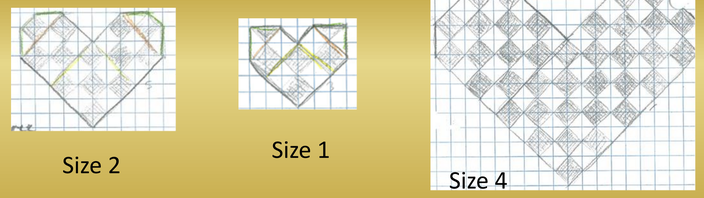
Algebra

Mathematics begins with your worldview

Cedar Hearts



Size 2 Size 1 Size 4

What would the area of a Size 10 Cedar heart be?
What about ANY size cedar heart?

Developed at NWIC by **Mercedes MacCurdy (Stillaguamish)**

Bracelet Pattern

A bracelet design with 3 blue triangles

A bracelet design with 1 blue triangle

A bracelet design with 4 blue triangles

How many total beads will you need for a bracelet design with ANY number of blue triangles?

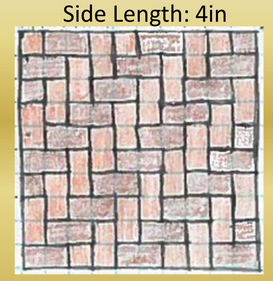
CHALLENGE: explore the relationship between the number of Blue beads and the number of Gray beads

Developed at NWIC by **Zachariah Bunton (Lummi)**

Cedar Baskets

Side Length: 2in

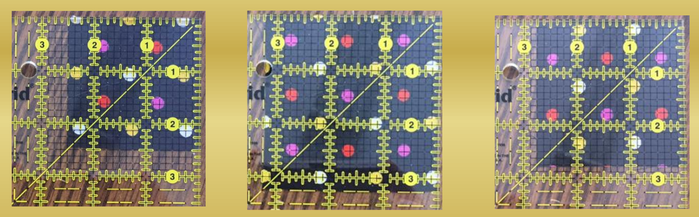
Side Length: 4in



How many strands of Cedar will you need to make a cedar basket with a 6 inch side?
With about a cedar basket with a 10 inch side?
What about a cedar basket of any size?

Developed at NWIC by **Priscilla Leon-Williams (Sts'ailes – BC, Canada; Tulalip Tribes)**

Sewing squares



What are the area and the perimeter of each of the squares shown?
What would the perimeter of a square with area 12.25 be?
What about the perimeter of a square with area A?

Developed at NWIC with **Carol Wilson (Assiniboine)**

The mathematics faculty at NWIC are working towards rehumanizing mathematics: making academic mathematics accessible to students from varying mathematical backgrounds. In order to truly do this, we believe it is necessary to foster an environment in which the following principles are followed:

1. Each individual's perspective is respected and brings value to the learning community.
2. Each individual feels welcomed to bring their whole identity—including their cultural background and their personal experiences.
3. All the people involved (teachers, students, and tutors) form genuine relationships that are not limited to the way in which conventional teacher-centric settings dictate classroom interactions.

This definition is consistent with NWIC's mission statement: ***Through Education, NWIC promotes Indigenous Self-Determination and knowledge***. By making room for individual students to be their whole selves, we are implicitly challenging the process of acculturation and assimilation, thus making room for indigenous self-determination and knowledge. We consider this to be a stepping-stone to a broader rehumanization which includes challenging the meaning of the word mathematics itself—for example, by emphasizing the inherent mathematical knowledge and skills that individuals have as a result of their lived experiences and their cultural and historical practices.

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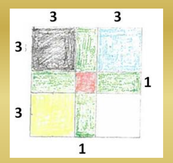
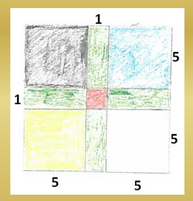
Chapter 8 by Bunton, Cook and Tamburini

Medicine Box



Structure 3

Structure 1



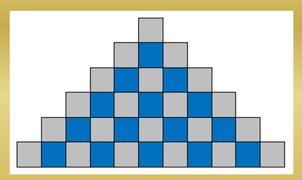
Structure 5

Can you describe the total area of the Medicine box for ANY structure number?

CHALLENGE: can you visualize the pattern in a DIFFERENT way?

Developed at NWIC by **Johnny Buck (Wanapum/Yakama)**

Sheila's Beads



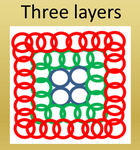
How many beads are there in the tenth row of Sheila's pattern?
How many beads in ANY row of the pattern?

CHALLENGE: How many TOTAL beads in a pattern with 10 rows?

Developed at NWIC by **Sheila Cooper (Nooksack)**

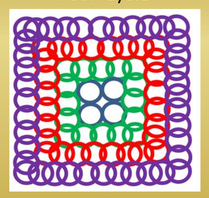
Crochet Pattern

Three layers



Two layers

Four layers



How many stitches are there in the tenth layer?
What about in ANY layer?

CHALLENGE: how many TOTAL stitches are there in a design with 10 layers?

Developed at NWIC by **Jamielee Kamkoff** (Lummi)

Stars on a quilt

A 6-pointed star

A 5-pointed star

An 8-pointed star

What angle would you need to cut to make a 10-pointed star?
What about a star with ANY number of points?

Developed at NWIC with **Carol Wilson (Assiniboine)**

The mathematics and pedagogy are the result of six years of effort by Zachariah Bunton (Lummi), Cassandra Cook, Jamielee Kamkoff (Lummi) and Matteo Tamburini. Thanks to our colleagues JiaJia Chiang, John Frey and Sina Koohbour; Ruth Parker/MEC, Bill Moore at SBCTC and Dr. Rochelle Gutierrez for believing in us; and all of the colleagues , tutors, students and friends with whom we have shared this road.