



MAT WEAVING



Grade Level: 5-12th grades

Objectives:

1. Youth understand mechanisms and function of simple looms.
2. Youth collect fibrous materials to explore plant characteristics.
3. Youth weave mats to learn textile structure.
4. Youth use the Internet to research traditional and modern technologies, history, and science of plants/mats.
5. Youth work with others to link project to community.

NYS Learning Standards:

Math, Science, and Technology

- Students access, generate, process, and transfer information using technologies.
- Students apply technological knowledge and skills to design, construct, use and evaluate products.

National Science Standards:

Content - Grades 5-12

Science as Inquiry

- Ability to do scientific inquiry (5-12)

Science & Technology

- Understanding about science and technology (5-12)

Science in Personal & Social Perspectives

- Science and technology in society (5-8)
- Natural Resources (9-12)

History and Nature of Science

- Science as a human endeavor (5-12)
- History of science (5-8)
- Historical perspective (9-12)

Vocabulary

Bobbin – a device, on which yarn is wound in preparation for weaving.

Loom – a hand- or machine-operated structure for weaving materials under tension.

Mat – A flat interwoven material.

Plain Weave – textile structure in which warp and weft yarns interlace under-one, over-one.

Warp – lengthwise yarns.

Weft – crosswise yarns.

Yarn – a continuous length of filament of any fiber. A general term that includes cord, string, and thread.

History

Weaving is said to be the most ancient of the arts. Some say humans mimicked the intricate nests of the weaver-bird or the graceful patterns of a spider web. Others credit the combination of human ingenuity and needs. Whatever its origin, textile production is so essential that it has a significant presence in our language, customs, and literature.

Mats are one of the earliest forms of textiles as seen in wattled windbreaks or stick blockades used to trap fish. A 1634 account of Native American wigwams in New England notes that they were “very strong and handsome, covered with close-wrought mats of their own weaving.” Three centuries later, Huron H. Smith described how the Menominee, Meskwaki, Ojibwa, and Pottawatomie used mats woven from cattails as wall and roofing materials. Mats are made today by hand and by machine. They are used as construction materials for fences, screens, and walls. Familiar household items include sleeping mats, beach mats, placemats, floor mats, wall hangings, and doormats.

Science

Simple woven items, such as mats, are made from two elements, warp (lengthwise) and weft (crosswise). These two elements interlace to form a web. The most common structure is plain weave—the familiar over-under pattern practiced by young campers making potholders. This activity utilizes a strong yarn of small diameter as the warp and sturdy, woody plant materials for the weft. They interlace in a plain weave.



Technology

Looms vary from a bundle of sticks to elaborate machines and are found in all corners of the world. Looms were first used in the Neolithic Age and images of looms are found on pottery from 5000 B.C. Looms arrived in North America about 700 A.D. Eventually, Native Americans used horizontal, vertical, and backstrap looms. The colonial loom arrived from Europe in the 1600s and took up residence in most American homes. Eric Broudy's *The Book of Looms* describes more than 35 different handlooms, but the loom used in this activity was designed specifically to make mats for building an outdoor structure.