



UNIT: GEOMETRY
EXPLORE GEOMETRY WITH ABSTRACT ART (Lesson 5 of 5)
Grade Band: 4
Content Focus: Visual Arts & Math



LEARNING DESCRIPTION

Delve into the abstract world of Wassily Kandinsky! Allow your imagination to soar as you discover mathematical connections within Kandinsky images. Students will be inspired by the work of Kandinsky to create their own abstract art that incorporates geometric concepts and the elements of art.

LEARNING TARGETS

Essential Questions	"I Can" Statements
How can you utilize visual images to learn about mathematical concepts?	I can create artwork inspired by Wassily Kandinsky that demonstrates my understanding of mathematical concepts.
How are two-dimensional and three-dimensional artworks different?	I can describe my artwork in terms of mathematical concepts.



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	I can interpret my Stable sculpture in a two-dimensional format.
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GEORGIA STANDARDS

Curriculum Standards	Arts Standards
<p>4.GSR.7.1 Recognize angles as geometric shapes formed when two rays share a common endpoint. Draw right, acute, and obtuse angles based on the relationship of the angle measure to 90 degrees</p> <p>4.GSR.8.1 Explore, investigate, and draw points, lines, line segments, rays, angles (right, acute, obtuse), perpendicular lines, parallel lines, and lines of symmetry. Identify these in two-dimensional figures.</p> <p>4.GSR.8.2 Classify, compare, and contrast polygons based on lines of symmetry, the presence or absence of parallel or perpendicular line segments, or the presence or absence of angles of a specified size and based on side lengths.</p>	<p>VA4.CR.1 Engage in the creative process to generate and visualize ideas by using subject matter and symbols to communicate meaning.</p> <p>VA4.CR.3 Understand and apply media, techniques, and processes of two-dimensional art.</p> <p>VA4.RE.1 Use a variety of approaches for art criticism and to critique personal works of art and the artwork of others to enhance visual literacy.</p> <p>VA4.CN.2 Integrate information from other disciplines to enhance the understanding and production of works of art.</p> <p>VA4.CN.3 Develop life skills through the study and production of art (e.g. collaboration, creativity, critical thinking, communication).</p>

SOUTH CAROLINA STANDARDS

Curriculum Standards	Arts Standards
<p>4.G.1 Draw points, lines, line segments, rays, angles (i.e., right, acute, obtuse), and parallel and perpendicular lines. Identify these in two-dimensional figures.</p> <p>4.G.2 Classify quadrilaterals based on the presence or absence of parallel or perpendicular lines.</p> <p>4.G.3 Recognize right triangles as a category, and identify right triangles.</p> <p>4.G.4 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line symmetric figures and draw lines of symmetry.</p>	<p>Anchor Standard 1: I can use the elements and principles of art to create artwork.</p> <p>Anchor Standard 2: I can use different materials, techniques, and processes to make art.</p> <p>Anchor Standard 7: I can relate visual arts ideas to other arts disciplines, content areas, and careers.</p>



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KEY VOCABULARY

Content Vocabulary	Arts Vocabulary
<ul style="list-style-type: none"> • <u>Right angle</u> - An angle whose measure is exactly 90° • <u>Acute angle</u> - An angle whose measure is between 0° and 90° • <u>Obtuse angle</u> - An angle whose measure is between 91° and 180° • <u>Equilateral triangle</u> - A three-sided figure with sides of equal length • <u>Isosceles triangle</u> - A three-sided figure with two sides of equal length • <u>Scalene triangle</u> - A three-sided figure with no sides equal in length • <u>Parallelogram</u> - A quadrilateral with both pairs of opposite sides parallel • <u>Pentagon</u> - A five-sided polygon • <u>Rectangle</u> - A parallelogram with four right angles • <u>Rhombus</u> - A parallelogram with four sides of equal length • <u>Square</u> - A plane figure with four equal straight sides and four equal angles • <u>Trapezoid</u> - A quadrilateral with at least one pair of parallel sides • <u>Parallel lines</u> - Lines that will never touch • <u>Perpendicular lines</u> - Lines that intersect forming a 90 degree angle 	<ul style="list-style-type: none"> • <u>Non-objective</u> - Process of art-making that has no reference to the real world; strictly composed of design elements • <u>Contrast</u> - The arrangement of opposite elements in a composition (light vs. dark, rough vs. smooth, etc.) Similar to variety, which refers to the differences in a work, achieved by using different shapes, textures, colors and values. • <u>Line</u> - One of the seven elements of art; a mark made by a pointed tool such as a brush pen or stick; a moving point • <u>Shape</u> (Geometric and Organic) - One of the seven elements of art; a flat, enclosed area that has two dimensions, length and width • <u>Negative space</u> - Empty space; the background • <u>Color scheme</u> - A limited number of colors used in an artwork • <u>Warm colors</u> - Red, pink, orange and yellow • <u>Cool colors</u> - Blue, green, purple/violet • <u>Primary colors</u> - Blue, yellow, red • <u>Secondary colors</u> - Orange, green, purple/violet • <u>Neutral colors</u> - Brown, tan, black, gray

MATERIALS



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- Drawing/mixed media paper (9" x 12" sheets)
- Pencils
- Crayons or oil pastels
- Watercolors or tempera cakes
- Paintbrushes
- Water cups
- Paper towels
- Images of "[Composition 8](#)" and "[Red. Blue and Yellow](#)" by Russian artist, Wassily Kandinsky
- [Color wheel](#)
- [Vasily Kandinsky. Guggenheim Museum](#)
- [Wassily Kandinsky images](#)
- [Looking: Ten Times Two](#) artful thinking routine

INSTRUCTIONAL DESIGN

Opening/Activating Strategy

- Introduce this lesson by having students look at images of "[Composition 8](#)" and "[Red, Blue and Yellow](#)" by Russian artist, Wassily Kandinsky.
- Have students engage in the [Looking: Ten Times Two](#) artful thinking routine.
 - Students will work collaboratively to identify ten things that they recognize in the image. Then, they'll repeat the process; the second time, however, ask students to focus specifically on the colors and shapes that they see.
- Facilitate a class-wide discussion around students' observations.

Work Session

- Looking at Kandinsky's "[Composition 8](#)" and "[Red. Blue and Yellow](#)", direct students to work collaboratively to use math vocabulary and concepts to describe the angles, lines, and shapes found within these abstract and non-objective masterpieces.
 - Students should draw and/or write their responses on sticky notes.
 - Direct students to identify the polygons within these images and their defining attributes.
 - Students should also look for examples of types of angles, types of triangles, and line relationships (parallel and perpendicular).
- Project or draw a large Venn diagrams for students to use to compare and contrast the two different Kandinsky artworks. Students can place their sticky notes in the appropriate section of the Venn diagram.
- Next, tell students that they will create their own non-objective artwork in the style of Kandinsky. Their two-dimensional artwork will be a 2D interpretation of their Stable sculptures (from lesson two in this unit).
- Project "[Composition 8](#)" and "[Red. Blue and Yellow](#)" again.
 - Ask students to make observations about how the space is used in the artwork. Students should notice that there isn't much negative space or "empty space".
 - Students may also notice that Kandinsky overlaps elements in his artwork.
- Next, discuss the colors that Kandinsky used.



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- Project an image of a [color wheel](#) and discuss different types of color schemes: Warm, cool, neutral, primary and secondary.
- Tell students that they will be using color to “color code” their artwork. How they do this is up to them.
 - For example, all polygons might be warm colors and all lines might be cool colors.
 - Students can then further categorize by making all triangles red and all quadrilaterals orange. Or, each type of triangle or each type of quadrilateral could be a different warm color.
 - All lines that intersect at right angles might be blue and all lines that intersect at obtuse and acute angle might be green. All lines that don’t intersect might be purple/violet.
 - These are just a sampling of ideas—encourage students to choose how they want to use color intentionally in their art rather than telling them how to do it.
- Students should divide a page in their STEAM journals or on plain paper into four sections. Students should lightly sketch four ideas for their compositions—one per section.
 - Remind students that they are interpreting their Stabile sculptures in a two-dimensional format. This means that they must show the polygons from their sculpture in their two-dimensional artwork.
- Students will choose their favorite and draw their designs lightly on paper in pencil.
 - Students will add color using oil pastels or crayons.
- Next, using a color that is different from the ones already used in their artwork, students should paint an even coat of paint (watercolor wash) using watercolor or tempera cakes over their entire artwork. The crayon or oil pastel will resist the water in the paint.
- In their STEAM journals, have students reflect on how their artwork changed when they changed mediums from a 3D sculpture to a 2D drawing/painting. Next, ask students to describe their art using mathematical vocabulary.

Closing/Reflection

- Students will display their 2D artwork next to their 3D Stabile sculptures. Give students a “scavenger hunt” to find mathematical concepts in each other’s artwork.
- See if students can figure out how other students used color in their artwork.

ASSESSMENTS

Formative

- Teachers will assess students’ understanding of the content throughout the lesson by observing students’:
 - Participation in the activator
 - Discussion of the mathematical concepts evident in Kandinsky’s artwork
 - Discussion of Kandinsky’s use of color and space
 - Ability to apply mathematical concepts to creating a two-dimensional interpretation of their Stabile sculptures

Summative



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- Students can create an artwork inspired by Kandinsky that demonstrates their mastery of geometry standards.
- Students can describe their artwork in terms of mathematical concepts.
- Students can use color and space intentionally in their art.
- Students can interpret their 3D Stables as a 2D drawing/painting.

DIFFERENTIATION

Acceleration:

- Have students identify the area and perimeter of the polygons in their artwork.

Remediation:

- Provide students with specific concepts to look for in Kandinsky's artwork using a word bank.
- Provide visuals with examples of concepts to support students.
- Allow students to work with a partner to create artwork.

ADDITIONAL RESOURCES

CREDITS

U.S. Department of Education- STEM + the Art of Integrated Learning
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**This integrated lesson provides differentiated ideas and activities for educators that are aligned to a sampling of standards. Standards referenced at the time of publishing may differ based on each state's adoption of new standards.*

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