Geometry Unit Plan 2020-21

Dates	Unit	Topics	Project	Days
9/5 - 9/13	1. Tools of Geometry	Definitions, measuring segments and angles, segment addition, area, compass use	Classical construction	7
9/16 - 9/27	2. Midpoint and length	Bisectors; perimeter, triangle, square ($\surd$), supplementary, complementary, solving for a parameter	Geometry software	10
10/2 - 10/17	3. Volume, angle bisectors	Parallelogram, prisms; angles: bisect, vertical, triangle sum	$\angle$ bisector constr.	9
10/18 - 11/1	4. Transversals, angle situations	Parallel and perpendicular situations, $\triangle$ external angles, polygon angle sum, solids' volume, *proof*	Polygon internal angles	8
11/4 - 11/22	5. Dilation, scale; tranformations	Triangle standard position, k coefficient, ratios; coordinate plane	Geogebra measures (scale)	12
11/25 - 12/13 Trimester	6. Analytic Geometry	Linear equations, slope: parallel, perpendicular; distance formula, midpoint calculation; $\tan\theta$, (segment partition, point-slope)	Skateboard ramp	13
1/2 - 1/17 Regents Prep	7. Similarity	$\triangle$ dilation situations, $\triangle$ similarity theorems, ratios; compositions, symmetry	Triangle dilation situations	12
1/28 - 2/14	8. Circle measures; volume, solids	Area, circumference, sectors, arc length, unit conversions (circle equations, completing the square)	3-D modeling	10
2/24 - 2/28 Break	9. Congruence	Transformations, $\triangle$ congruence theorems, transformations, overlapping $\triangle$s	2-column proof	5
3/2 - 3/13	11. Transformations	Similarity applications, symmetry, composition, properties (Trig)	$\triangle$ centers	10
3/16 - 3/27	12. Quadrilaterals	Angle sums, parallelograms, properties, polygons, complex situations		10
3/30 - 4/8 (Mock?)	13. Circle angles and segments	Tangents, chords, inscribed angles, angle measures, lengths		8
4/20 - 5/1	14. Area and volume	Multi-step situations, polygon formulas, perimeter, arcs, sectors	Capstone: Lamp design	10
5/4 - 6/14	15. Review			27

Student Projects 2020-21

Date	Progression	Unit	Project	Description	Format
9/10	Classical construction	1. Tools of Geometry	Euclid's 1st Construction	Equilateral triangle, introduction to the use of compass and straightedge	paper and pencil, with heading
9/17	Computer geometry	2. Midpoint and distance	Geogebra Construction	Equilateral triangle, use of geometry software, MLA and email	laptops, png file
9/24, 10/8	Computer geometry	2. Midpoint and distance	Construction comparison	importing geometry software graphics into MS Word	laptops, docx file
10/15	Computer geometry	3. Volume and angles	Angle bisector	Geogebra construction with text commentary	laptops, docx file

Geometry Concepts & Skills Progression

Topic	6	7	8 Common Core	9 Algebra	10 Geometry	11+12 IB Math
Length		Segment addition, perimeter, area, volume			Distance formula	$A_{triangle} = \frac{1}{2}ab\sin\theta$, Area as integration
Angles		Vertical, supplementary, complementary		Axes scales		
Graphing		4-quadrant (x, y) plane				
Objects	Triangle, square, rectangle	Triangle internal sum				
Transformations		Ratios, scale factor	Dilation on graph			
Algebraic equations		Find x situations				
Proof						

Archive: Geometry Unit Plan 2019-20

Dates	Unit	Topics	Project	Days
9/5 - 9/13	1. Tools of Geometry	Definitions, measuring segments and angles, segment addition, area, compass use	Classical construction	7
9/16 - 9/27	2. Midpoint and length	Bisectors; perimeter, triangle, square ($\surd$), supplementary, complementary, solving for a parameter	Geometry software	10
10/2 - 10/17	3. Volume, angle bisectors	Parallelogram, prisms; angles: bisect, vertical, triangle sum	$\angle$ bisector constr.	9
10/18 - 11/1	4. Transversals, angle situations	Parallel and perpendicular situations, $\triangle$ external angles, polygon angle sum, solids' volume, *proof*	Polygon internal angles	8
11/4 - 11/22	5. Dilation, scale; tranformations	Triangle standard position, k coefficient, ratios; coordinate plane	Geogebra measures (scale)	12
11/25 - 12/13 Trimester	6. Analytic Geometry	Linear equations, slope: parallel, perpendicular; distance formula, midpoint calculation; $\tan\theta$, (segment partition, point-slope)	Skateboard ramp	13
1/2 - 1/17 Regents Prep	7. Similarity	$\triangle$ dilation situations, $\triangle$ similarity theorems, ratios; compositions, symmetry	Triangle dilation situations	12
1/28 - 2/14	8. Circle measures; volume, solids	Area, circumference, sectors, arc length, unit conversions (circle equations, completing the square)	3-D modeling	10
2/24 - 2/28 Break	9. Congruence	Transformations, $\triangle$ congruence theorems, transformations, overlapping $\triangle$s	2-column proof	5
3/2 - 3/13	11. Transformations	Similarity applications, symmetry, composition, properties (Trig)	$\triangle$ centers	10
3/16 - 3/27	12. Quadrilaterals	Angle sums, parallelograms, properties, polygons, complex situations		10
3/30 - 4/8 (Mock?)	13. Circle angles and segments	Tangents, chords, inscribed angles, angle measures, lengths		8
4/20 - 5/1	14. Area and volume	Multi-step situations, polygon formulas, perimeter, arcs, sectors	Capstone: Lamp design	10
5/4 - 6/14	15. Review			27

159 instructional days

Archive: Student Projects 2019-20

Date	Progression	Unit	Project	Description	Format
9/10	Classical construction	1. Tools of Geometry	Euclid's 1st Construction	Equilateral triangle, introduction to the use of compass and straightedge	paper and pencil, with heading
9/17	Computer geometry	2. Midpoint and distance	Geogebra Construction	Equilateral triangle, use of geometry software, MLA and email	laptops, png file
9/24, 10/8	Computer geometry	2. Midpoint and distance	Construction comparison	importing geometry software graphics into MS Word	laptops, docx file
10/15	Computer geometry	3. Volume and angles	Angle bisector	Geogebra construction with text commentary	laptops, docx file

Archive: Geometry Unit Plan 2018-19

Dates	Unit	Topics	Project	Days
9/5 - 9/21	1a. Tools of Geometry	Definitions, measuring segments and angles, addition postulates, compass use	Euclid's 1st Construction	10
9/24 - 10/5	1b. Angle Pairs	Supplementary, complementary, vertical, bisectors, constructions	Further constructions	10
10/9 - 10/26	2. Geometric calculations	Midpoint, distance; Area, perimeter; Proof: Induction, logic	Bisector constructions	9
10/29 - 11/8 Trimester	2b. Transversals	Transversals, parallel, perpendiculars, constructions	Triangle centers, binder	9
11/11 - 11/30	3. Analytic Geometry	Triangle internal, external angles; Line equations, slope, parallel, perpendiculars; translations		11
11/26 - 12/13	4. Congruent Triangles	Congruence theorems, transformations, overlapping triangles, trig	Geometry software	10
12/17 - 12/21	5. Intensives week	Transformation, medians, analytic geometry, volume, angle sums		11
1/2 - 1/18 Regents	6. Similarity	Dilation, triangle similarity theorems, ratios, trigonometry; constructions	Mock Regents	12
1/28 - 2/7	7. Algebra Review	Point-slope, linear equations, radicals, algebra practice	Geogebra transformation, centroid	15
2/8 - 3/1	7. Circles	Circle equations, completing the square, radicals, algebra practice	Geogebra transformation, centroid	15
3/4 - 3/22	8. Transformations	Similarity applications, symmetry, composition, properties	Triangle dilation situations	13
3/25 - 4/18 Mock Apr2	9. Circles	Tangents, chords, inscribed angles, angle measures, lengths; dilation review	Power laws	10
4/29 - 5/10	10. Area and volume	Multi-step situations, unit conversions, polygon formulas, perimeter, arcs, sectors	Capstone: Lamp design	12
5/13 - 5/24	11. Quadrilaterals	Angle sums, parallelograms, properties, proof	Word fluency	9
5/28 - 6/14	13. Review			10

165 instructional days