

Photographic Transformations



Math & Visual Art

Grade
4

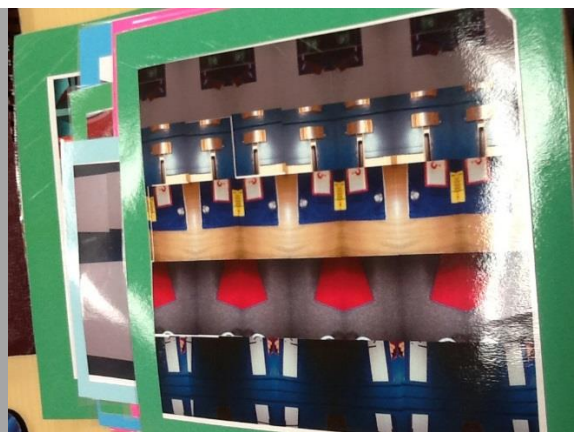
Math Common Core Standard(s) Grade 4

4. OA.5 Generate and analyze patterns.

Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.

Visual Arts (MD) Standard(s) Grade 4

3.1.c. Create artworks that explore the uses of the elements of art and selected principles of design, such as pattern, repetition, contrast, balance, and variety, to express personal meaning.



CONNECTED OBJECTIVES

Students learn about the transformation of geometrical figures while analyzing the works of M.C. Escher. The students take pictures of common objects and use these pictures to create tessellated art work.

MATERIALS & RESOURCES

- PowerPoint with artwork by M.C. Escher
- Digital cameras
- Smart notebook or similar technology
- Computers

KEY CONTENT VOCABULARY

- Transformation
- Translation
- Reflection
- Rotation

KEY ARTS VOCABULARY

- Tessellation

ASSESSMENT

- Art work the students have created
- The final grade is based on (rubric):
 - student participation
 - the inclusion of 5 images in the final artwork
 - lack of empty space in the artwork
 - degree of creativity used in the artwork.



L E S S O N S T E P S

Completed over 3 class periods; the final lesson must be in the computer lab.

Introduce Tessellations

- Students look at a teacher-created Power Point about M.S. Escher.
- Students identify what the plane figure is in each picture.
- Students identify patterns, repetition (art), translations, reflections, and rotations in the art work.
- Students describe what transformations the artist used to create the translations (math), reflections and rotations of the plane image.

Photography

- Students divide into groups.
- Students take pictures of 5 images around the school.

*The teacher must upload these images onto Smart Notebook or similar technology.

Creating Tessellations – in the computer lab

- Teach students how to create tessellations of an image. (Use the green button on the Smart Notebook to rotate an image around to create a rotation, right click and flip the image to reflect it, clone and slide the image to translate it).
- Students must use the images they took to create a photo collage. The photo collage should have no blank space and include all 3 transformations that were taught in the lesson.

EXTENSIONS & OPTIONS

- Students can analyze the work of another student in the class. The student should use the math vocabulary to describe how that work could be recreated.

SOURCES & RESOURCES

G e t S m a r t T h r o u g h t h e A r t s

Author:

J u l i e M y s z a k , S e v e n O a k s E l e m e n t a r y S c h o o l , O d e n t o n M D

S U P P O R T I N G D O C U M E N T S