

Math DesCartes: Geometry and Spatial Sense

Skills: Properties, Relationships; Visual, Spatial Sense

Students:	DesCartes Skills: (Highlight the skills related to your chosen standard/concept)		
	RIT Above 270: <ul style="list-style-type: none"> Identifies the number of diagonals of regular polygons using the formula Uses geometric constructions to solve problems 		acute, obtuse, right, straight, reflex) <ul style="list-style-type: none"> Identifies corresponding and alternate exterior/interior angles Recognizes that the sum of measures of two sides of triangle must be greater than the measure of the third side Recognizes the exterior angle relationships of triangles Classifies right triangles by defining properties Identifies and names a rhombus Identifies symmetry of a sphere Uses the Pythagorean theorem to solve problems Constructs congruent figures Identifies properties of similar figures
	RIT 261-270: <ul style="list-style-type: none"> Uses properties of angles to solve mathematical problems Identifies the number of diagonals of regular polygons using the formula Uses the properties of 30-60-90 triangles to solve problems 		
	RIT 251-260: <ul style="list-style-type: none"> Uses reasoning to verify properties of parallel and perpendicular lines Defines the properties or relationships between planes, including parallel, perpendicular, and intersecting planes and their angles of incidence Identifies properties of congruent angles Uses properties of angles and figures to solve algebraic problems Identifies corresponding and alternate exterior/interior angles Uses properties of angles to solve mathematical problems Recognizes that the sum of the measures of two sides of a triangle must be greater than measure of third side Recognizes and uses medians in triangles Recognizes the exterior angle relationships of triangles Classifies right triangles by defining properties Solves problems involving properties of triangles Identifies and names a rhombus Uses sums of interior/exterior angles to identify polygons Uses number of sides to find angle measures of polygons Classifies polygons by properties Uses the Pythagorean theorem to solve problems Verifies congruency of triangles using ASA, SAS, SSS, or AAS Determines symmetry with respect to a point or line of a figure under transformation Solves problems involving similar polygons (not triangles) Solves problems involving properties of similar triangles (e.g., using geometric mean, Triangle Proportionality Theorem) 		RIT 231-240: <ul style="list-style-type: none"> Determines which lines are perpendicular (analysis) Identifies and measures straight angles Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles Identifies parts of a right triangle (legs, hypotenuse, angles) Recognizes the interior angle relationships of triangles Classifies isosceles triangles Classifies scalene triangles Identifies properties of circles Compares polygons by properties Classifies square pyramids by their properties (e.g., base shape, lateral surface shape, vertices) Classifies rectangular pyramids by their properties (e.g., base shape, lateral surface shape, vertices) Identifies the components of the Pythagorean theorem Identifies properties of congruent triangles Solves problems involving properties of congruent triangles Uses similarity to solve problems using scale drawings Uses similar triangles to construct ratios and solve for a missing side
	RIT 241-250: <ul style="list-style-type: none"> Identifies properties of congruent angles Identifies and determines missing angle measures for complementary angles Uses properties of angles and figures to solve algebraic problems Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles Defines angles using properties (e.g., 		RIT 221-230: <ul style="list-style-type: none"> Identifies rays Determines which lines are perpendicular (analysis) Identifies properties of parallel and perpendicular lines Identifies right angles within adjacent angles Identifies and determines missing angle measures for supplementary angles Identifies acute angles Recognizes the interior angle relationships of triangles Classifies equilateral triangles Identifies and names a trapezoid Identifies the radius of a circle Identifies the diameter of a circle Identifies the circumference of circle Identifies the number of degrees in a circle Identifies and names a quadrilateral

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	<ul style="list-style-type: none"> • Compares polygons by properties • Identifies the number of diagonals of regular polygons • Identifies properties of quadrilaterals • Classifies polygons by type of angle • Identifies the number of edges on rectangular prisms • Uses similarity to solve problems using scale drawings • Uses similar figures to construct ratios and solve for a missing side • Uses similar triangles to construct ratios and solve for a missing side
	<p>RIT 211-220:</p> <ul style="list-style-type: none"> • Identifies rays • Identifies perpendicular lines • Describes relationships among points, lines, and planes, and identifies models in the environment • Identifies right angles within adjacent angles • Identifies properties of angles • Identifies acute angles • Identifies obtuse angles • Identifies the diameter of a circle • Identifies the circumference of circle • Identifies the number of degrees in a circle • Identifies and names a quadrilateral • Identifies altitudes of polygons (not triangles) • Classifies polygons by type of angle • Classifies polygons by number of sides • Identifies corners (vertices) of cubes • Identifies the net which makes a cube-like (open box) figure • Identifies and names a rectangular prism • Classifies triangular prisms by their properties (e.g., base shape, lateral surface shape, vertices) • Predicts and verifies the effects of combining or subdividing basic shapes • Compares simple plane figures to solid figures (e.g., circle/sphere, square/cube, rectangle/rectangular solid) • Identifies similar and congruent triangles • Identifies congruent polygons and their corresponding sides and angles • Defines "similarity" • Recognizes similar figures in the real world • Uses similar figures to construct ratios and solve for a missing side
	<p>RIT 201-210:</p> <ul style="list-style-type: none"> • Identifies the intersection point of two lines • Identifies intersecting lines • Identifies parallel lines • Identifies angles • Identifies right angles • Identifies and names a parallelogram • Identifies and names a polygon • Identifies and names a hexagon • Identifies and names a octagon • Classifies polygons by sides and angles • Classifies cubes by their properties (e.g., edges with equal lengths, faces with equal areas and congruent shapes, right angle

	<ul style="list-style-type: none"> corners) • Identifies a cube from a net • Identifies and names a cylinder • Classifies cylinders by their properties (e.g., base shape, lateral surface shape, vertices)
	<p>RIT 191-200:</p> <ul style="list-style-type: none"> • Identifies lines • Identifies parallel lines • Identifies angles • Identifies points on a circle • Identifies diagonals of a polygon • Identifies and names a polygon • Identifies and names a pentagon • Identifies the number of faces on rectangular prisms • Identifies and names a cylinder • Identifies and names a sphere • Sorts 2-D shapes and objects according to their attributes • Creates a new shape by combining different shapes, or identifies the different shapes that were used to make the original shape • Identifies position of shapes (e.g., inside, outside, between) • Identifies figures that are the same size and shape (analysis) • Identifies congruent figures
	<p>RIT 181-190:</p> <ul style="list-style-type: none"> • Identifies points on a line • Identifies congruent line segments • Identifies and names multiple shapes (e.g., square, rectangle, triangle, circle) • Classifies polygons by sides and vertices • Identifies and names a cube • Identifies and names a sphere • Identifies congruent figures • Identifies figures that are similar
	<p>RIT 171-180:</p> <ul style="list-style-type: none"> • Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle • Identifies and names a circle • Identifies and names a cube • Recognizes geometric shapes in real-world objects • Identifies spatial sense concepts (e.g., outside, inside, between, over, under, above, below, behind, in front, middle) • Identifies figures that are similar
	<p>RIT 161-170:</p> <ul style="list-style-type: none"> • Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle • Identifies and names a circle • Identifies sides and vertices of polygons • Identifies bases of a cylinder • Identifies and names a cone • Compares open and closed figures • Sorts solid figures and objects according to attributes • Identifies figures that are the same size and shape
	<p>Below RT 161:</p> <ul style="list-style-type: none"> • Identifies figures that are the same size and shape

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Lesson Title:

Standard/Concept for All:

Introduction: (Get Attention; Connect to Prior Knowledge)

For Students Ready for a Challenge:

Lesson/Activity:

Resources:

Means of Assessment:

For Most Students:

Lesson/Activity:

Resources:

Means of Assessment:

For Students Needing Extra Support:

Lesson/Activity:

Resources:

Means of Assessment:

Closure/Summary for All: