include in your letter.