

Big Idea – Art Connects Math and Culture

Transformations in math—**translations (slides), rotations (turns), reflections (flips), and dilations (resizing)**—are also tools of cultural expression in art and design. Across the world, communities use **patterns, geometry, and symmetry** to share their stories, values, and identities through creative forms such as **quilts, beadwork, mosaics, weavings, and tiles**. Studying transformations helps us see that **math is not only logical—it’s cultural, creative, and connected to history**. Each pattern tells a story of how people express identity and belonging through design.

Math + Equity Example

- An **African American quilt** might use *reflection* to create balance and hidden messages of hope.
- A **Navajo rug** can use *translations* to repeat a pattern that represents harmony with nature.
- A **Moroccan mosaic** often uses *rotations* to form circular patterns symbolizing unity.
- A **Mexican Talavera tile** might use *dilation* to resize and repeat a flower design.

Transformations show how **math and culture work together** to preserve beauty, meaning, and identity through art.

Data Reflection

Circle or underline the word that stands out to you:

pattern | culture | design | identity | creativity

Share Your Thinking

The word I picked is: _____

I picked this word because:

Reflection:

How does this word connect to what we are learning about cultural design and mathematical transformations?

Student Equity Reflections

1. What does this lesson show about how math can be used to express culture and creativity?

2. Name one type of transformation and give an example of how it appears in cultural art.

3. Why is it important to honor and study designs from diverse cultures?

4. How can creating art through math help people understand each other better?
