

Weaving: Connecting Mathematics to Community, Culture and Place

Weaving is a form of textile creation that dates back to at least 10000 BC and is found across many cultures. Materials used for weaving traditionally reflect the natural resources of the region and the designs reflect aspects of the culture. Warp threads run vertically and weft threads run horizontally. A loom usually holds the warp threads in place. Other forms of weaving involving natural materials such as cedar and reeds can also be found across cultures. Coast Salish cultures have used cedar weaving to create hats, mats, baskets and clothing.

Over and under weaving is known as plain or tabby weaving.
Coast Salish wool weaving includes twilling and twining techniques.

Weaving is a cultural practice and connected to family, community and the land. As educators, it is important we don't mathematize the process and products of cultural practices through a euro-centric lens and listen to Indigenous weavers and elders share the thinking and processes involved with weaving and seek connections in this manner.

Mathematical content and competencies embedded in the process of weaving include estimation, visualization, problem-solving, making connections, communicating, counting, odd and even numbers, adding, multiplying, pattern, composing and decomposing shapes, transformations, symmetry, fractions, percentages, area, perimeter and linear measurement.

Some resources to support knowledge and skill development of local Indigenous cultural practices around weaving include:

Salish Blankets: Robes of Protection and Transformation, Symbols of Wealth (2017) by Leslie H. Tepper, Janice George and William Joseph.

Aboriginal Mathematics K-12 Network

Instructions for weaving a quarter bag by Anjeanette Dawson

<http://blogs.ubc.ca/aboriginalmathnetwork/files/2014/03/WeavingBagInstructions.pdf>

Museum of Anthropology at UBC

The Fabric of Our Land: Coast Salish Weaving
(exhibit until April 15 2018)

http://moa.ubc.ca/portfolio_page/salish-weaving/

Musqueam Weavers

<http://moa.ubc.ca/wp-content/uploads/2014/08/Sourcebooks-Weavers.pdf>

UBC Biology Blog

Coast Salish Weaving and Spinning Information

<http://blogs.ubc.ca/biologyinfosessions/files/2013/09/coast-salish-wool-dog-poster.pdf>

Local weavers who lead classes:

Jessica Silvey - Sechelt

Facebook: Red Cedar Woman

Instagram: Red Cedar Woman @weavingwoman

Twitter: @weavingwoman4

Alice Guss – Squamish

<http://www.tsawaysia.com>

Twitter: @aliceguss

Instructions for a small woven mat or coaster

Materials: cardboard loom (12cm x20cm, scissors, pencil, cm ruler, cotton yarn for warp and various yarns or fabric, found materials for weaving)



To prepare the loom:

- 1) Cut cardboard rectangle with the 20cm edges of the rectangle paying attention to the grain of the cardboard to avoid buckling.
- 2) Measure 1 cm from top and bottom of vertical rectangle and draw line across with pencil.
- 3) Measure every 1 cm across top and bottom of loom and mark with pencil.
- 4) Cut down to the drawn line at each marking. You should have 11 cuts on each end.
- 5) Measuring about 2.5 metres of cotton yarn and loop end around bottom left tab of loom, looping twice to secure.
- 6) Bring warp thread up, thru slit at top, behind and down thru the next slit, alternating up and down until loom is complete.
- 7) Loop end of yarn around top right tab of the cardboard loom.
- 8) Cut a scrap pieces of cardboard about 15 cm by 2 cm and insert it between the warp threads and the cardboard at the bottom of your loom. This creates long enough warp threads to tie off once you remove your weaving from the loom.

Weaving

- 1) Plan your design (or not). Consider different colours of yarn, balance, symmetry, patterns and shape. Consider using different weaving methods. Consider weaving in natural or found materials.
- 2) Use 1m – 2m lengths of yarn to begin weaving. To use the tabby/plain weave, start at left bottom, going under the first warp and pull yarn through, leaving a length of about 5cm to the side.
- 3) Weave over and under until end of row and then continue going back the other way, making sure to loop over the warp thread on the edge. Pull to tighten but not too tight...keep the warp threads running parallel and not curving in on the sides.
- 4) After the second row, use a piece of cardboard, ruler or your fingers to push down the weaving to keep it tight together without visible spaces.
- 5) Continue to weave rows, keeping warp threads parallel and moving rows of weaving down.
- 6) When starting a new colour or new piece of yarn, always start from the edge that you finished off on and leave a 5cm piece to weave back in later.
- 7) When your weaving is the size you want it, remove it from the loom by carefully pulling down each cardboard tab and lifting off the warp threads.
- 8) Tie off the warp threads one at a time. Cut a loop in half and tie a double knot, pulling it right the edge of the weaving. Continue till all threads have been tied off – you will have one extra on each end – double knot it to the adjacent warp thread that has already been tied off.
- 9) Use a tapestry or plastic needle to weave in the loose ends to the woven piece.