

Science: Fiber Study

Learning Outcomes:

1. Learning what fiber is and the role of fiber in things we wear and live with.
2. Experience of fibers used in fabrics and in our environment.
3. Making observations and drawing conclusions from observations.
4. Introduction to the behavior of fibers and how they are used to make threads and yarns.

Fibers

1. What are fibers?
2. Where do they come from?
3. How are they made into yarn?

A Closer look at fibers

Collect samples of fibers of different kinds (wool, linen, dog hair, human hair, alpaca yarn, rabbit fur). Look at them under a microscope. Draw the basic shapes of the fibers of each kind, labeling them. Are they straight? Wavy? Curly or tangled?

Try twisting bundles of different fibers together, rolling them between the fingers while twisting them. This is the basic action of spinning yarn. Which fibers stick together better? Look at the twisted fibers under the microscope, and see if you can tell why some fibers stick together better.

An exploration of Fibers

Each student looks at her or himself and clothing.

Start at the top:

Hat: Baseball cap: woven or knit? Stocking cap: woven or knit?

Hair: This is "raw fiber," in the wild, like wool on a sheep or hair on a camel.

Shirt: This is either knit or woven. Which are you wearing?

What's the difference?

Knitting: A continuous strand is looped through itself many times in rows to make fabric.

Weaving: A thread or threads passed over and under an array of other threads.

If it's a tee shirt, it's probably knit.

If it's a plaid shirt, or a cloth shirt with buttons, it's probably woven.

Pants: Woven or knit? Stretch fabric is probably knit. Jeans are woven.

Socks: Woven or knit?

Shoe laces, if you have them: Woven or knit...or braided??

Shoes: sneakers may have parts that are knit and parts that are woven. How about yours?

Activities:

1. What things in your life are woven? How often during the day do you wear, use, or see something woven?
2. Find samples of five woven fabrics.
3. Find five woven things that are not what you would normally think of as cloth.

4. How many different materials can you find in all the woven samples?
5. Warp a Journey EarthLoom according to the directions in the instruction booklet, or according to directions in Susan Barrett Merrill's book [The Art of Weaving a Life](#). Decide on a small project. Choose a kind of fiber to weave with that will be best for the project you have in mind.