

# MATHEMATICAL DREAM CATCHERS

Weave math and culture together!

## Curriculum topics:

- Circles
- Geometric Shapes
- Patterns & Relationships
- Native American Culture
- Artistic Exploration

## Subjects:

Math  
Physical Science  
Social Studies

**Grade range:** 1 – 5

## Who we are:

Resource Area for Teaching (RAFT) helps educators transform the learning experience by inspiring joy through hands-on learning.

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<https://raft.net>



Combine traditional Native American culture and modern mathematical concepts to explore geometric shapes and patterns!



# Materials required per student

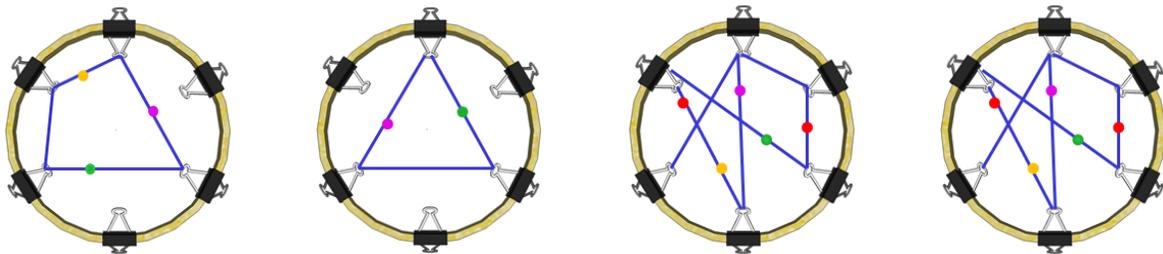
- Hoop, 6" – 10" diameter (x1)
- Binder clips, mini (x8)
- Pony beads, 1 each of 5 colors
- String, different colors (x3)
- Feathers, different colors (x5)

## Set Up

- 1 Mark 3 to 8 points anywhere along rim of the hoop. Number each point in order.
- 2 Attach a binder clip next to each mark. Fold down the inner binder clip loops so they point to the center of the hoop.



- 3 Slip the end of a string through the loop of the first clip and tie a knot. Pass the other end of the string through other binder clip loops. Add beads to the string (see below).
- 4 Continue adding new strings and beads, if desired. Tie a knot around the last loop and trim the string. Optional: Skip points around the hoop and/or start new strings at different locations to create a variety of patterns.



- 5 Add feathers through some of the beads by pushing the quills through the beads. Tie a loop to the top of the dream catcher to hang it. Optional: Continue decorating with more materials!

## To do and notice

- 1 Observe your dream catcher. How many shapes do you see in the pattern?
- 2 Write down or draw pictures of the triangles, circles, squares, or other polygons (geometric shapes with various numbers of sides) that you notice. Did the numbers of each shape depend on the number of loops in the dream catcher?
- 3 Write a short narrative (story) about your experience in making the dream catcher. Be sure to describe the steps involved and what you did at each step. Use temporal words such as "then", "next", "soon", "after", etc. to tell the sequence (order) of each step. Be creative and have fun!

## Content Standards:

### CCSS

Measure Lengths Indirectly:  
[1.MD.A.1](#)

Reason with Shapes and Their Attributes:  
[1.G.A.1](#)  
[1.G.A.2](#)  
[1.G.A.3](#)  
[2.G.A.1](#)  
[2.G.A.3](#)

Generate and Analyze Patterns:  
[4.OA.C.5](#)  
[5.OA.B.3](#)

Classify 2D Figures:  
[5.G.B.3](#)  
[5.G.B.4](#)

### CCSS ELA

Text Types and Purposes:  
[W.1.3](#)

Research to Build and Present Knowledge:  
[W.1.8](#)

# The content behind the activity

This activity weaves beautiful Native American Indian tradition with mathematics. The first dream catchers were crafted by the Ojibwe (Chippewa) tribe. Legend tells of a “spider woman” named Asibikaashi whose magical web had the power to trap the Sun. Dream catchers were traditionally hung above sleeping babies to catch bad dreams and let only good dreams pass through to the child. Later, the bad dreams would disappear when the first rays of sunlight struck the web.

When the native Ojibwe nation dispersed to the four corners of North America, Asibikaashi found it hard to share her webs with everyone who wanted one. So, mothers, sisters, and grandmothers started creating their own webs using flexible hoops made from willow branches.

Traditional native dream catchers have 8 holes along the outer rim to represent a spider’s 8 legs. Today, many different Native American Indian tribes make dream catchers in a wide variety of styles.

Dream catchers provide opportunities to explore real-world connections between math, social studies, and art. As students hunt for simple geometric shapes within the webbing, classify similar shapes, locate symmetrical shapes, and note how often each shape appears they are engaging in geometric analysis and practicing algebraic and operational thinking.

## Learn more

- Explore relationships between the shapes and other properties of the hoop circle; for example: does changing the stringing pattern to affect the number, size, or variety of shapes?
- Explore the properties of lines and angles in the dream catcher webbing.
- Compare and / or measure the area of similar shapes in the dream catcher webbing

Visit <https://raft.net> to view the following related activities!

I Can Find a Shape Like That  
Pattern Blocks  
Patterning with Polygons  
Scallop Circle String Art  
What Shapes Can It Become?  
Kumihimo

## Resources

- Dream catcher information - <https://bit.ly/3be02xG>
- YouTube video (3:38), Dream catcher legend - <https://bit.ly/2RDtGVI>