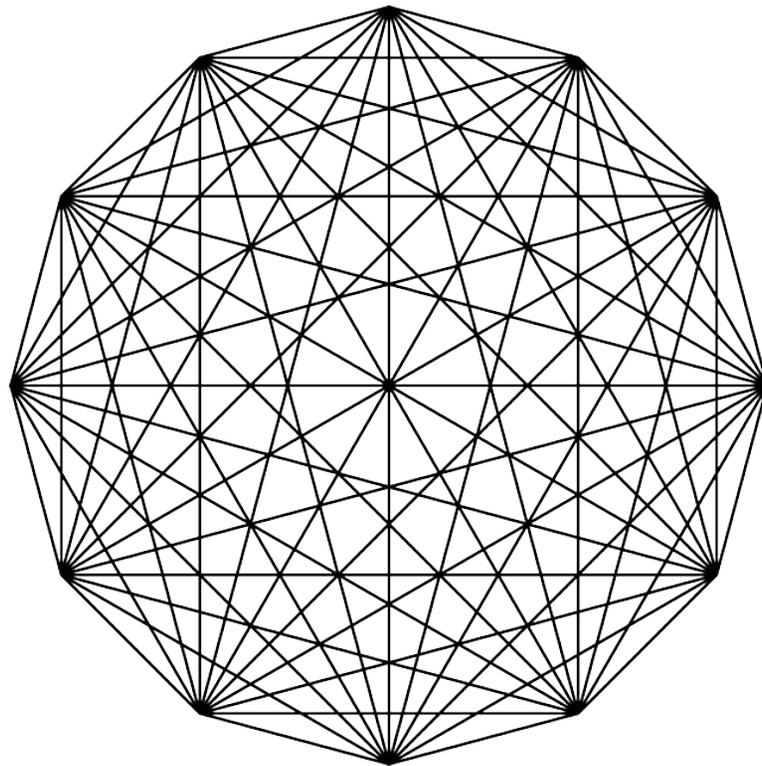


# Geometry

## Pacing Guide



Kate Collins Middle School  
2019-2020

Geometry Pacing Guide 2019 – 2020...First Nine Weeks

| Unit   | Glencoe | Description                  | Notes            | SOL  |             |
|--|---------|------------------------------|------------------|--|-------------|
| Points, Lines, Planes, and Angles<br>8/12 – 8/23 | 1.1     | Points, Lines, and Planes    |                  | <p><b>G.3</b> The student will use pictorial representations, including computer software, constructions, and coordinate methods, to solve problems involving symmetry and transformation. This will include</p> <ul style="list-style-type: none"> <li>a) investigating and using formulas for finding distance, midpoint, and slope;</li> <li>b) applying slope to verify and determine whether lines are parallel or perpendicular;</li> <li>c) investigating symmetry and determining whether a figure is symmetric with respect to a line or a point; and</li> <li>d) determining whether a figure has been translated, reflected, rotated, or dilated, using coordinate methods.                             <ul style="list-style-type: none"> <li>i. Find the coordinate of the midpoint of a segment, using the midpoint formula.</li> <li>ii. Use a formula to find the slope of a line.</li> <li>iii. Compare the slopes to determine whether two lines are parallel, perpendicular, or neither.</li> <li>iv. Determine whether a figure has point symmetry, line symmetry, both, or neither.</li> <li>v. Given an image and preimage, identify the transformation that has taken place as a reflection, rotation, dilation, or translation.</li> <li>vi. Apply the distance formula to find the length of a line segment when given the coordinates of the endpoints.</li> </ul> </li> </ul> <p><b>G.2</b> The student will use the relationships between angles formed by two lines cut by a transversal to</p> <ul style="list-style-type: none"> <li>a) determine if two lines are parallel;</li> <li>b) verify the parallelism, using algebraic and coordinate methods as well as deductive proofs; and</li> <li>c) solve real-world problems involving angles formed when parallel lines are cut by a transversal.                             <ul style="list-style-type: none"> <li>i. Use algebraic and coordinate methods as well as deductive proofs to verify whether two lines are parallel.</li> <li>ii. Solve problems by using the relationships between pairs of angles formed by the intersection of two parallel lines and a transversal including corresponding angles, alternate interior angles, alternate exterior angles, and same-side (consecutive) interior angles.</li> <li>iii. Solve real-world problems involving intersecting and parallel lines in a plane.</li> </ul> </li> </ul> |             |
|  | 1.2     | Linear Measure and Precision | Segment addition |  | G.4         |
|  | 1.3     | Distance and Midpoint        |                  |  | G.3,<br>G.4 |
|  | 1.4     | Angle Measure                |                  |  | G.4         |
|  | 1.5     | Angle Relationships          |                  |  | G.2         |

|  |     |          |        |   |
|--|-----|----------|--------|---|
|  | 1.6 | Polygons | review | <p><b>G.4 The student will construct and justify the constructions of</b></p> <ul style="list-style-type: none"><li><b>a) a line segment congruent to a given line segment;</b></li><li><b>b) the perpendicular bisector of a line segment;</b></li><li><b>c) a perpendicular to a given line from a point not on the line;</b></li><li><b>d) a perpendicular to a given line at a given point on the line;</b></li><li><b>e) the bisector of a given angle;</b></li><li><b>f) an angle congruent to a given angle; and</b></li><li><b>g) a line parallel to a given line through a point not on the given line.</b></li></ul> <ul style="list-style-type: none"><li>• <i>Construct and justify the constructions of</i><ul style="list-style-type: none"><li>– <i>a line segment congruent to a given line segment;</i></li><li>– <i>the perpendicular bisector of a line segment;</i></li><li>– <i>a perpendicular to a given line from a point not on the line;</i></li><li>– <i>a perpendicular to a given line at a point on the line;</i></li><li>– <i>the bisector of a given angle;</i></li><li>– <i>an angle congruent to a given angle; and</i></li><li>– <i>a line parallel to a given line through a point not on the given line.</i></li></ul></li></ul> |
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**Geometry Pacing Guide 2019 – 2020...First Nine Weeks (continued)**

| Unit                                       | Glencoe | Description                        | Notes                         | SOL |
|--|---------|------------------------------------|-------------------------------|-----|
| <b>Reasoning and Proof<br/>8/26 – 9/13</b> | 2-1     | Inductive Reasoning and Conjecture |                               | G.1 |
|  | 2-2     | Logic                              | Truth tables optional         | G.1 |
|  | 2-3     | Conditional Statements             | Truth tables optional         | G.1 |
|  | 2-4     | Deductive Reasoning                |                               | G.1 |
|  | 2-5     | Postulates and Paragraph Proof     | Stress algebraic applications | G.1 |
|  | 2-6     | Algebraic Proof                    | Stress algebraic applications | G.1 |
|  | 2-7     | Proving Segment Relationships      | Stress algebraic applications | G.1 |
|  | 2-8     | Proving Angle Relationships        | Stress algebraic applications | G.2 |

**G.1 The student will construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include**

- a) identifying the converse, inverse, and contrapositive of a conditional statement;
- b) translating a short verbal argument into symbolic form;
- c) using Venn diagrams to represent set relationships; and
- d) using deductive reasoning.
  - i. Identify the converse, inverse, and contrapositive of a conditional statement.
  - ii. Translate verbal arguments into symbolic form, such as  $(p \rightarrow q)$  and  $(\sim p \rightarrow \sim q)$ .
  - iii. Determine the validity of a logical argument.
  - iv. Use valid forms of deductive reasoning, including the law of syllogism, the law of the contrapositive, the law of detachment, and counterexamples.
  - v. Select and use various types of reasoning and methods of proof, as appropriate.
  - vi. Use Venn diagrams to represent set relationships, such as intersection and union.
  - vii. Interpret Venn diagrams.
  - viii. Recognize and use the symbols of formal logic, which include  $\rightarrow$ ,  $\leftrightarrow$ ,  $\sim$ ,  $\therefore$ ,  $\wedge$ , and  $\vee$ .

**G.2 The student will use the relationships between angles formed by two lines cut by a transversal to**

- a) determine if two lines are parallel;
- b) verify the parallelism, using algebraic and coordinate methods as well as deductive proofs; and
- c) solve real-world problems involving angles formed when parallel lines are cut by a transversal.
  - i. Use algebraic and coordinate methods as well as deductive proofs to verify whether two lines are parallel.
  - ii. Solve problems by using the relationships between pairs of angles formed by the intersection of two parallel lines and a transversal including corresponding angles, alternate interior angles, alternate exterior angles, and same-side (consecutive) interior angles.
  - iii. Solve real-world problems involving intersecting and parallel lines in a plane.

**Geometry Pacing Guide 2019 – 2020...First Nine Weeks (continued)**

| Unit   | Glencoe | Description                     | Notes | SOL         |
|--|---------|---------------------------------|-------|-------------|
| <b>Parallel and Perpendicular Lines</b><br>9/16 – 9/27 | 3-1     | Parallel Lines and Transversals |       | G.2         |
|  | 3-2     | Angles and Parallel Lines       |       | G.2         |
|  | 3-3     | Slopes of Lines                 |       | G.3         |
|  | 3-4     | Equations of Lines              |       | G.3         |
|  | 3-5     | Proving Lines Parallel          |       | G.2         |
|  | 3-6     | Perpendiculars and Distance     |       | G.3,<br>G.4 |

**G.3 The student will use pictorial representations, including computer software, constructions, and coordinate methods, to solve problems involving symmetry and transformation. This will include**

- a) investigating and using formulas for finding distance, midpoint, and slope;**
- b) applying slope to verify and determine whether lines are parallel or perpendicular;**
- c) investigating symmetry and determining whether a figure is symmetric with respect to a line or a point; and**
- d) determining whether a figure has been translated, reflected, rotated, or dilated, using coordinate methods.**
  - i. *Find the coordinate of the midpoint of a segment, using the midpoint formula.*
  - ii. *Use a formula to find the slope of a line.*
  - iii. *Compare the slopes to determine whether two lines are parallel, perpendicular, or neither.*
  - iv. *Determine whether a figure has point symmetry, line symmetry, both, or neither.*
  - v. *Given an image and preimage, identify the transformation that has taken place as a reflection, rotation, dilation, or translation.*
  - vi. *Apply the distance formula to find the length of a line segment when given the coordinates of the endpoints.*

**G.2 The student will use the relationships between angles formed by two lines cut by a transversal to**

- a) determine if two lines are parallel;**
- b) verify the parallelism, using algebraic and coordinate methods as well as deductive proofs; and**
- c) solve real-world problems involving angles formed when parallel lines are cut by a transversal.**
  - i. *Use algebraic and coordinate methods as well as deductive proofs to verify whether two lines are parallel.*
  - ii. *Solve problems by using the relationships between pairs of angles formed by the intersection of two parallel lines and a transversal including corresponding angles, alternate interior angles, alternate exterior angles, and same-side (consecutive) interior angles.*
  - iii. *Solve real-world problems involving intersecting and parallel lines in a plane.*

| Unit  | Glencoe | Description | Notes | SOL  |
|---|---------|-------------|-------|--|
| <b>Parallel and Perpendicular Lines<br/>(continued)</b> |         |             |       | <p><b>G.4</b> The student will construct and justify the constructions of</p> <ul style="list-style-type: none"> <li>a) a line segment congruent to a given line segment;</li> <li>b) the perpendicular bisector of a line segment;</li> <li>c) a perpendicular to a given line from a point not on the line;</li> <li>d) a perpendicular to a given line at a given point on the line;</li> <li>e) the bisector of a given angle;</li> <li>f) an angle congruent to a given angle; and</li> <li>g) a line parallel to a given line through a point not on the given line.</li> </ul> <ul style="list-style-type: none"> <li>• Construct and justify the constructions of <ul style="list-style-type: none"> <li>– a line segment congruent to a given line segment;</li> <li>– the perpendicular bisector of a line segment;</li> <li>– a perpendicular to a given line from a point not on the line;</li> <li>– a perpendicular to a given line at a point on the line;</li> <li>– the bisector of a given angle;</li> <li>– an angle congruent to a given angle; and</li> <li>– a line parallel to a given line through a point not on the given line.</li> </ul> </li> </ul> |

**Geometry Pacing Guide 2019 – 2020...First Nine Weeks (continued)**

| Unit  | Glencoe | Description | Notes | SOL          |
|---|---------|-------------|-------|--------------|
| <b>Parallel and Perpendicular Lines<br/>9/30 – 10/4</b> |         | Review      |       |              |
|   |         | And         |       |              |
|   |         | Benchmark   |       | Chapters 1-3 |
|   |         |             |       |              |
|   |         |             |       |              |
|   |         |             |       |              |

**Geometry Pacing Guide 2019 – 2020...Second Nine Weeks**

| <b>Unit</b>                                 | <b>Glencoe</b> | <b>Description</b>             | <b>Notes</b> | <b>SOL</b>  |
|---|----------------|--------------------------------|--------------|-------------|
| <b>Congruent Triangles<br/>10/7 – 10/25</b> | 4-1            | Classifying Triangles          |              | G.6         |
|   | 4-2            | Angles of Triangles            |              | G.6         |
|   | 4-3            | Congruent Triangles            |              | G.6         |
|   | 4-4            | Proving Congruence – SSS, SAS  |              | G.3a<br>G.6 |
|   | 4-5            | Proving Congruence – ASA, AAS  |              | G.6         |
|   | 4-6            | Isosceles Triangles            |              | G.3a<br>G.6 |
|   | 4-7            | Triangles and Coordinate Proof |              | G.6         |

**G.6 The student, given information in the form of a figure or statement, will prove two triangles are congruent, using algebraic and coordinate methods as well as deductive proofs.**

- i. *Use definitions, postulates, and theorems to prove triangles congruent.*
- ii. *Use coordinate methods, such as the distance formula and the slope formula, to prove two triangles are congruent.*
- iii. *Use algebraic methods to prove two triangles are congruent.*

**G.3 The student will use pictorial representations, including computer software, constructions, and coordinate methods, to solve problems involving symmetry and transformation. This will include**

- a) **investigating and using formulas for finding distance, midpoint, and slope**
  - i. *Find the coordinates of the midpoint of a segment, using the midpoint formula.*
  - vi. *Apply the distance formula to find the length of a line segment when given the coordinates of the endpoints.*

**Geometry Pacing Guide 2019 – 2020...Second Nine Weeks (continued)**

| <b>Unit</b>  | <b>Glencoe</b> | <b>Description</b>                   | <b>Notes</b>                                       | <b>SOL</b> |
|--|----------------|--------------------------------------|--|------------|
| <b>Relationships in Triangles<br/>10/28– 11/15</b> | 5-1            | Bisectors, Medians, and Altitudes    | Optional: circumcenter, incenter, and orthocenter. | G.4, G.5   |
|  | 5-2            | Inequalities and Triangles           |  | G.5        |
|  | 5-3            | Indirect Proof                       | Optional   | G.5        |
|  | 5-4            | The Triangle Inequality              |  | G.5        |
|  | 5-5            | Inequalities Involving Two Triangles | Optional   | G.5        |

**G.5 The student, given information concerning the lengths of sides and/or measures of angles in triangles, will**

- a) order the sides by length, given the angle measures;
- b) order the angles by degree measure, given the side lengths;
- c) determine whether a triangle exists; and
- d) determine the range in which the length of the third side must lie.

**These concepts will be considered in the context of practical situations.**

- i. Order the sides of a triangle by their lengths when given the measures of the angles.
- ii. Order the angles of a triangle by their measures when given the lengths of the sides.
- iii. Given the lengths of three segments, determine whether a triangle could be formed.
- iv. Given the lengths of two sides of a triangle, determine the range in which the length of the third side must lie.
- v. Solve real-world problems given information about the lengths of sides and/or measures of angles in triangles.

**G. 4 The student will construct and justify the constructions of**

- a) a line segment congruent to a given line segment;
- b) the perpendicular bisector of a line segment;
- c) a perpendicular to a given line from a point not on the line;
- d) a perpendicular to a given line at a given point on the line;
- e) the bisector of a given angle;
- f) an angle congruent to a given angle; and
- g) a line parallel to a given line through a point not on the given line.

- i. *Construct and justify the constructions of*
  - a line segment congruent to a given line segment;
  - the perpendicular bisector of a line segment;
  - a perpendicular to a given line from a point not on the line;
  - a perpendicular to a given line at a point on the line;
  - the bisector of a given angle;
  - an angle congruent to a given angle; and
  - a line parallel to a given line through a point not on the given line.

**Geometry Pacing Guide 2019 – 2020...Second Nine Weeks (continued)**

| Unit  | Glencoe | Description                           | Notes    | SOL            |
|---|---------|---------------------------------------|----------|----------------|
| <b>Proportions and Similarity<br/>11/18– 12/6</b> | 6-1     | Proportions                           |          | G.14           |
|   | 6-2     | Similar Polygons                      |          | G.14           |
|   | 6-3     | Similar Triangles                     |          | G.7, G.14      |
|   | 6-4     | Parallel Lines and Proportional Parts |          | G.2, G.7, G.14 |
|   | 6-5     | Parts of Similar Triangles            |          | G.7, G.14      |
|   | 6-6     | Fractals and Self-Similarity          | Optional |                |

**Geometry Pacing Guide 2019 – 2020...Second Nine Weeks**

| Unit   | Glencoe | Description | Notes | SOL          |
|--|---------|-------------|-------|--------------|
| <b>Parallel and Perpendicular Lines<br/>12/9 – 12/19</b> |         | Review      |       | Chapters 1-6 |
|  |         | And         |       |              |
|  |         | Midterm     |       |              |
|  |         |             |       |              |
|  |         |             |       |              |
|  |         |             |       |              |

**Geometry Pacing Guide 2019 – 2020...Third Nine Weeks**

| Unit  | Glencoe | Description                              | Notes | SOL  |
|---|---------|--|-------|--|
| <b>Right Triangles and Trigonometry</b><br>1/6 – 1/17 | 7-1     | Geometric Mean                           |       | G.8  |
|   | 7-2     | The Pythagorean Theorem and Its Converse |       | G.8  |
|   | 7-3     | Special Right Triangles                  |       | G.8  |
|   | 7-4     | Trigonometry                             |       | G.8  |
|   | 7-5     | Angles of Elevation and Depression       |       | G.8  |
|   |         |  |       | <p><b>G.8 The student will solve practical problems involving right triangles by using the Pythagorean Theorem and its converse, properties of special right triangles, and right triangle trigonometry.</b></p> <ul style="list-style-type: none"> <li>i. <i>Determine whether a triangle formed with three given lengths is a right triangle.</i></li> <li>ii. <i>Solve for missing lengths in geometric figures, using properties of 45°-45°-90° triangles.</i></li> <li>iii. <i>Solve for missing lengths in geometric figures, using properties of 30°-60°-90° triangles.</i></li> <li>iv. <i>Solve problems involving right triangles, using sine, cosine, and tangent ratios.</i></li> <li>v. <i>Solve real-world problems, using right triangle trigonometry and properties of right triangles.</i></li> <li>vi. <i>Explain and use the relationship between the sine and cosine of complementary angles.</i></li> </ul> |

**Geometry Pacing Guide 2019 – 2020...Third Nine Weeks (continued)**

| Unit                                 | Glencoe | Description                          | Notes  | SOL       |  |
|--------------------------------------|---------|--------------------------------------|--|-----------|--|
| <b>Quadrilaterals<br/>1/20– 1/31</b> | 8-1     | Angles of Polygons                   | And definitions from 1-6 (concave, convex, regular, n-gon) | G.2, G.10 | <p><b>G.2 The student will use the relationships between angles formed by two lines cut by a transversal to</b></p> <ul style="list-style-type: none"> <li>a) determine if two lines are parallel;</li> <li>b) verify the parallelism, using algebraic and coordinate methods as well as deductive proofs; and</li> <li>c) solve real-world problems involving angles formed when parallel lines are cut by a transversal.</li> </ul> <ul style="list-style-type: none"> <li>i. Use algebraic and coordinate methods as well as deductive proofs to verify whether two lines are parallel.</li> <li>ii. Solve problems by using the relationships between pairs of angles formed by the intersection of two parallel lines and a transversal including corresponding angles, alternate interior angles, alternate exterior angles, and same-side (consecutive) interior angles.</li> <li>iii. Solve real-world problems involving intersecting and parallel lines in a plane.</li> </ul> <p><b>G.9 The student will verify characteristics of quadrilaterals and use properties of quadrilaterals to solve real-world problems.</b></p> <ul style="list-style-type: none"> <li>i. Solve problems, including real-world problems, using the properties specific to parallelograms, rectangles, rhombi, squares, isosceles trapezoids, and trapezoids.</li> <li>ii. Prove that quadrilaterals have specific properties, using coordinate and algebraic methods, such as the distance formula, slope, and midpoint formula.</li> <li>iii. Prove the characteristics of quadrilaterals, using deductive reasoning, algebraic, and coordinate methods.</li> </ul> <p><b>G.10 The student will solve real-world problems involving angles of polygons.</b></p> <ul style="list-style-type: none"> <li>i. Solve real-world problems involving the measures of interior and exterior angles of polygons.</li> <li>ii. Identify tessellations in art, construction, and nature.</li> <li>iii. Find the sum of the measures of the interior and exterior angles of a convex polygon.</li> <li>iv. Find the measure of each interior and exterior angle of a regular polygon.</li> <li>v. Find the number of sides of a regular polygon, given the measures of interior or exterior angles of the polygon.</li> </ul> |
|                                      | 8-2     | Parallelograms                       |  | G.9       |  |
|                                      | 8-3     | Tests for Parallelograms             |  | G.9       |  |
|                                      | 8-4     | Rectangles                           |  | G.9       |  |
|                                      | 8-5     | Rhombi and Squares                   |  | G.9       |  |
|                                      | 8-6     | Trapezoids                           |  | G.9       |  |
|                                      | 8-7     | Coordinate Proof with Quadrilaterals |  | G.9       |  |

**Geometry Pacing Guide 2019 – 2020...Third Nine Weeks (continued)**

| <b>Unit</b>                           | <b>Glencoe</b> | <b>Description</b> | <b>Notes</b> | <b>SOL</b> |
|---------------------------------------|----------------|--------------------|--------------|------------|
| <b>Transformations<br/>2/3 - 2/14</b> | 9-1            | Reflections        |              | G.3        |
|                                       | 9-2            | Translations       |              | G.3        |
|                                       | 9-3            | Rotations          |              | G.3        |
|                                       | 9-4            | Tessellations      |              | G.10       |
|                                       | 9-5            | Dilations          |              | G.3        |
|                                       |                |                    |              |            |

**G.3** The student will use pictorial representations, including computer software, constructions, and coordinate methods, to solve problems involving symmetry and transformation. This will include

- a) investigating and using formulas for finding distance, midpoint, and slope;
- b) applying slope to verify and determine whether lines are parallel or perpendicular;
- c) investigating symmetry and determining whether a figure is symmetric with respect to a line or a point; and
- d) determining whether a figure has been translated, reflected, rotated, or dilated, using coordinate methods.

- i. Determine whether a figure has point symmetry, line symmetry, both, or neither.
- ii. Given an image and preimage, identify the transformation that has taken place as a reflection, rotation, dilation, or translation.

**G.10** The student will solve real-world problems involving angles of polygons.

- i. Solve real-world problems involving the measures of interior and exterior angles of polygons.
- ii. Identify tessellations in art, construction, and nature.
- iii. Find the sum of the measures of the interior and exterior angles of a convex polygon.
- iv. Find the measure of each interior and exterior angle of a regular polygon.
- v. Find the number of sides of a regular polygon, given the measures of interior or exterior angles of the polygon.

**Geometry Pacing Guide 2019 – 2020...Third Nine Weeks**

| Unit                | Glencoe | Description                           | Notes | SOL   |
|---------------------|---------|---------------------------------------|-------|---|
| Circles<br>2/18–3/6 | 10-1    | Circles and Circumference             |       | G.11, G.12  |
|                     | 10-2    | Angles and Arcs                       |       | G.11  |
|                     | 10-3    | Arcs and Chords                       |       | G.11  |
|                     | 10-4    | Inscribed Angles                      |       | G.11  |
|                     | 10-5    | Tangents                              |       | G.11  |
|                     | 10-6    | Secants, Tangents, and Angle Measures |       | G.11  |
|                     | 10-7    | Special Segments in Circles           |       | G.11  |
|                     |         |                                       |       | <p><b>G.11 The student will use angles, arcs, chords, tangents, and secants to</b></p> <p><b>a.) investigate, verify, and apply properties of circles;</b></p> <p><b>b.) solve real-world problems involving properties of circles; and</b></p> <p><b>c.) find arc lengths and areas of sectors in circles.</b></p> <p>i. <i>Find lengths, angle measures, and arc measures associated with</i></p> <ul style="list-style-type: none"> <li>– <i>two intersecting chords;</i></li> <li>– <i>two intersecting secants;</i></li> <li>– <i>an intersecting secant and tangent;</i></li> <li>– <i>two intersecting tangents; and</i></li> <li>– <i>central and inscribed angles.</i></li> </ul> <p>ii. <i>Calculate the area of a sector and length of an arc of a circle, using proportions.</i></p> <p>iii. <i>Solve real-world problems associated with circles, using properties of angles, lines, and arcs.</i></p> <p>iv. <i>Verify properties of circles, using deductive reasoning, algebraic, and coordinate methods.</i></p> |

|      |                      |  |      |  |
|------|----------------------|--|------|--|
| 10-8 | Equations of Circles |  | G.12 | <p><b>G.12 The student, given the coordinates of the center of a circle and a point on the circle, will write the equation of the circle.</b></p> <ul style="list-style-type: none"> <li>i. <i>Identify the center, radius, and diameter of a circle from a given standard equation.</i></li> <li>ii. <i>Use the distance formula to find the radius of a circle.</i></li> <li>iii. <i>Given the coordinates of the center and radius of the circle, identify a point on the circle.</i></li> <li>iv. <i>Given the equation of a circle in standard form, identify the coordinates of the center and find the radius of the circle.</i></li> <li>v. <i>Given the coordinates of the endpoints of a diameter, find the equation of the circle.</i></li> <li>vi. <i>Given the coordinates of the center and a point on the circle, find the equation of the circle.</i></li> <li>vii. <i>Recognize that the equation of a circle of given center and radius is derived using the Pythagorean Theorem.</i></li> </ul> <p><b>G.4 The student will construct and justify the constructions of</b></p> <ul style="list-style-type: none"> <li>a) <b>a line segment congruent to a given line segment;</b></li> <li>b) <b>the perpendicular bisector of a line segment;</b></li> <li>c) <b>a perpendicular to a given line from a point not on the line;</b></li> <li>d) <b>a perpendicular to a given line at a given point on the line;</b></li> <li>e) <b>the bisector of a given angle;</b></li> <li>f) <b>an angle congruent to a given angle; and</b></li> <li>g) <b>a line parallel to a given line through a point not on the given line.</b></li> </ul> <ul style="list-style-type: none"> <li>i. <i>Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.</i></li> <li>ii. <i>Construct the inscribed and circumscribed circles of a triangle.</i></li> <li>iii. <i>Construct a tangent line from a point outside a given circle to the circle.</i></li> </ul> <p><b>G.9 The student will verify characteristics of quadrilaterals and use properties of quadrilaterals to solve real-world problems</b></p> <ul style="list-style-type: none"> <li>i. <i>Prove properties of angles for a quadrilateral inscribed in a circle</i></li> </ul> |
|------|----------------------|--|------|--|

## Geometry Pacing Guide 2019 – 2020...Fourth Nine Weeks

Most of Chapter 11 is review from previous courses, but its review provides background for finding the area of the base when finding surface area and volume. To provide challenge, include problems that incorporate using special right triangles to find missing information.

| Unit  | Glencoe | Description                                | Notes | SOL |  |
|---|---------|--|-------|-----|--|
| <b>Areas of Polygons and Circles<br/>3/9 – 3/13</b> | 11-1    | Areas of Parallelograms                    |       |     |  |
|   | 11-2    | Areas of Triangles, Trapezoids, and Rhombi |       |     |  |
|   | 11-3    | Areas of Regular Polygons and Circles      |       |     |  |
|   | 11-4    | Areas of Irregular Figures                 |       |     |  |

**Geometry Pacing Guide 2019 – 2020...Fourth Nine Weeks**

| Unit   | Glencoe | Description                     | Notes     | SOL   |               |
|--|---------|---------------------------------|-----------|---|---------------|
| <b>Surface Area and Volume<br/>3/16 – 4/10</b> | 12-1    | Three-Dimensional Figures       | 2001 G.12 | <p><b>G.13 The student will use formulas for surface area and volume of three-dimensional objects to solve real-world problems.</b></p> <ul style="list-style-type: none"> <li>i. Find the total surface area of cylinders, prisms, pyramids, cones, and spheres, using the appropriate formulas.</li> <li>ii. Calculate the volume of cylinders, prisms, pyramids, cones, and spheres, using the appropriate formulas.</li> <li>iii. Solve problems, including real-world problems, involving total surface area and volume of cylinders, prisms, pyramids, cones, and spheres as well as combinations of three-dimensional figures.</li> <li>iv. Calculators may be used to find decimal approximations for results.</li> </ul> <p><b>G.14 The student will use similar geometric objects in two- or three-dimensions to</b></p> <ul style="list-style-type: none"> <li>a) compare ratios between side lengths, perimeters, areas, and volumes;</li> <li>b) determine how changes in one or more dimensions of an object affect area and/or volume of the object;</li> <li>c) determine how changes in area and/or volume of an object affect one or more dimensions of the object; and</li> <li>d) solve real-world problems about similar geometric objects.</li> </ul> <ul style="list-style-type: none"> <li>i. Compare ratios between side lengths, perimeters, areas, and volumes, given two similar figures.</li> <li>ii. Describe how changes in one or more dimensions affects other derived measures (perimeter, area, total surface area, and volume) of an object.</li> <li>iii. Describe how changes in one or more measures (perimeter, area, total surface area, and volume) affect other measures of an object.</li> <li>iv. Solve real-world problems involving measured attributes of similar objects.</li> </ul> |               |
|  | 12-2    | Nets and Surface Area           | 2001 G.12 |   |               |
|  | 12-3    | Surface Area of Prisms          |           |   | G.13          |
|  | 12-4    | Surface Area of Cylinders       |           |   | G.13          |
|  | 13-1    | Volumes of Prisms and Cylinders |           |   | G.13          |
|  | 12-5    | Surface Area of Pyramids        |           |   | G.13          |
|  | 12-6    | Surface Area of Cones           |           |   | G.13          |
|  | 13-2    | Volumes of Pyramids and Cones   |           |   | G.13          |
|  | 12-7    | Surface Area of Spheres         |           |   | G.13          |
|  | 13-3    | Volumes of Spheres              |           |   | G.13          |
|  | 13-4    | Congruent and Similar Solids    |           |   | G.13,<br>G.14 |