Unit 1: Segments, length and area

Date	Lesson title	Topics	Extension topics
9/8	1.1 Segment addition, vocabulary	Length, number line; points, segments; inches, feet	Absolute value
9/9	1.2 Solve for length	Collinear; algebraic conventions, prior knowledge	Algebra with fractional coefficients
9/12	1.3 Geometric conventions	Lines, rays, planes, coplanar	
9/13	1.4 Midpoint and bisector	Congruence, hash marks; solve equations with variables on both sides	
9/14	1.5 Equilateral $\triangle$, isosceles $\triangle$, perimeter	Special triangles and quadrilaterals; calculate perimeter	
9/15	1.6 Review	Roundtable of peers: Terms, perimeter, modeling, algebra solving	Efficient solutions to algebra equations
9/16	1.7 Unit conversion	Inches $\rightleftarrows$ feet, inches $\rightleftarrows$ centimeters, formula sheet use	
9/16	1.7 Exit Note Quiz: Length and perimeter	Use algebra to solve simple distance problems, vocabulary and notation	Absolute value
9/19	1.8 Area	Rectangle, triangle, parallelogram area; units, solving for missing dimension	Areas with fractional lengths
9/20	1.9 Rounding, circles	Area of a circle, π, decimals, powers of ten	Sig figs
9/21	1.10 Precision	Percent error formula	Confidence intervals
9/22	1.11 Review	Roundtable peers: Terms, area and perimeter, % error, solving algebra	
9/23	1.12 Test: Length and area	Using algebra to solve, conventions, precision and rounding	Confidence intervals, absolute value

12 Instructional days (1-12 / 159)

Application contexts:

- Classroom diagram, desk layout and dimensions (proctoring instructions reference)
- Maps: NYC streets
- Ordinal number lines: Supreme Court justices
- Curved number lines: clocks, parlimentary diagrams

Unit 2: Angles

Date	Lesson title	Topics	Extension topics
9/28	2.1 Angle measures	Terminology, notation, 90°, 180°,360°, measuring with protractor	
9/29	2.2 Angle addition	Modeling with algebra, solving	Clock problems
9/30	2.3 Special angle pairs	Adjacent, opposite, linear, complementary, supplementary	
10/3	2.4 Angle bisector	Congruence, hash marks; solving equations	Bearings
10/4	2.5 Equilateral and isosceles △s	Triangle sum, isosceles base theorems	Radian units
10/6	2.6 Review	Roundtable: Terms, protractor use, algebraic modeling, triangle situations	
10/7	2.7 Test: Angles	Using algebra to solve, conventions, precision and rounding	Bearings, radians

7 Instructional days (13-19 / 159)

Unit 3: Transversals

Date	Lesson title	Topics	Extension topics
10/11	3.1 Parallel lines	Identifying transversal angles, parallel and perpendicular definitions	
10/12	3.2 Finding angle measures	Modeling with algebra, solve	
10/13	3.3 Transversal situations	Multiple steps: angle pairs, isosceles △s	
10/14	3.4 Parallelograms	Definitions, opposite sides ≅	
10/17	3.5 Triangle sum	Deriving triangle sum	
10/18	3.6 External angles	△ external angles	Polygon external angles
10/19	3.7 Parallelogram situations	Examples of parallelogram properties	
10/20	3.8 Review	Roundtable: Transversal naming conventions, solving for angles, parallelograms, situations	
10/21	3.9 Test: Transversals	Parallel line situations, implications for polygons	

9 Instructional days (20-28 / 159)

Unit 4: Volume and polyhedra

Date	Lesson title	Topics	Extension topics
10/24	4.1 Nets of prisms	Definitions, folding	
10/12	4.2 Surface area	Rectangular prisms	
10/13	4.3 Volume	Prisms, cubes, units	
10/14	4.4 Solve for a side	Algebra application, rectangular prisms, solve for area of base	
10/17	4.5 Exponent review	Squaring, cubic, radicals	Exponent rules
10/18	4.6 Spheres, cones, pyramids	Volume formulas, solve for parameter	Simplifying radicals
10/19	4.7 2-D Density	Population density, cost calculations	
10/20	4.8 Weight	Density calculations of a volume, multi-step problems	
10/21	4.9 Review	Roundtable:	
11/4	4.10 Test: Volume and polyhedra		

10 Instructional days (29-38 / 159)

Unit 5: Pythagorean theorem

Date	Lesson title	Topics	Extension topics
11/7	5.1 Geometric proof	Diagram for visual proof, history (list of proofs)	
11/9	5.2 Algebraic form	$a^2 + b^2 = c^2$, triples	
11/10	5.3 Coordinate plane	Distance formula, standard position	3-D formula
11/14	5.4 Solve for a leg	Square roots	Higher orders, simplify radicals
11/15	5.5 Special triangles	Equilateral and isosceles right $\triangle$s	
11/16	5.6 Additional proofs	Writing project	
11/17	5.7 Review	Roundtable	
11/18	5.8 Test	Triples, distance formula, solve for a leg, special triangles	

8 Instructional days (39-46 / 159)

Unit 6: Analytic geometry

Date	Lesson title	Topics	Extension topics
11/21	6.1 Midpoint formula	Coordinate plane, midpoint as average	3-D midpoint
11/22	6.2 Linear equations	Slope-intercept form, graphing, gradient	
11/23	6.3 Standard form	Algebraic conversion in both directions	
11/28	6.4 Slopes: $\parallel$, $\perp$	Negative reciprocals, geometric interpretation as 90° rotation	Point-slope form
11/29	6.5 Rate of change	Interpretations of slope	
11/30	6.6 Linear functions	$f(x)$ notation, vertical and horizontal	
12/1	6.7 Review		
12/2	6.8 Test	Graphing, rate of change, algebraic conversion, parallel and perpendicular slopes	Line through a point, point-slope

8 Instructional days (47-54 / 159)

Unit 7: Project

Date	Lesson title	Topics	Extension topics
12/5	7.1 Pick a topic		
12/6	7.2 Outline, Intro		
12/7	7.3 Diagrams		
12/8	7.4 Text body		
12/9	7.5 Diagrams		Mock Regents (YTD)
12/12	7.6 Text body		
12/13	7.7 Peer review		
12/14	7.8 Revision		
12/15	7.9 Presentations		
12/16	7.10 Presentations		

10 Instructional days (55-64 / 159)

Unit 8: Congruence transformations

Date	Lesson title	Topics	Extension topics
1/3	8.1 Translation	Rigid motion, isometry, notation	
1/4	8.2 Reflection	Orientation, invariance	
1/5	8.3 Rotation	Center, direction, magnitude in degrees	Centered away from the origin
1/6	8.4 Triangle correspondences	SSS	Proving congruence
1/9	8.5 Triangle congruencies	ASA, SAS	Reflexive property
1/10	8.6 "Onto" mappings	Rotational symmetry, regular polygons	
1/11	8.7 Symmetry	Bilateral symmetry, compositions	Proof of isosceles base theorem
1/12	8.8 Review		
1/13	8.9 Test	Translation, reflection, rotation, $\triangle$ congruencies	

9 Instructional days (65-73 / 159)

Unit 9: Dilation

Date	Lesson title	Topics	Extension topics
1/17	9.1 Dilation	Triangle graphing, angle correspondence	
1/18	9.2 Scale factor		Dilations not centered at the origin
1/19	9.3 Overlapping triangles		
1/20	9.4 Compositions		
1/23	9.5 Scale maps		
1/31	9.6 Project	Cuba and Taiwan comparision	
2/1	9.7 Presentations		
2/2	9.8 Review		
2/3	9.9 Test		

9 Instructional days (74-82 / 159)

Unit 10: Similarity and proportion

Date	Lesson title	Topics	Extension topics
2/6	10.1 Midline, median		Centroid, median partition
2/7	10.2 Similarity situations		
2/8	10.3 Overlapping $\triangle$ composition	Reflection and dilation, overlapping $\triangle$	
2/9	10.4 Area and volume scaling		
2/10	10.5 Algebraic modeling		$\triangle$s in circles
2/13	10.6 Applications of scale		
2/14	10.7 Project		
2/15	10.8 Presentations		
2/16	10.9 Review		
2/17	10.10 Test		

10 Instructional days (83-92 / 159)