GEOMETRY MONITORING SHEETS

___Tri. G.1 Language of Geometry

___Tri. G.1.A Points, Lines and Planes

_____G.1.A.1 To use the undefined terms point, line and plane
_____G.1.A.2 To draw representations of points, lines, and planes
_____G.1.A.3 To use the terms collinear, coplanar, and intersection

___Tri. G.1.B Segments, Rays and Distance

_____G.1.B.1 To use symbols of lines, segments, rays, distances
_____G.1.B.2 To find distances
_____G.1.B.3 To state and use the Ruler Postulate and the Segment Addition Postulate

___Tri. G.1.C Angles

_____G.1.C.1 To name angles and find their measures
_____G.1.C.2 To state and use the Angle Addition Postulate
_____G.1.C.3 To recognize what can be concluded from a diagram

___Tri. G.1.D Postulates and Theorems Relating Points, Lines, and Planes

_____G.1.D.1 To use postulates and theorems relating points, lines and planes

___Tri. G.1.E Review of Algebraic Properties

_____G.1.E.1 To review properties from Algebra

___Tri. G.2 Deductive Reasoning

___Tri. G.2.A If-Then Statements; Converse

_____G.2.A.1 To recognize the hypothesis and the conclusion of an if-then statement
_____G.2.A.2 To state the converse of an if-then statement
_____G.2.A.3 To use a counterexample to disprove an if-then statement
_____G.2.A.4 To understand the meaning of "if and only if"

___Tri. G.2.B Properties from Algebra

_____G.2.B.1 To use properties from Algebra and properties of congruence in proofs

___Tri. G.2.C Proving Theorems

_____G.2.C.1 To use the Midpoint Theorem and the Angle Bisector Theorem
_____G.2.C.2 To know the kinds of reasons that can be used in proofs

___Tri. G.2.D Special Pairs of Angles

_____G.2.D.1 To apply the definitions of complementary and supplementary angles
_____G.2.D.2 To state and use the theorem about vertical angles

___Tri. G.2.E Perpendicular Lines

_____G.2.E.1 To apply the definition and theorems about perpendicular lines

___Tri. G.2.F. Planning a Proof

_____G.2.F.1 To state and apply the theorems about angles supplementary to, or complementary to, congruent angles
_____G.2.F.2 To plan proofs and then write them in two-column form

___Tri. G.3 Parallel Lines and Planes

___Tri. **G.3.A** **Definitions**

_____G.3.A.1 To distinguish between intersecting lines, parallel lines, and skew lines

_____G.3.A.2 To state and apply the theorem about the intersection of two parallel planes by a third plane

_____G.3.A.3 To identify the angles formed when two lines are cut by a transversal

___Tri. **G.3.B** **Properties of Parallel Lines**

_____G.3.B.1 To state and apply a postulate and theorems about parallel lines and about a parallel and perpendicular to a given line through a point outside the line

___Tri. **G.3.C** **Angles of a Triangle**

_____G.3.C.1 To classify triangles according to sides an to angles

_____G.3.C.2 To state and apply the theorem and the corollaries about the sum of the measures of the angles of a triangle

___Tri. **G.3.D** **Angles of a Polygon**

_____G.3.D.1 To recognize and name convex and regular polygons

_____G.3.D.2 To find the measures of interior angles and exterior angles of convex polygons

___Tri. **G.3.E** **Inductive Reasoning**

_____G.3.E.1 To understand and use inductive reasoning

___Tri. **G.3.F** **Proofs**

_____G.3.F.1 To plan and write proofs pertaining to parallel lines

___Tri. **G.4** **Congruent Triangles**

___Tri. **G.4.A** **Congruent Figures**

_____G.4.A.1 To identify the corresponding parts of congruent figures

___Tri. **G.4.B** **Some Ways to Prove Triangles Congruent**

_____G.4.B.1 To prove two triangles congruent by using the SSS, SAS, and ASA postulates

___Tri. **G.4.C** **Using Congruent Triangles**

_____G.4.C.1 To deduce information about segments and angles after proving that two triangles are congruent

___Tri. **G.4.D** **The Isosceles Triangle Theorems**

_____G.4.D.1 To apply the theorems and corollaries about isosceles triangles

___Tri. **G.4.E** **Other Methods of Proving Triangles Congruent**

_____G.4.E.1 To use the AAS Theorem to prove two triangles congruent

_____G.4.E.2 To use the HL Theorem to prove two triangles congruent

_____G.4.E.3 To prove that two overlapping triangles are congruent

___Tri. **G.4.F** **Using More than One Pair of Congruent Triangles**

_____G.4.F.1 To prove two triangles congruent by first proving two other triangles congruent

___Tri. **G.4.G** **Medians, Altitudes, and Perpendicular Bisectors**

_____G.4.G.1 To apply the definitions of the median and the altitude of a triangle and the perpendicular bisector of a segment

_____G.4.G.2 To state and apply the theorem about a point on the perpendicular bisector of a segment, and the converse

_____G.4.G.3 To state and apply the theorem about a point on the bisector of an angle, and the converse

___Tri. **G.4.H Proofs**

_____G.4.F.1 To plan and write proofs pertaining to congruent triangles

___Tri. **G.5 Quadrilaterals**

___Tri. **G.5.A Properties of Parallelograms**

_____G.5.A.1 To apply the definition of a parallelogram and the theorems about properties of a parallelogram

___Tri. **G.5.B Ways to Prove that Quadrilaterals are Parallelograms**

_____G.5.B.1 To prove that certain quadrilaterals are parallelograms

___Tri. **G.5.C Theorems Involving Parallel Lines**

_____G.5.C.1 To apply theorems about parallel lines

_____G.5.C.2 To apply the midpoint theorems for triangles

___Tri. **G.5.D Special Parallelograms**

_____G.5.D.1 To apply the definitions and identify the special properties of a rectangle, a rhombus, and a square

_____G.5.D.2 To determine when a parallelogram is a rectangle, a rhombus or a square

___Tri. **G.5.E Trapezoids**

_____G.5.E.1 To apply the definitions and identify the properties of a trapezoid and an isosceles trapezoid

___Tri. **G.5.F Proofs**

_____G.5.F.1 To plan and write proofs pertaining to quadrilaterals

___Tri. **G.6 Inequalities in Geometry**

___Tri. **G.6.A Inequalities**

_____G.6.A.1 To apply properties of inequalities to positive numbers, lengths of segments, and measures of angles

_____G.6.A.2 To state and use the Exterior Angle Inequality Theorem

___Tri. **G.6.B Inverses and Contrapositives**

_____G.6.B.1 To state the contrapositive and inverse of an if-then statements

_____G.6.B.2 To understand the relationship between logically equivalent statements

_____G.6.B.3 To draw correct conclusions for given statements

___Tri. **G.6.C. Indirect Proof**

_____G.6.C.1 To write indirect proofs in paragraph form

___Tri. **G.6.D. Inequalities in One Triangle**

_____G.6.D.1 To state and apply the inequality theorems and corollaries for one triangle

___Tri. **G.7 Similar Polygons**

___Tri. **G.7.A Ratio and Proportion**

_____G.7.A.1 To express a ratio in simplest form

___Tri. **G.7.B** **Properties of Proportions**

_____G.7.B.1 To solve for an unknown term in a given proportion

_____G.7.B.2 To express a given proportion in an equivalent form

___Tri. **G.7.C** **Similar Polygons**

_____G.7.C.1 To state and apply the properties of similar polygons

___Tri. **G.7.D** **A Postulate for Similar Triangles**

_____G.7.D.1 To use the AA Similarity Postulate to prove triangles similar

_____G.7.D.2 To use similar triangles to deduce information about segments or angles

___Tri. **G.7.E** **Theorems for Similar Triangles**

G.7.E.1 To use the SAS Similarity Theorem and the SSS Similarity Theorem to prove triangles are similar

___Tri. **G.7.F** **Proportional Lengths**

_____G.7.F.1 To apply the Triangle Proportionality Theorem and its corollary

_____G.7.F.2 To state and apply the Triangle Angle-Bisector Theorem

___Tri. **G.7.G** **Proofs**

_____G.7.G.1 To plan and write proofs pertaining to similar polygons

___Tri. **G.8** **Algebra Unit on Radicals and Radical Equations**

___Tri. **G.8.A** **Simplifying Radicals**

_____G.8.A.1 To simplify radicals

_____G.8.A.2 To simplify sums, differences, and products of radicals

___Tri. **G.8.B** **Multiplication of Binomials Containing Radicals**

_____G.8.B.1 To multiply binomials containing square-root radicals

_____G.8.B.2 To rationalize binomial denominators that contain square-root radicals

___Tri. **G.8.C** **Simple Radical Equations**

_____G.8.C.1 To solve simple radical equations

___Tri. **G.9** **Right Triangles**

___Tri. **G.9.A** **Similarity in Right Triangles**

_____G.9.A.1 To determine the geometric mean between two numbers

_____G.9.A.2 To state and apply the relationships that exist when the altitude is drawn to the hypotenuse of a right triangle

___Tri. **G.9.B** **The Pythagorean Theorem**

_____G.9.B.1 To state and apply the Pythagorean Theorem

___Tri. **G.9.C** **The Converse of the Pythagorean Theorem**

_____G.9.C.1 To state and apply the converse of the Pythagorean Theorem and related theorems about obtuse and acute triangles

___Tri. **G.9.D** **Special Right Triangles**

_____G.9.D.1 To determine the lengths of two sides of a 45° - 45° - 90° or a 30° - 60° - 90° triangle when the length of the third side is known

___Tri. **G.9.E** **Trigonometry**

_____G.9.E.1 To define the tangent, sine, and cosine ratios for an acute angle

_____G.9.E.2 To solve right triangle problems by correct selection and use of the tangent, sine, and cosine ratios

___Tri. **G.10 Circles**

___Tri. **G.10.A Basic Terms**

_____G.10.A.1 To define a circle, sphere, and related terms

_____G.10.A.2 To recognize inscribed polygons and circumscribed circles

___Tri. **G.10.B Tangents**

_____G.10.B.1 To apply theorems that relate tangents and radii

_____G.10.B.2 To recognize circumscribed polygons and inscribed circles

___Tri. **G.10.C Arcs and Central Angles**

_____G.10.C.1 To define and apply properties of arcs and central angles

___Tri. **G.10.D Arcs and Chords**

_____G.10.D.1 To apply theorems about the chords of a circle

___Tri. **G.10.E Inscribed Angles**

_____G.10.E.1 To solve problems and prove statements involving inscribed angles

_____G.10.E.2 To solve problems and prove statements involving angles formed by chords, secants, and tangents

___Tri. **G.10.F Other Angles**

_____G.10.F.1 To solve problems and prove statements involving angles formed by chords, secants, and tangents

___Tri. **G.10.G Circles and Lengths of Segments**

_____G.10.G.1 To solve problems involving lengths of chords, secant segments, and tangent segments

___Tri. **G.11 Areas of Plane Figures**

___Tri. **G.11.A Areas of Rectangles**

_____G.11.A.1 To understand what is meant by the area of a polygon

_____G.11.A.2 To understand the area postulates

_____G.11.A.3 To know and use the formula for the area of a rectangle

___Tri. **G.11.B Areas of Parallelograms, Triangles, and Rhombuses**

_____G.11.B.1 To know and use the formulas for the areas of parallelograms, triangles, and rhombuses

___Tri. **G.11.C Areas of Trapezoids**

_____G.11.C.1 To know and use the formula for the area of a trapezoid

___Tri. **G.11.D Areas of Regular Polygons**

_____G.11.D.1 To know and use the formula for the areas of regular polygons

___Tri. **G.11.E Circumferences and Areas of Circles**

_____G.11.E.1 To know and use the formulas for the circumferences and areas of circles that are derived from the perimeter and area formulas for regular polygons

___Tri. **G.11.F Arc Lengths and Areas of Sectors**

_____G.11.F.1 To know and use the formulas for arc length and the areas of sectors of a circle

___Tri. **G.11.G** **Ratios of Areas**

_____G.11.G.1 To find the ratio of the areas of two triangles

_____G.11.G.2 To understand and apply the relationship between scale factors, perimeters, and the areas of similar figures

___Tri. **G.12** **Areas and Volumes of Solids**

___Tri. **G.12.A** **Prisms**

_____G.12.A.1 To identify the parts of prisms

_____G.12.A.2 To find the lateral areas, total areas, and volumes of right prisms

___Tri. **G.12.B** **Pyramids**

_____G.12.B.1 To identify the parts of pyramids

_____G.12.B.2 To find the lateral areas, total areas, and volumes of pyramids

___Tri. **G.12.C** **Cylinders and Cones**

_____G.12.C.1 To find the lateral areas, total areas, and volumes of right cylinders and right cones

___Tri. **G.12.D** **Spheres**

_____G.12.D.1 To find the area and volume of a sphere

___Tri. **G.12.E** **Areas and Volumes of Similar solids**

_____G.12.E.1 To state and apply the properties of similar solids

___Tri. **G.13** **Coordinate Geometry**

___Tri. **G.13.A** **The Distance Formula**

_____G.13.A.1 To state and apply the distance formula

___Tri. **G.13.B** **The Slope of a Line**

_____G.13.B.1 To state and apply the slope formula

___Tri. **G.13.C** **Parallel and Perpendicular Lines**

_____G.13.C.1 To determine whether two lines are parallel, perpendicular, or neither

___Tri. **G.13.D** **The Midpoint Formula**

_____G.13.D.1 To state and apply the midpoint formula

___Tri. **G.13.E** **Organizing Coordinate Proofs**

_____G.13.E.1 To choose a convenient placement of coordinate axes and assign appropriate coordinates, given a polygon

___Tri. **G.14** **Constructions**
To construct and justify the constructions of:

___Tri. **G.14.A** **a line segment congruent to a given line segment**

___Tri. **G.14.B** **the perpendicular bisector of a line segment**

___Tri. **G.14.C** **a perpendicular to a given line from a point not on the line**

___Tri. **G.14.D** **a perpendicular to a given line at a given point on the line**

Tri. **G.14.E** **the bisector of a given angle**

Tri. **G.14.F** **an angle congruent to a given angle**

Tri. **G.14.G** **a line parallel to a given line through a point not on the given line**

Tri. **G.14.H** **medians of triangles**

Tri. **G.14.I** **altitudes of triangles**