I am Beading: Northern Cheyenne Bead Work

Fast Facts

Curriculum Area: Mathematics
Grade Level: Grade 4
Suggested Duration: 1 hour

Stage 1 Desired Results

Established Goals

Montana Content Standards for Mathematics

Geometry 4.G.3 Recognize a line of symmetry for a two-dimensional figure, including those found in Montana American Indian designs, as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

Indian Education for All Essential Understandings Regarding Montana Indians

IEFA Essential Understanding 1: There is great diversity among the twelve sovereign tribes of Montana in their languages, cultures, histories, and governments. Each tribe has a distinct and unique cultural heritage that contributes to modern Montana.

IEFA Essential Understanding 2: Just as there is great diversity among tribal nations, there is a great diversity among individual American Indians as identity is developed, defined, and redefined by entities, organizations, and people. There is no generic American Indian.

Understandings

- Students will understand how to create a complex pattern.
- Students will be able to connect complex patterns to Northern Cheyenne moccasin beading.
- Students will see real-world relationships between patterning in class and beaded artwork.

Essential Questions

- What is a pattern? Give a dictionary definition and explain its meaning in your own words.
- Are there many ways to create patterns?
- What do you think a complex pattern is?
- What does symmetry mean? Give an example of something in the room that is symmetrical.
- Why do you think the Northern Cheyenne wore moccasins?
- Why do you think Northern Cheyenne decorated their moccasins with patterns?

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Students will be able to…

- create a complex pattern.
- relate the pattern to Montana Indian beaded art, specifically Northern Cheyenne.
- view various forms of beaded artwork on the Internet, Smart Board, or through books.

Students will know…

- Montana Indians were the first people to live in Montana.
- Montana Indians live amongst us today and many still enjoy making traditional clothing and beading.
- Northern Cheyenne Indians of today continue to make beaded moccasins for decoration and pow wow regalia.
- the uses and needs of Northern Cheyenne beaded moccasins.
- the many uses of patterning.
- the aesthetics of symmetry.

Stage 2 Assessment Evidence

Performance Tasks

1. Students will create a pattern shown on either the overhead projector or Smart Board. Give them the Excel spreadsheet handout, which shows the colors and numbers of beads for each row. Students will follow teacher facilitation to begin gluing their beads onto the grid paper but will need to follow spreadsheet directions and the picture provided on the overhead to complete the pattern.

2. Students will find a definition for the word “pattern.” This definition will be discussed with the class.

3. Students will show lines of symmetry upon completion of their beading pattern.

Other Evidence

1. Students will answer “Essential Questions” as a pre-assessment.

2. Students are proficient with math vocabulary (pattern, symmetry).

Stage 3 Learning Plan

Learning Activities

“Today you will learn how to create a symmetrical beading design used by the Northern Cheyenne for designing moccasins. You will use your knowledge about patterns to help you create this complex design. The Northern Cheyenne Tribe used various types of beading. One of the types is called a ‘lazy stitch,’ which you will learn about today.”

“I would like each of you to define pattern (write the word on the board, Smart Board, or overhead projector). How would you describe a pattern in your own words? According to our definition, what is a pattern? Do you think patterns can be created in many ways? Can anybody tell me what a complex pattern might be? (A complex pattern is a pattern that is more complicated to create. This type of pattern does not always follow a “rule.”)

“What does symmetry mean?” Either after receiving the correct answer or giving the answer, ask students to find something in the classroom that is symmetrical. If students have difficulty, use faces and bodies to explain… “If you draw a line from the middle of your forehead to the middle of your chin, you may find that the right side of your face looks just like the left side of your face. If you were to fold one side over the other, they would match up almost perfectly. Try this idea with your whole bodies. Did you know that symmetry is attractive to look at? Most people like the look of a symmetrical design as opposed to a nonsymmetrical design.”

Can anybody think of a symmetrical pattern they know of or does anybody see a symmetrical pattern in the room? Not only will we learn to create a complex pattern, but we will learn how to create it with symmetry.”

“Why do you think the Northern Cheyenne Indians wore moccasins?” (To protect their feet and keep them warm) “Why did they decorate them with symmetrical patterns?” (To show which tribe they were from, to trade with other people, because they are attractive to view, for decoration and today they are used in Powwows.) Project the Cheyenne beading story, *I’m Beading Moccasins* by Jeannette Howlingcrane. Read aloud the story and note the Northern Cheyenne original pronunciations for this story.

Place an overhead transparency of the colored pattern on the overhead or use a projector to project the picture. Have students look at the pattern to follow exactly. Do line one together, as a group, walking through each bead color step-by-step. Move onto line two together. Ask students if they have any questions about following these steps to complete their pattern. Allow students to work alone or in groups to complete.

Upon completion, have students find lines of symmetry from their pattern. Assessment should be through participation and teacher observation.

Variation 1

Use food coloring to dye ***noodles*** red, dark blue, blue, green, red, and pink. Do at least two days in advance to be sure students have enough noodles for the project. Macaroni noodles may be the best. Small groups of three or four students will most likely be easiest when using noodles. Glue onto chart paper.

Variation 2

Use actual colored ***beads***. Glue onto chart paper.

Variation 3

Use ***colored pencils*** for each bead color and have students color in the appropriate areas on their grid sheets. This is the easiest variation and takes very **little preparation.**

Materials/Resources Needed

- Green, blue, light blue, red, pink colored noodles, beads, or colored pencils depending on variation
- Brick grid sheet (one copy per student), attached
- Glue stick
- Projection of Northern Cheyenne beaded work
- Projection of the Cheyenne beading story, *I'm Beading Moccasins* by Jeannette Howlingcrane

Teacher Resources

Montana Indians Their History and Location, Helena, MT: Montana Office of Public Instruction, 2016.

Montana Content Standards and IEFA Essential Understandings Regarding Montana Indians

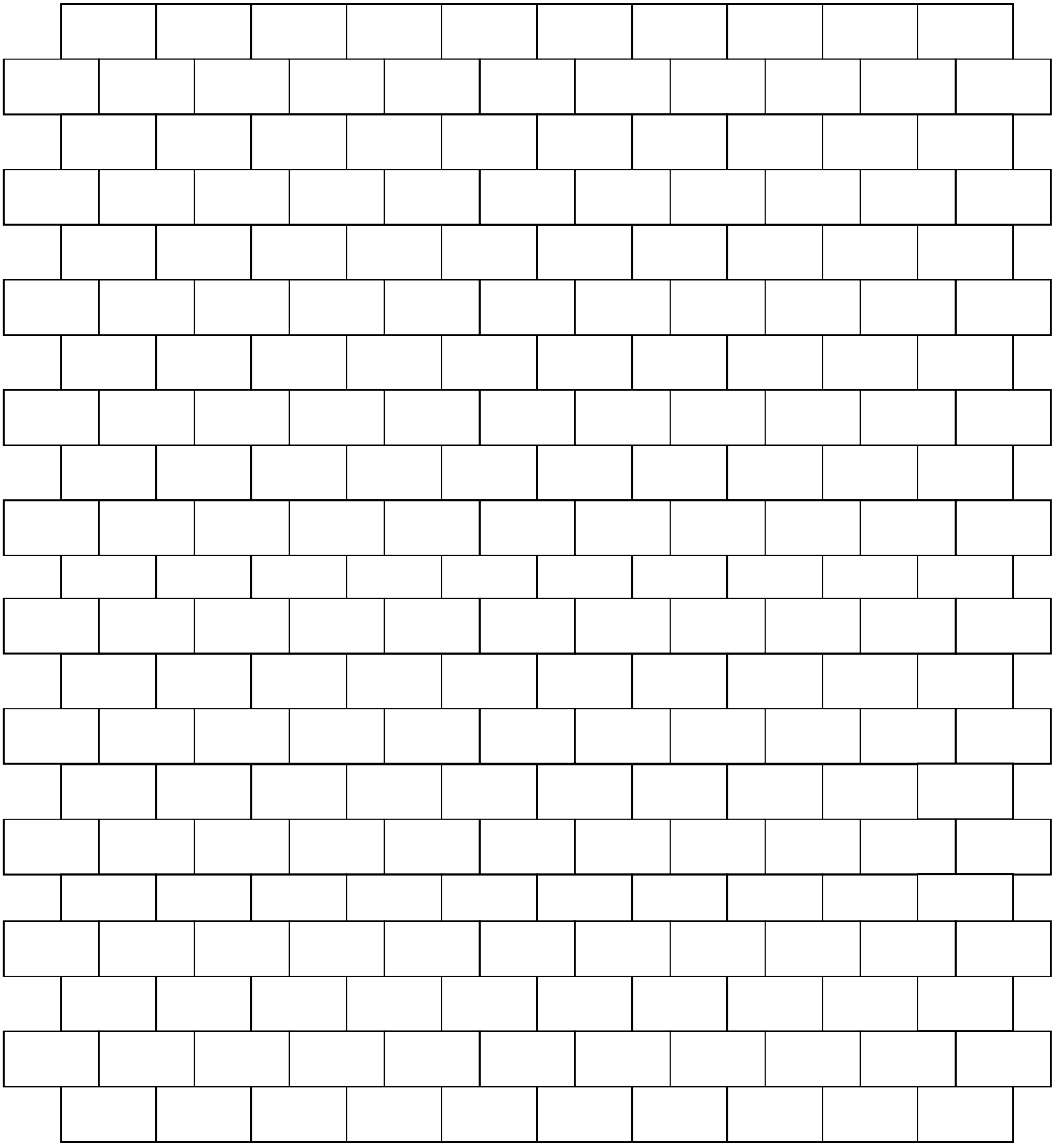
Montana Content Standards for Mathematics – Grade 4

Essential Understandings Regarding Montana Indians

Brick Grid Sheet

Name _____

Directions: Use the correct color noodle, bead, or pencil for each box below. Pay close attention to your patterns as you move down your grid. Have fun!



Color pattern

Row	Dark Blue	Green	White	Blue	Pink	Red	Total
1	4	2	2	2	0	0	10
2	5	4	2	0	0	0	11
3	4	0	2	4	0	0	10
4	2	2	2	2	2	1	11
5	2	0	2	2	2	2	10
6	2	0	2	4	2	1	11
7	2	0	2	2	2	2	10
8	2	2	2	2	2	1	11
9	2	2	2	2	2	0	10
10	2	2	2	4	1	0	11
11	4	2	2	2	0	0	10
12	4	4	2	1	0	0	11
13	4	2	2	2	0	0	10
14	2	2	2	4	1	0	11
15	2	2	2	2	2	0	10
16	2	2	2	2	2	1	11
17	2	0	2	2	2	2	10
18	2	0	2	4	2	1	11
19	2	0	2	2	2	2	10
20	2	2	2	2	2	1	11
21	4	0	2	4	0	0	10
All	57	30	42	51	26	14	220