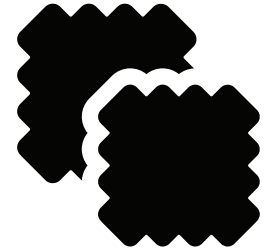


FELT AND FIBERS



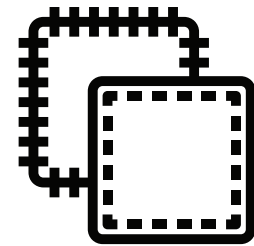
Teacher instructions

This school group activity is aimed at students aged 6-14. It is designed to take 60-90 minutes. In this activity, students will learn the basics of felt making and create their own felt square using wool. We recommend dividing the students into small groups of 4 each to make the felt squares.

MAKING FELT

Supplies:

- Bamboo/sushi placemats
- Large trays or cookie sheets (with lip)
- Spray bottle with water
- 1-2 oz roving wool per class
- Twine or yarn
- Scissors
- Electric kettle

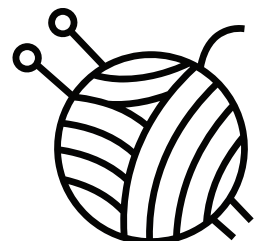


Instructions:

1. Boil water in kettle and pour into spray bottles
2. Lay placemat in tray
3. Place small tufts of wool on the placemat in overlapping rows so that the tufts of wool completely cover the placemat in a single layer
4. Repeat the process, this time laying the tufts of wool in rows perpendicular to the previous layer
5. Use spray bottles to coat the wool in hot water (it should be very hot but not so hot that it hurts to touch)
6. Carefully roll up the sushi mat with the wool inside
7. Wrap a piece of twine (about 15 cm) around the roll and tie tightly to secure it
8. Use hands to vigorously roll the mat back and forth inside the tray
9. Every few minutes, untie the mat to check your progress and rotate the piece of felt 90 degrees. Then reroll, tie, and continue.
10. Your felt is done when it is a flat, solid piece from which tufts of wool cannot easily be pulled out.

How does it work?

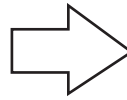
All animal hair is covered by microscopic scales. Heat and moisture cause the scales to open slightly. Because of the orientation of the scales, the fibers can slide past each other in one direction, but not the other. Rolling the wool causes the scaly fibers to become permanently entangled. This turns individual hairs into a solid mat of felt.



ANIMAL HAIRS

When you look at an animal hair under the microscope, you can see that it is actually a long scaly fiber.

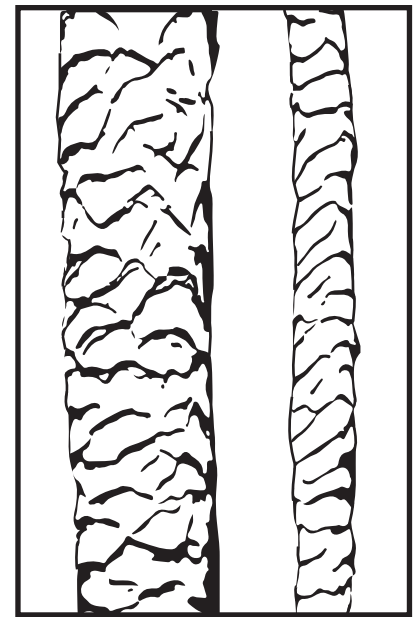
These are sheep hairs under a microscope.



The thickness of the hair and the amount of scales determines how sheep hairs (wool) feels.

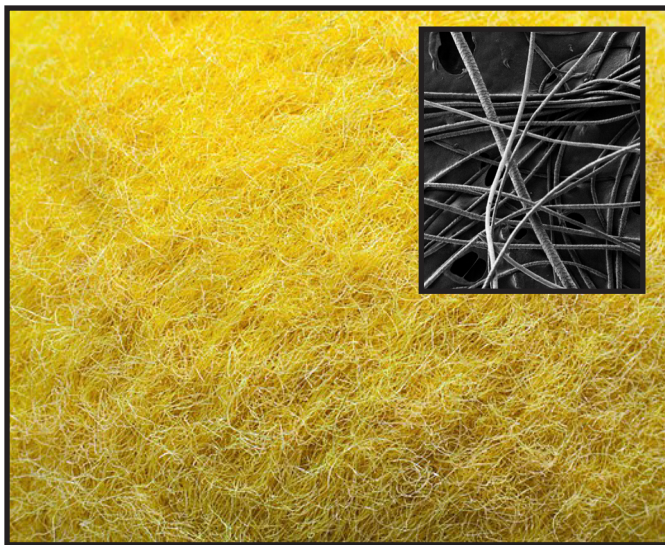
Thick hairs with many rough scales feel scratchy.

Thin hairs with smooth scales feel soft.



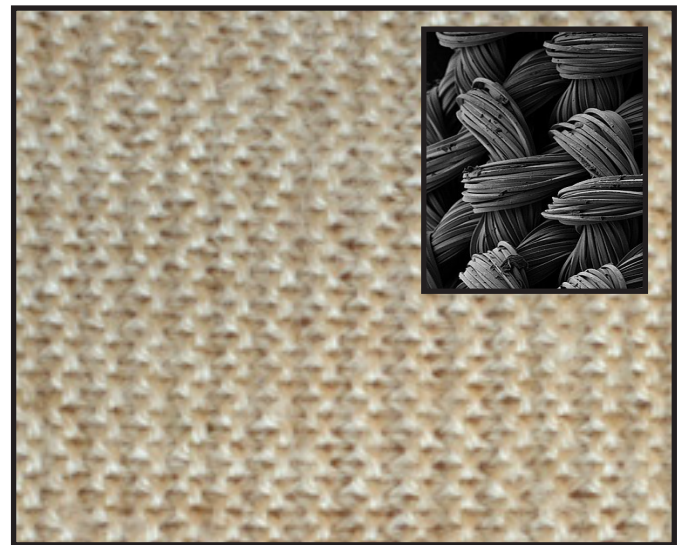
Coarse, scratchy sheep hair **Fine, soft sheep hair**

FELT TEXTILE



When animal hairs become wet, the scales expand. If the hairs are rubbed together, they become tangled when the scales catch on each other and interlock. This makes felt. Felt can be made from the hairs of many different animals.

WOVEN TEXTILE



Some animal hairs can also be combed, spun, and woven to make woven textiles. Only a few types of animal hairs, such as sheep wool, can be woven into textiles.

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