



Informal CS Learning Activities: Overview with Links

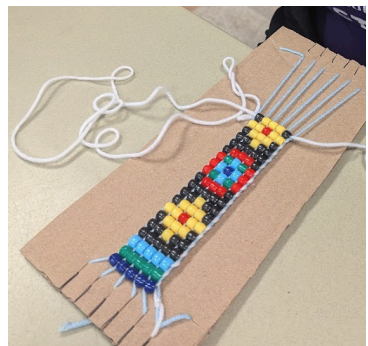
bit.ly/informal-cs



Using this Guide

The table below includes links and descriptions to each of the six Informal Computer Science Learning activities developed as part of the NSF project, *K12 CS Pathways for Rural and Tribal Communities*. Each activity link includes a detailed description of the learning goals, materials, timing, CSTA standards, and links to relevant resources. These activities were co-developed in partnership with project participants and include connections to Ojibwe language and culture and computer science. Individual collaborators are named in the acknowledgement section of each linked activity.

A spreadsheet with a full list of materials with approximate costs is available here: t.ly/EbTKL

Activity	Description	Image
Loom Weaving with Beaded Designs t.ly/tkw0Q	Participants ages 8+ design a patterned keychain on grid paper and use an algorithm to translate it into a loom-beaded bracelet, practicing pattern recognition and encoding (run-length encoding).	
VEX 123 Robots t.ly/1yBRq	Participants ages 7–16 collaboratively program a robot to navigate a maze and visit animals, using buttons and tablet-based coding cards to practice sequencing, algorithms, debugging, and identifying Ojibwe animal names.	

These activities were developed in collaboration with educators and partners from the K12 CS Pathways Project. Click the activities above for a list of the contributors involved in developing each lesson/activity. For more information, contact nlcollaborative@umn.edu.



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Makey Makey & Seven Grandfather Teachings t.ly/c5aD7	Participants ages 10+ use Makey Makey and Scratch to build circuits that trigger audio of Ojibwe words and English meanings for the Seven Grandfather Teachings, connecting physical computing with cultural and environmental contexts.	
Robot Mouse and Ojibwe Language t.ly/f0lTC	Participants ages 4–10 program a robot to visit animals on a maze grid and tell a story using their Ojibwe names and identifying the correct sequence of events from the stories they read.	
Binary Code Corn Keychains t.ly/su07B	Participants ages 5+ explore binary representation by encoding letters with beads to create a corn-themed keychain, connecting computing concepts with the Three Sisters plants.	
Coding Embroidered Designs t.ly/q85WI	Participants ages 10+ combine unplugged and digital geometry with embroidery by analyzing an Ojibwe flower design, creating a geometric pattern in TurtleStitch, and stitching a custom embroidered flower.	



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