Emmett School District
Secondary Curriculum

Intermediate Geometry

Course Description

Open to: 10, 11, 12 one year course
Prerequisite: Less than a C in Geometry
Summary:

Course Text 1
Title: Geometry
Edition: 2004
Publisher: McDougal Littell

Course Text 2
Title: Algebra 2
Edition: 1998
Publisher: McDougal Littell

Scope
Unit 1: Review of basic algebra
Unit 2: Introduction to Geometry and Terminology
Unit 3: Perpendicular and Parallel Lines
Unit 4: Properties of Triangles
Unit 5: Quadrilaterals and Polygons
Unit 6: Similarity
Unit 7: Right Triangles
Unit 8: Circles
Unit 9: Area
Unit 10: Surface Area and Volume
Unit 11: Linear Equations and Inequalities on the Cartesian Plane
Unit 12: Linear Systems
Unit 13: Quadratic Equations

Intermediate Geometry		District Reference Schoolmaster Code
Unit 1	**Review of basic algebra**	**2 Weeks**

Instructional Objective Re-enforce prerequisite algebra skills (Use Text 2)			Standard Reference 1.2.1, 3.3.1, 3.6.1
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to work with numbers in fraction or decimal form and perform basic operations and conversions with either form.	Supplemental Material	TMA
02	Students should be able to classify real numbers, place them on the number line, and perform basic operations	Chapter 1.1	TMA
03	Students should be able to evaluate algebraic expressions using the proper order of operations	Chapter 1.2	TMA
04	Students should be able to solve linear equations	Chapter 1.3	TMA
05	Students should be able to manipulate formulas to solve problems	Chapter 1.5	TMA
06	Students should be able to solve simple and compound inequalities	Chapter 1.6	TMA
07	Students should be able to solve absolute value equations	Chapter 1.7	TMA

Unit 2	**Introduction to Geometry and Terminology**	**2 Weeks**

Instructional Objective (Switch to Text 1) Understand and apply basic geometry concepts			Standard Reference 1.1.6, 1.3.1, 2.3.1
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to use inductive reasoning to describe patterns	Chapter 1.1	TMA
02	Students should be able to describe the relationships between points lines and planes.	Chapter 1.2	TMA
03	Students should be able to apply properties of segments, and use the distance formula.	Chapter 1.3	TMA
04	Students should be able to apply properties, postulates, and terms associated with angles.	Chapter 1.4	TMA
05	Students should be able to define bisector, and midpoint in geometric terms. And use formula to find the midpoint in the coordinate grid.	Chapter 1.5	TMA
06	Students should understand and be able to use vertical angles, linear pairs, supplementary angles, and complementary angles.	Chapter 1.6	TMA

Unit 3	Perpendicular and Parallel Lines	3 Weeks

Instructional Objective Understand and defend relationships between parallel and perpendicular lines.		Standard Reference 4.5.1, 4.4.3	
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to perform compass constructions, including copying, bisecting, and drawing parallel and perpendicular lines.	Handout (Chapter1.5, 2.5, 3.1, 3.5)	TMA
02	Students should be able to identify angles created by intersecting lines.	Chapter 3.1	
03	Students should be able to understand and defend properties of perpendicular lines.	Chapter 3.2	
04	Students should understand the properties of angles created by parallel lines cut by a transversal.	Chapter 3.3	
05	Students should be able to justify how they know lines are parallel	Chapter 3.4	
06	Students should understand and be able to defend properties of parallel lines.	Chapter 3.5	

Unit 4	Properties of Triangles	2 Weeks

Instructional Objective Understand and use reasoning to discover relationships between triangles.		Standard Reference 4.2.1, 4.4.1	
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should understand and be able to use common terms in reference to triangles. (Acute, isosceles…etc.)	Chapter 4.1	Insert Assessment Acronyms Here
02	Students should understand what perpendicular bisectors and angle bisectors are, and theorems associated with them.	Chapter 5.1	
03	Students should be able to construct the perpendicular bisectors and angle bisectors of a triangle and understand where they meet.	Chapter 5.2	
04	Students should be able to draw the medians and altitudes of any triangle and understand where they meet.	Chapter 5.3	
05	Students should understand and be able to use the mid-segment theorem	Chapter 5.4	
06	Students should understand and be able to use the triangle inequality.	Chapter 5.5	

Unit 5	Quadrilaterals and Polygons	2.5 Weeks

Instructional Objective Identify properties of specific quadrilaterals, and some generic properties about all polygons.		Standard Reference 2.1.1, 2.2.3, 2.4.1, 4.5.1, 4.1.1
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to identify polygons, and the sum of the interior angles of a quadrilateral.	Chapter 6.1	
02	Students should be able to find the measures of the interior and exterior angles of any polygond	Chapter 11.1	
03	Students should be able to identify parallelograms, and their properties.	Chapter 6.2	
04	Students should be able to determine if a quadrilateral is a parallelogram	Chapter 6.3	
05	Students should understand and be able to use the properties of special parallelograms.	Chapter 6.4	
06	Students should understand and be able to use the properties of trapezoids and kites.	Chapter 6.5	

Unit 6	Similarity	2.5 Weeks

Instructional Objective Identify similar figures and use ration and proportion to define the relationship between similar shapes.		Standard Reference 2.2.1, 4.1.1
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to apply the concepts of relation and proportion to problem solving exercises.	Chapter 8.1, 8.2	TMA
02	Students should be able to use ratio and proportion to find missing sides of similar figures	Chapter 8.3	
03	Students should be able to solve for missing parts of similar triangles	Chapter 8.4	
04	Students should understand and be able to use theorems associated with proportionality in specific figures.	Chapter 8.6	
05	Students should be able to find parts of similar right triangles using the geometric means	Chapter 9.1	

Unit 7	Right Triangles	3 Weeks

Instructional Objective Identify relationships and perform calculations involving right triangles and right triangle trigonometry. Students will also be introduced to the concept of vectors.		Standard Reference 4.2.1
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to write radical expressions in simplified form.	Handout	TMA
02	Students should be able to use the Pythagorean theorem to find missing sides in a right triangle	Chapter 9.2	
03	Students should be able to use the Converse of the Pythagorean theorem to decide if a triangle is acute, obtuse, or right.	Chapter 9.3	
04	Students should be able to use sine, cosine, and tangent to find the lengths of sides in right triangles.	Chapter 9.5	
05	Students should be able to solve for all parts of any right triangle using sine, cosine, tangent, their inverses, and Pythagorean theorem.	Chapter 9.6	
06	Students should understand vectors and be able to do simple vector calculations including magnitude, the sum of two vectors, and the dot product of two vectors.	Chapter 9.7	

Unit 8	Circles	2.5 Weeks

Instructional Objective Identify relationships that exists within circle segments and angles and use those relationships to solve problems		Standard Reference 2.1.2
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to identify the different segments that exist with circles and understand their relationships.	Chapter 10.1, Chapter 10.2	TMA
02	Students should be able to define what an arc is and find the measures of central angles and arcs.	Chapter 10.2	
03	Students should understand and be able to use the relationship between angles that intersect circles and the arcs of the circles.	Chapter 10.3, 10.4	
04	Students should understand how specific segment lengths are related in circles and be able to perform calculations using these relationships.	Chapter 10.5	
05	Students should be able to write and interpret equations of circles.	Chapter 10.6	

Unit 9	Area	3 Weeks

Instructional Objective Calculate the area of planar figures.		Standard Reference 2.1.1, 2.1.2, 2.2.1, 2.2.3, 2.4.1, 4.1.2	
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to calculate area of simple geometric shapes.	Chapter 1.7	TMA
02	Students should be able to calculate the areas of triangles and parallelograms	Chapter 6.7	
03	Students should be able to calculate the areas of trapezoids, rhombuses and kites.	Chapter 6.7	
04	Students should be able to calculate the areas of regular polygons.	Chapter 11.2	
05	Students should understand the relationship between perimeter and area of similar figures.	Chapter 11.3	
06	Students should be able to calculate circumference and arc-length in a circle.	Chapter 11.4	
07	Students should be able to calculate the area of circles, and sectors.	Chapter 11.5	

Unit 10	Surface Area and Volume	3 Weeks

Instructional Objective Calculate volume of three dimensional shapes using formulas.		Standard Reference 2.1.1	
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to categorize polyhedra and calculate the number of faces, edges and vertices on polyhedra.	Chapter 12.1	TMA
02	Students should be able to calculate surface area of prisms and cylinders.	Chapter 12.2	
03	Students should be able to calculate the surface area of pyramids and cones.	Chapter 12.3	
04	Students should be able to calculate the volume of prisms and cylinders.	Chapter 12.4	
05	Students should be able to calculate the volume of pyramids and cones.	Chapter 12.5	
06	Students should be able to calculate the surface area and volume of spheres.	Chapter 12.6	

Unit 11	Linear Equations and Inequalities on the Cartesian Plane	2 Weeks

Instructional Objective Graph, write, and interpret linear equations and inequalities		Standard Reference 3.6.1, 3.6.2, 4.3.1, 4.3.2, 4.3.3, 4.4.1, 4.4.3, 5.1.1
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to graph linear equations using tables, slope and y intercept, and x, y intercepts.	Chapter 2.1, 2.3	TMA
02	Students should be able to calculate the slope of a line.	Chapter 2.2	
03	Students should be able to write the equation of a line given points or slope	Chapter 2.4 Geometry Text Chapter 3.6, 3.7	
04	Students should be able to graph linear inequalities	Chapter 2.5	
05	Students should be able to graph absolute value equations	Chapter 2.6	
06	Students should be able to draw, and write the equation for a line of best fit for a data set.	Chapter 2.7	

Unit 12	Linear Systems	2.5 Weeks

Instructional Objective Solve linear systems in two or three variables		Standard Reference 3.4.1, 3.6.1
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to solve linear systems by graphing	Chapter 3.1	TMA
02	Students should be able to solve linear systems algebraically (Substitution and linear combination)	Chapter 3.2	
03	Students should be able to graph and solve systems of linear inequalities	Chapter 3.4, 3.5	
04	Students should be able to solve a system of linear equations in three variables	Chapter 3.6	

Unit 13	Quadratic Equations	3 Weeks

Instructional Objective Solve and graph basic quadratic equations		Standard Reference 3.3.2	
No.	**Performance Objective**	**Resource Reference**	**Assessment Correlation**
01	Students should be able to reduce and rationalize radical expressions	Supplemental Material	TMA
02	Students should be able to solve quadratic equations by finding square roots.	Chapter 5.1	
03	Students should be able to graph parabolas	Chapter 5.2	
04	Students should be able to solve quadratic equations by using the quadratic formula	Chapter 5.4	