

Geometry - MVP Lessons with Identified OAS Standards

*This document is for the *lesson* only. ReadySetGo may cover other standards.

Module 1: Transformations & Symmetry				
MVP Lesson		MVP Type of Understanding	Description	OAS-M
1.1	Leaping Lizards	Develop	Developing the definitions of the rigid-motion transformations: translations, reflections and rotations	G.RL.1.1, G.2D.1.9
1.2	Is It Right?	Solidify	Examining the slope of perpendicular lines	G.RL.1.1, G.2D.1.9, G.2D.1.5
1.3	Leap Frog	Solidify	Determining which rigid-motion transformations will carry one image onto another congruent image	G.2D.1.9
1.4	Leap Year	Practice	Writing and applying formal definitions of the rigid-motion transformations: translations, reflections and rotations-	G.RL.1.1, G.2.D.1.9
1.5	Symmetries of Quadrilaterals	Develop	Finding rotational symmetry and lines of symmetry in special types of quadrilaterals	G.2D.1.9, G.2D.1.4
1.6	Symmetries of Regular Polygons	Solidify	Examining characteristics of regular polygons that emerge from rotational symmetry and lines of symmetry	G.2D.1.9, G.2D.1.3
1.7	Quadrilaterals - Beyond Definition	Practice	Making and justifying properties of quadrilaterals using symmetry transformations	G.2D.1.9, G.2D.1.4
Module 2: Congruence, Construction, & Proof				
MVP Lesson		MVP Type of Understanding	Description	OAS-M
2.1	Under Construction	Develop	Exploring compass and straightedge constructions to construct rhombuses and squares	No OAS (using constructions)
2.2	More Things Under Construction	Develop	Exploring compass and straightedge constructions to construct parallelograms, equilateral triangles and inscribed hexagons	No OAS (using constructions)
2.3	Can You Get There From Here?	Develop	Describing a sequence of transformations that will carry congruent images onto each other	G.2D.1.9
2.4	Congruent Triangles	Solidify	Establishing the ASA, SAS and SSS criteria for congruent triangles	G.2D.1.7, G.2D.1.8, G.2D.1.9

2.5	Congruent Triangles to the Rescue	Practice	Identifying congruent triangles and using them to justify claimS	G.2D.1.8
2.6	Justifying Constructions	Solidify	Examining why compass and straightedge constructions produce the desired results	No OAS (using constructions)
Module 3: Geometric Figures				
MVP Lesson		MVP Type of Understanding	Description	OAS-M
3.1	How Do You Know That?	Develop	An introduction to proof illustrated by the triangle interior angle sum theorem	G.2D.1.3, G.RL.1.2
3.2	Do You See What I See?	Develop	Reasoning from a diagram to develop proof-like arguments about lines and angles, triangles and parallelogram	G.2D.1.3, G.2D.1.4, G.RL.1.1, G.RL.1.2, G.C.1.2
3.3	It's All in Your Head	Solidify	Organizing proofs about lines, angles and triangles using flow diagrams and two-column proof formats	G.2D.1.9, G.RL.1.1
3.4	Parallelism Preserved and Protected	Solidify	Examining parallelism from a transformational perspective	G.2D.1.1, G.2D.1.2
3.5	Claims and Conjectures	Solidify	Generating conjectures from a diagram about lines, angles and triangles	G.2D.1.1, G.2D.1.2
3.6	Justification and Proof	Practice	Writing formal proofs to prove conjectures about lines, angles and triangle	G.2D.1.2
3.7	Parallelogram Conjectures and Proof	Solidify	Proving conjectures about parallelograms	G.2.D.1.4, G.2D.1.1, G.2D.1.2
3.8	Guess My Parallelogram	Practice	Identifying parallelograms from information about the diagonals	G.2D.1.3, G.2D.1.4
3.9	Centers of a Triangle	Practice	Reading and writing proofs about the concurrency of medians, angle bisectors and perpendicular bisectors of the sides of a triangle	No OAS
Module 4: Similarity & Right Triangle Trigonometry				
MVP Lesson		MVP Type of Understanding	Description	OAS-M
4.1	Photocopy Faux Pas	Develop	Describing the essential features of a dilation	G.2D.1.9
4.2	Triangle Dilations	Solidify	Examining proportionality relationships in triangles that are known to be similar to each other based on dilations	G.2D.1.7

4.3	Similar Triangles and Other Figures	Solidify	Comparing definitions of similarity based on dilations and relationships between corresponding sides and angles	G.2D.1.1, G.2D.1.7
4.4	Cut by a Transversal	Solidify	Examining proportionality relationships of segments when two transversals intersect sets of parallel lines	G.2D.1.1, G.2D.1.2, G.2.D.1.7
4.5	Measured Reasoning	Practice	Applying theorems about lines, angles and proportional relationships when parallel lines are crossed by multiple transversals	G.2D.1.1, G.2D.1.2, G.2D.1.7
4.6	Yard Work in Segments	Solidify	Applying understanding of similar and congruent triangles to find the midpoint or any point on a line segment that partitions the segment into a given ratio	G.2D.1.4
4.7	Pythagoras by Proportions	Practice	Using similar triangles to prove the Pythagorean theorem and theorems about geometric means in right triangles	G.2D.1.2 (altitudes of right triangles, no specific OAS on this)
4.8	Are Relationships Predictable?	Develop	Developing an understanding of right triangle trigonometric relationships based on similar triangles	G.RT.1.2, G.RT.1.3, G.RT.1.4
4.9	Relationships with Meaning	Solidify	Finding relationships between the sine and cosine ratios for right triangles, including the Pythagorean identity	G.RT.1.1, G.RT.1.3, G.RT.1.4
4.10	Finding the Value of a Relationship	Solidify	Solving for unknowns in right triangles using trigonometric ratios	G.RT.1.1, G.RT.1.3, G.RT.1.4
4.11	Solving Right Triangles Using Trigonometric Relationships	Practice	Setting up and solving right triangles to model real world contexts	G.RT.1.1, G.RT.1.3, G.RT.1.4
Module 5: Circles a Geometric Perspective				
MVP Lesson		MVP Type of Understanding	Description	OAS-M
5.1	Centered	Develop	Searching for centers of rotation using perpendicular bisectors as a tool	No OAS (using constructions)
5.2	Circle Dilations	Solidify	Proving circles similar	No OAS (similarity of circles)
5.3	Cyclic Polygons	Solidify	Examining relationships between central angles, inscribed angles, circumscribed angles and their arcs	G.C.1.2

5.4	Planning the Gazebo	Develop	Developing formulas for perimeter and area of regular polygons	G.2D.1.6
5.5	From Polygons to Circles	Solidify	Justifying formulas for circumference and area of circles using intuitive limit arguments	No OAS
5.6	Circular Reasoning	Practice	Applying and practicing circle relationships	G.C.1.2
5.7	Pied!	Develop	Using proportional reasoning to calculate arc length and area of sectors	PC.T.1.3
5.8	Madison's Round Garden	Practice	Using the ratio of arc length to radius to develop radians as a way of measuring angles	PC.T.1.1
5.9	Rays and Radians	Solidify/ Practice	Converting between degree measure and radian measure of an angle	PC.T.1.2
5.10	Sand Castles	Solidify	Examining the proportionality relationships of lengths, areas and volumes when geometric figures are scaled up	G.3D.1.2
5.11	Footprints in the Sand	Solidify	Examining informal, dissection arguments for the volume formulas of prisms, pyramids and cylinders	G.3D.1.2
5.12	Cavalieri to the Rescue	Solidify	Examining informal, dissection arguments based on Cavalieri's principle for the volume formulas of oblique prisms, pyramids and cylinders	No OAS
Module 6: Connecting Algebra & Geometry				
MVP Lesson		MVP Type of Understanding	Description	OAS-M
6.1	Go the Distance	Develop	Using coordinates to find distances and determine the perimeter of geometric shapes	G.2D.1.5, G.2D.1.6
6.2	Slippery Slopes	Solidify	Proving slope criteria for parallel and perpendicular lines	G.2D.1.5
6.3	Prove It!	Practice	Using coordinates to algebraically prove geometric theorems	G.2D.1.5
6.4	Circling Triangles (or Triangulating Circles)	Develop	Deriving the equation of a circle using the Pythagorean Theorem	G.C.1.3, G.C.1.4
6.5	Getting Centered	Solidify	Complete the square to find the center and radius of a circle given by an equation	G.C.1.3, A2.A.1.1
6.6	Circle Challenges	Practice	Writing the equation of a circle given various information	G.C.1.3

6.7	Directing our Focus	Develop	Derive the equation of a parabola given a focus and directrix	PC.CS
6.8	Functioning with Parabolas	Solidify	Connecting the equations of parabolas to prior work with quadratic functions	PC.CS
6.9	Turn It Around	Solidify	Writing the equation of a parabola with a vertical directrix, and constructing an argument that all parabolas are similar	No OAS
6.10H	Operating on a Shoestring	Solidify	Exploring features of ellipses and writing the equation of an ellipse using the fact that the sum of the distances from the foci is constant.	PC.CS
6.11H	What Happens If...?	Solidify	Exploring features of hyperbolas writing the equations of a hyperbola using the fact that the difference of the distances from the foci is constant	PC.CS
6.12H	The Arithmetic of Vectors	Solidify	Defining and operating with vectors as quantities with magnitude and direction	PC.V.2.1
Module 7: Modeling with Geometry				
MVP Lesson		MVP Type of Understanding	Description	OAS-M
7.1	Any Way You Slice It	Develop	Visualizing two-dimensional cross sections of three dimensional objects	No OAS (cross sections)
7.2	Any Way You Spin It	Develop	Visualizing solids of revolution	No OAS
7.3	Take Another Spin	Solidify	Approximating volumes of solids of revolution with cylinders and frustums	No OAS
7.4	You Nailed It!	Practice	Solving problems using geometric modeling	G.3D.1.1
7.5	Special Rights	Solidify	Examining the relationship of sides in special right triangles	G.RT.1.2
7.6	More Than Right	Develop	Developing strategies for solving non-right triangles	PC.T.2.2
7.7	Justifying the Laws	Solidify	Examining the Law of Cosines and the Law of Sines	PC.T.2.1, PC.T.2.2
7.8	Triangle Areas by Trig	Practice	Finding the missing sides, angles and areas of general triangles	PC.T.1.1, PC.T.2.2, PC.T.2.3
Module 8: Probability				
MVP Lesson		MVP Type of Understanding	Description	OAS-M
8.1	TB or Not TB	Develop	Estimating conditional probabilities and interpreting the meaning of a set of data	A1.D.1.1, A1.D.A.2

8.2	Chocolate versus Vanilla	Solidify	Examining conditional probability using multiple representations	A1.D.2.1, A1.D.2.3
8.3	Fried Freddy's	Solidify	Using sample to estimate probabilities	A1.D.2.1
8.4	Visualizing with Venn	Solidify	Creating Venn diagrams using data while examining the addition rule for probability	A1.D.2.2
8.5	Freddy Revisited	Solidify	Examining independence of events using two-way tables	No OAS
8.6	Striving for Independence	Practice	Using data in various representations to determine independence	No OAS