



Art & Geometry Lesson



National Standards

Instructional programs for Geometry in grades 6th-8th should enable all students to:

Recognize and apply geometric ideas and relationships in areas outside the mathematics classroom, such as art, science, and everyday life.

Texas Essential Knowledge and Skills

Math 6.5A Proportionality.

The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to:

represent mathematical and real-world problems involving ratios and rates using scale factors, tables, graphs, and proportions;

Math 6.8 C-D Expressions, equations, and relationships.

The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:

write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers;

determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.

English Language Arts 7-8.1B Developing and sustaining foundational language skills: listening, speaking, discussion, and thinking--oral language. (2017)

The student develops oral language through listening, speaking, and discussion. The student is expected to:

follow and give complex oral instructions to perform specific tasks, answer questions, or solve problems;

English Language Arts 6.2B - Reading/Vocabulary Development. (2017)

Students understand new vocabulary and use it when reading and writing. Students are expected to:

use context (e.g., cause and effect or compare and contrast organizational text structures) to determine or clarify the meaning of unfamiliar or multiple meaning words;

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21st Century Skills

Learning and Innovation Skills

- Critical Thinking and Problem Solving
 - Exercising sound reasoning in understanding
 - Understanding the interconnections among systems
 - Identifying and asking significant questions that clarify various points of view and lead to better solutions
 - Framing, analyzing and synthesizing information in order to solve problems and answer questions
- Creativity and Innovation
 - Acting on creative ideas to make a tangible and useful contribution to the domain in which the innovation occurs

Life and Career Skills

- Initiative & Self-Direction
 - Defining, prioritizing and completing tasks without direct oversight
 - Utilizing time efficiently and managing workload
- Leadership & Responsibility
 - Using interpersonal and problem-solving skills to influence and guide others toward a goal

Objective

In this activity students will create 1:1 scale models of a Rubik's Cube and redesign the colors on the cubes.

- Geometry: create scale models of similar figures using ratio, proportion with pencil/ paper and determine scale factor
- Art: create three-dimensional artworks using a variety of elements of art and principles of design

Materials

Rubik's Cubes

Card stock

Rulers

Various art supplies available for students to chose from (magazines, paint, markers, glue, scissors, glitter, construction paper, beads, etc.)

Procedure

1. Begin by asking students to create a scale model of a Rubik's Cube.
2. Students should have prior knowledge of 1:1 ratios and scale drawings.
3. They will create the Rubik's Cube model using a hexominoe net (they create) on the card stock, cutting it out, and gluing it together. ***Forming the Rubik's Cube, by folding and gluing, should be the LAST step in this activity.***
4. Students should use their ruler to draw the nine smaller cubes on each side of the large Rubik's Cube.
5. Show students different examples of "designer" Rubik's Cubes. These pictures can be found on the internet by searching for images under key words, "Rubik's Cube". This will give students an idea of what they can do to turn their Rubik's Cube into an original work of art!
6. Give students time to be as creative as possible. Remind them they do not have to stick with the original colors!
7. Their final product should resemble a solved Rubik's Cube.

Notes to Teacher

See the lesson on Polyhedron Nets for more ideas on exploring polyhedron nets and creating the hexominoe nets