Which Fabrics are Most Absorbent?

Science Film Festival Knowledge Through Entertainment

Science Film Festival Film

House of Little Scientists: Natural Fiber

Introduction

We are surrounded by textiles everyday, from the clothes we wear to the sheets that keep us warm at night to the umbrellas we use when it rains. Though there are many kinds of fabrics, their most suitable applications depends largely on properties such as absorbency.

Absorbency is how much liquid the fabric can take inside and hold in its fibers. Fabric is actually made up of a network of very thin threads and in these threads are fibers twisted together. The shape of the fiber is very important to determine how absorbent the fabric will be.

Key Objectives

- To understand how different fabrics have different absorbency.
- To understand how the structure of fibers of a fabric affect absorbency.

Materials

- 100% cotton fabric
- 100% polyester fabric
- 100% rayon fabric
- 100% wool fabric
- 100% nylon fabric
- Water
- Microscope
- Pen and paper for notes

Safety Instructions

Caution when using liquids that they don't come into contact with electrical outlets.

Guiding Questions

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How does the shape and structure of the fibers in a fabric affect its absorbency?

Beginner

Resource Type
Experiment

Topics
Natural Fibers | Synthetic Fibers

Subjects
Material Science | Chemistry

Keywords
Absorbency | Synthentic | Fabrics

Time For Activity
30 minutes

Which Fabrics are Most Absorbent?

Fabric	Absorbency	Fiber Shape
Cotton		
Polyester		
Rayon		
Wool		
Nylon		

Tasks/Steps

1. Observe the fibers of the cotton fabric sample under a microscope. Note the shape of its fibers and how the threads are woven/knit together.
2. Pour half a regular-sized drinking glass of water on a flat table.
3. While wet, press the cotton fabric sample onto the water. Make sure it is soaked and try to get all the water up from the table in one attempt.
4. Go back to the microscope and observe the fibers again. What do you see now that is different from before? What is happening to the fibers?
5. Repeat steps 1-4 for the rest of your fabric samples.
6. Record your results.

Authors/Source

→ https://www.education.com/science-fair/article/fabric-relevance-fiber-structure/