

Navajo Rug Weaver

Read through the Cultural Background and Weaving and Geometry sections and answer the following questions.

1. Which part of America do the Navajo people come from?
2. What do the Navajo call themselves and what does it mean?
3. What states are included in the Navajo nation?
4. What do you think the sky and earth cords refer to?
5. What is the importance of basket weaving in Navajo culture?
6. Name four things needed to weave a Navajo rug.
7. On the page titled "Weaving and Geometry". What geometric features do all four patterns have in common?
8. What is reflection symmetry?
9. What is four-fold symmetry?
10. What is the evidence of the importance of four-fold symmetry in Navajo culture?

11. What is iteration?
12. On the page titled "Iteration", how many instances of symmetry do you see?
13. You should now be on the page titled "Cartesian Graph." What is a medicine man called?
14. What are sand paintings used for?
15. What does the reflection symmetry in sand paintings represent?
16. Why do you think the human figures along the horizontal axis are hunched over with backpacks whereas the figures along the vertical axis have straight backs?
17. Why do you think the figure on positive Y axis is white whereas the one on the negative Y axis is dark?
18. Why do you think the center of the coordinate system is near the belly button?

Skip the section called "Locating Points"

19. While weaving, why does the weaver count the number of wefts in each design element?

Tutorial: How to use the Navajo Rug Weaver

You need to know how to use the coordinate system and plotting points of the system. Each point has an address called an ordered pair (X,Y) . The point $(3,4)$ tells us to go 3 units to the right and 4 units up on the coordinate plane. The point $(-3, 2)$ tells up to go three units to the left from $(0,0)$ and 2 units up.

It is the same with the rug weaver. The point tool places a single weave. So if you enter $(4, -2)$, the program will place your weave at that address $(4, -2)$.

A line of weaves has two endpoints. So if you use this feature and say $(0, 3)$ and $(0, 7)$, it will tell the computer to put a line of weaves vertically from where $y=3$ to where $y=7$. You will have weaves at $(0,3)$, $(0,4)$, $(0,5)$ $(0,6)$ and $(0,7)$.

The triangle and rectangle feature uses the vertices (corners) of the design and fills in the middle of the triangle or rectangle.

Iteration is a mathematical term meaning to build on the one previously built. So for example, you could start with

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In this pattern, you have one weave in three columns and then it builds on itself and the next three columns have a weave placed on each side of the “alone” weave making it a row of 3. After those three columns have been made, the next three columns will have five weaves and so on.

Look up Pascal’s Triangle on the internet.

What is it? Is it an iteration?

There are also tools for enlarging your grid and for thread color choices.

Creating Your Rug on the Virtual Loom

Now you will create your own rug designs.

Remember when you enter the coordinates, you must click on the tool to see the weave. For example, if I am placing one weave, I would use the point tool. I would enter my coordinates and then click on the word point. The weave should appear on the coordinate plane.

NOW COMES THE FUN! Create awesome Navajo rugs.