



H OLES & MORE HOLES!

4-H Clothing Lesson

TESTING FABRIC BY RUNNING THEM OVER SANDPAPER

Project Skills:

Understand which fabrics can best withstand the wear of rubbing.

Life Skills:

Decision making
WI Academic Standards:
Family and Consumer Education F.4. Learning to Learn

Time:

30-35 minutes

Supplies:

- One piece of fine grit sandpaper per pair of youth
- Black marker
- One golf ball per pair of youth
- One rubber band per pair of youth
- 5" x 5" or larger pieces of the following fabric for each pair of youth:
 - cotton
 - wool
 - rayon
 - polyester
 - acrylic
 - nylon

WHAT TO DO

Test fabrics for abrasion resistance

1. Pair up youth and have each pair select one piece of all six kinds of fabric, a marker, a golf ball, one rubber band and a piece of sand paper.
2. One youth should measure and mark a 5" x 5" square on one of the fabric pieces. The other youth should cut a square test sample from the fabric. Label the sample with the name of the fiber.
3. One youth should use a black marker to draw a 1" circle, centered, on the front of the test fabric.
4. The other should wrap the test fabric around a golf ball with the circle showing on the outside. Secure the fabric around the ball with a rubber band. The circle should be visible on the outside. This will serve as the test area.
5. One youth should hold a piece of sandpaper flat on a hard surface as the other youth drags the circled area of the fabric covered ball over the sandpaper. The circle lets youth be sure the same spot of the fabric is tested each time it is drug over the sandpaper. Youth should not press down on the ball. They should hold it by the fabric and drag. The weight of the ball should do the work.
6. After each drag across the sandpaper, the youth holding the sand paper should look closely at the fabric for signs of wear and count the number of times it takes to show the first sign of wear. He or she should record this observation on the Fabric Abrasion Chart.
7. Teams should continue dragging the ball across the sandpaper, keeping track of how many times it takes to make a hole or tear the fabric. Record the exact number of times it takes for the fabric to breakthrough or tear.
8. Youth should select another fabric to test.
9. Repeat steps 2-8 for each piece of fabric. Switch roles each time they test a new fabric.

ENHANCE

- Repeat this experiment using fabrics made of blends (more than one fiber). For example, a fabric of 50% acrylic and 50% polyester.
- Compare the difference in fabric abrasion on wet and dry samples of the same material. Use the procedure above to test one piece of dry fabric and then again with a piece of wet fabric. Question youth as what happened and why.

TALK IT OVER

Try to get each youth to express his or her feelings and experiences.

Reflect:

- Which fiber or fiber showed wear first?
- Which fiber or fibers developed a hole or tore first?

Apply:

- What did you learn about fibers that will help you make other decisions on clothing?
- How can you apply what you learned from this experiment to everyday clothing decisions?



Adapted from 4-H CCS
Exploring Textiles &
Sewing project series,
Level 2 – Sew Much
More! (4HCCS BU-
07180), pages 8-9.

Fabric Abrasion Chart

Holes & More Holes!

Team Members: _____

Fiber Name	Number of drags until wear is first seen	Number of drags until a hole or tear is first seen	Other Observations
Cotton			
Wool			
Rayon			
Polyester			
Acrylic			
Nylon			

Fabric Abrasion Chart

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