

Unit: Geometry

Lesson: Native American Design

Grade Level: 8th

Subject: Math

Overall Essential Unit Goals and Objectives:

Domain: Geometry 8.G

Cluster: Understand congruence and similarity using physical models, transparencies, or geometry software

Core Curricular Lesson Objective(s):

Math

1. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
 - I can define congruency in two-dimensional figures giving examples and non-examples.
 - I can describe the sequence of transformations between two congruent figures.
2. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures from a variety of cultural contexts, including those of Montana American Indians: using coordinates.
 - I can describe the effect of transformations observed in Native American geometric patterns using coordinate notation.

How objectives were met in the past and rationale for employing the use of technology to meet them currently:

In the past, this lesson was providing verbally with the use of a PowerPoint. Using Google Apps, I can share the file with students and they can refer back to it as many times as they need to complete the project. Some students may chose to use the Drawing tool in Google Apps to complete the task. However, I feel it may be more difficult to do so.

Time, Materials, Equipment, and Management:

- *Time:*
 - 3 class periods at least 45 minutes long (one for introduction & presentation, two for students to work on their design in class.)
- *Materials:*
 - computer, internet access, paper, pencils, colored pencils or markers, Google Apps
 - [Instructional Presentation](#) Instructions for the students are included in the presentation. This will primarily be an in-class activity
 - [Rubric](#)
- *Equipment:*
 - Google Apps for students in computer lab.
 - Projector cart with computer, internet access, and speakers

Prior Learning: Students will have already learned and complete several activities with all four transformations, line and rotational symmetry. This lesson is an application lesson, where they will be applying what they learned from previous lessons here.

Procedure:

1. [Introduce Native American Design using the presentation](#)
 - a. discuss the story
 - b. show Native artwork
 - c. share Native designs
 - d. explain the task
 - e. give 2-2 ½ work days

Assessment: Students will be assessed on their final design and their ability to use and describes transformations and symmetry accurately. See the [Rubric](#).

Extensions:

Students who would like to use technology to create their design, they are welcome to do so but it must still meet the same requirements of the hand-drawn task.



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