

Math is all around us



**NORTHWEST
INDIAN COLLEGE**

Xwlemi Elh > Tal > Nexw Squl

Matteo Tamburini

mtamburini@nwic.edu

Kayshish Pichette-Cline

kpc@nwic.edu

Moccasins

How many \triangle (triangles) will you need to decorate a size 10 moccasin?

How many triangles will you need for a moccasin of any size?

Size 3



Size 5



Size 1



Size 6



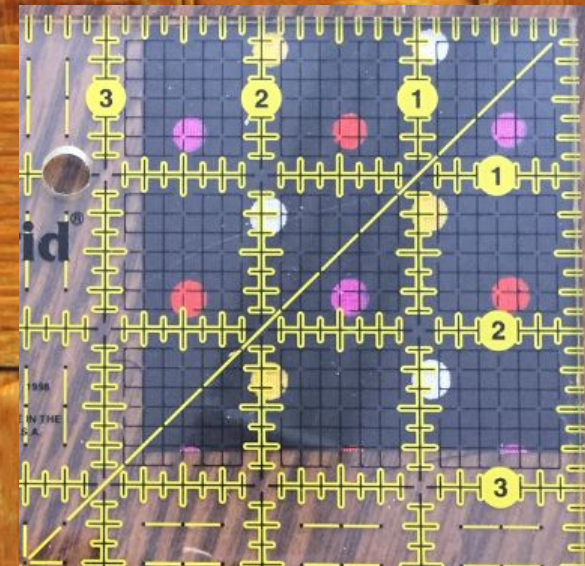
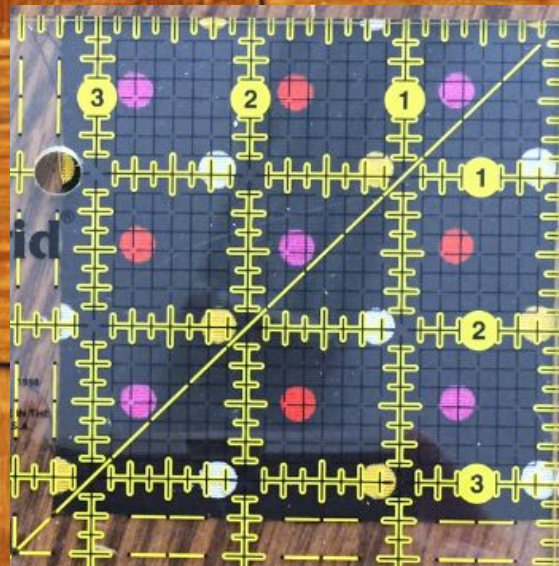
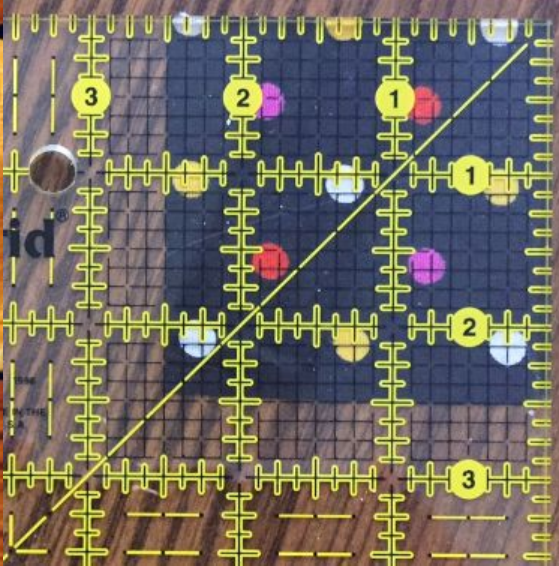
©Northwest Indian College, 2014

Disclaimer: the author does not claim copyright to the moccasin design, to the decorative pattern.

The author retains copyright of the images and questions related to them as presented in this document. Design by JiaJia Chang

Areas of squares: sewing

Consider the three pictures below:



What are the Area and the Length of the side of each of the squares?

- What are the areas of squares with side lengths of...

0.5 inches? 1.5inches? $\frac{5}{4}$ of an inch? $\frac{a}{b}$ inches?

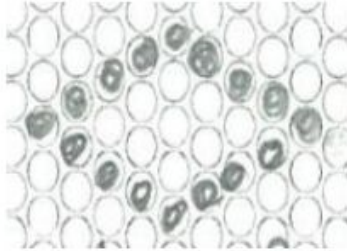
Try to express each length and area as: a decimal; a 'mixed number'; a 'simple fraction'.

© Northwest Indian College and Carol Wilson (Assiniboine), 2017

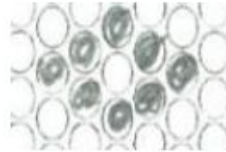
Disclaimer: the author does not claim copyright to the individual printed designs.

The author retains copyright of the compilation of images and questions related to them as presented in this document.

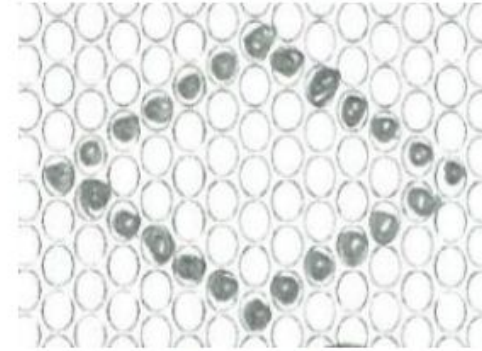
Jandy's Beads



Stage 3



Stage 1



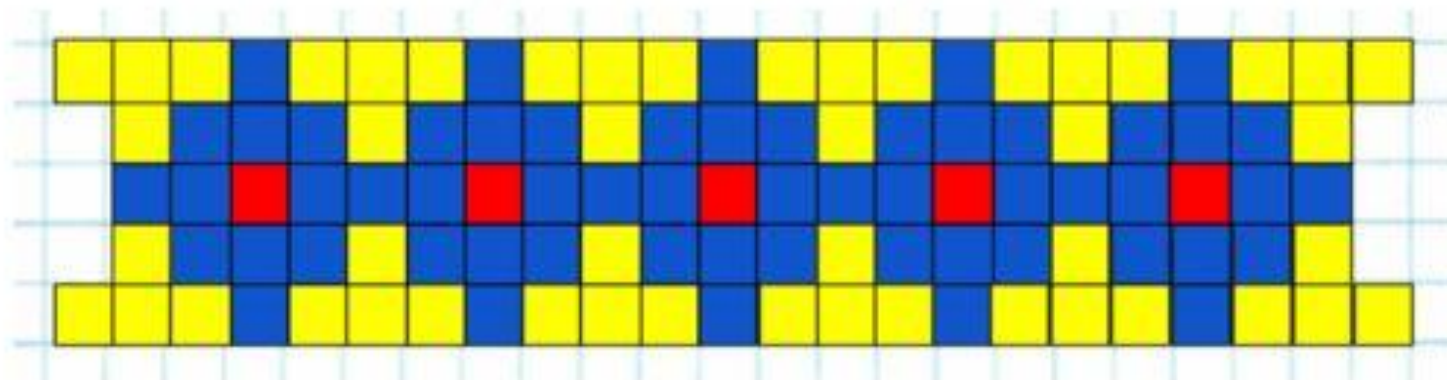
Stage 5

How many beads in stage 17?
How many beads in stage n ?

© Jandy Pierre, 2019

Disclaimer: the author does not claim copyright to the practice of beading, or to this particular design.
The author retains copyright of the images and questions related to them as presented in this document.

Alanna's pattern



The picture above has 5 diamonds in it.

How many beads does it take to make this pattern if there are 2 diamonds?

What about any number of diamonds?

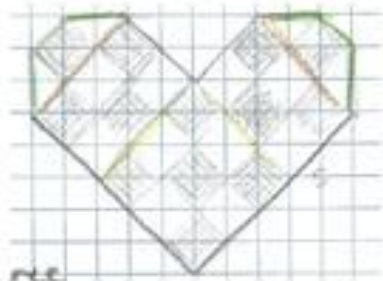
© Alanna Jones (Navajo, Zuni, Comanche, Kiowa, and Sac & Fox), 2021

Disclaimer: the author does not claim copyright to this particular design.

The author retains copyright of the images and questions related to them as presented in this document.

I looked at a couple of my grandma's old beading patterns that she had gave me and that's how I came up with this, and 'cause I'm part Comanche I used the Comanche colors which are blue, red and yellow. Alanna Jones, 2021

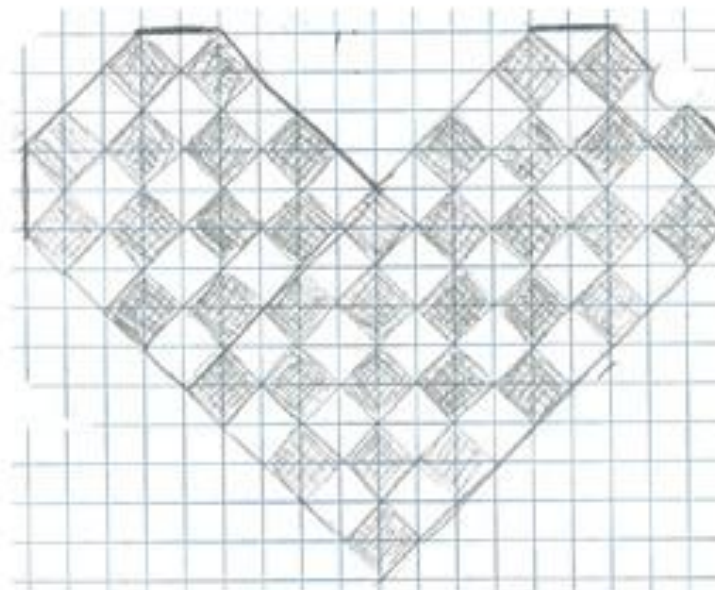
Cedar Hearts



Size 2



Size 1



Size 4

What will the area of a Size 10 cedar heart be?

What about a cedar heart of any size?

© Mercedes MacCurdy (Stillaguamish), 2017

Disclaimer: the author does not claim copyright to this particular design or to the practice of weaving cedar hearts.
The author retains copyright of the images and questions related to them as presented in this document.



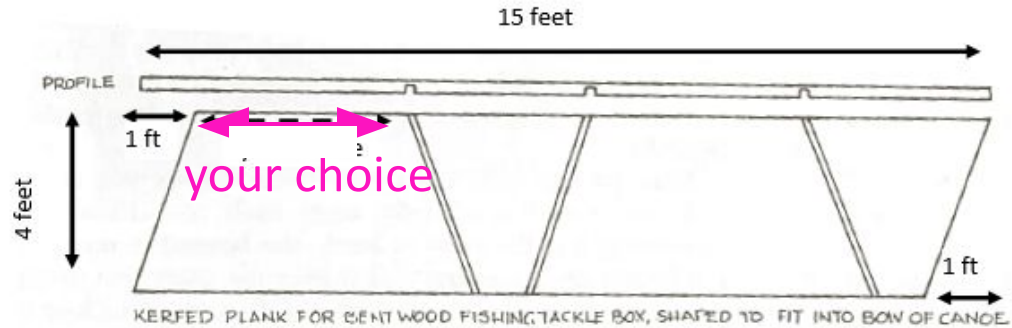
Earrings and photo © Kayshish Pichette-Cline (Lummi), 2024

<https://www.desmos.com/calculator/9siqdfbzjp>



FISHING TACKLE BOX, MADE TO FIT INTO BOW OF CANOE. 34-9 in. [32"] KW 2

Bentwood box #2



What is the volume of the bentwood box that you would get if you chose to make the top side 3 feet?

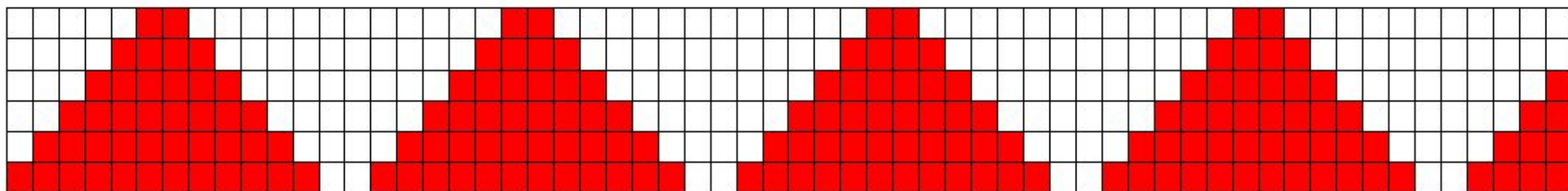
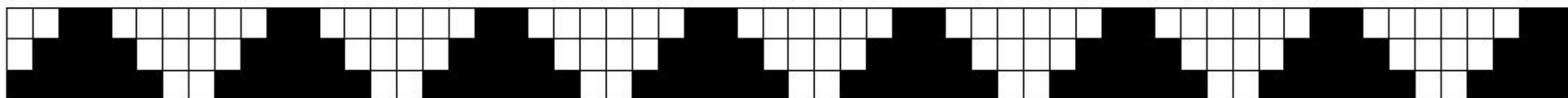
2 feet? 5 feet? n feet?

What value of n would give the largest volume?

Images taken from *Cedar*, by Hillary Stewart (1984)

Task developed at [NWIC](#)

PATTERN #1



Your weaving is 60 warps wide.

How many triangles can you fit if you want triangles with a base of 6 stitches?

How many triangles can you fit if you want triangles with a base on 12 stitches?

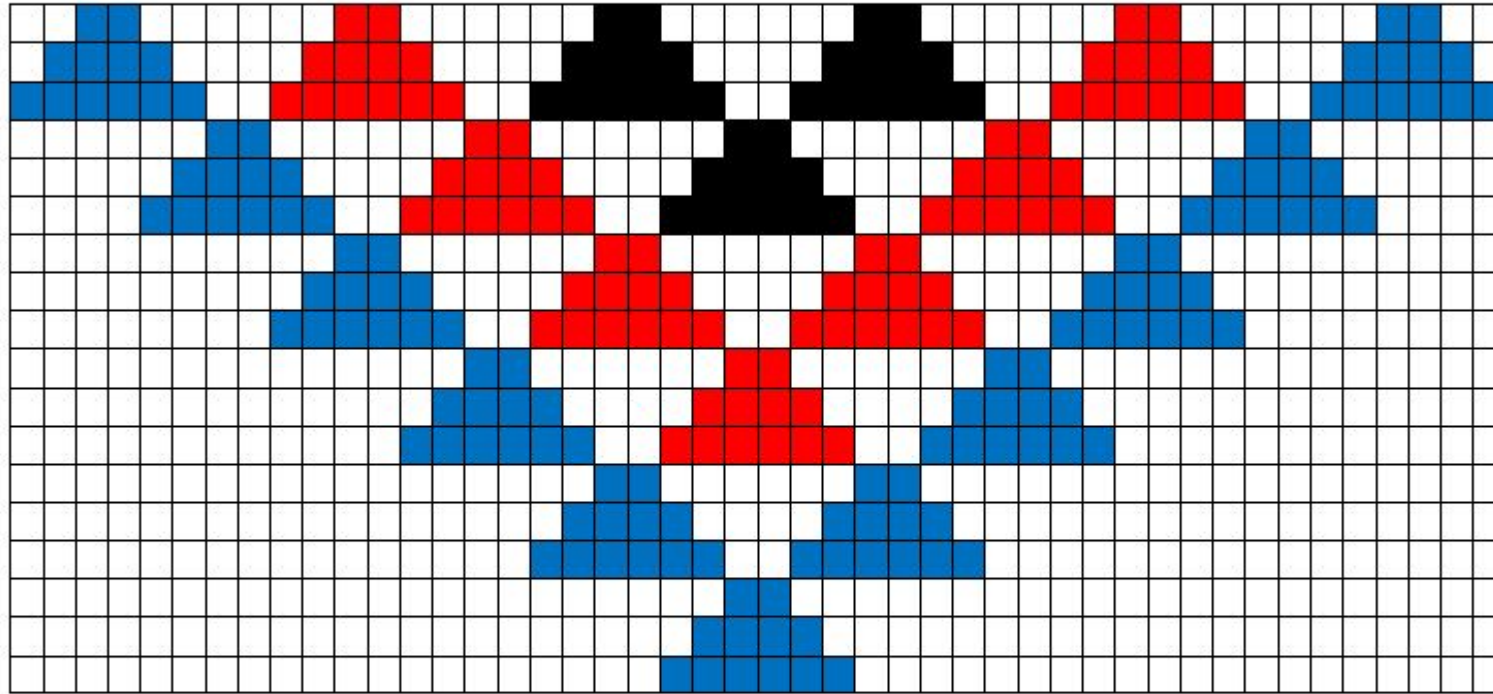
How about a triangle with any number of stitches?

CHALLENGE: How many 'leftover' squares will there be for any length of base?



L'hen Awtxw
weaving house

PATTERN #3



The weaving above has three layers of colored triangles.

How many triangles does the third (blue) layer have? How many triangles would there be if there were five layers?

How many triangles in the n^{th} layer?

Mathematics task developed at NWIC with *Skwetsimeltxw* Willard 'Buddy' Joseph and *Chepximiya Siyam'* Chief Janice George
(Squamish Nation)

Pattern designed by weaver Sam Seward