

Artist Kim Keats' introduction to Marsh Grass Bracelets: Measuring an Unbroken Circle

Many of today's students do not have adequate understanding or mastery of measurement or how to use measuring tools. In addition, students spend most of their time engaged with technology related activities and have limited or underused fine motor skills. This bracelet making lesson employed manipulative and additive three dimensional techniques that required accurate measuring and fine motor skills. Students gained a greater understanding of their local culture by using natural indigenous materials and techniques similar to the ones developed by Gullah basket makers. This project offers opportunities for the students to expand their commitment to learning through creative tasks that utilize critical thinking, innovation, and self-expression.

I have taught lashed bracelet-making projects using imported basketry materials to more than 30,000 students over the past 25 years. I live near tidal estuaries and have access to the renewable natural materials that have been used by Gullah basket makers for nearly three centuries. Adapting my bracelet project to include the techniques and materials associated with the Gullah cultural heritage has opened new teaching opportunities and made the project more historically relevant for students in our region.



Marsh Grass Bracelets: Measuring an Unbroken Circle

Reinforce measuring skills through the creation of lashed bracelets using locally gathered marsh grass and palmetto frond strips.

Summary: The earliest known jewelry was created by pre-historic inhabitants as personal adornment that often signified the wearer's identity, power and status. Artisans and craftsmen utilized locally collected materials, developed basic interlacing techniques, and relied on measuring skills in the creative process. Many of the materials and techniques used to make jewelry were also used to create baskets. The African-American Gullah culture in the South Carolina's low country used a variety of marsh grasses and palmetto frond strips to make baskets for agricultural cultivation and artistic purposes for nearly 300 years. Today, a number of contemporary craftsmen use the materials and techniques to make fiber jewelry.

Learning objectives: Students will:

- Use tools to determine mathematical measurements.
- Understand basic interlacing/weaving techniques.
- Create a bracelet using black needle rush or sweetgrass and palmetto frond strips.
- Write a descriptive response of the creative process and discuss how measuring skills were used to create the bracelet.

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Good for these grades/ages: Grades 4-6

Time needed for this project: 90 minutes

Teacher preparation and procedures:

The teacher will teach students math vocabulary associated with measurements and provide examples. The teacher will develop a measurement worksheet and provide cm/mm rulers and measuring tapes.

Teaching artist preparation and procedures:

Teaching artist will provide presentation on subject of woven jewelry and how mathematical measurements will be used in the construction of the bracelet. The artist will show example(s) of learning activity, provide demonstrations, materials, tools, and instruct students.

Student prior knowledge:

Students will have experience using rulers, measuring tapes and know how to measure circles.

Physical space:

Classroom or art studio with tables

Materials & supplies needed:

Rulers, measuring tapes, pencils, scissors

Staging:

- Harvest and prepare marsh grass and palmetto frond strips for distribution to students.
- Produce a video tape demonstrating how to measure hand, and wrists and lash marsh grass bracelets.



Key skills:

Art-making:

- Executing and implementing appropriate use of media, techniques and processes.
- Generating, planning, and producing craft products.

Academic:

- Understanding measurements through mathematical processes.
- Organizing and structuring writings using clear focus and sufficient detail.

Vocabulary:

Geometric Shapes - Shapes according to geometry characterized by straight lines, angles, triangles, circles or regular forms.

Measure – A standard for determining extent, dimensions, capacity, units of anything.

Centimeter – A small unit of linear measurement in the metric system that equals approximately 0.3937 (4/10) of an inch.

Circumference – Distance around any closed curve or circle.

Diameter - The distance across a circle through the center.

Interval – The space between two things.

Black Needlerush – Salt-loving leafless rush that covers large areas in coastal tidal marshes (also known as black rush, needlerush, and needle grass).

Sweetgrass – Long stem plant that grows in tufts along the boundaries between tidal marshes.

Palmetto Frond – The compound leaf of a palmetto tree.

Weave – The interlacing of materials through opposing motions such as over and under, in and out, up and down.

Coil – To wind or gather into a circular or spiral form.

Lash – A basic weaving technique that holds two or more materials together through opposing over and under motions.

Handouts & informative resources:

Websites

<http://www.mathgoodies.com>

Title of books

- Ballantine, Todd. *Tideland Treasure: a Naturalist's Guide to the Beaches and Salt marshes of Hilton Head Island*. Deerfield, 1983.
- Banes, Helen, *Fiber & Bead Jewelry*. New York, New York: Sterling Publishing Co., Inc., 2000.
- Hobb, Jack, Salome, Richard. *The Visual Experience Teacher's Edition*. 2nd ed. Worcester, MA: Davis Publications, Inc., 1995.
- Jensen, Elizabeth. *Baskets from Nature's Bounty*. Loveland, CO: Interweave Press, 1991.
- Raven, Margot Theis, Lewis, E. B. *Circle Unbroken*. New York: Melanie Kroupa Books, 2004.
- Rosengarten, Dale. *Row Upon Row: Sea Grass Baskets of the South Carolina Lowcountry*. Columbia: McKissick Museum, University of South Carolina, 1987.

Handouts

black needlerush handout (below)

math worksheet

Instruction:

Engage

1. Discuss with the students some of the reasons why people began making jewelry. Questions to consider:
 - Why do you think people began making jewelry?
 - What are some of the purposes that the jewelry served?
 - Have you ever made a bracelet that you can wear?

2. Show students examples of woven bracelets from a variety of cultures:
 - Using a Promethean Board, show images of bracelets from African and North American cultures.
 - Discuss some of the materials and techniques used to create the bracelets and how the artists may have used mathematical measurements to achieve their results.

Build Knowledge

1. Introduce students to examples of bracelets made out of lashed black rush and palmetto fronds.
 - Show students actual examples of bracelets made by teaching artist and explain how the bracelets were created.
2. Introduce students to materials that will be used in the construction of their bracelets.
 - Show students the marsh grass weaving material, which may be black rush or (sweetgrass), and describe how the materials grow along the salt marshes in the lowcountry. Inform students how it is harvested by being pulled out of clumps or tufts.
 - Show students an unopened palmetto frond and explain how it is cut from the center of a saw palmetto and opened so that the leaf sections can be torn into strips that are lashed (woven) around a bundle of marsh grass. Explain that the bracelets are created using materials similar to the ones used to create the coiled seagrass baskets that have been made for nearly 300 years in South Carolina by African Americans associated with the Gullah culture.

Apply

1. Executing and implementing the construction of the bracelets:

Step I

- Show students how to use a measuring tape to measure circumference of wrist and hand; emphasize that the bracelet needs to be large enough to slide over hand.
- Distribute measuring tapes, pencils, and math worksheets.
- Direct students to measure hands and wrists and record measurements on math worksheets.



pictured here: Marianne Blake at St. Helena Elementary School instructs student on how to lash palmetto frond weaver around bundle of marsh grass to complete bracelet

Step II

- Demonstrate how to coil and lash a 24" blade of black rush into a circle that will slide over hand and fit wrist.

- Distribute black rush to students and direct students to coil and lash their circles; provide assistance where needed.

Step III

- Demonstrate for the students how to tuck and secure one end of palmetto strip between black rush coil and how to lash the strip around the circumference; emphasize that the lashing should be evenly spaced at one inch intervals.
- Show the students how to create an x-lashing pattern by reversing the palmetto strip in the opposite direction and lashing the circumference of coil; emphasize that the lashing should be evenly spaced at one inch intervals; show the students how to tuck and secure end of palmetto strip to complete the bracelet.
- Distribute palmetto strips to students and direct them to tuck and secure the strips and lash the circumference of their coils; once students have lashed the palmetto strips at one inch intervals around circumference of bracelets, direct them to reverse lashing in opposite direction to create the x-lashing pattern; direct students to complete bracelets by tucking end of palmetto strips underneath lashing to secure the strips.

Reflect

- Have students write responses that describe the mathematical processes and creative processes used in the production of their marsh grass bracelets.
- Have students wear their bracelets and read from their written responses.
- Have students discuss if they were successful in communicating the information they wanted.
- Have students discuss what they would do differently if they made another bracelet.
- Have an exhibition of the students' bracelets and display their writing responses alongside.



Assessment:

Evaluation Questions

- Did student successfully use measuring tape to measure hand and wrist?
- Did student successfully coil marsh grass materials the size to fit wrist measurement?
- Did student successfully lash palmetto strips in one inch intervals?
- Did student successfully reverse direction of lashing to create x-lashing pattern?
- Did student successfully tuck and secure palmetto strips?
- Did student use a clear focus and sufficient detail in their writing response?

Rubric: Marsh Grass Bracelets				
CRITERIA	Ineffective 1 point	Effective 3 points	Outstanding 5 points	Actual Points
Preparation (Following Directions)	The student did not follow directions and was unprepared	The student followed some of the directions and was partially prepared	The student followed all of the directions and was completely prepared	
Participation	The student did very little or nothing in the activity	The student did participate and was involved with the completion of the activity	The student showed superior involvement, resulting in the completion of the activity exceeding expectations	
Performance Task Observable measurable	The student showed ineffective use of art media and measuring tools	The student showed effective use of art media and measuring tools	The student showed outstanding use of art media and measuring tools	
Performance Task Observable measurable	The student showed ineffective lashing skills and was unable to secure palmetto strips	The student showed effective lashing skills and was able to secure palmetto strips	The student showed outstanding lashing skills and was able to secure palmetto strips	
Performance Task Observable measurable	The student's writing response was ineffective in communicating mathematical and creative processes used to create their bracelets	The student's writing response was effective in communicating mathematical and creative processes used to create their bracelets	The student's writing response was outstanding in communicating the mathematical and creative processes used to create their bracelets	
total			25 Points Possible	

2011 Curriculum standards:

Math

5-5: The student will demonstrate through the mathematical processes an understanding of the units and systems of measurement and the application of tools and formulas to determine measurements.

6-5.2: Apply strategies and formulas to find the circumference and area of a circle.

ELA

5-4: The student will create work that has a clear focus, sufficient detail, coherent organization, effective use of voice, and correct use of the conventions of written Standard American English.

5-5: The student will write for a variety of purposes and audiences.

Art standards:

Visual Arts Standard

5-1: The student will demonstrate competence in the use of media, techniques and processes.

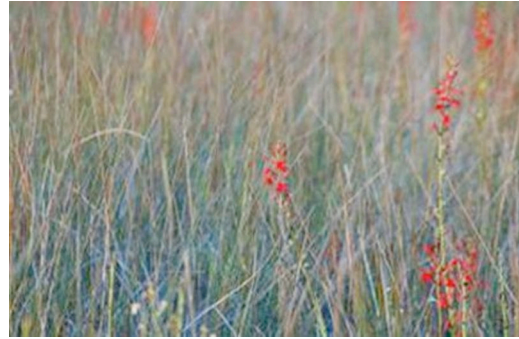
VA5-1.5: Utilize more sophisticated tools and materials in safe and responsible ways.

VA5-1.6: Determine and describe what media are used within the historical and cultural arts and artifacts that they observe.

5-6: The student will make connections between the visual arts, other arts disciplines, other content areas, and the world.

VA5-6.1: Identify connections between the visual arts and content areas across the curriculum.

Black Needlerush handout



Juncus roemerianus Scheele
Black Needlerush

Scientific Name: *Juncus roemerianus* Scheele

Common Name: Black Needlerush, Needlerush, Black Rush, Needlegrass Rush

Family: Juncaceae (Rush Family)

Stems: Stem tips very sharp-pointed and stout (some "stems" in this species are actually leaves that are rounded so tightly that they appear to be very sharp-pointed stems.) Stems grow up to 5 feet tall, grayish green

Leaves: Stem-like, long, stiff, round, with very sharp points

Inflorescence: Stiff, erect branches, flowers at tips of branches and branchlets up to 12 cm long

Flowers: Two types: perfect flowers only or pistillate flowers only

Pistillate flowered plants produce more viable seeds than perfect flowered plants

Flowering Time: Late January - May, peaks in March

Habitat: Salt-loving, leafless rush, covers large areas in coastal salt and brackish tidal marshes.

Wetland Indicator: Obligate Wetland

Origin: Native to the U.S.

Other Information:

Recognizable by characteristic grayish green to blackish hues;
Seed capsules in clusters of 2-6, 3-sided, dark brown, shiny.

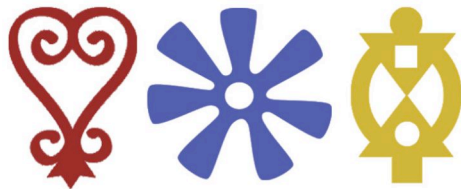
Description from *Grasses, Sedges, and Rushes of Wetlands* (Ramey, 2001).

Coastal Preserves Plant Gallery

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<http://www.dmr.state.ms.us/Coastal-Ecology/preserves/plants/plants.htm>

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