Randolph Township Schools
Randolph High School

Geometry Honors, Geometry A, and Geometry B Curriculum

“Ours is the only country deliberately founded on a good idea.”
- John Gunther

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July 2013

Curriculum Revised
July 2014

Revision Committee
Julie Green, Kylene Plucinsky, Teresa Schuele

Board APPROVAL
September 9, 2014
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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools

Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district’s curriculum and instruction are aligned to the State’s Standards. The curriculum addresses the elimination of discrimination and the achievement gap, as identified by underperforming school-level AYP reports for state assessment. The Curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972
The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:
• The needs of the child come first
• Mutual respect and trust are the cornerstones of a learning community
• The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
• A successful learning community communicates honestly and openly in a non-threatening environment
• Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
• Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
• Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth
Randolph Township Schools
Department of Science, Technology, Engineering, and Mathematics

Introduction

Randolph Township Schools is committed to excellence. We believe that all children are entitled to an education that will equip them to become productive citizens of the 21st century. We believe that an education grounded in the fundamental principles of science, technology, engineering, and math (STEM) will provide students with the skills and content necessary to become future leaders and lifelong learners.

A sound STEM education is grounded in the principles of inquiry, rigor, and relevance. Students will be actively engaged in learning as they use real-world STEM skills to construct knowledge. They will have ample opportunities to manipulate materials and solve problems in ways that are developmentally appropriate to their age. They will work in an environment that encourages them to take risks, think critically, build models, observe patterns, and recognize anomalies in those patterns. Students will be encouraged to ask questions, not just the “how” and the “what” of observed phenomena, but also the “why”. They will develop the ability, confidence, and motivation to succeed academically and personally.

STEM literacy requires understandings and habits of mind that enable students to make sense of how our world works. As described in Project 2061’s *Benchmarks in Science Literacy, The Standards for Technological Literacy*, and *Professional Standards for Teaching Mathematics*, literacy in these subject areas enables people to think critically and independently. Scientifically and technologically literate citizens deal sensibly with problems that involve mathematics, evidence, patterns, logical arguments, uncertainty, and problem-solving.

**Geometry Honors, Geometry A, and Geometry B**

Introduction

Randolph High School offers plane Euclidean geometry; the second of three courses required by our STEM department in accordance with the Common Core Curriculum Standards and Standards for Mathematical Practice. For sequential fluidity, fuller understanding and effective application, a proficiency in the Algebra 1 curriculum is expected so that the infusion of algebra with geometry may result in powerful methods of analysis and problem solving. Successful completion of geometry should, in turn, secure a solid foundation for future mathematical courses, including Algebra 2.
The study of geometry includes academic experiences intended to help develop students’ spatial sense, a recognition, visualization and transformation of shapes, figures in two and three dimensions, as well as inductive and deductive reasoning. Implementing geometric properties to real-world problems and other areas of mathematics is integral as shapes and figures are explored both synthetically (without coordinates) and analytically (with coordinates). Students learn to persevere through analyzing situations, hypothesizing, testing and proving conjectures, thereby discovering and utilizing relationships to work toward developing clear, logical and valid thinking. Proficiency in geometry bridges the eternal and the ever-changing; this course seeks to root its students in sound, timeless mathematical reasoning by way of today’s technological tools thereby empowering students to tackle tomorrow’s problems.
<table>
<thead>
<tr>
<th>SUGGESTED TIME ALLOTMENT</th>
<th>UNIT NUMBER</th>
<th>CONTENT - UNIT OF STUDY</th>
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<tbody>
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<td>4</td>
<td>PRE</td>
<td>Pre-Requisite Skills</td>
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<td>8</td>
<td>I</td>
<td>The Language and Tools of Geometry</td>
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<td>8</td>
<td>II</td>
<td>Understanding Congruence in terms of Rigid Motion</td>
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<td>III</td>
<td>Proving Relationships Between Lines and Angles</td>
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<tr>
<td>15</td>
<td>IV</td>
<td>Triangles</td>
</tr>
<tr>
<td>16</td>
<td>V</td>
<td>Determine properties of Polygons with a Focus on Quadrilaterals</td>
</tr>
<tr>
<td>11</td>
<td>VI</td>
<td>Relationships of Similar Figures</td>
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<tr>
<td>19</td>
<td>VII</td>
<td>Similar Right Triangles and Trigonometry</td>
</tr>
<tr>
<td>19</td>
<td>VIII</td>
<td>Circles</td>
</tr>
<tr>
<td>13</td>
<td>IX</td>
<td>Explore and Analyze Measurements in Two &amp; Three Dimensional Figures</td>
</tr>
</tbody>
</table>

With 180 days of school, we subtracted four days for finals and six days for quarterly exams. Then we took 75% (for the rotational block) of the 170 days left, to get a total of 127 instructional days.
<table>
<thead>
<tr>
<th>SUGGESTED TIME ALLOTMENT</th>
<th>CONTENT-UNIT OF STUDY</th>
<th>SUPPLEMENTAL UNIT RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 days</td>
<td>o Factoring</td>
<td>• Summer Assignment Packet</td>
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<td></td>
<td>o Properties of Radicals</td>
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<td></td>
<td>o Graphing and Solving Linear Equations</td>
<td></td>
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<td></td>
<td>o Ratios and Proportions</td>
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</tr>
<tr>
<td></td>
<td>o (H) Basic Geometry Terminology</td>
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<td></td>
<td>o (H) Application of Basic Geometric Principles</td>
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</tbody>
</table>
### ENDURING UNDERSTANDINGS

Geometry is a mathematical system built on accepted facts, basic terms and definitions.

**ESSENTIAL QUESTIONS**

- How does geometry explain or describe the structure of our world?

You can use special geometric tools to construct accurate diagrams without measuring.

- How can figures be constructed accurately without rulers and protractors?

Algebra can be used to efficiently and effectively describe and apply geometric properties.

- How can algebra be useful when expressing geometric properties?

### KNOWLEDGE

**Students will know:**

Definitions of basic geometric terms: point, line, plane, distance, angle, congruent, bisector, midpoint, circle, perpendicular, parallel, line segment, skew lines, arc, ray, endpoints, vertex, equidistant, intersect, acute, obtuse, straight, right angle, theorems and postulates.

(H&A) Reflexive, symmetric, and transitive.

(H) Trisectors, reflex angle.

### SKILLS

**Students will be able to:**

- Identify, name and represent (using proper notation) points, lines, planes, segments by their endpoints, rays, angles by their vertex, circles and arcs.

- Classify angles as acute, obtuse, right or straight.

- Understand the difference between equality and congruence.

- Determine whether an object is a bisector of a segment or angle.

- Demonstrate that a midpoint is equidistant from the endpoints of a segment by finding distances.

- Differentiate between parallel, perpendicular and skew lines.

- Apply basic facts, postulates and theorems about points, lines and planes.

(H&A) Utilize the reflexive, symmetric, and transitive properties with congruent segments and angles.

### CC/NJCCCS/SMP

- HSG-CO.A.1
- HSG-CO.D.12
- HSG-GPE.B.4
- HSG-GPE.B.7
- SMP.1
- SMP.3
- SMP.5
- SMP.6
- SMP.7
- ELA-Literacy.RST.9-10.4
- ELA-Literacy.RST.9-10.7
### Fundamental Postulates of Geometry:
- Through any two points there is exactly one line.
- Through any three points not on the same line there is exactly one plane.
- A line contains at least two points.
- A plane contains at least three points not on the same line.
- If two points lie in a plane, then the entire line containing those two points lies in that plane.
- If two planes intersect, then their intersection is a line.

### Theorems:
- All right angles are congruent.
- All straight angles are congruent.

### Properties of Segments and Angles:
- Addition
- Subtraction
- Multiplication
- Division

### Distance and Midpoint formulas.

### The tools and methods of constructing congruent segments, angles, perpendicular and angle bisectors.

### (H) Unions and intersections in geometry.

### (H) The value of minutes in a degree and seconds in a minute.

### (H) The technique for finding the measure of an angle formed by the hands of a clock.

### (H) Identify a reflex angle and demonstrate an understanding of rays or points that are trisectors.

### Identify the validity of a geometric statement based on the Fundamental Postulates of Geometry.

### Differentiate the congruency of angles based on their classification.

### Apply the properties of segments and angles to solve problems.

### Find the midpoint of a line segment on the coordinate plane.

### Determine the length of a line segment using the distance formula.

### Perform geometric constructions that: copy an angle, copy a segment, bisect a segment, bisect an angle, and create perpendicular lines and bisectors and a line parallel to a given line through a given point.

### (H) Discover the union and intersection of segments and angles.

### (H) Convert an angle measure from degrees to degrees, minutes and seconds.

### (H) Calculate the angle formed by the hands of a clock and given times.
**SUGGESTED TIME ALLOTMENT** | **CONTENT-UNIT OF STUDY** | **SUPPLEMENTAL UNIT RESOURCES**
--- | --- | ---
8 days | **Unit I - The Language and Tools of Geometry**  
- Basic Geometric Terminology  
- Distance Formula  
- Midpoint Formula  
- Geometric Constructions | INCLUDE ALL RESOURCES, PRINT AND ONLINE  
- Compass  
- Straight edge  
- Basic Constructions Instructions handout  
- Geometer’s Sketchpad  
- GeoGebra  
- Flatland, A Romance of Many Dimensions, by Edwin A. Abbott  
- Constructions Project  
- Handouts and other materials are modified from resources found in Appendix A
## UNIT II: Understanding Congruence in terms of Rigid Motion

### ENDURING UNDERSTANDINGS

| Proving and applying congruence provides a basis for modeling situations geometrically. | • In what ways can congruence be useful in the real world? |
| The rigid motion of images on the coordinate plane can be defined mathematically. | • How can you represent a transformation in the coordinate plane? |
| Rigid motions of a figure conserve shape and area while changing orientation. | • In what ways do the characteristics of a shape change when it is moved on the coordinate plane? |

### KNOWLEDGE SKILLS CC/NJCCS/SMP

#### Students will know:

- Terms: rigid motion, image, pre-image, line of reflection, line of symmetry, isometry, center of rotation, and compositions, dilation and scale factor.
- Rotations, reflections, translations and combinations of these which preserve distance and angle measure.
- The composition of rigid motions that will map one congruent figure onto another.

#### Students will be able to:

- Identify lines of reflection and centers of rotation.
- Compare and contrast the use of line symmetry and point symmetry (rotational symmetry).
- Describe the compositions of rigid motions that map a pre-image to it’s image.
- Explain why translations, rotations, and reflections are rigid motion and why dilations are not rigid motion.
- Define the concept of an isometry.
- Map geometric figures using given transformations.
- Compare transformations that preserve distance and angle measurements.
- Perform reflections, rotations, translations, dilations, and combinations of these, using either graph paper or computer software (examples are GeoGebra and Geometer’s Sketchpad).

#### CC/NJCCS/SMP

- HSG-CO.A.2
- HSG-CO.A.3
- HSG-CO.A.4
- HSG-CO.A.5
- HSG-CO.B.6
- HSG-CO.7
- SMP.2
- SMP.3
- SMP.5
- SMP.6
- SMP.7
- Literacy.RST.9-10.4
- Literacy.RST.9-10.7
Describe and illustrate how a geometric figure can be reflected onto itself.

Predict the coordinates of an image when a transformation rule is applied to the pre-image.

<table>
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<tr>
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<tbody>
<tr>
<td>8 days</td>
<td>Unit II - Understanding Congruence in terms of Rigid Motion</td>
<td>INCLUDE ALL RESOURCES, PRINT AND ONLINE</td>
</tr>
<tr>
<td></td>
<td>o Rigid Motion</td>
<td>• Helpful websites:</td>
</tr>
<tr>
<td></td>
<td>o Rotations</td>
<td>- <a href="http://www.purplemath.com/modules/fcntrans.htm">http://www.purplemath.com/modules/fcntrans.htm</a> (Translations)</td>
</tr>
<tr>
<td></td>
<td>o Dilations</td>
<td>- <a href="http://www.mathsisfun.com/geometry/rotation.html">http://www.mathsisfun.com/geometry/rotation.html</a> (Rotation)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Geometer’s Sketchpad</td>
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<td></td>
<td></td>
<td>• GeoGebra</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Graph paper</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Ruler</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tessellations Project</td>
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<td></td>
<td></td>
<td>• Handouts and other materials are modified from resources found in Appendix A</td>
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**RANDOLPH TOWNSHIP SCHOOL DISTRICT**  
Geometry Honors, Geometry A, and Geometry B  
UNIT III: Proving Relationships Between Lines and Angles

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<th>ENDURING UNDERSTANDINGS</th>
<th>ESSENTIAL QUESTIONS</th>
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<tr>
<td>Specific angle relationships are formed when two or more lines are intersected by a transversal.</td>
<td>• What role do lines and angles play in modeling the world around us?</td>
</tr>
<tr>
<td>There are multiple ways to solve geometric problems and complete proofs.</td>
<td>• How do you write a geometric proof so it is a valid argument?</td>
</tr>
<tr>
<td>Analyzing geometric relationships develops reasoning and justification skills.</td>
<td>• How can you use reasoning to justify whether an argument is valid?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>KNOWLEDGE</th>
<th>SKILLS</th>
<th>CC/NJCCCS/SMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will know:</td>
<td>Students will be able to:</td>
<td>HSG-CO.A.1 HSG-CO.C.9 HSG-CO.D.12 HSG-GPE.B.5 HSG-MG.A.1 SMP.2 SMP.3 SMP.4 SMP.5 SMP.6 SMP.8 Literacy.RST.9-10.3 Literacy.RST.9-10.4 Literacy.RST.9-10.7</td>
</tr>
<tr>
<td>Terms: parallel lines, perpendicular lines, vertical angles, linear pair, adjacent, alternate interior angles, alternate exterior angles, corresponding angles, same side interior angles, same side exterior angles, transversal, conditional statement, counter-example, converse, hypothesis, conclusion, supplementary angles, complementary angles, Law of Syllogism, paragraph and two-column proof. (H) negation, inverse, contrapositive, and laws of reasoning i.e. chain rule and the law of the contrapositive.</td>
<td>Identify parallel lines and perpendicular lines, and the angles formed by lines intersected by transversals such as alternate interior angles, alternate exterior angles, same side interior angles, same side exterior angles, vertical angles and linear pairs. Order statements based on the Law of Syllogism when constructing paragraph and two column proofs. Transpose declarative statements into conditional form and identify the hypothesis and conclusion. Make use of supplementary and complementary angles when solving problems. Write the converse of a conditional statement and provide a counter example if possible (H) include the negation, inverse, and contrapositive of the statement. (H) Draw conclusions based on a group of conditional statements</td>
<td></td>
</tr>
<tr>
<td>(H&amp;A) Properties of segments and angles can be used in proofs.</td>
<td>using laws of reasoning.</td>
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<td>-------------------------------------------------------------</td>
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</tr>
<tr>
<td>Complements and Supplements Theorems:</td>
<td>(H&amp;A) Create larger and smaller segments/angles using the properties addition, subtraction, multiplication, and division in basic proofs.</td>
<td></td>
</tr>
<tr>
<td>If two angles form a linear pair, then they are supplementary.</td>
<td>(H&amp;A) Prove the theorems about complements and supplements, and apply them appropriately in a proof.</td>
<td></td>
</tr>
<tr>
<td>If two angles are adjacent and form a right angle, then they are complementary.</td>
<td>Make use of the theorems for complements and supplements to solve problems algebraically.</td>
<td></td>
</tr>
<tr>
<td>Angles that are complementary to same angle or congruent angles are congruent.</td>
<td>Prove theorems, and their converse, about parallel and perpendicular lines, and use them appropriately in a proof.</td>
<td></td>
</tr>
<tr>
<td>Angles that are supplementary to the same angle or congruent angles are congruent.</td>
<td>Theorize and create informal proofs to prove theorems about angles formed by intersecting lines.</td>
<td></td>
</tr>
<tr>
<td>Vertical angles are congruent and perpendicular lines form right angles.</td>
<td>Distinguish between different pairs of angles formed when parallel lines are intersected by a transversal, and utilize their relationships to solve problems.</td>
<td></td>
</tr>
<tr>
<td>When a transversal intersects parallel lines, alternate interior angles and corresponding angles are congruent, and same-side interior angles and same side exterior angles are supplementary.</td>
<td>Determine the slopes of parallel and perpendicular lines and use them to write equations of lines.</td>
<td></td>
</tr>
<tr>
<td>The relationship between slope and parallel and perpendicular lines.</td>
<td>Construct parallel and perpendicular lines using a compass and straight edge or geometric software (examples are Geogebra and Geometer’s Sketchpad).</td>
<td></td>
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<tr>
<td>The process for constructing parallel and perpendicular lines</td>
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<tr>
<td>SUGGESTED TIME ALLOTMENT</td>
<td>CONTENT-UNIT OF STUDY</td>
<td>SUPPLEMENTAL UNIT RESOURCES</td>
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<td>--------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>14 days</td>
<td><strong>Unit III - Proving Relationships Between Lines and Angles</strong></td>
<td>INCLUDE ALL RESOURCES, PRINT AND ONLINE</td>
</tr>
<tr>
<td></td>
<td>o Parallel Lines cut by a transversal and the angles formed</td>
<td>• Compass</td>
</tr>
<tr>
<td></td>
<td>o Perpendicular Lines</td>
<td>• Straight edge</td>
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<tr>
<td></td>
<td>o Perpendicular Bisector</td>
<td>• Introduction to Proofs Packet</td>
</tr>
<tr>
<td></td>
<td>o Constructions for parallel and perpendicular lines</td>
<td>• Proof Puzzles</td>
</tr>
<tr>
<td></td>
<td>o Paragraph and two-column proof</td>
<td>• Handouts and other materials are modified from resources found in Appendix A</td>
</tr>
</tbody>
</table>
### ENDURING UNDERSTANDINGS

The properties of triangles create a basis for understanding and reasoning that extends to other geometric figures.

Many relationships exist between the measure of the angles of a triangle and the measure of the sides of the triangle.

There exist methods for proving triangles congruent.

### ESSENTIAL QUESTIONS

- How do the properties of triangles contribute to the geometric understanding of the world around us?
- What is the relationship between the angles of a triangle and the sides of the triangle?
- How do you extend the meaning of congruence to triangles?

### KNOWLEDGE

**Students will know:**

Terms: midsegment, median, centroid, perpendicular bisector, acute triangle, obtuse triangle, right triangle, scalene triangle, isosceles triangle, equilateral/equiangular triangle, exterior angle of a triangle, remote interior angle, base angles, vertex angle, altitude, (H & A) point of concurrency, orthocenter, incenter and circumcenter, and Euler’s Line.

(H) indirect proof.

### SKILLS

**Students will be able to:**

Classify triangles as acute, obtuse, right, scalene, isosceles, equilateral or equiangular by their angle measures and side lengths.

Apply the properties of a midsegment to find its length.

Use triangle classification to find angle measures and side lengths.

Understand the relationships between an exterior angle and remote interior angles of any triangle, and base angles and the vertex angle of an isosceles triangle.

(H & A) Identify all points of concurrency; orthocenter, incenter, circumcenter and centroid that are formed by medians, angle bisectors, altitudes and perpendicular bisectors.

(H & A) Name which point of concurrency does not lie on Euler’s Line.

(H) Perform indirect proofs.

### CC/NJCCCS/SMP

- **HSG-CO.8**
- **HSG-CO.C.10**
- **HSG-CO.D.12**
- **HSG-SRT.B.5**
- **SMP.1**
- **SMP.2**
- **SMP.3**
- **SMP.5**
- **SMP.6**
- **Literacy.RST.9-10.3**
- **Literacy.RST.9-10.4**
- **Literacy.RST.9-10.7**
Any point on a perpendicular bisector of a segment, is equidistant from the endpoints of the segment.

Triangle Theorems:
- Sum of the interior angles of a triangle is 180 degrees
- The exterior angle of a triangle is equal to the sum of the remote interior angles
- If two sides of a triangle are congruent, then the angles opposite them are congruent
- The segment joining the midpoints of two sides of a triangle is parallel to and half the length of the third side of the triangle
- The medians of a triangle meet at a point of concurrency
- The longest side of a triangle is opposite the largest angle and the shortest side of a triangle is opposite the smallest angle
- A triangle is equilateral if and only if it is equiangular
- Any two sides of a triangle have to add up to be greater than the third side.

Criteria for triangle congruence: SSS, SAS, ASA, AAS, HL.

Corresponding parts of congruent triangles are congruent (CPCTC).

Tools and methods for constructing the points of concurrency and Euler’s Line.

Demonstrate and apply the properties of a perpendicular bisector in proofs and algebraic problems.

Use parallel lines to prove theorems about triangles including triangle sum theorem and exterior angle theorem.

Apply triangle theorems in problem solving situations making use of algebra skills.

Recognize the opportunity to incorporate theorems appropriately in a logical proof.

Correctly interpret geometric diagrams.

Prove triangles congruent using congruence theorems, overlapping triangles, other congruent triangles, and transformations.

Identify corresponding congruent segments or angles once two triangles have been proven congruent.

Perform the geometric constructions for medians, altitudes, angle bisectors and perpendicular bisectors to locate the points of concurrency using geometric software (examples are GeoGebra and Geometer’s Sketchpad).
<table>
<thead>
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<th>CONTENT-UNIT OF STUDY</th>
<th>SUPPLEMENTAL UNIT RESOURCES</th>
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<tbody>
<tr>
<td>15 days</td>
<td><strong>Unit IV - Triangles</strong>&lt;br&gt;  - Classifications of triangles&lt;br&gt;  - Triangle Theorems&lt;br&gt;  - Congruency Criteria&lt;br&gt;  - CPCTC</td>
<td><strong>INCLUDE ALL RESOURCES, PRINT AND ONLINE</strong>&lt;br&gt;  - Congruent Triangles Proofs Packet&lt;br&gt;  - Geometer’s Sketchpad&lt;br&gt;  - GeoGebra&lt;br&gt;  - Calculator&lt;br&gt;  - 9 Point Circle Lab&lt;br&gt;  - Handouts and other materials are modified from resources found in Appendix A</td>
</tr>
</tbody>
</table>
### ENDURING UNDERSTANDINGS

<table>
<thead>
<tr>
<th>knowledge</th>
<th>Skills</th>
<th>CC/NJCCCS/SMP</th>
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<tbody>
<tr>
<td>There exist certain patterns in the angle measures of polygons.</td>
<td>Is there a limit to the sum of the interior/exterior angles of a polygon why or why not?</td>
<td></td>
</tr>
<tr>
<td>The properties of quadrilaterals help you to categorize quadrilaterals.</td>
<td>How can you classify quadrilaterals?</td>
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### ESSENTIAL QUESTIONS

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Is there a limit to the sum of the interior/exterior angles of a polygon why or why not?</td>
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<tr>
<td>How can you classify quadrilaterals?</td>
</tr>
</tbody>
</table>

### KNOWLEDGE

**Students will know:**

Terms: polygon, convex, concave, regular, parallelogram, rectangle, rhombus, square, trapezoid, isosceles trapezoid, kite, diagonal, consecutive angles, opposite angles, and apothem.

Area formulas of parallelogram, rectangle, rhombus, square, trapezoid, and regular polygons.

The sum of the interior and exterior angles of any polygon and the measure of each interior and exterior angle of any regular polygon.

### SKILLS

**Students will be able to:**

Classify polygons by their sides and angle with precision.

Distinguish the differences between convex and concave, and regular and irregular polygons.

Identify a parallelogram, rectangle, rhombus, square, trapezoid, isosceles trapezoid and kite based on limited information.

Develop an understanding for the use of diagonals, consecutive angles and opposite angles to solve problems making use of algebra skills.

Derive the formulas for area of all polygons based on the area of the parallelogram.

In a given problem, find all the dimensions to appropriately apply area formulas.

Decompose complex figures into component polygons to determine the area (could be project based).

Derive the formulas to illustrate the patterns of the angles of polygons.

**CC/NJCCCS/SMP**

|HSG-CO.A.1 |
|HSG-CO.C.11 |
|HSG-CO.D.12 |
|HSG-CO.D.13 |
|HSG-GPE.B.4 |
|HSG-GPE.B.7 |
|HSG-MG.A.3 |
|SMP.2 |
|SMP.3 |
|SMP.5 |
|SMP.6 |
|SMP.7 |
|Literacy.RST.9-10.4 |
|Literacy.RST.9-10.7 |
The apothem is a dimension of a regular polygon. Use the apothem and perimeter to find the area of a regular polygon.
The properties of parallelogram, rhombus, rectangle, square, trapezoid, isosceles trapezoid, and kite. Compare and contrast the properties of a parallelogram, rhombus, rectangle, square, trapezoid, isosceles trapezoid and kite in problem solving situations.
The process for constructing special quadrilaterals. Use distance, slope and midpoint formulas to prove a quadrilateral is a special quadrilateral on the coordinate plane.

<table>
<thead>
<tr>
<th>SUGGESTED TIME ALLOTMENT</th>
<th>CONTENT-UNIT OF STUDY</th>
<th>SUPPLEMENTAL UNIT RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 days</td>
<td>Unit V - Determine Properties of Polygons with a Focus on Quadrilaterals</td>
<td>INCLUDE ALL RESOURCES, PRINT AND ONLINE</td>
</tr>
<tr>
<td></td>
<td>o Interior and Exterior Angles of Polygons</td>
<td>• Compass</td>
</tr>
<tr>
<td></td>
<td>o Properties of Quadrilaterals</td>
<td>• Straight edge</td>
</tr>
<tr>
<td></td>
<td>o Coordinate Proofs</td>
<td>• Graph paper</td>
</tr>
<tr>
<td></td>
<td>o Constructions of Polygons</td>
<td>• Calculator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Quadrilateral Story Books</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Handouts and other materials are modified from resources found in Appendix A</td>
</tr>
</tbody>
</table>
### Enduring Understandings

<table>
<thead>
<tr>
<th>Polygons are similar if and only if corresponding angles are congruent and corresponding sides are proportional.</th>
<th>How might the features of one figure be useful when solving problems about a similar figure?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visualization can help you see the relationships between two figures and help you connect the properties of real objects with two-dimensional drawings of these objects.</td>
<td>How does similarity in mathematics compare to similarity in everyday life?</td>
</tr>
<tr>
<td>Geometric figures can change size and/or position while maintaining proportional attributes.</td>
<td>How does an understanding of transformations lead to a better understanding of similarity?</td>
</tr>
</tbody>
</table>

### Knowledge

Students will know:

- Terms: ratio, proportion, means, extremes, scale factor, dilation, similar polygons.
- Criteria for triangle similarity: AA, SSS, SAS.
- Corresponding sides of similar triangles are proportional and corresponding angles are congruent.
- Theorems involving similarity:
  - If a line is parallel to one side of a triangle and intersects the other two sides, then it divides those two sides proportionally.
  - If a ray bisects an angle of a triangle, then it divides the opposite side into segments that are proportional to the adjacent sides.

### Skills

Students will be able to:

- Identify similar polygons and use ratios and proportions to solve problems.
- Label the means and extremes of a proportion.
- Determine the scale factor of dilations.
- Prove triangles similar.
- Determine side lengths of similar triangles using proportions, and find corresponding angle measures.
- (H) Use the concept of similarity to establish the congruence of angles and proportionality of segments in proofs.
- Apply theorems in problem solving situations making use of algebraic concepts.

### CC/NJCCCS/SMP

- HSG-SRT.A.1
- HSG-SRT.A.2
- HSG-SRT.A.3
- HSG-SRT.B.4
- HSG-SRT.B.5
- HSG-CO.A.1
- HSG-CO.C.10
- HSG-GPE.6
- SMP.1
- SMP2
- SMP.3
- SMP.6
- SMP.7
- SMP.8
- Literacy.RST.9-10.4
- Literacy.RST.9-10.7
Angle measure is preserved and side lengths are proportional in a dilation. The ratio of the area of similar figures.

Preform a composition of rigid motions including a dilation to create a similar figure. Relate the scale factor of similar figures to find the ratios of perimeter and area.

<table>
<thead>
<tr>
<th>SUGGESTED TIME ALLOTMENT</th>
<th>CONTENT-UNIT OF STUDY</th>
<th>SUPPLEMENTAL UNIT RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 days</td>
<td>Unit VI - Relationships of Similar Figures</td>
<td>INCLUDE ALL RESOURCES, PRINT AND ONLINE</td>
</tr>
<tr>
<td></td>
<td>o Ratios, proportions, and scale factor</td>
<td>• Helpful websites:</td>
</tr>
<tr>
<td></td>
<td>o Proving triangles similar</td>
<td><a href="http://www.nctm.org/standards/content.aspx?id=26770">http://www.nctm.org/standards/content.aspx?id=26770</a></td>
</tr>
<tr>
<td></td>
<td>o Similarity Theorems to solve problems</td>
<td><a href="http://www.math.com/school/subject1/lessons/S1U2L4GL.html">http://www.math.com/school/subject1/lessons/S1U2L4GL.html</a></td>
</tr>
<tr>
<td></td>
<td>o Dilation</td>
<td><a href="http://www.curriki.org/xwiki/bin/view/Coll_MathMastery/IntroductiontoSimilarFigures">http://www.curriki.org/xwiki/bin/view/Coll_MathMastery/IntroductiontoSimilarFigures</a></td>
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<td><a href="http://illuminations.nctm.org/LessonDetail.aspx?ID=L442">http://illuminations.nctm.org/LessonDetail.aspx?ID=L442</a></td>
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<td></td>
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<td><a href="http://www.misterteacher.com/alphabetgeometry/similar.html">http://www.misterteacher.com/alphabetgeometry/similar.html</a></td>
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<td><a href="http://www.mathsteacher.com.au/year10/ch06_geometry/05_similar/figures.htm">http://www.mathsteacher.com.au/year10/ch06_geometry/05_similar/figures.htm</a></td>
</tr>
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<td><a href="http://www.harcourtschool.com/activity/similar_congruent/">http://www.harcourtschool.com/activity/similar_congruent/</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://mathvillage.info/node/94">http://mathvillage.info/node/94</a></td>
</tr>
<tr>
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<td></td>
<td>• Scale Drawings Project</td>
</tr>
<tr>
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<td></td>
<td>• Calculator</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Graph Paper</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Handouts and other materials are modified from resources found in Appendix A.</td>
</tr>
</tbody>
</table>
## ENDURING UNDERSTANDINGS

Dilations, similarity and the properties of similar triangles allow for the application of trigonometric ratios to real world situations.

Trigonometry offers ways to interpret and reflect on our physical environment.

The Pythagorean Theorem establishes an essential relationship between the sides of a right triangle.

## ESSENTIAL QUESTIONS

- How does our understanding of similarity better our understanding of trigonometry?
- Why do we use mathematics to model real world situations?
- Why is the Pythagorean Theorem one of the most used theorems in mathematics?

## KNOWLEDGE

**Students will know:**

Terms: angle of elevation and angle of depression.

The concept of geometric mean and relationships between the parts of a right triangle when an altitude is drawn to the hypotenuse.

The ratios of the sides of special right triangles.

Pythagorean Theorem and Pythagorean Triples.

The trigonometric ratios; sine, cosine, and tangent and their inverses.

## SKILLS

**Students will be able to:**

Illustrate real world problems with a right triangle involving an angle of depression/elevation.

Use the geometric mean to find the missing sides of similar right triangles.

Derive the ratios of special right triangles and use the relationships to efficiently find the missing sides.

Prove the Pythagorean Theorem using triangle similarity.

Classify a triangle using the Pythagorean Theorem.

Determine the length of a missing side of a right triangle, given the other two sides.

Make use of the basic trigonometric ratios to solve right triangles in real world problems.

## CC/NJCCCS/SMP

- HSG-SRT.B.4
- HSG-SRT.B.5
- HSG-SRT.C.6
- HSG-SRT.C.7
- HSG-SRT.C.8
- HSG-GPE.6
- HSG-MG.A.1
- (H & A) HSG-SRT.9
- (H & A) HSG-SRT.D.10
- (H & A) HSG-SRT.D.11
- SMP.1
- SMP.2
- SMP.3
- SMP.4
- SMP.7
- Literacy.RST.9-10.2
- Literacy.RST.9-10.3
(H & A) Area formula $\frac{1}{2} \text{absinC}$, Law of Sines, and Law of Cosines.

Use special right triangles and trigonometry to calculate the length of an apothem in a regular polygon and find the area.

(H & A) Apply trigonometric formulas to solve real world problems.

<table>
<thead>
<tr>
<th>SUGGESTED TIME ALLOTMENT</th>
<th>CONTENT-UNIT OF STUDY</th>
<th>SUPPLEMENTAL UNIT RESOURCES</th>
</tr>
</thead>
</table>
| 19 days                  | Unit VII - Examine Similarity in Right Triangles  
  o Geometric Mean and Similar Right Triangles  
  o Special Right Triangles  
  o Pythagorean Theorem  
  o Trigonometric Ratios  
  o Modeling Real World Problems | INCLUDE ALL RESOURCES, PRINT AND ONLINE  
  - Helpful websites:  
    http://www.khanacademy.org/math/geometry/right_triangles_topic  
    http://www.onlinemathlearning.com/special-right-triangles.html  
    http://www.mathwarehouse.com/geometry/similar/triangles/interactive_similar_right_triangles.html  
    http://www.mathwarehouse.com/geometry/similar/triangles/geometric-mean.php  
    http://www.mathsisfun.com/geometry/triangles-interactive.html  
  - Rocket Lab with Earth Science  
  - Bridge Across the Pond Lab  
  - Application of Trigonometry Worksheets  
  - Calculator  
  - Handouts and other materials are modified from resources found in Appendix A. |
## UNIT VIII: Circles

### ENDURING UNDERSTANDINGS

| The properties of circles make them advantageous in certain situations to measure segments and angles, and represent percentages. | The properties of polygons, lines and angles can be used to understand circles. | The equation of a circle is derived from the Pythagorean Theorem. |

### ESSENTIAL QUESTIONS

- What role do circles play in modeling the word around us?
- How do the properties of polygons, lines and angles contribute to the geometric understanding of circles?
- How is the Pythagorean Theorem related to circles?

### KNOWLEDGE

**Students will know:**

Terms: radius, diameter, chord, tangent, secant, intercepted arc, major arc, minor arc, semicircle, concentric circles, inscribed angle, central angle, chord-chord angle, tangent-chord angle, tangent-tangent angle, secant-secant angle, secant-tangent angle, point of tangency, sector, circumference, arc length, circumscribed polygon, inscribed polygon and common tangents.

### SKILLS

**Students will be able to:**

- Identify, name and represent (using proper notation) radius, diameter, chord, tangent, secant, intercepted arc, major arc, minor arc and semicircle.
- Differentiate between all the angles that are formed by segments intersecting circle such as: inscribed angle, central angle, chord-chord angle, tangent-chord angle, tangent-tangent angle, secant-secant angle, and secant-tangent angle.
- Analyze the similarities of concentric circles.
- Compare and contrast the properties that develop when a polygon is inscribed in a circle or circumscribed about a circle.
- Use circumference and the central angle of a sector to derive the formula for arc length.
- Identify common tangents and use them to solve problems.
- Apply circle theorems in problem solving situations making use of algebra skills.

### CC/NJCCCS/SMP

- HSG-C.1
- HSG-C.A.2
- HSG-C.A.3
- (H & A) HSG-C.A.4
- HSG-C.B.5
- HSG-GPE.A.1
- HSG-GPE.B.4
- HSG-MG.A.1
- HSG-GMD.A.1
- SMP.1
- SMP.3
- SMP.4
- SMP.5
- SMP.6
- SMP.7
- Literacy.RST.9-10.4
- Literacy.RST.9-10.7
Two chords are congruent if and only if they are equidistant from the center of a circle.

Congruent chords if and only if congruent arcs if and only if congruent central angles.

A tangent line is perpendicular to a radius at the point of tangency.

Two tangents drawn from the same circle to the same exterior point are congruent.

The measure of an inscribed angle or a tangent-chord angle is one-half the measure of its intercepted arc.

The measure of a chord-chord angle is one-half the sum of the measures of the arcs intercepted by the chord-chord angle and its vertical angle.

The measure of a secant-secant angle, a secant-tangent angle, or a tangent-tangent angle is one-half the difference of the measures of the intercepted arcs.

If two inscribed or tangent-chord angles intercept the same arc, then they are congruent.

If two inscribed or tangent-chord angles intercept congruent arcs, then they are congruent.

An angle inscribed in a semicircle is a right angle.

If a quadrilateral is inscribed in a circle then its opposite angles are supplementary.

If two chords of a circle intersect inside a circle, then the product of the measures of the segments of one chord is equal to the product of the measures of the segments of the other chords.

If a tangent segment and a secant segment are drawn from an external point to a circle, then the square of the measure of a tangent segment is equal to the product of the measures of the entire secant segment and its external part.

If two secant segments are drawn from an external point to a circle, then the product of the measures of one secant segment and its external is equal to the product of the measures of the other secant segment and its external part.

(H) The sum of the measures of a tangent-tangent angle and its minor arc is 180.

(H) If a parallelogram is inscribed in a circle, then it must be a rectangle.

The formula for the length of an arc of a circle.

Use triangle similarity to derive the formulas for finding segment lengths.

Make use of circle theorems to find the lengths of segments, measure of arcs, and the measures of angles.

Solve real world problems using the properties of circles.

(H) Recognize the opportunity and incorporate theorems appropriately in a logical proof.

Calculate the length of an arc using the central angle and radius of
<table>
<thead>
<tr>
<th>The equation of a circle and graph on the coordinate plane.</th>
<th>Use the Pythagorean Theorem and the distance formula to derive the equation of a circle.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of a circle and a sector.</td>
<td>Find the center and radius of a circle by completing the square.</td>
</tr>
<tr>
<td>(H) Area of circular segments.</td>
<td>Graph a circle given specific coordinate information.</td>
</tr>
<tr>
<td>Pie charts use circles and their sectors to visually illustrate information.</td>
<td>Derive the area formulas and apply them in various situations.</td>
</tr>
<tr>
<td>Process for constructing a tangent line to a circle from a point outside the circle.</td>
<td>(H) Solve area problems involving circular segments.</td>
</tr>
<tr>
<td>(H) The position of common internal and external tangents.</td>
<td>Create pie charts to display statistical data.</td>
</tr>
<tr>
<td></td>
<td>Construct a tangent line to a circle from a point outside the circle.</td>
</tr>
<tr>
<td></td>
<td>(H) Illustrate a problem involving two circles and a common tangent and use right triangles to find the measure of that tangent.</td>
</tr>
</tbody>
</table>

**RANDOLPH TOWNSHIP SCHOOL DISTRICT**  
**Curriculum Pacing Chart**  
**Geometry Honors, Geometry A, and Geometry B**

<table>
<thead>
<tr>
<th>SUGGESTED TIME ALLOTMENT</th>
<th>CONTENT-UNIT OF STUDY</th>
<th>SUPPLEMENTAL UNIT RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 days</td>
<td><strong>Unit VIII - Circles</strong></td>
<td>INCLUDE ALL RESOURCES, PRINT AND ONLINE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Helpful websites:</td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://www.khanacademy.org/math/geometry/circles">http://www.khanacademy.org/math/geometry/circles</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://www.mathwarehouse.com/geometry/circle/index.php">http://www.mathwarehouse.com/geometry/circle/index.php</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://www.coolmath.com/reference/circles-geometry.html">http://www.coolmath.com/reference/circles-geometry.html</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="http://njbiblio.com/2013/01/30/circles-are-awesome-interactive-geometry/">http://njbiblio.com/2013/01/30/circles-are-awesome-interactive-geometry/</a></td>
</tr>
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<td>to find their measure</td>
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<tr>
<td>-----------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Inscribed and circumscribed polygons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Equations of circles and graphing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Construction of tangent to a circle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

http://www.mathgoodies.com/lessons/vol2/geometry.html
http://illuminations.nctm.org/ActivityDetail.aspx?ID=116
http://www.kutasoftware.com/freeige.html
http://www.bbc.co.uk/schools/gcsebitesize/maths/geometry/

- Circles Packet
- Calculator
- Handouts and other materials are modified from resources found in Appendix A
<table>
<thead>
<tr>
<th><strong>ENDURING UNDERSTANDINGS</strong></th>
<th><strong>ESSENTIAL QUESTIONS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-dimensional figures can be “stacked” to create three-dimensional solids and generate volume and surface area formulas.</td>
<td>• How can decomposing and recomposing solids help us build our understanding of surface area and volume?</td>
</tr>
<tr>
<td>Geometry and spatial sense offer ways to interpret and reflect on our physical environment.</td>
<td>• What role do surface area and volume play in modeling the world around us?</td>
</tr>
<tr>
<td>Every solid has a surface area and volume.</td>
<td>• How do the dimensions of a geometric solid affect its surface area and volume?</td>
</tr>
<tr>
<td>Calculating the area and perimeter of objects is fundamental to the study of geometry and the world around us.</td>
<td>• What role do area and perimeter play in modeling the world around us?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>KNOWLEDGE</strong></th>
<th><strong>SKILLS</strong></th>
<th><strong>CC/NJCCCS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students will know:</strong></td>
<td><strong>Students will be able to:</strong></td>
<td></td>
</tr>
<tr>
<td>Terms: prism, cylinder, pyramid, cone, slant height, sphere, polyhedron, face, edge, vertex, volume, surface area, lateral area, net, oblique prism, hemisphere, cross section. (H &amp; A) Frustum. (H) Tetrahedron, octahedron.</td>
<td>Classify prisms, cylinders, pyramids, cones, spheres, hemispheres, polyhedrons and oblique prisms according to their properties including the number of faces, edges and vertices. Use nets and cross-sections to analyze three-dimensional figures. Differentiate between the height and slant height of a solid and apply them to appropriately in formulas. (H &amp; A) Identify a frustum. (H) Identify a tetrahedron and octahedron. Make use of area to analyze the likelihood of an outcome. Apply area to model real world situation i.e. population per square mile.</td>
<td>HSG-MG.A.1 HSG-MG.A.2 HSG-GMD.A.1 HSG-GMD.A.3 HSG-GMD.B.4 HSG-GPE.B.7 SMP.1 SMP.3 SMP.4 SMP.5 SMP.7 Literacy.RST.9-10.3 Literacy.RST.9-10.4 Literacy.RST.9-10.7</td>
</tr>
</tbody>
</table>
| Area and volume formulas for:  
| Prism, cylinder, pyramid, cone, sphere.  
| (H & A) hemisphere, frustum.  
| (H) Tetrahedron, octahedron.  
| The shapes of cross-sections of three-dimensional objects.  
| The three-dimensional object formed by the rotation of a two-dimensional figure.  
| A measure of density is a quantity per unit volume.  
| (H & A) A median of a triangle divides the triangle into two triangles of equal area.  
| (H) Area of equilateral triangle, Heron’s and Brahmagupta’s formulas.  
| (H & A) Volume and surface area of irregular figures.  
| (H) In a pyramid or a cone, the ratio of the area of a cross section to the area of the base equals the square of the ratio of the figures’ respective distances from the vertex.  
| Derive the formulas for surface area and volume of all solids (except sphere).  
| Find all the dimensions to appropriately apply surface area and volume formulas.  
| (H & A) Derive the formulas for surface area and volume of hemisphere and frustum.  
| (H) Derive the formulas for surface area and volume of tetrahedron and octahedron.  
| Predict the figure formed by the cross-section of a three-dimensional solid.  
| Classify the three-dimensional solid that is formed when a two-dimensional figure is rotated about an axis of rotation.  
| (H) Calculate the volume and surface area of the three-dimensional solid formed when the two-dimensional figure is rotated about an axis of rotation.  
| Apply volume to model situations i.e. British Thermal Units.  
| (H & A) Calculate and compare the areas of triangles created by a median of a triangle to that of the original triangle.  
| (H) Derive the formula for the area of an equilateral triangle using the ratios of special right triangles.  
| (H) Apply Heron’s and Brahmagupta’s formulas to find the area of triangles and cyclic quadrilaterals.  
| (H & A) Decompose complex solids into component polygons to determine their volume and surface area.  
| (H) Solve problems involving the cross sections of pyramids and cones.  
| 30 |
(H) Cavalieri’s Principle.
(H) Displacement of volume.
(H) Understand the relationship of volume between solids with cross sections of equal area at every level, and equal height.
(H) Tackle real world problems that require an understanding of the displacement of liquid in a solid as additional solids are added.

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**RANDOLPH TOWNSHIP SCHOOL DISTRICT**  
Curriculum Pacing Chart  
Geometry Honors, Geometry A, and Geometry B

<table>
<thead>
<tr>
<th>SUGGESTED TIME ALLOTMENT</th>
<th>CONTENT-UNIT OF STUDY</th>
<th>SUPPLEMENTAL UNIT RESOURCES</th>
</tr>
</thead>
</table>
| 13 days                  | **Unit X - Explore and Analyze Measurements in Two & Three Dimensional Figures**  
  o Surface area and volume formulas  
  o Composition of solids  
  o Density  
  o Geometry Probability  
  o Composition of Areas | INCLUDE ALL RESOURCES, PRINT AND ONLINE  
  - Helpful websites:  
    http://www.shodor.org/interactivate/activities/SurfaceAreaAndVolume/  
    http://www.khanacademy.org/math/geometry/basic-geometry/volume_tutorial/v/solid-geometry-volume  
    http://www.scholarnet.co.nz/member/courses/smol/data/site/flash_apps/Measurement.php  
    http://www.mathvillage.info/node/113  
    http://www.onlinemathlearning.com/volume-games.html  
    http://coursesweb.net/javascript/volume-surface-area-calculator-3d-objects_s2  
    http://www.shmoop.com/surface-area-volume/resources.html  
    http://www.meracalculator.com/area/pyramid.php  
    http://highered.mcgraw-hill.com/sites/007092242x/student_view0/get_ready_for_grade_912/surface_area_and_volume_quiz.html |
http://www.dummies.com/how-to/content/how-to-find-the-volume-and-surface-area-of-gabriel.html

- Plastic Solids
- Castle Problem
- Funky Area Problems
- Pattern Blocks
- Polygon Probability
- Calculator
- Handouts and other materials are modified from resources found in Appendix A

RANDOLPH TOWNSHIP SCHOOL DISTRICT
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Appendix A

Textbooks:
    Resource materials that include practice worksheets
    Classzone.com online textbook with lessons and practice work
    Resource materials that include practice worksheets
    Classzone.com online textbook with lessons and practice work

DVD: Standard Deviants, Geometry
DVD: Flatland

Glencoe, Geometry Practice Masters
Geometry, Isidore Dressler, Amsco 1973
Discovery Geometry An Inductive Approach, Michael Serra, Key Curriculum Press 1997

(Honors)
The Art of Problem Solving Introduction to Geometry, Richard Rusczyk, AoPS Incorporated 2009
Geometry A Contemporary Course, Harry Lewis, D. Van Nostrand Company, Inc. 1968

Useful Website:
http://khanacademy.org
http://youtube.com
http://wolframalpha.com
http://kutasoftware.com
http://www.achievementthecore.org/
http://www.ccsso.org/Documents/2012/Common_Core_Resources.pdf
http://www.ccsstoolbox.org/standards_content_mathematics.html
http://ccsstoolbox.agilemind.com/index_static.html
http://commoncoretools.me/
http://www.corestandards.org/
http://home.edweb.net/
https://edseminars.apple.com/itunesu_webcast_series/
http://www.edutopia.org/
http://free.ed.gov/
http://husainvisualmath.com/
http://www.illustrativemathematics.org/
http://insidemathematics.org/
http://learnzillion.com/
http://www.masteryconnect.com/
http://mathforum.org/
http://mathfour.com/
http://www.mathgoodies.com/
http://mathleadership.org/
http://www.mhecommoncoretoolbox.com/
http://www.nctm.org/
http://nextnavigator.com/
http://parcconline.org/
https://sites.google.com/site/ccpsmathcurriculum/home
http://www.smarterbalanced.org/
http://www.state.nj.us/education/
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APPENDIX B

ASSESSMENT:

- Quiz
- Test
- Individual Projects
- Group Projects
- Homework
- Online Resources
An extension topic for Geometry Honors can do the unit Lines and Planes in Space.
APPENDIX D

It is assumed that the student has successfully completed Algebra I or the equivalent.
APPENDIX E

Lesson plans to follow as curriculum is implemented.