



# artsNOW

Integrated learning solutions

## EXPLORE GEOMETRY WITH ABSTRACT IMAGERY

Grade Band: 4-5

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? | <p>I can create artwork inspired by Wassily Kandinsky that demonstrates my understanding of mathematical concepts.</p> <p>I can describe my artwork in terms of mathematical concepts.</p> |



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|  | <p>I can identify mathematical concepts in my classmates' artwork.</p> <p>I can use color and space intentionally in my art.</p> |
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## GEORGIA STANDARDS

| Curriculum Standards   | Arts Standards  |
|--|---|
| <p><b>Grade 4:</b><br/>           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.<br/>           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><b>Grade 5:</b><br/>           5.GSR.8.1 Classify, compare, and contrast polygons based on properties.</p> | <p><b>Grade 4:</b><br/>           VA4.CR.1 Engage in the creative process to generate and visualize ideas by using subject matter and symbols to communicate meaning<br/>           VA4.CR.2 Create works of art based on selected themes.<br/>           VA4.CR.3 Understand and apply media, techniques, and processes of two-dimensional art.<br/>           VA4.RE.1 Discuss personal works of art and the artwork of others to enhance visual literacy.<br/>           VA4.CN.2 Integrate information from other disciplines to enhance the understanding and production of works of art.<br/>           VA4.CN.3 Develop life skills through the study and production of art (e.g. collaboration, creativity, critical thinking, communication).</p> <p><b>Grade 5:</b><br/>           VA5.CR.1 Engage in the creative process to generate and visualize ideas by using subject matter and symbols to communicate meaning<br/>           VA5.CR.2 Create works of art based on selected themes.<br/>           VA5.CR.3 Understand and apply media, techniques, and processes of two-dimensional art.<br/>           VA5.RE.1 Discuss personal works of art and the artwork of others to enhance visual literacy.<br/>           VA5.CN.2 Integrate information from other disciplines to enhance the understanding and production of works of art.<br/>           VA5.CN.3 Develop life skills through the study and production of art (e.g. collaboration, creativity, critical thinking, communication).</p> |



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## SOUTH CAROLINA STANDARDS

| Curriculum Standards   | Arts Standards  |
|--|---|
| <p><b>Grade 4:</b><br/>           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.<br/>           4.G.2 Classify quadrilaterals based on the presence or absence of parallel or perpendicular lines. 4.G.3 Recognize right triangles as a category, and identify right triangles.</p> <p><b>Grade 5:</b><br/>           5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.<br/>           5.G.4 Classify two-dimensional figures in a hierarchy based on their attributes.</p> | <p><b>Anchor Standard 1:</b> I can use the elements and principles of art to create artwork.</p> <p><b>Anchor Standard 2:</b> I can use different materials, techniques, and processes to make art.</p> <p><b>Anchor Standard 4:</b> I can organize work for presentation and documentation to reflect specific content, ideas, skills, and or media</p> <p><b>Anchor Standard 5:</b> I can interpret and evaluate the meaning of an artwork.</p> |

## KEY VOCABULARY

| Content Vocabulary   | Arts Vocabulary  |
|--|--|
| <ul style="list-style-type: none"> <li>● <u>Geometry</u> - Branch of mathematics that deals with deduction of the properties, measurement, and relationships of points, lines, angles, and figures in space from their defining conditions by means of certain assumed properties of space.</li> <li>● <u>Polygon</u> - A closed plane figure with at least three straight sides and angles, and typically five or more.</li> <li>● <u>Acute angle</u> - An angle measuring less than 90 degrees</li> <li>● <u>Right angle</u> - A 90 degree angle</li> <li>● <u>Obtuse angle</u> - An angle measuring greater than 90 degrees</li> <li>● <u>Isosceles triangle</u> - A type of triangle that has at least two sides of equal</li> </ul> | <ul style="list-style-type: none"> <li>● <u>Abstract</u> - Process of art-making that has reference to the real world but is distorted or manipulated in some way.</li> <li>● <u>Non-objective</u> - Process of art-making that has no reference to the real world; strictly composed of design elements.</li> <li>● <u>Contrast</u> - Exhibiting unlikeness in comparison to something else.</li> <li>● <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</li> <li>● <u>Shape</u> (Geometric and Organic) – One of the seven elements of art; a flat, enclosed area that has two dimensions, length and width</li> </ul> |



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| <p>length</p> <ul style="list-style-type: none"> <li>● <u>Equilateral triangle</u> - A type of triangle in which all three sides are of equal length</li> <li>● <u>Scalene triangle</u> - A type of triangle in which all three sides have different lengths</li> <li>● <u>Right triangle</u> - A triangle that has a right angle</li> <li>● <u>Parallel lines</u> - Lines that will never touch</li> <li>● <u>Perpendicular lines</u> - Lines that intersect forming a 90 degree angle</li> </ul> | <ul style="list-style-type: none"> <li>● <u>Negative space</u> - Empty space; the background</li> <li>● <u>Color scheme</u> - A limited number of colors used in an artwork</li> <li>● <u>Warm colors</u> - Red, pink, orange and yellow</li> <li>● <u>Cool colors</u> - Blue, green, purple/violet</li> <li>● <u>Primary colors</u> - Blue, yellow, red</li> <li>● <u>Secondary colors</u> - Orange, green, purple/violet</li> <li>● <u>Neutral colors</u> - Brown, tan, black, gray</li> </ul> |
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## MATERIALS

- Images of [“Composition 8”](#) and [“Red, Blue and Yellow”](#) by Russian artist, Wassily Kandinsky
- Drawing paper or tag board (9” x 12” sheets)
- Pencils
- Markers, colored pencils, oil pastels and/or tempera paint

## INSTRUCTIONAL DESIGN

### Opening/Activating Strategy

- Introduce this activity by having students look at images of [“Composition 8”](#) and [“Red, Blue and Yellow”](#) by Russian artist, Wassily Kandinsky.
- Have students engage in the 10 x 2 artful thinking routine.
  - Students will work collaboratively to identify 10 things that they recognize in the image. Then, 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

#### Process

- 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/write their responses on sticky notes.



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- 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).
- Students will then create Venn diagrams that compare and contrast the two different Kandinsky prints. Students can place their sticky notes in the appropriate section of the Venn diagram.
- Next, tell students that they will create their own abstract or non-objective artwork in the style of Kandinsky according to criteria set by the teacher. For example, criteria might include designs including a minimum of five intersecting lines, one of each type of triangle, two right angles, one acute angle, one obtuse angle, two different types of quadrilaterals with parallel lines, etc.
- 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”.
- Next, discuss the colors that Kandinsky used.
- 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 in their art.
- Students will then draw their designs lightly on paper or tag board in pencil and then add color using marker, tempera paint, colored pencil, oil pastel, etc.
- Upon completion of their artwork, ask students to describe their art using mathematical vocabulary.

### Closing/Reflection

- Display students’ artwork on walls or place on tables/desks. 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, and ability to apply mathematical concepts to creating a unique artwork.



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## Summative

- Students can create an artwork inspired by Wassily Kandinsky that demonstrates their mastery of mathematical concepts.
- Students can describe their artwork in terms of mathematical concepts.
- Students can identify mathematical concepts in each other's artwork.
- Students can use color and space intentionally in their art.

## DIFFERENTIATION

### Acceleration:

- Have students identify the area and perimeter of the polygons in their artwork.
- Have students use scrap materials found in the classroom to interpret their artwork in a 3D format by turning it into sculpture. Materials could include popsicle sticks, tape, cardboard, pipe cleaners, straws, etc.

### Remediation:

- Provide students with specific concepts to look for in Kandinsky's artwork using a word bank.
- Reduce/limit criteria in artwork to focus on fewer concepts at a time.
- Provide visuals with examples of concepts to support students.
- Allow students to work with a partner to create artwork.

## ADDITIONAL RESOURCES

- [Vasily Kandinsky, Guggenheim Museum](#)
- [Color wheel](#)
- [Wassily Kandinsky images](#)

*\*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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