

MATHEMATICS – GEOMETRY

Subject: Geometry

Academic Standard: G.2

Academic Standard Indicator: G.2.2

Core Standard: Yes

Standard Description (Academic or Indicator): Find measures of interior and exterior angles of polygons, justifying the method used.

Suggestion for Integrating International Content: Have students find the sum of measures of interior and exterior angles of convex polygons and deduce formulas by using examples from Islamic, Greek, or Mayan art.

Subject: Geometry

Academic Standard: G.2

Academic Standard Indicator: G.2.4

Core Standard: Yes

Standard Description (Academic or Indicator): Apply transformations (slides, flips, turns, expansions, and contractions) to polygons in order to determine congruence, similarity, symmetry, and tessellations. Know that images formed by slides, flips, and turns are congruent to the original image.

Suggestion for Integrating International Content: Have students look at national flags from a variety of countries to discuss geometric transformations and symmetries that exist.

Subject: Geometry

Academic Standard: G.2

Academic Standard Indicator: G.2.4

Core Standard: Yes

Standard Description (Academic or Indicator): Apply transformations (slides, flips, turns, expansions, and contractions) to polygons in order to determine congruence, similarity, symmetry, and tessellations. Know that images formed by slides, flips, and turns are congruent to the original image.

Suggestion for Integrating International

Content: Have students study rotational symmetry by looking at Tibetan mandalas and Native American images.

Subject: Geometry

Academic Standard: G.4

Academic Standard Indicator: G.4.7

Core Standard: No

Standard Description (Academic or Indicator): Find and use measures of sides, perimeter, and areas of triangles, and relate these measures to each other using formulas.

Suggestion for Integrating International

Content: Have students use notable triangular architecture from a variety of cultures to examine relationships and measures.

Subject: Geometry

Academic Standard: G.5

Academic Standard Indicator: G.5.1

Core Standard: Yes

Standard Description (Academic or Indicator): Prove and use the Pythagorean Theorem.

Suggestion for Integrating International

Content: Have students trace the historical uses and manifestations of the Pythagorean Theorem in early civilizations, including the various proofs that were given. *Suggested resource:* http://en.wikipedia.org/wiki/Pythagorean_theorem/.

Subject: Geometry

Academic Standard: G.6

Academic Standard Indicator: --

Core Standard: No

Standard Description (Academic or Indicator): Students define ideas related to circles; e.g. radius, tangent. They find measures of angles, lengths, and areas. They prove

theorems about circles. They find equations of circles.

Suggestion for Integrating International

Content: Have students imagine that they are transmitting a signal to a country on the other side of the world, either assigned by the teacher or chosen by students. Have them use their knowledge of tangents to properly place satellites for successful transmission.

Subject: Geometry

Academic Standard: G.6

Academic Standard Indicator: G.6.2

Core Standard: Yes

Standard Description (Academic or Indicator): Define and identify relationships among: radius, diameter, arc, measure of an arc, chord, secant, and tangent.

Suggestion for Integrating International

Content: Have students analyze the configurations that exist at Stonehenge, both within the structure itself as well as in relation to astronomical phenomena.

Subject: Geometry

Academic Standard: G.6

Academic Standard Indicator: G.6.5

Core Standard: Yes

Standard Description (Academic or Indicator): Define, find, and use measures of arcs and related angles (central, inscribed, and intersections of secants and tangents).

Suggestion for Integrating International

Content: Have students use the locations of various major cities around the world, as given by longitude and latitude, to determine the distance between cities.

Subject: Geometry

Academic Standard: G.7

Academic Standard Indicator: G.7.4

Core Standard: No

Standard Description (Academic or Indicator): Describe symmetries of geometric solids.

Suggestion for Integrating International

Content: Have students look at major architecture from early civilizations, such as Egyptian pyramids or Mayan temples, to determine and compare the various symmetries within these structures.

Subject: Geometry

Academic Standard: G.7

Academic Standard Indicator: G.7.7

Core Standard: Yes

Standard Description (Academic or Indicator): Find and use measures of sides, volumes of solids, and surface areas of solids, and relate these measures to each other using formulas.

Suggestion for Integrating International

Content: Have students consider the story of the golden crown and Archimedes' principle to explore the volume of solids. Then have them use this method to verify the accuracy of various regular solids, using international examples.

Subject: Geometry

Academic Standard: G.7

Academic Standard Indicator: G.7.7

Core Standard: Yes

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Suggestion for Integrating International

Content: Have students consider the story of the golden crown and Archimedes' principle to explore the volume of solids. Then have them use this method to verify the accuracy of various regular solids, using international examples.