

Notes/Reflections:

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Geometrical Shapes • Angles • Symmetry •
Elements of Art •



Explore math concepts through visual art!

A Perfect Sacred Sphere

Students will explore protractors, rulers, balance both radial, and symmetrical, and concepts of angle measurements.

Essential Question: How can you utilize visual images and visual art concepts to teach math concepts?

Process

- Students will be given a blank sheet of paper, on which they'll learn the basics of a protractor, including the degrees, and increments shown on it.
- Next, the teacher will show the students slides of mandalas and their history from around the world. (For more information on mandalas, see Powerpoint.)
- Students will then begin to create their own mandala using symbols, lines, texture, etc. Each teacher can define what qualities they are looking for, such as at least 4 ~ 45° angles, 20 ~ 1° angles, certain shapes etc.
- Students may share their mandala with the class or a friend.
- They may either present, or write about their personal work.

Assessment

- Students can use a protractor accurately to make angles and geometric shapes.
- Students can tell you the meaning and importance of their individual mandala.
- Students can tell at least three places where this has significance.
- Students can use line, pattern and texture to show value and contrast.

Materials

- Mandala samples
- Protractors or compasses
- Pencils and erasers
- Square paper
- Rulers

Vocabulary

Symmetry

The quality of being made up of exactly similar parts facing each other or around an axis

Mandala

A geometric figure representing the universe in Hindu and Buddhist symbolism

Protractor

An instrument for measuring angles, typically in the form of a flat semicircle marked with degrees along the curved edge

Classroom Tips

This is great for whole group and individual work.

Common Core Georgia Performance Standards

MATHEMATICS

GRADE 4

MCC4.MD.5: Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

MCC4.MD.6: Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

MCC4.MD.7: Recognize angle measure as additive.

When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Georgia Performance Standards

VISUAL ARTS

GRADE 4

VA4MC.1: Engages in the creative process to generate and visualize ideas.

VA4MC.2: Formulates personal responses to visual imagery.

VA4MC.3: Selects and uses subject matter, symbols, and/or ideas to communicate meaning.

VA4PR.1: Creates artworks based on personal experience and selected themes.

National Standards

VISUAL ARTS

Standard 1: Understanding and applying media, techniques, and processes

Standard 2: Using knowledge of structures and functions

Standard 5: Reflecting upon and assessing the characteristics and merits of their work and the work of others

Standard 6: Making connections between visual arts and other disciplines