

Week	Marking Period 1	Week	Marking Period 3
1	Foundations of Geometry	19	Similarity
2	Foundations of Geometry	20	Similarity
3	Foundations of Geometry	21	Similarity
4	Geometry Reasoning	22	Right Triangle & Trigonometry
5	Geometry Reasoning	23	Right Triangle & Trigonometry
6	Geometry Reasoning	24	Right Triangle & Trigonometry
7	Parallel & Perpendicular Lines	25	Extending Transformational Geometry
8	Parallel & Perpendicular Lines	26	Extending Transformational Geometry
9	Triangle Congruence	27	Extending Perimeter, Circumference, & Area
Week	Marking Period 2	Week	Marking Period 4
10	Triangle Congruence	28	Extending Perimeter, Circumference, & Area
11	Triangle Congruence	29	Spatial Reasoning
12	Triangle Congruence	30	Spatial reasoning
13	Properties & Attributes of Triangles	31	Circles
14	Properties & Attributes of Triangles	32	Circles
15	Properties & Attributes of Triangles	33	Circles
16	Polygons & Quadrilaterals	34	Circles
17	Polygons & Quadrilaterals	35	Probability
18	Polygons & Quadrilaterals	36	Probability

Time Frame	Standard – 13 days	Block – 7 days					
Topic							
Foundations for Geometry							
Essential Questions							
<ol style="list-style-type: none"> 1. What is the distance between two cities? 2. How much material is needed to make a rectangular or triangular object? 3. In Biology, how can you apply gene mapping? 4. In Physics, how do angles formed by light waves bounce off objects? 							
Enduring Understandings							
<ol style="list-style-type: none"> 1. Apply basic facts about points, lines, planes, and angles. 2. Measuring and constructing segments and angles. 3. Using formulas to find distance and coordinates of a midpoint. 4. Identify reflections, rotations, and translations. 							
Alignment to NJSL							
G.CO.1, G.CO.12, ASSE.1, G.GPE.7, G.CO.4, G.CO.3							
Key Concepts and Skills							
<p>POINT, LINES, AND PLANES</p> <ul style="list-style-type: none"> • Identify, name and draw points, lines, and segments, rays, and planes. • Apply basic facts about points, lines, and planes. <p>MEASURING AND CONSTRUCTING SEGMENTS</p> <ul style="list-style-type: none"> • Use length and midpoint of a segment. • Construct midpoint and congruent segments. <p>MEASURING AND CONSTRUCTING ANGLES</p> <ul style="list-style-type: none"> • Name and classify angles. • Measure and construct angles and angle bisectors. <p>PAIRS OF ANGLES</p> <ul style="list-style-type: none"> • Identify adjacent, vertical, complementary, and supplementary angles. • Find measures of pairs of angles. <p>USING FORMULAS IN GEOMETRY</p> <ul style="list-style-type: none"> • Apply formulas in perimeter, area, and circumference. <p>MIDPOINT AND DISTANCE IN THE COORDINATE PLANE</p> <ul style="list-style-type: none"> • Develop and apply the formula for midpoint. • Use the distance formula and Pythagorean Theorem to find the distance between two points. <p>TRANSFORMATIONS IN THE COORDINATE PLANE</p> <ul style="list-style-type: none"> • Identify reflections, rotations, and translations. • Graph transformations in the coordinate plane. 							
Learning Activities							
<ol style="list-style-type: none"> 1. Guided Interactive Geometry Software activities. 2. Rope Activity for Angle Relations. 3. Construction of angle/segment bisectors, congruent angles/segments using Interactive Geometry Software or Patty Paper. 4. Booklet composed of angle relationships and formulas. 5. “Donut Lab” 							
Assessments							
<ol style="list-style-type: none"> 1. Quizzes & Common Chapter Test. 2. Homework, Classwork. 3. Journal Writing & Portfolios 							
21st Century Skills							
x	Creativity	x	Critical Thinking	x	Communication	x	Collaboration
x	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections**Technology Integration**

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. Interactive Geometry Software

Time Frame	Standard – 15 days	Block – 8 days
-------------------	---------------------------	-----------------------

Topic**GEOMETRY REASONING****Essential Questions**

1. How do the skills learned help you write geometrical proofs?
2. How do the skills enable us to draw conclusions in science and social study courses?
3. How can these skills help to assess the validity of arguments in politics and advertising?

Enduring Understandings

1. Inductive and deductive reasoning.
2. Using conditional and biconditional statements.
3. Justifying solutions to algebraic equations.
4. Writing two-column and informal proofs.

Alignment to NJSL

G.CO.9

Key Concepts and Skills**USING INDUCTIVE REASONING TO MAKE CONJECTURES**

- Using inductive reasoning to identify patterns and make conjectures.
- Find counterexamples to disprove conjectures.

CONDITIONAL STATEMENTS

- Identify, write and analyze the truth value of a conditional statement.
- Write the converse, inverse, and contrapositive of a conditional statement.

USING DEDUCTIVE REASONING TO VERIFY CONJECTURES

- Apply the Law of Detachment and the Law of Syllogism in logical reasoning.
- * Apply Symbolic Logic

BICONDITIONAL STATEMENTS AND DEFINITIONS

- Write and analyze biconditional statements.

ALGEBRAIC PROOFS

- Review properties of equality and use them to write algebraic proofs.
- Identify properties of equality and congruence.

GEOMETRIC PROOF

- Write two-column and informal proofs.
- Prove geometric theorems by using deductive reasoning.

Learning Activities

1. Hand-Shake problem in class.
2. Solving algebraic equations (justifying each step) as an introduction to proof.
3. Scrambled proofs on index cards.

Assessments

1. Quizzes & Common Chapter Test.
2. Homework, Classwork.
3. Journal Writing & Portfolios

x	Creativity	x	Critical Thinking	x	Communication	x	Collaboration
x	Life & Career Skills		Information Literacy		Media Literacy		
Interdisciplinary Connections							
Technology Integration							

Time Frame	Standard – 12 days	Block – 6 days					
Topic							
Parallel and Perpendicular Lines							
Essential Questions							
<ol style="list-style-type: none"> Where are parallel and perpendicular lines used in real-life? How do you analyze rates of change in physics and economics? In architecture and construction, how do you ensure that opposite walls are parallel and adjacent walls are perpendicular? 							
Enduring Understandings							
<ol style="list-style-type: none"> Understand properties of parallel and perpendicular lines. Understand angles formed by parallel lines and a transversal. Line relations – skew, parallel, & intersecting. 							
Alignment to NJSLS							
G.CO.1, G.CO.9, G.CO.12, G.GPE.5							
Key Concepts and Skills							
<p>LINES AND ANGLES</p> <ul style="list-style-type: none"> Identify parallel, perpendicular, and skew lines. <p>ANGLES FORMED BY PARALLEL LINES AND TRANSVERSALS</p> <ul style="list-style-type: none"> Prove and use theorems about the angles formed by parallel lines and a transversal. <p>PROVING LINES PARALLEL</p> <ul style="list-style-type: none"> Use the angles formed by a transversal to prove two lines parallel. <p>PERPENDICULAR LINES</p> <ul style="list-style-type: none"> Prove and apply theorems about perpendicular lines. <p>SLOPES OF LINES</p> <ul style="list-style-type: none"> Find the slope of a line. Use slopes to identify parallel and perpendicular lines. <p>LINES IN THE COORDINATE PLANE</p> <ul style="list-style-type: none"> Graph lines and write their equations. Classify lines as parallel, intersecting coinciding. 							
Learning Activities							
<ol style="list-style-type: none"> Interactive Geometry Software discovery. Guided discovery in textbook. Use colored tape on floor as coordinate grid. Perpendicular, parallel, and skew booklet of real-life examples. 							
Assessments							
<ol style="list-style-type: none"> Quizzes & Common Chapter Test. Homework, Classwork. Journal Writing & Portfolios 							
21st Century Skills							
x	Creativity	x	Critical Thinking	x	Communication	x	Collaboration
x	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections**Technology Integration**

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

Interactive Geometry Software

Time Frame	Standard – 19 days	Block – 9 days
-------------------	---------------------------	-----------------------

Topic**Triangle Congruence****Essential Questions**

1. How do these skills prepare us for Algebra II and Precalculus?
2. In Physics, how can you solve for various measures of a triangle?
3. In Geography, how can you identify a location?
4. How can you design jewelry or greeting cards, or create a set of objects that have the same size and shape?

Enduring Understandings

1. Classifying triangles.
2. Proving triangles congruent.
3. Using corresponding of congruent triangles in proofs.
4. Positioning figures in the coordinate plane.
5. Proving theorems about isosceles and equilateral triangles.

Alignment to NJSL

G.CO.8, G.CO.10, G.SRT.5, G.CO.9, G.GPE.5, G.GPE.4

Key Concepts and Skills**CONGRUENCE AND TRANSFORMATIONS**

- Draw, identify, and describe transformations in the coordinate plane.
- Use properties of rigid motions to determine whether figures are congruent and to prove figures congruent.

CLASSIFYING TRIANGLES

- Classifying triangles by side length and angle measure.
- Use triangle classification to find angle measure and side lengths.

ANGLE RELATIONSHIPS IN TRIANGLES

- Find the measures of interior and exterior angles of a triangle.
- Apply theorems about the interior and exterior angles of a triangle.

CONGRUENT TRIANGLES

- Use properties of congruent triangles.
- Prove triangles congruent by using the definition of congruence.

TRIANGLE CONGRUENCE: SSS & SAS

- Apply SSS and SAS to construct triangles and to solve problems.
- Prove triangles congruent by using SSS and SAS.

TRIANGLE CONGRUENCE: ASA, AAS, & HL

- Apply ASA, AAS, & HL to construct triangles and to solve problems.
- Prove triangles congruent by using ASA, AAS, and HL.

TRIANGLE CONGRUENCE: USING CPCTC

- Use CPCTC to prove parts of triangles congruent.

INTRODUCTION TO COORDINATE PROOF

- Position figures in the coordinate plane for coordinate proofs.

ISOSCELES AND EQUILATERAL TRIANGLES

- Prove theorems about isosceles and equilateral triangles.
- Apply properties of isosceles and equilateral triangles.

Learning Activities

1. Use construction paper strips to discover SSS.
2. Proof scrambles
3. Patty Paper to discover CPCTC
4. Interactive Geometry Software Activities

Assessments

1. Quizzes & Common Chapter Test.
2. Homework, Classwork.
3. Journal Writing & Portfolios

21st Century Skills

x	Creativity	x	Critical Thinking	x	Communication	x	Collaboration
x	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections

Technology Integration

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. Interactive Geometry Software

Time Frame

Standard – 15 days Block – 8 days

Topic

Properties and Attributes of Triangles

Essential Questions

1. How do these skills prepare for the study of trigonometry, algebra, and advanced mathematics?
2. In Physics, how do we describe motion and force?
3. How do we estimate travel distances?
4. How do we assess the validity of indirect arguments outside of school?

Enduring Understandings

1. Apply properties of perpendicular and angle bisectors.
2. Identify special points, segments, and lines related to triangles.
3. Use inequalities in one triangle and in two triangles.
4. Use Pythagorean inequalities and special right triangles.

Alignment to NJSLs

G.CO.9, G.C.3, G.CO.10, G.SRT.4, G.SRT.8, G.SRT.6

Key Concepts and Skills

PERPENDICULAR AND ANGLE BISECTORS

- Prove and apply theorems about perpendicular bisectors.
- Prove and apply theorems about angle bisectors.

BISECTORS OF TRIANGLES

- Prove and apply properties of perpendicular bisectors of a triangle.
- Prove and apply properties of angle bisectors of a triangle.

MEDIANS AND ALTITUDES OF A TRIANGLE

- Apply properties of the medians of a triangle.
- Apply properties of the altitudes of a triangle.

THE TRIANGLE MIDSEGMENT THEOREM

- Prove and use properties of triangle midsegments.

INDIRECT PROOF AND INEQUALITIES IN ONE TRIANGLE

- Write indirect proofs.
- Apply inequalities in one triangle.

INEQUALITIES IN TWO TRIANGLES

- Apply inequalities in two triangles.

PYTHAGOREAN THEOREM

- Use the Pythagorean Theorem and its converse to solve problems.
- Use Pythagorean Inequalities to classify triangles.

APPLYING SPECIAL RIGHT TRIANGLES

- Justify and apply properties of 45-45-90 triangles.
- Justify and apply properties of 30-60-90 triangles..

Learning Activities

1. Use Patty Paper to discover theorems.
2. Use crayons or colored chalk to discover triangle inequality relationships.
3. Build squares on sides and hypotenuse of right triangle and examine areas.
4. Interactive Geometry Software Explorations
5. Interactive Geometry Software Activities
6. Discovery Worksheets

Assessments

1. Quizzes & Common Chapter Test.
2. Homework, Classwork.
3. Journal Writing & Portfolios

21st Century Skills

x	Creativity	X	Critical Thinking	X	Communication	X	Collaboration
x	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections**Technology Integration**

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. Interactive Geometry Software

Time Frame	Standard- 14 days	Block- 7 days					
Topic							
Polygons and Quadrilaterals							
Essential Questions							
<ol style="list-style-type: none"> How do these skills prepare us to find areas and volumes in geometry, algebra, and advanced mathematics courses? In Physics, how can you solve motion and mechanics problems? Outside of school, determine how devices such as cameras and binoculars work. 							
Enduring Understandings							
<ol style="list-style-type: none"> Apply properties of polygons. Apply properties of special quadrilaterals. Determine how to show that a polygon is a special quadrilateral. Write proofs involving special quadrilaterals. 							
Alignment to NJSL							
G.CO.13, G.CO.11, G.SRT.5							
Key Concepts and Skills							
<p>PROPERTIES AND ATTRIBUTES OF POLYGONS</p> <ul style="list-style-type: none"> Classify polygons based on their sides and angles. Find and use the measure of interior and exterior angles of a polygon. <p>PROPERTIES OF PARALLELOGRAMS</p> <ul style="list-style-type: none"> Prove and apply properties of parallelograms. Use properties of parallelograms to solve problems. <p>CONDITIONS FOR PARALLELOGRAMS</p> <ul style="list-style-type: none"> Prove that a given quadrilateral is a parallelogram. <p>PROPERTIES OF SPECIAL PARALLELOGRAMS</p> <ul style="list-style-type: none"> Prove and apply properties of rectangles, rhombuses, and squares. Use properties of rectangles, rhombuses, and squares to solve problems. <p>CONDITIONS FOR SPECIAL PARALLELOGRAMS</p> <ul style="list-style-type: none"> Prove that a given quadrilateral is a rectangle, rhombus, or square. <p>PROPERTIES OF KITES AND TRAPEZOIDS</p> <ul style="list-style-type: none"> Use properties of kites to solve problems. Use properties of trapezoids to solve problems. 							
Learning Activities							
<ol style="list-style-type: none"> Discover interior angles and their sums by dividing polygon into triangles. Interactive Geometry Software Activities. Use google sketch-up to make shapes. Use index cards to discover theorems. Interactive Geometry Software Explorations 							
Assessments							
<ol style="list-style-type: none"> Quizzes & Common Chapter Test. Homework, Classwork. Journal Writing & Portfolios 							
21st Century Skills							
x	Creativity	x	Critical Thinking	x	Communication	x	Collaboration
x	Life & Career Skills		Information Literacy		Media Literacy		
Interdisciplinary Connections							
Technology Integration							

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

Google Sketch-up

Interactive Geometry Software

Time Frame	Standard – 17 days	Block – 9 days
Topic		
Similarity		
Essential Questions		
<ol style="list-style-type: none"> 1. How do these skills prepare us for Algebra II and Precalculus? 2. In Physics, how does this apply to symmetries of nature? 3. In Geography, how is this exhibited in the symmetry of many natural formations as well in art? 		
Enduring Understandings		
<ol style="list-style-type: none"> 1. Verifying polygons are similar using corresponding angles and sides. 2. Using properties of similar polygons. 3. Writing proofs about similar polygons. 		
Alignment to NJSLs		
G.SRT.2, G.SRT.4, G.SRT.5, G.C.1, G.CO.2, G.GPE.6		
Key Concepts and Skills		
<p>RATIOS IN SIMILAR POLYGONS</p> <ul style="list-style-type: none"> • Identify similar polygons. • Apply properties of similar polygons to solve problems. <p>SIMILARITY AND TRANSFORMATIONS</p> <ul style="list-style-type: none"> • Draw and describe similarity transformations in the coordinate plane. • Use properties of similarity transformations to determine whether polygons are similar and to prove circles are similar. <p>TRIANGLE SIMILARITY: AA, SSS, and SAS</p> <ul style="list-style-type: none"> • Prove certain triangles are similar by using AA, SSS, and SAS. • Use triangle similarity to solve problems. <p>APPLYING PROPERTIES OF SIMILAR TRIANGLES</p> <ul style="list-style-type: none"> • Use properties of similar triangle to find segment lengths. • Apply proportionality and triangle angle bisector theorems. <p>USING PROPORTIONAL RELATIONSHIPS</p> <ul style="list-style-type: none"> • Use ratios to make indirect measurements. • Use scale drawings to solve problems. <p>DILATIONS AND SIMILARITY IN THE COORDINATE PLANE</p> <ul style="list-style-type: none"> • Apply similarity properties in the coordinate plane. • Use coordinate proof to prove figures similar. 		
Learning Activities		
<ol style="list-style-type: none"> 1. Use Patty Paper and millimeter measuring device to discover AA. 2. Interactive Geometry Software Activities. 3. Use cubes to discover ratios of areas and volumes. 4. Make scale drawings. 5. Interactive Geometry Software Explorations 		
Assessments		
<ol style="list-style-type: none"> 1. Quizzes & Common Chapter Test. 2. Homework, Classwork. 3. Journal Writing & Portfolios 		

21st Century Skills

x	Creativity	X	Critical Thinking	X	Communication	X	Collaboration
x	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections**Technology Integration**

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. Interactive Geometry Software

Time Frame	Standard – 15 days	Block – 8 days
-------------------	---------------------------	-----------------------

Topic**Right Triangles and Trigonometry****Essential Questions**

1. How do these skills prepare us for trigonometry?
2. How do these skills prepare us for physics and physical education?
3. How do these skills prepare us to measure distance, estimate heights, or plan a course for hiking or kayaking?

Enduring Understandings

1. Apply similarities of right triangles.
2. Use ratios and proportions to find missing side lengths in right triangles.
3. Use trigonometric ratios to solve real-world problems.

Alignment to NJSLs

G.SRT.6, G.SRT.7, G.SRT.8, G.SRT.10

Key Concepts and Skills**SIMILARITIES IN RIGHT TRIANGLES**

- Use geometric mean to find segment lengths in right triangles.
- Apply similarity relationships in right triangles to solve problems.

TRIGONOMETRIC RATIOS

- Find the sine, cosine, and tangent of an acute angle.
- Use trigonometric ratios to find side length in right triangles and solve real-world problems.

SOLVING RIGHT TRIANGLES

- Use trigonometric ratios to find angle measures in right triangles and solve real-world problems.

ANGLES OF ELEVATION AND DEPRESSION

- Solve problems involving angles of elevation and depression.

LAW OF SINES AND COSINES

- Use the law of sines and cosines to solve triangles.

VECTORS

- Find the magnitude and direction of a vector.
- Use vectors and vector addition to solve real-world problems.

Learning Activities

1. Songs for trig ratios.
2. Use construction paper to make two congruent triangles and cut them to discover theorems.
3. Straw and Protractor activity to measure tree, building, etc.
4. Interactive Geometry Software Explorations

Assessments

1. Quizzes & Common Chapter Test.
2. Homework, Classwork.
3. Journal Writing & Portfolios

21st Century Skills

x	Creativity	X	Critical Thinking	X	Communication	X	Collaboration
x	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections

Technology Integration

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. Interactive Geometry Software

Time Frame	Standard – 11 days	Block – 5 days
Topic		
Extending Transformational Geometry		
Essential Questions		
<ol style="list-style-type: none"> 1. How do these skills prepare you for future mathematics courses and art, chemistry, biology, and physics? 2. How would you find the shortest path, build furniture, and create art work? 		
Enduring Understandings		
<ol style="list-style-type: none"> 1. Apply rules for transformations in the coordinate plane. 2. Create rigid transformations. 3. Examine line and point symmetry. 		
Alignment to NJSLs		
G.CO.6, G.CO.3, G.GMD.4, G.CO.5, G.CO.2		
Key Concepts and Skills		
<p>REFLECTIONS</p> <ul style="list-style-type: none"> • Identify and draw reflections. <p>TRANSLATIONS</p> <ul style="list-style-type: none"> • Identify and draw translations. <p>ROTATIONS</p> <ul style="list-style-type: none"> • Identify and draw rotations. <p>COMPOSITION OF TRANSFORMATIONS</p> <ul style="list-style-type: none"> • Apply theorems about isometries. • Identify and draw compositions of transformations such as glide reflections. <p>SYMMETRY</p> <ul style="list-style-type: none"> • Identify and describe symmetry of geometric figures. <p>TESSELLATIONS</p> <ul style="list-style-type: none"> • Use transformations to draw tessellations. • Identify regular and semiregular tessellations and figures that will tessellate. <p>DILATIONS</p> <ul style="list-style-type: none"> • Identify and draw dilations. 		
Learning Activities		
<ol style="list-style-type: none"> 1. Miras. 2. Interactive Geometry Software Activities. 3. World Flag Project. 		
Assessments		

1. Quizzes & Common Chapter Test.
2. Homework, Classwork.
3. Journal Writing & Portfolios

21st Century Skills

X	Creativity	X	Critical Thinking	X	Communication	X	Collaboration
X	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections

Technology Integration

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge.

Internet

Interactive Geometry Software

Time Frame

Standard – 12 days Block – 6 days

Topic

Extending Perimeter, Circumference, and Area

Essential Questions

1. How do these skills prepare you for Calculus and to find the area under the curve?
2. How do you find the area of countries and lengths of borders?
3. How can you plan a garden, analyze data in the newspaper, and solve puzzles?

Enduring Understandings

1. Calculate areas and perimeters of figures whose vertices are given by ordered pairs.
2. Calculate areas and perimeters of figures whose dimensions are found by using the Pythagorean Theorem.
3. Calculate areas and perimeters of customary and metric units.
4. Derive formulas for area and perimeter.

Alignment to NJSLs

A.SSE.1, G.GMD.1, G.MG.3, G.GPE.7, S.CR.1

Key Concepts and Skills

DEVELOPING FORMULAS FOR TRIANGLES AND QUADRILATERAL

- Develop and apply the formulas for the areas of triangles and special quadrilaterals.
- Solve problems involving perimeters, areas of triangles, and special quadrilaterals.

DEVELOPING FORMULAS FOR CIRCLES AND REGULAR POLYGONS

- Develop and apply the formulas for the area and circumference of a circle.
- Develop and apply the formula of a regular polygon.

COMPOSITE FIGURES

- Use the area addition postulate to find the areas of composite figures.
- Use composite figures to estimate the areas of irregular shapes.

PERIMETER AND AREA IN THE COORDINATE PLANE

- Find the perimeters and areas of figures in the coordinate plane.

EFFECTS OF CHANGING DIMENSIONS PROPORTIONALLY

- Describe the effect on perimeter and area when one or more dimensions of a figure are changed.
- Apply the relationship between perimeter and area in problem solving.

GEOMETRIC PROBABILITY

- Calculate geometric probabilities.
- Use geometric probabilities to predict results in real-world situations.

*NETWORKS

- Recognize nodes and edges used in graph theory.

- Determine if a network is traceable and complete.

Learning Activities

- Use dimensions of famous building, found on internet, to find the area of irregular shapes.

Assessments

- Quizzes & Common Chapter Test.
- Homework, Classwork.
- Journal Writing & Portfolios

21 Century Skills

X	Creativity	X	Critical Thinking	X	Communication	X	Collaboration
X	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections

Technology Integration

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. Interactive Geometry Software

Time Frame	Standard – 8 days	Block – 5 days
-------------------	--------------------------	-----------------------

Topic

Spatial Reasoning

Essential Questions

- How do you use these skills to prepare for future mathematics courses such as Precalculus?
- How do you use these skills to study chemistry, physics, and architecture?
- How do you use these skills to solve problems concerning interior design, packaging, and construction?

Enduring Understandings

- Apply properties three-dimensional figures.
- Calculate the volumes of three-dimensional figures.
- Examine the effects of changing the dimensions of three-dimensional figures proportionally.

Alignment to NJSL

G.GMD.4, G.GMD.3

Key Concepts and Skills

SOLID GEOMETRY

- Classify three-dimensional figures according to their properties.
- Use nets and cross sections to analyze three-dimensional figures.

VOLUME OF PRISMS AND CYLINDERS

- Learn and apply the formula for the volume of a prism.
- Learn and apply the formula for the volume of a cylinder.

VOLUME OF PYRAMIDS AND CONES

- Learn and apply the formula for the volume of a pyramid.
- Learn and apply the formula for the volume of a cone.

SPHERES

- Learn and apply the formula for the volume of a sphere.
- Learn and apply the formula for the surface area of a sphere.

Learning Activities

- Use polyhedrons and build using nets to develop vocabulary and patterns.

Assessments

1. Quizzes & Common Chapter Test.
2. Homework, Classwork.
3. Journal Writing & Portfolios

21st Century Skills

X	Creativity	X	Critical Thinking	X	Communication	X	Collaboration
X	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections

Technology Integration

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. Interactive Geometry Software

Time Frame	Standard – 17 days	Block – 8 days
Topic		
Circles		
Essential Questions		
<ol style="list-style-type: none"> 1. How do these skills prepare you for Algebra II and Precalculus? 2. In Biology, how do we use these skills to explore cells? 3. In Physics, how do we use these skills to explore the laws of motion and kinematic principles? 4. How do you create images in Art? 5. How do you use these skills distances, interpret information in newspapers and magazine charts, and make designs? 		
Enduring Understandings		
<ol style="list-style-type: none"> 1. Solve problems involving circles. 2. Find lengths, angle measures, and areas associated with circles. 3. Apply circle theorems to solve a wide range of problems? 		
Alignment to NJSL		
G.C.2, G.C.5, G.GPE.1		
Key Concepts and Skills		
<p>LINES THAT INTERSECT CIRCLES</p> <ul style="list-style-type: none"> • Identify tangents, secants, and chords. • Use properties of tangents to solve problems. <p>ARCS AND CHORDS</p> <ul style="list-style-type: none"> • Apply properties of arcs. • Apply properties of chords. <p>SECTOR AREA AND ARC LENGTH</p> <ul style="list-style-type: none"> • Find the area of a sector. • Find the arc length. <p>INSCRIBED ANGLES</p> <ul style="list-style-type: none"> • Find the measure of an inscribed angle. • Use inscribed angles to solve problems. <p>ANGLE REALTIONSHIPS IN CIRCLES</p> <ul style="list-style-type: none"> • Find the measure of angles formed by lines that intersect circles. • Use angle measures to solve problems. <p>SEGMENT RELATIONSHIPS IN CIRCLES</p> <ul style="list-style-type: none"> • Find the lengths of segments formed by lines that intersect circles. • Use the lengths of segments in circles to solve problems. 		

CIRCLES AND THE COORDINATE PLANE

- Write equations and graph circles in the coordinate plane.
- Use the equation and graph of a circle to solve problems.

Learning Activities

1. Re-connect in-center and circumcenter to triangle perpendicular bisectors and angle bisectors.
2. Interactive Geometry Software Explorations

Assessments

1. Quizzes & Common Chapter Test.
2. Homework, Classwork.
3. Journal Writing & Portfolios

21st Century Skills

X	Creativity	X	Critical Thinking	X	Communication	X	Collaboration
x	Life & Career Skills		Information Literacy		Media Literacy		

Interdisciplinary Connections

Technology Integration

8.1 Educational Technology- All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaboratively and to create and communicate knowledge. Interactive Geometry Software

Time Frame	Standard – 10 days	Block – 5 days					
Topic							
Probability							
Essential Questions							
<ol style="list-style-type: none"> How will you find probability in games and events involving chance? How will you compare conditional probabilities? How will you make mathematically informed decisions? 							
Enduring Understandings							
<ol style="list-style-type: none"> Solve problems involving counting and arranging. Find theoretical, experimental, and binomial probabilities. Create two-way tables and conditional frequencies. 							
Alignment to NJSLs							
S.CP.9, S.CP.5, S.CP.4, S.CP.7							
Key Concepts and Skills							
<p>PERMUTATIONS AND COMBINATIONS</p> <ul style="list-style-type: none"> Solve problems involving the fundamental counting principle. Solve problems involving permutations and combinations. <p>THEORETICAL AND EXPERIMENTAL PROBABILITY</p> <ul style="list-style-type: none"> Find the theoretical probability of an event. Find the experimental probability of an event. <p>INDEPENDENT AND DEPENDENT EVENTS</p> <ul style="list-style-type: none"> Determine whether independent or dependent. Find the probability of independent and dependent events. <p>TWO-WAY TABLES</p> <ul style="list-style-type: none"> Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. <p>COMPOUND EVENTS</p> <ul style="list-style-type: none"> Find the probability of mutually exclusive events. Find the probability of exclusive events. 							
Learning Activities							
<ol style="list-style-type: none"> Make a dartboard and calculate the probability of each section. 							
Assessments							
<ol style="list-style-type: none"> Quizzes & Common Chapter Test. Homework, Classwork. Journal Writing & Portfolios 							
21st Century Skills							
X	Creativity	X	Critical Thinking	X	Communication	X	Collaboration
X	Life & Career Skills		Information Literacy		Media Literacy		
Interdisciplinary Connections							
Technology Integration							
Interactive Geometry Software							