USING GEOMETRY AND MEASUREMENT WITH DREAMCATCHERS

RECOMMENDED GRADE LEVEL: Grades 4 to 6

SUBJECT: Math

Suggested time: 80 minutes

Essential Question: Where is geometry used in everyday life?

LEARNING GOALS
Students will:
• identify polygons, two-dimensional shapes and angles
• measure angles up to 90 degrees
• construct dreamcatchers and apply geometry and measurement skills

MATERIALS AND RESOURCES

• Circular frame: Pipe cleaners or malleable willow, grapevine, or birch branches or metal or wire hoops or paper plates
• Suede or leather lacing (optional)
• String or waxed cord
• Beads
• Feathers
• Protractor
• “Dream Catcher History and Legend.” Dream-Catchers.org. www.dream-catchers.org
• Ojibwe legend of the dreamcatcher. www.newworldencyclopedia.org/entry/Dreamcatcher

Dreamcatcher making tutorials:
• “Dream Catcher History and Legend.” Dream-Catchers.org. www.dream-catchers.org
• Ojibwe legend of the dreamcatcher. www.newworldencyclopedia.org/entry/Dreamcatcher

Activity

1. RECOMMENDED ASSESSMENT FOR LEARNING: Display a picture of a dreamcatcher. In small groups, ask students to mind map and share what they already know about dreamcatchers.

2. Introduce students to dreamcatchers, their Ojibwe origin and significance.

   The traditional dreamcatcher was intended to protect the sleeping individual from negative dreams, while letting positive dreams through. The positive dreams would slip through the hole in the center of the dreamcatcher, and glide down the feathers to the sleeping person below. The negative dreams would get caught up in the web, and expire when the first rays of the sun struck them.

   The dreamcatcher also uses the symbol of the circle. The circle represents connectivity, cycles, and reflections in the natural world such as the moon/sun, the shape of a bird's nest and the trunks of trees to the Ojibwe Peoples.

3. Share with students the Ojibwe Legend of the Dream Catcher. According to Ojibwe legend, long ago, Asibikaashi (Spider Woman) brought the sun back to the sky each day. However, as the Ojibwe Nation spread to the ends of the earth, her task became more laborious and Spider Woman began to find it difficult to make the trek for all of her people. Rather, she directed mothers, sisters, and grandmothers to weave magical webs for new babies using hoops made from willow twigs.

   Called dreamcatchers, they would allow only pleasant dreams to enter the babies’ minds as they slept. The circle of the hoops represented the sun. The web’s connection with the hoops in eight places represented the eight legs of Spider Woman. When the web only connects in seven places, this represents the Seven Prophecies (a prophecy marking the seven epochs of Turtle Island—or North America). Feathers in the center of the
dreamcatcher represented spirit (breath) and life. Adults kept a feather in their possession rather than on their dreamcatcher. The Ojibwa believe that a dreamcatcher filters a person’s dreams. Bad dreams are caught in the web, to be burned away by the morning sun, while good dreams are guided through a small hole in the center, and then to the feathers and into the sleeper’s head.

4. Draw or display a sample dreamcatcher on the board, including within the hoop various shapes (e.g., different types of triangles, squares, rectangles, parallelogram, etc.). Have students think-pair-share to discuss the various shapes/angles that they see in the dreamcatcher.

5. Have stations with dreamcatcher making materials set up. Each student will need:
   - A circular object for the frame, this may be made of pipe cleaners, a wire hoop, a malleable branch (willow or birch were traditionally used) soaked if necessary, a paper plate with the centre cut out, etc.
   - About 3 metres of suede or leather lacing
   - About 3 to 6 metres of string or waxed cord
   - A few beads
   - A few feathers

6. RECOMMENDED ASSESSMENT AS LEARNING: Model for students how to create the dreamcatcher. Have students independently follow along.
   a. Shape the hoop frame. If using a branch, secure the ends with a clothespin and some glue (hot glue gun works best).
   b. If using, wrap the suede or leather lace around the frame. Hold the end in place with a clothespin and wrap the suede being careful not to twist the lace. Secure the ends by knotting them or with hot glue.
   c. Begin the webbing by tying the string or waxed cord to the hoop, knotting it with nearly all of the length of the string on one side in order to use it to string the rest of the web. To form each successive circle, loop and half knot to the centre of the previous string (the centre is based on middle of the two knots connecting first to the frame then to the previous web).
   d. Add a few beads for decoration as you progress toward the centre. The beads are representative of the bad dreams that get caught and stuck in the webbing. Traditionally beads and arrowheads were used. Continue webbing until you run out of cord or until a small hole forms at the centre of the hoop. Tie a full knot to finish. Trim the extra cord.
   e. Next create a hanger and add the feathers. Use a short piece of cord or suede lace (about 10 cm) to create a hanger at the top of the webbed hoop. Knot each end of the cord to the hoop creating a loop. Trim the ends.
   f. For the feathers, connect a feather to one end of a 15 to 20 cm piece of cord, suede or leather by tying knots. A bead of hot glue may be used to secure the feathers to the cord. Some extra beads and knots may be used to add decoration to the cord. Make three to five feathered ropes. Attach the ropes by knotting the unfeathered end of the rope to the hoop at the bottom (opposite of the hanging loop). Trim ends. The decorative ropes with feathers represent the path good dreams filter down to the dreamer.

7. RECOMMENDED ASSESSMENT OF LEARNING: Working independently or with a partner, have students analyze their dreamcatcher. Have students:
   - identify the two-dimensional shapes and polygons
   - identify and classify acute, right, obtuse and straight angles
   - identify three angles up to 90 degrees and measure the size using a protractor

8. Have a few students share their findings with the class and compare their dreamcatchers.