Mathletics NWEA Common Core -Geometry

Skill Quests



RIT Score Band



May, 2022

NWEA Common Core

Geometry 3–8 Skill Quests May 2022

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RIT Score Band 189–200

1 Reason with shapes and their attributes

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

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

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	Attributes of 2D figures	Sorting plane shapes
belonging to a category of two-		
dimensional figures also belong to		
all subcategories of that category.		
5.G.B.4 Classify two-dimensional	Classifying 2D figures,	Classifying 2D figures in a
figures in a hierarchy based on	properties	hierarchy
properties.		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 = I 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	Constructing triangles	Triangle Inequality Theorem
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 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	Circles: area and	Finding the area of a circle
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.	circumference	Finding the circumference of a circle
7.G.B.5 Use facts about	Using angle facts to	Supplementary angles
supplementary, complementary,	solve problems	Complementary angles
vertical, and adjacent angles in a		Adjacent angles
multi-step problem to write and solve simple equations for an unknown angle in a figure.		Vertical angles

7.G.B.6 Solve real-world and	Area, volume and	Area: polygons
mathematical problems involving	surface area	Volume: right prisms
area, volume and surface area of		Surface area: rectangular and
two- and three-dimensional objects		triangular prisms
composed of triangles,		
quadrilaterals, polygons, cubes, and		
right 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,	Introducing rigid transformations	Translating points on the coordinate plane
and translations.		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-	Congruency: rigid	Congruency: rigid
another if the second can be		transformations
obtained from the first by a		
and translations: aiven two		
congruent figures, describe a		
sequence that exhibits the		
congruence between them.	Transformations	Dilationa coordinatos
dilations translations rotations	coordinates	Translations, coordinates
and reflections on two-dimensional	coordinates	Rotations, coordinates
figures using coordinates		Reflections, coordinates
		Sequences of transformations
8 G A A Understand that a two-	Similarity:	Similarity: transformations
dimensional figure is similar to	transformations	Similarity: d'ansionnations
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.		
8.G.A.5 Use informal arguments to	Triangles and angle	Angle sum theorem
establish facts about the angle sum	relationships	Exterior angle theorem
and exterior angle of triangles,		Angle relationships: parallel
about the ungles cleated when		intes, transversal

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

2 Understand and apply the Pythagorean Theorem

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

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	Volume: cones,	Volume: cones
volumes of cones, cylinders, and	cylinders and spheres	Volume: cylinders
spheres and use them to solve real-		Volume: spheres
world and mathematical problems.		



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