



LESSON PLAN

MATERIAL PROPERTIES AND PURPOSES GRADES K-2

SUMMARY

Students will analyze data from different paper towel brands to see which is the most absorbent. Duration: 45 minutes.



2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

Science & Engineering Practices	Connections to Classroom Activity
Planning and Carrying Out Investigations Analyzing and Interpreting Data	<ul style="list-style-type: none"> • Students will discuss a plan to compare the absorbency of three different brands of paper towels. • Students will collect data during their experiment.
Disciplinary Core Ideas	Connections to Classroom Activity
PS1.A: Structure and Properties of Matter Different properties are suited to different purposes. (2- PS1-2),(2-PS1-3)	<ul style="list-style-type: none"> • Students will explore different levels of absorbency of different brands of paper towels.
Crosscutting Concepts	Connections to Classroom Activity
Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes. (2-PS1-2)	<ul style="list-style-type: none"> • Students will conduct a simple test with paper towels.





ENGAGE

Place a cup with liquid on a table and “accidentally” knock it over. Say, “Oh no! This is a problem!” Does anyone have any suggestions on how I can solve this problem?” Students will likely suggest wiping it up, and if they don’t, prompt them with “what kinds of things would be best for wiping up this spill?” They may suggest paper towels, a sponge or a towel. After you wipe the spill up, tell them that today they will do an investigation into different brands of paper towels to determine which brand is the most absorbent.



EXPLORE

Have students get into groups of three students. Pass out baggies with three different brands of paper towels and label the bags “1”, “2” and “3” with a permanent marker. Students will also need a teaspoon and a cup of water. For best results, include a very cheap type of paper towel that barely absorbs any water as well as a high quality one that has excellent absorbency. Make sure the pieces are the same size.

Have students talk to each other about how they can use the supplies to test which paper towel is the most absorbent. Have student groups share ideas out loud. Hopefully they will come up with something similar to counting how many teaspoons of water each paper towel can soak up before they can’t soak up any more. Tell students to take spoonfuls of water and drip it onto each paper towel, counting how many spoonfuls it can soak up before it is full. They may want to use the tallying method to keep track in their notebooks.



EXPLAIN

Have students share out their findings from the experiment. Discuss the data and compare the results of different groups. Explain that different materials have different properties that serve different purposes. How well something can soak up water is called absorbency. There are other properties that are important to know when making things such as hardness and texture.



ELABORATE



WATCH THE GENERATION GENIUS MATERIAL PROPERTIES AND PURPOSES VIDEO AS A GROUP

Facilitate a conversation using the Discussion Questions.

MATERIALS

Per Group of 3:

- 3 Different brands of paper towels
- 3 Ziploc bags
- 1 Teaspoon
- 1 Cup of water
- Science notebooks

DIY Activity

- 2 Baby diapers
- Plastic cup
- Ziploc bag
- Pair of scissors
- Cup of water



EVALUATE

There are multiple ways to assess your students' understanding of this topic.

- Genius Challenge
- Practice Number Problems
- Practice Word Problems
- Quiz Game
- Exit Ticket

Students can do these activities in digital or print form.

