

| Options EHS Geometry A                   |        | Scope and Sequence                                                                                                                |
|------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------|
| Unit                                     | Lesson | Objectives                                                                                                                        |
| <b>Foundations of Euclidean Geometry</b> |        |                                                                                                                                   |
| Euclidean Geometry                       |        |                                                                                                                                   |
|                                          |        | Identify and name undefined terms of point, line, plane, and distance along a line.                                               |
|                                          |        | Analyze descriptions and diagrams that illustrate basic postulates about points, lines, and planes.                               |
| Defining Terms                           |        |                                                                                                                                   |
|                                          |        | Use undefined terms to precisely define parallel lines, perpendicular lines, ray, angle, arc, circle, and line segment.           |
|                                          |        | Identify and name a pair of parallel lines, a pair of perpendicular lines, a ray, an angle, an arc, a circle, and a line segment. |
| Measuring Length and Angles              |        |                                                                                                                                   |
|                                          |        | Identify a midpoint or bisector of a line segment or angles.                                                                      |
|                                          |        | Apply the ruler postulate and segment addition postulate to calculate the lengths of line segments.                               |
|                                          |        | Apply the protractor postulate and angle addition postulate to calculate angle measures.                                          |
| Introduction to Proof                    |        |                                                                                                                                   |
|                                          |        | Complete the steps to prove algebraic and geometric statements.                                                                   |
|                                          |        | Identify proof formats, the essential parts of a proof, and the assumptions that can be made from a given drawing.                |
| Linear Pairs and Vertical Angles         |        |                                                                                                                                   |
|                                          |        | Calculate angle measures by using definitions and theorems about linear pairs and vertical angles.                                |
|                                          |        | Identify linear pairs and vertical angles from given diagrams.                                                                    |
|                                          |        | Complete the steps to prove statements using linear pairs and vertical angles.                                                    |
| Complementary and Supplementary Angles   |        |                                                                                                                                   |
|                                          |        | Identify complementary angles and supplementary angles from given diagrams.                                                       |

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| Unit                                       | Lesson | Objectives                                                                                                              |
|                                            |        | Solve problems involving measures of complementary and supplementary angles.                                            |
|                                            |        | Complete the steps to prove statements using complementary angles and supplementary angles.                             |
| Unit Test                                  |        |                                                                                                                         |
| Angles and Lines                           |        |                                                                                                                         |
| Slope                                      |        |                                                                                                                         |
|                                            |        | Identify linear functions by a constant rate of change                                                                  |
|                                            |        | Interpret slope as an average rate of change                                                                            |
|                                            |        | Determine slope of a line between two points                                                                            |
|                                            |        | Identify increasing and decreasing linear functions using slope                                                         |
| Parallel and Perpendicular Lines           |        |                                                                                                                         |
|                                            |        | Construct parallel and perpendicular lines.                                                                             |
|                                            |        | Identify parallel, perpendicular, and skew lines from three-dimensional figures.                                        |
|                                            |        | Solve problems involving the distance from a point on the perpendicular bisector to both endpoints of the line segment. |
| Lines Cut by a Transversal                 |        |                                                                                                                         |
|                                            |        | Solve for angle measures when parallel lines are cut by a transversal.                                                  |
|                                            |        | Complete the steps to prove angle relationships given parallel lines cut by a transversal.                              |
| Proving Lines Parallel                     |        |                                                                                                                         |
|                                            |        | Apply theorems to determine if lines are parallel.                                                                      |
|                                            |        | Prove lines are parallel given angle relationships.                                                                     |
| Slopes of Parallel and Perpendicular Lines |        |                                                                                                                         |
|                                            |        | Complete the steps to prove the slope criteria for parallel and perpendicular lines using coordinate geometry.          |

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| Unit                   | Lesson                          | Objectives                                                                                                  |
|                        |                                 | Determine if two lines are parallel or perpendicular.                                                       |
|                        |                                 | Use slope criteria to find additional points on a line parallel or perpendicular to a given line.           |
|                        |                                 | Prove the slope criteria for perpendicular lines.                                                           |
|                        | Writing Linear Equations        |                                                                                                             |
|                        |                                 | Write the equation of a line parallel to a given line that goes through a particular point.                 |
|                        |                                 | Write the equation of a line perpendicular to a given line or segment that goes through a particular point. |
|                        | Unit Test                       |                                                                                                             |
|                        | Geometric Transformations       |                                                                                                             |
|                        | Introduction to Transformations |                                                                                                             |
|                        |                                 | Determine if a transformation is isometric and identify corresponding parts of the pre-image and image.     |
|                        |                                 | Identify the type of transformation given a pre-image and an image.                                         |
|                        | Reflections                     |                                                                                                             |
|                        |                                 | Develop the definition of a reflection using constructions.                                                 |
|                        |                                 | Describe the properties of and write rules for reflections.                                                 |
|                        |                                 | Determine the image or pre-image of a figure after a given reflection.                                      |
|                        | Translations                    |                                                                                                             |
|                        |                                 | Develop the definition of a translation using constructions.                                                |
|                        |                                 | Write the rule that describes a given translation.                                                          |
|                        |                                 | Determine the image or pre-image of a figure after a given translation.                                     |
|                        | Rotations                       |                                                                                                             |
|                        |                                 | Develop the definition of a rotation using constructions.                                                   |
|                        |                                 | Describe the properties of and write rules for rotations.                                                   |

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| Unit                   | Lesson                           | Objectives                                                                                                         |
|                        |                                  | Determine the image or pre-image of a figure after a given rotation.                                               |
|                        | Compositions                     |                                                                                                                    |
|                        |                                  | Determine the rule that describes a given composition of transformations.                                          |
|                        |                                  | Determine the image of a figure after a given composition of transformations.                                      |
|                        | Symmetry                         |                                                                                                                    |
|                        |                                  | Identify reflectional symmetry in geometric figures and the number of lines of symmetry.                           |
|                        |                                  | Identify rotational symmetry and its order in geometric figures.                                                   |
|                        | Unit Test                        |                                                                                                                    |
| <b>Triangles</b>       |                                  |                                                                                                                    |
|                        | Triangle Angle Theorems          |                                                                                                                    |
|                        |                                  | Complete the steps to prove that the sum of the measures of the interior angles of a triangle is 180 degrees.      |
|                        |                                  | Identify and relate the interior and exterior angles of a triangle.                                                |
|                        |                                  | Calculate the measures of interior and exterior angles of a triangle.                                              |
|                        | Triangles and Their Side Lengths |                                                                                                                    |
|                        |                                  | Construct or justify the construction of isosceles and equilateral triangles.                                      |
|                        |                                  | Analyze the relationships between the angles of acute, right, and obtuse triangles.                                |
|                        |                                  | Determine if three given segments will satisfy the triangle inequality.                                            |
|                        |                                  | Determine the length or parameters for a third side of a triangle given the other two sides.                       |
|                        | Triangle Inequalities            |                                                                                                                    |
|                        |                                  | Identify angle and side relationships in a triangle.                                                               |
|                        |                                  | Identify angle and side relationships between two triangles.                                                       |
|                        |                                  | Solve real world problems involving relationships between angle measures and side lengths of one or two triangles. |

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| Unit                                                                             | Lesson                                   | Objectives                                                                                     |
|                                                                                  | Isosceles Triangles                      |                                                                                                |
|                                                                                  |                                          | Complete the steps to prove the isosceles triangle theorem and its converse.                   |
|                                                                                  |                                          | Identify characteristics of an isosceles triangle.                                             |
|                                                                                  |                                          | Solve for unknown measures of isosceles triangles.                                             |
|                                                                                  | Centroid and Orthocenter                 |                                                                                                |
|                                                                                  |                                          | Complete the steps to prove that the medians of a triangle meet at a point.                    |
|                                                                                  |                                          | Identify the characteristics of the centroid or orthocenter of a triangle.                     |
|                                                                                  |                                          | Solve for unknown measures created by medians in a triangle.                                   |
|                                                                                  | Incenter and Circumcenter                |                                                                                                |
|                                                                                  |                                          | Construct inscribed and circumscribed circles of a triangle.                                   |
|                                                                                  |                                          | Identify the characteristics of the incenter or circumcenter of a triangle.                    |
|                                                                                  |                                          | Solve for unknown measures created by perpendicular or angle bisectors in a triangle.          |
|                                                                                  | Unit Test                                |                                                                                                |
| <b>Distances- Pythagorean Theorem, Distance Formula and Equation of a Circle</b> |                                          |                                                                                                |
|                                                                                  | Rewriting Expressions with Radicals      |                                                                                                |
|                                                                                  |                                          | Use operations to rewrite expressions involving radicals.                                      |
|                                                                                  | Pythagorean Theorem                      |                                                                                                |
|                                                                                  |                                          | Apply the Pythagorean theorem to find side lengths of a right triangle                         |
|                                                                                  |                                          | Solve problems using the Pythagorean theorem in modeling situations                            |
|                                                                                  | Finding Distance in the Coordinate Plane |                                                                                                |
|                                                                                  |                                          | Apply the Pythagorean theorem to find the distance between two points on the coordinate plane. |

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| Unit                       | Lesson                           | Objectives                                                                                                                                                                                |
|                            |                                  | Generate and use the distance formula to find the distance between two points on the coordinate plane.                                                                                    |
|                            | Equation of a Circle             |                                                                                                                                                                                           |
|                            |                                  | Identify the center and radius from the equation of a circle, including equations given in general form.                                                                                  |
|                            |                                  | Determine the equation of a circle.                                                                                                                                                       |
|                            |                                  | Determine if a given point lies on a circle.                                                                                                                                              |
|                            | Test                             |                                                                                                                                                                                           |
| <b>Triangle Congruence</b> |                                  |                                                                                                                                                                                           |
|                            | Congruent Figures                |                                                                                                                                                                                           |
|                            |                                  | Write congruency statements for transformed figures.                                                                                                                                      |
|                            |                                  | Determine if figures are congruent and, if so, identify their corresponding parts.                                                                                                        |
|                            |                                  | Determine unknown measures of congruent figures.                                                                                                                                          |
|                            | Triangle Congruence: SAS         |                                                                                                                                                                                           |
|                            |                                  | Determine the isometric transformations that would map one triangle onto another triangle given that two corresponding sides and the included angle are congruent.                        |
|                            |                                  | Identify the sides and angle that can be used to prove triangle congruency using SAS.                                                                                                     |
|                            |                                  | Complete the steps to prove triangles are congruent using SAS.                                                                                                                            |
|                            | Triangle Congruence: ASA and AAS |                                                                                                                                                                                           |
|                            |                                  | Identify the side and angles that can be used to prove triangle congruency using ASA or AAS.                                                                                              |
|                            |                                  | Complete the steps to prove triangles are congruent using ASA or AAS.                                                                                                                     |
|                            |                                  | Determine the isometric transformations that would map one triangle onto another triangle given that two pairs of corresponding angles and one pair of corresponding sides are congruent. |
|                            | Triangle Congruence: SSS and HL  |                                                                                                                                                                                           |

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| Unit                   | Lesson                                 | Objectives                                                                                                                                    |
|                        |                                        | Identify the parts that can be used to prove triangle congruency using SSS or HL.                                                             |
|                        |                                        | Complete the steps to prove triangles are congruent using SSS or HL.                                                                          |
|                        |                                        | Determine the isometric transformations that would map one triangle onto another triangle given that three corresponding sides are congruent. |
|                        | Using Triangle Congruence Theorems     |                                                                                                                                               |
|                        |                                        | Identify the triangle congruency theorem that can be used to prove two triangles congruent.                                                   |
|                        |                                        | Complete the steps to prove angles, segments, and triangles are congruent using triangle congruence theorems and CPCTC.                       |
|                        | Performance Task:<br>Congruency Proofs |                                                                                                                                               |
|                        | Unit Test                              |                                                                                                                                               |
|                        | <b>Cumulative Exam</b>                 |                                                                                                                                               |
|                        | Cumulative Exam Review                 |                                                                                                                                               |
|                        | Cumulative Exam                        |                                                                                                                                               |