NWEA Common Core

Geometry 3–8

Skill Quests

May 2022

RIT Score Band 189–200

1 Reason with shapes and their attributes

Outcome	Quests	Content
3.G.A.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	Understanding shapes and their attributes	Sorting and naming quadrilaterals
		Comparing and describing two-dimensional shapes
3.G.A.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.	Partitioning shapes	Partition shapes into parts with equal areas

RIT Score Band 201–210

1 Draw and identify lines and angles, and classify shapes by properties of their lines and angles

Outcome	Quests	Content
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	Spatial features in 2D figures	Classifying angles
		Labeling points and lines
		Identifying spatial features in 2D shapes
4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	Classifying 2D figures	Classifying plane shapes by their spatial features
		Classifying triangles by their sides and angles
4.G.A.3 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.	Lines of symmetry	Lines of symmetry

RIT Score Band 211–217

1 Graph points on the coordinate plane to solve real-world and mathematical problems

Outcome	Quests	Content
5.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).	Introducing the coordinate plane	Introducing in the coordinate plane
5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	Graphing in the first quadrant	Graphing in the first quadrant

2 Classify two-dimensional figures into categories based on their properties

Outcome	Quests	Content
5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	Attributes of 2D figures	Sorting plane shapes
5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.	Classifying 2D figures, properties	Classifying 2D figures in a hierarchy
		Classifying quadrilaterals

RIT Score Band 218–221

1 Solve real-world and mathematical problems involving area, surface area, and volume

Outcome	Quests	Content
6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	Area: triangles and quadrilaterals	Finding the area of a right triangle, no formula
		Finding the area of a triangle
		Investigating the area of special quadrilaterals
		Real-world area problems: special quadrilaterals
6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	Volume: rectangular prisms, formula	Volume: rectangular prisms, fraction edge lengths
6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	Polygons in the coordinate plane	Drawing polygons in the coordinate plane
6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	Surface area	Connecting 3D objects with their nets
		Calculating the surface area of rectangular prisms

RIT Score Band 222–226

1 Draw construct, and describe geometrical figures and describe the relationships between them

Outcome	Quests	Content
7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	Scale drawings	Scale drawings
7.G.A.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	Constructing triangles	Triangle Inequality Theorem
		Constructing triangles with given conditions
7.G.A.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	Cross sections of 3D figures	Describing cross sections of 3D figures

2 Solve real-life and mathematical problems involving angle measure, area, surface area, and volume

Outcome	Quests	Content
7.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	Circles: area and circumference	Finding the area of a circle
		Finding the circumference of a circle
7.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	Using angle facts to solve problems	Supplementary angles
		Complementary angles
		Adjacent angles
		Vertical angles

7.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	Area, volume and surface area	Area: polygons
		Volume: right prisms
		Surface area: rectangular and triangular prisms

RIT Score Band 227–228

1 Understand congruence and similarity using physical models, transparencies, or geometry software

Outcome	Quests	Content
8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations.	Introducing rigid transformations	Translating points on the coordinate plane
		Reflecting points across the x- or y-axis
		Rotating points about the origin
8.G.A.1.A Lines are taken to lines, and line segments to line segments of the same length.	Preserved properties: length	Preserved properties: length
8.G.A.1.B Angles are taken to angles of the same measure.	Preserved properties: angles	Preserved properties: angles
8.G.A.1.C Parallel lines are taken to parallel lines.	Preserved properties: parallel lines	Preserved properties: parallel lines
8.G.A.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	Congruency: rigid transformations	Congruency: rigid transformations
8.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	Transformations, coordinates	Dilations, coordinates
		Translations, coordinates
		Rotations, coordinates
		Reflections, coordinates
		Sequences of transformations
8.G.A.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	Similarity: transformations	Similarity: transformations
8.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when	Triangles and angle relationships	Angle sum theorem
		Exterior angle theorem
		Angle relationships: parallel lines, transversal

parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.		Using scale to analyze similar triangles
		Identifying similar triangles

2 Understand and apply the Pythagorean Theorem

Outcome	Quests	Content
8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse.	The Pythagorean Theorem and its converse	Identifying the hypotenuse, right triangles
		Identifying right triangles, Pythagorean Theorem
		Pythagorean triples
8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	Applying the Pythagorean Theorem	Pythagorean Theorem: missing short side
		Pythagorean Theorem: missing hypotenuse
		Pythagorean Theorem: missing side
		Pythagorean Theorem in 2D and 3D
8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	Distance between two points	Finding the distance between two points

3 Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres

Outcome	Quests	Content
8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	Volume: cones, cylinders and spheres	Volume: cones
		Volume: cylinders
		Volume: spheres

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