



Teacher Resource Packet
XENOBIA BAILEY MANDALA TOOL



About the Artist

Xenobia Bailey was born and raised in Seattle, Washington. She lives and works in Harlem, New York. Prior to moving to New York City, she was a costume designer for Black Arts West, a African American Community Theater in Seattle's very small African American Community. She earned a B.A. degree in Industrial Design from Pratt Institute in Brooklyn, New York. After graduating, she worked for a short time as a Case Worker for the New York City Department of Social Services, a career stop that would later inform her development as an artist, designer and cultural activist. New artwork includes Funktioning Urban Material Culture that is her series of Object-of-Inspiration, soon to be launched line of meditation a prayer rugs, carpets crochet furnishings and Fiber Optic lighting fixtures. Her present commissioned mosaic mural for the New York City Transit Authority, to be completed in 2015 as part of the 34th Street Hudson Yard line extension.

*Biography courtesy of the artist; Photo by Daisy Chen.

About STEAM

STEAM education is an interdisciplinary approach to learning where rigorous academic concepts are coupled with artistic works and cultural practices as students apply science, technology, engineering, art and mathematics in contexts that make connections between school, community, personal interests, and the global marketplace.

Elements of STEAM

- Science, which deals with and seeks the understanding of the natural world (NRC, 1996, p. 24), is the underpinning of technology. Scientific processes include "inquiry," "discovering what is," "exploring," and using "the scientific method."
- Technology is the modification of the natural world to meet human wants and needs (ITEA/ITEEA, 2000/2002/2007, p. 7). It includes computers, software learning tools, networking systems, hand-held digital devices, digital cameras, and other technologies, including those not yet developed, for accessing, creating, and communicating information.
- Engineering is the area in which a knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize economically the materials and forces of nature for the benefit of mankind" (ABET, 2002).
- Art is the expression or application of technology, science, math, and engineering skills and imagination through forms based on culture, personal style, and technique. Forms range from the cultural arts, drawing, painting, sculpture, design, music, and video (NAEA, 1994, p. 32).
- Mathematics is the science of patterns and relationships (AAAS, 1993, p. 23). It provides an exact language for technology, science, art, and engineering.

About Mandala

Xenobia Bailey is best known for eclectic crocheted hats, large-scale mandalas, and tents consisting of colorful concentric circles and repeating patterns. Her designs draw influences from Africa, China, and Native American and Eastern philosophies, with undertones of the domestic aesthetic of her mother and other African American rural and urban homemakers, and of the 1960's and funk visual aesthetic.

Many pieces are connected to her ongoing project *Paradise Under Reconstruction in the Aesthetic of Funk*.

Visual Language

Artists use symbols and images to communicate messages or stories to viewers. The phrase visual language refers to the idea that communication occurs through visual symbols, as opposed to verbal symbols, or words. Just as people can 'verbalize' their thinking, they can 'visualize' it. A diagram, a map, and a painting are all examples of uses of visual language. Its structural units include:

Visual Elements



Line is a mark with greater length than width. Lines can be horizontal, vertical, or diagonal; straight or curved; thick or thin.



Shape is a closed line. Shapes can be geometric, like squares and circles; or organic, like free-form or natural shapes. Shapes are flat and can express length and width.



Forms are three-dimensional shapes expressing length, width, and depth. Balls, cylinders, boxes, and pyramids are forms.



Space is the area between and around objects. The space around objects is often called negative space; negative space has shape. Space can also refer to the feeling of depth.



Color is light reflected off of objects. Color has three main characteristics: hue (the name of the color, such as red, green, blue, etc.), value how light or dark it is), and intensity (how bright or dull it is).

Design Principles (Motifs)

A visual element is usually a simple shape such as circle, square, diamond, etc. Repeating elements in regular or cyclical fashion can create interest, movement, and/or harmony and unity. Visual elements are usually repeated using one of the geometry transforms:

- Rotation: turning a visual element around a fixed point.
- Translation: moving a visual element as if you were sliding it on a surface.
- Reflection: flipping a visual element as if reflected in a mirror.
- Dilation: scaling the element larger or smaller

How Visual Elements & Design Principles Relate to STEM

The color systems used by scientists and artists are entirely different. An artist will mix blue and yellow **paint** to get a shade of green; a scientist will mix green and red **light** to create yellow. The printed page in a magazine is yet another system.

The repetition of visual elements creates patterns in mosaics, lattices, spirals, waves, stars, fractals, etc. Rhythms in a pattern can be random, regular, alternating, flowing, and progressive.

Many cultural designs are based on geometry (e.g. reflection, rotation, dilation, translation) and algorithmic designs called fractals that repeat in a pattern that gets smaller and smaller, sometimes to the point where you can't see it anymore, and sometimes into infinity (beyond where it can be counted). Xenobia Bailey uses these designs and patterns in her artwork.



Clockwise from the top left: "Sistah Paradise" 2013. Courtesy the artist; "Aesthetic of Funk," "Funky (crochet)," 2011. Courtesy the artist; "Paradise Under Reconstruction in the Aesthetic of Funk," 2000. Courtesy the artist.

Xenobia Bailey's Re-Possessed: Fiber Work (detail on right) includes several mandala designs and geometric shapes such as triangles and rectangles. Bailey creates a tactile representation of a mythology designed to explain the presence of Africans in America. She relates the history of colonization to contemporary struggles for justice and equality for African Americans.

Questions for Viewing

Engaging with a work of art is a meaningful and lasting experience. The following four-step process encourages close looking and careful thinking with any work of art that you view with your students, either in your classroom or in an exhibition.

LOOK

Take time to look at the work of art.

- Describe what you see in the artwork. Think about line, color, texture, pattern, and shape. Can you figure out what it is made of, or how it was made?

DESCRIBE

Talk about what you see in the work of art.

- Write down words or sketch things that come to your mind when you look at the art. Why do the artworks make you think about those words/things?

THINK

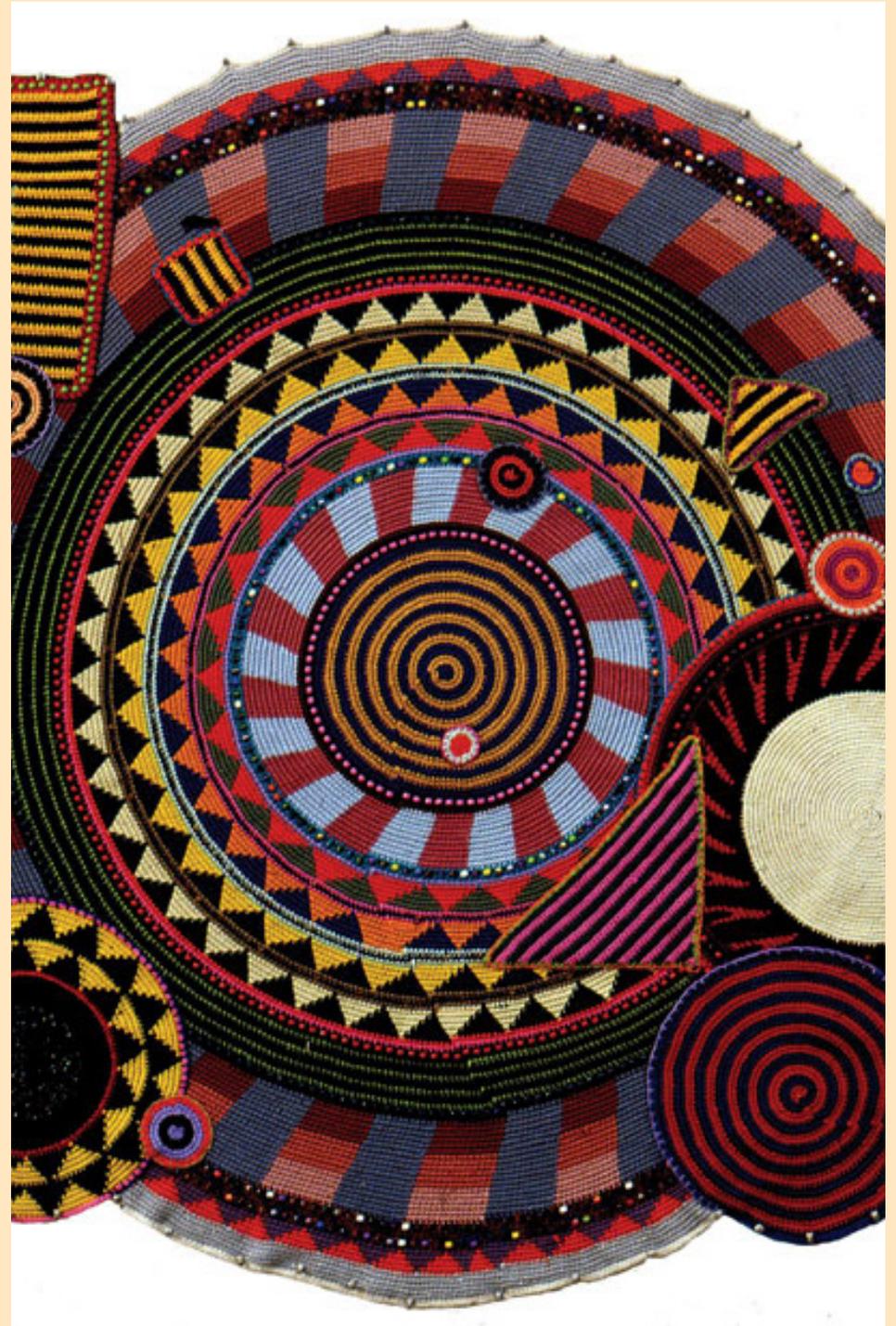
Interpret and assign meaning to the work of art.

- What do you think the artist was trying to communicate through the creation of this work of art?
- What questions would you like to ask about this artwork? Can you guess at the answers to any of them?

CONNECT

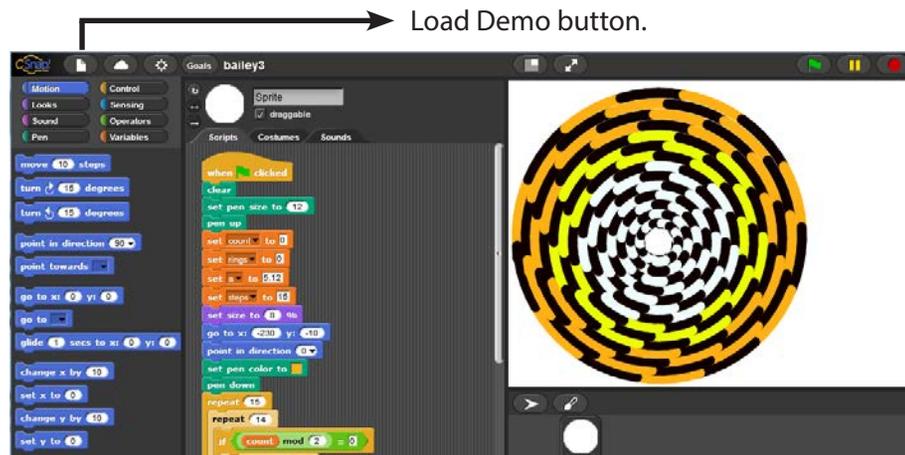
Relate what you see to your own life, or to other works of art or images you have seen.

- Compare this work of art to other images/objects that you have seen, either in a museum or in your everyday life. How are they similar? How are they different?
- In one sentence, describe the most interesting thing about this artwork?

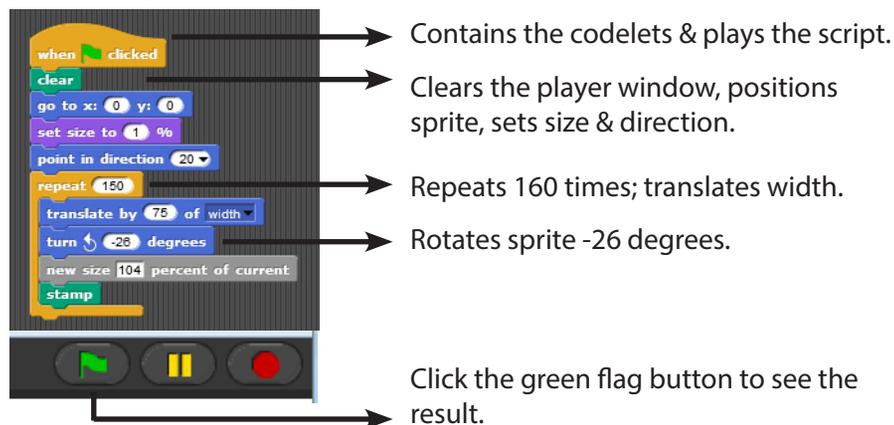


Using the Culturally Situated Design Tool (CSDT)

Codelets are stackable blocks that are used to create designs in the CSDT. A collection of codelets is a “script”. Codelets connect to each other, where each transformation has its own block and a slot for the block to be inserted into. A sprite is a shape or symbol. First, launch the software. Next, click “Load Demo” to select a sprite (ex. circle).



On the far left are blue (codelet) blocks that can be used to simulate the artist’s design. Drag and stack the blue blocks in the center area, inside of the “When Clicked” (main) yellow block. You can change the parameters of each block by clicking inside of the white box (field) next to the corresponding label. For example:



Students/users can change blocks and try different transformations or parameters until they create the design they want to save. They can also change colors and import their own symbols/shapes and sounds.

Getting Started

Here are the recommended steps to get students started with their projects:

1. Talk about the key concepts (e.g. math, science, visual elements, design).
2. Direct students to look closely at the artwork; use “Questions for Viewing.”
3. Give students time to do research about the artwork; or talk about the cultural and historical elements of the artwork.
4. Show students how the CSDT works; give them time to explore the tool.
5. Direct them to create their own designs, save/print or use in group projects such as murals, hanging wall and floor art.

About the Researcher

Nettrice Gaskins is a Ph.D. candidate and researcher in Georgia Tech’s Digital Media Program and Experimental Game Lab. Her work investigates culturally situated arts-based learning and new media, their invention, and use in underrepresented, creative communities of practice. This includes the use of new media tools and platforms, and existing cultural art forms. She is a writer/columnist for Art21, the producer of the Peabody award-winning PBS series, Art in the Twenty-First Century. She has other works published online and in Ghost Nature: Beyond and Between Transhuman Spaces, published by Green Lantern Press.

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