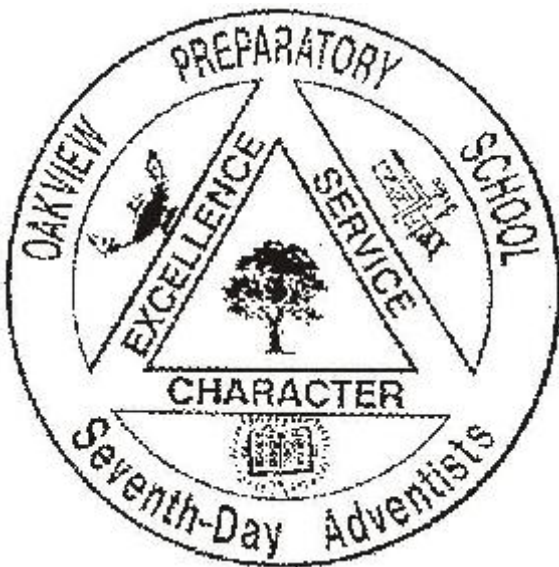


Oakview Preparatory School of Seventh-day Adventists



GRADE

8

Pre-March Mathematics Units
2005-2006

Instructor
Mr. Elvis Agard

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Assessment Rubric

4 = Exceeds the standards (Advanced)	3 = Meets the standards (Proficient)	2 = Approaching the standards (Developing)	1 = Below the standards (Latent)
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	- = Novice	√ = Apprentice	+ = Practitioner	⊕ = Expert
Knowledge	Student is unable to attain and communicate the necessary information or shows little initiative to try.	Student shows willingness to learn the information, but is unable to meet the minimum requirement of 70% on assignments. Inconsistently meets the standards.	Student scores a minimum of 70% on tests, presentations, worksheets and projects, or a rating of proficient on a scoring guide. Consistently meets the standards.	Student demonstrates in-depth knowledge and consistently scores above 90% on assignments, or a rating of advanced on a scoring guide. Consistently exceeds the standards.
Skills	Student fails to attain or demonstrate the required skills to a minimum level and shows minimum initiative to learn.	Student partially demonstrates the required skill or unable to master the skill on a consistent basis.	Student can demonstrate the required skill a minimum of three times or on a consistent basis, or a rating of proficient on a scoring guide.	Student demonstrates the required skill at an exceptional level in a self-directed manner, or a rating of advanced on a scoring guide. Consistently exceeds the standards.

The Five Process Strands (how all mathematical content is taught)

Problem Solving Strand (PS) *Students will:*

- build new mathematical knowledge through problem solving;
- solve problems that arise in mathematics and in other contexts;
- apply and adapt a variety of appropriate strategies to solve problems;
- monitor and reflect on the process of mathematical problem solving.

Reasoning and Proof Strand (RP) *Students will:*

- recognize reasoning and proof as fundamental aspects of mathematics;
- make and investigate mathematical conjectures;
- develop and evaluate mathematical arguments and proofs;
- select and use various types of reasoning and methods of proof.

Communication Strand (CM) *Students will:*

- organize and consolidate their mathematical thinking through communication;
- communicate their mathematical thinking coherently and clearly to peers, teachers, and others;
- analyze and evaluate the mathematical thinking and strategies of others;
- use the language of mathematics to express mathematical ideas precisely.

Connections Strand (CN) *Students will:*

- recognize and use connections among mathematical ideas;
- understand how mathematical ideas interconnect and build on one another to produce a coherent whole;
- recognize and apply mathematics in contexts outside of mathematics.

Representation Strand (R) *Students will:*

- create and use representations to organize, record, and communicate mathematical ideas;
- select, apply, and translate among mathematical representations to solve problems;
- use representations to model and interpret physical, social, and mathematical phenomena.

Unit Title**Ratios, Rates, Percentages****Text**

McDougal Little Middle School Math Course 3

Strand Addressed

Number Sense and Operations (with focus on operations & estimation)

**Unit Objectives
(Students will...)***Content:*

- Read, write, and identify percents less than 1% and greater than 100%
- Apply percents to: Tax, percent increase/decrease, simple interest, sale price, commission, interest rates, and gratuities
- Estimate a percent of a quantity, given an application
- Solve equations/proportions to convert to equivalent measurements within metric and customary measurement systems. Note: Also allow Fahrenheit to Celsius and vice versa

Attitudinal:

- Appreciate that proportions are necessary to everyday life e.g. recipes, clothing sizes
- Be willing to learn how to correctly apply proportions to real life

Process:

- Make connections between proportions and the real world.
- Understand that some forms of representing proportions are more efficient than others depending on the situation
- Work in cooperative groups to solve proportions problems

Resources			
Internet	Harcourt Learning Site Activities http://classzone.com/books/msmath_3/ Chapter 7: Ratio, Proportion, and Percent	<ul style="list-style-type: none"> • eTutorial Plus Online • eWorkbook Plus Online • Parents as Partners (pdf) • Audio Summaries Transcripts • Road Trip Activity • Flipcard Activity 	<ul style="list-style-type: none"> • More Examples • Test Practice • Problem of the Week • Activity of the Month • Project Support
	www.Brainpop.com	• Ratios, Rates and Percentages Movies	
Textbook	Problem of the Day	Per lesson	
	Intervention	<ul style="list-style-type: none"> • Corresponding activities and exercises from the <u>Mathematics in Action</u> Series with recommended private tutoring 	
	Enrichment	<ul style="list-style-type: none"> • Chapter 7 Resource Book <ul style="list-style-type: none"> - Activities and Applications - Projects 	
Enrichment	<i>Level 4-6: Mathematics Activities for Elementary Classroom (KSAM)</i> Publisher: Curriculum Associates	<ul style="list-style-type: none"> • Bouncing Ratios 	
Writing	TE pg 315		
Technology	Online Math Quizzes		

Ratios, Rates, Percentages

NB: Mandatory portfolio items are in bold . Strands addressed are shaded grey.	Standards by CONTENT STRANDS							Standards by PROCESS STRANDS					
	8N3	8N4	8N5	8N6	8M1				PS	RP	CM	CN	R
Lesson 7.1 Ratio and Rates													
Lesson 7.2 Writing and Solving Proportions													
Lesson 7.4 Fractions, Decimals, and Percents													
Lesson 7.5 Percent Change													
Lesson 7.6 Percent Applications													
Lesson 7.7 Using The Percent Equation													
Lesson : Estimate Percentage													
Problem Solving Activity													
Performance Assessment Project													
Unit Test													
Quiz 1													
Quiz 2													
Quiz 3													
Post-March Grade 7													
7.M.1 Calculate distance using a map scale													
7.M.5 Calculate unit price using proportions													
7.M.6 Compare unit prices													
7.M.7 Convert money between different currencies with the use of an exchange rate table and a calculator													
Expanded Content Strands													
8.N.3 Read, write, and identify percents less than 1% and greater than 100%													
8.N.4 Apply percents to: Tax, percent increase/decrease, simple interest, sale price, commission, interest rates, and gratuities													
8.N.5 Estimate a percent of a quantity, given an application													
8.N.6 Justify the reasonableness of answers using estimation													
8.M.1 Solve equations/ proportions to convert to equivalent measurements within metric and customary measurement systems. Note: Also allow Fahrenheit to Celsius and vice versa													

Unit Title	Algebra Part 1
Text	McDougal Little Middle School Math Course 3
Strand Addressed	Algebra
Unit Objectives (Students will...)	<p><i>Content:</i></p> <ul style="list-style-type: none"> • Evaluate expressions with integral exponents • Write verbal expressions that match given mathematical expressions • Create a graph given a description or an expression for a situation involving a linear or nonlinear relationship • Find a set of ordered pairs to satisfy a given linear numerical pattern (expressed algebraically); then plot the ordered pairs and draw the line <p><i>Attitudinal:</i></p> <ul style="list-style-type: none"> • Appreciate that algebra is an everyday part of life • Be willing to learn how to correctly apply algebra to real life <p><i>Process:</i></p> <ul style="list-style-type: none"> • Make connections between proportions and the real world. • Understand that numerical information can be represented in multiple ways: arithmetically, algebraically and graphically • Work in cooperative groups to solve algebraic problems

Resources		
Internet	Harcourt Learning Site Activities http://classzone.com/books/msmath_3/ Chapters 1,4,6,11	<ul style="list-style-type: none"> • eTutorial Plus Online • eWorkbook Plus Online • Parents as Partners (pdf) • Audio Summaries Transcripts • Road Trip Activity • Flipcard Activity <ul style="list-style-type: none"> • More Examples • Test Practice • Problem of the Week • Activity of the Month • Project Support
	www.Brainpop.com	<ul style="list-style-type: none"> • Algebra Movies
Textbook	Problem of the Day	Per lesson
	Intervention	<ul style="list-style-type: none"> • Corresponding activities and exercises from the <u>Mathematics in Action</u> Series with recommended private tutoring
	Enrichment	<ul style="list-style-type: none"> • Chapters 1,4,6,11 Resource Books <ul style="list-style-type: none"> - Activities and Applications - Projects
Enrichment	<i>Balanced Assessment Middle Grades Assessment: Package 1</i> Dale Seymour Publications	<ul style="list-style-type: none"> • Drop and Bounce
Writing	TE pg 269	
Technology	Online Math Quizzes	

Algebra Part 1

NB: Mandatory portfolio items are in bold . Strands addressed are shaded grey .	Standards by CONTENT STRANDS										Standards by PROCESS STRANDS				
	8A1	8A2	8A3	8A4	8A10	8A15	8A16	8N1	8N2	PS	RP	CM	CN	R	
Lesson 1.4 Powers and Exponents															
Lesson 4.6 Rules of Exponents															
Representation of Numerical Data															
1.3 Variables and Expressions															
6.6 Problem Solving and Inequalities															
11.4 Graphs of Linear Equations															
4.2 Greatest Common Factor															
Situational Graphs															
Problem Solving Activity															
Performance Assessment Project															
Unit Test															
Quiz 1															
Quiz 2															
Quiz 3															
Post-March Grade 7															
7.A.7 Draw the graphic representation of a pattern from an equation or from a table of data															
7.A.8 Create algebraic patterns using charts/tables, graphs, equations, and expressions															
7.A.9 Build a pattern to develop a rule for determining the sum of the interior angles of polygons															
7.A.10 Write an equation to represent a function from a table of values															
Expanded Content Strands															
8.N.1 Develop and apply the laws of exponents for multiplication and division															
8.N.2 Evaluate expressions with integral exponents															
8.A.1 Translate verbal sentences into algebraic inequalities															
8.A.2 Write verbal expressions that match given mathematical expressions															
8.A.3 Describe a situation involving relationships that matches a given graph															
8.A.4 Create a graph given a description or an expression for a situation involving a linear or nonlinear relationship															
8.A.10 Factor algebraic expressions using the GCF															
8.A.15 Understand that numerical information can be represented in multiple ways: arithmetically, algebraically and graphically															
8.A.16 Find a set of ordered pairs to satisfy a given linear numerical pattern (expressed algebraically); then plot the ordered pairs and draw the line															

Unit Title**Algebra Part 2****Text**

McDougal Little Middle School Math Course 3

Strand Addressed

Algebra

Unit Objectives**(Students will...)***Content:*

- Use physical models to perform operations with polynomials
- Apply arithmetic operations to polynomials and monomials
- Factor a trinomial in the form ax^2+bx+c ; $a=1$ and c having no more than 3 sets of factors

Attitudinal:

- Be willing to learn to correctly apply operations to polynomials and monomials

Process:

- Make connections between polynomials and monomials and the real world.
- Work in cooperative groups to solve polynomials and monomials problems.

Resources

Internet	Harcourt Learning Site Activities http://classzone.com/books/msmath_3/ Chapter 13	<ul style="list-style-type: none"> • eTutorial Plus Online • eWorkbook Plus Online • Parents as Partners (pdf) • Audio Summaries Transcripts • Road Trip Activity • Flipcard Activity 	<ul style="list-style-type: none"> • More Examples • Test Practice • Problem of the Week • Activity of the Month • Project Support
	www.Brainpop.com	<ul style="list-style-type: none"> • Algebra Movies 	
Textbook	Problem of the Day	Per lesson	
	Intervention	<ul style="list-style-type: none"> • Corresponding activities and exercises from the <u>Mathematics in Action</u> Series with recommended private tutoring 	
	Enrichment	<ul style="list-style-type: none"> • Chapter 13 Resource Books <ul style="list-style-type: none"> - Activities and Applications - Projects 	
Enrichment	<i>Textbook Resource:</i> <i>Special Activity: Chapter 13</i>		
Writing	TE pg 655		
Technology	Online Math Quizzes		

Algebra Part 2

NB: Mandatory portfolio items are in bold . Strands addressed are shaded grey.	Standards by CONTENT STRANDS						Standards by PROCESS STRANDS						
	8A5	8A6	8A7	8A8	8A9	8A11			PS	RP	CM	CN	R
Lesson 13.2 Adding and Subtracting Polynomials													
Lesson 13.3 Monomials and Powers													
Lesson 13.4 Multiplying Binomials													
Divide Monomials and Polynomials													
Factor Trinomials													
Problem Solving Activity													
Performance Assessment Project													
Unit Test													
Quiz 1													
Quiz 2													
Quiz 3													
Prerequisite Content & Skills (Post-March Grade 7)													
7.A.2 Add and subtract monomials with exponents of one													
7.A.3 Identify a polynomial as an algebraic expression containing one or more terms													
7.A.4 Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation													
Expanded Content Strands													
8.A.5 Use physical models to perform operations with polynomials													
8.A.6 Multiply and divide monomials													
8.A.7 Add and subtract polynomials (integer coefficients)													
8.A.8 Multiply a binomial by a monomial or binomial (integer coefficients)													
8.A.9 Divide a polynomial by a monomial (integer coefficients) Note: The degree of the denominator is less than or equal to the degree of the numerator for all variables.													
8.A.11 Factor a trinomial in the form ax^2+bx+c ; $a=1$ and c having no more than 3 sets of factors													

Unit Title**Geometric Relationships****Text**

McDougal Little Middle School Math Course 3

Strand Addressed

Geometry

**Unit Objectives
(Students will...)***Content:*

- Identify geometric figures
- Calculate missing angle measurements in geometric forms
- Identify the properties preserved and not preserved under a reflection, rotation, translation, and dilation

Attitudinal:

- Appreciate that geometry is an integral part of our lives e.g. architecture
- Be willing to correctly manipulate geometric figures

Process:

- Make connections between geometry and the real world.
- Work in cooperative groups to solve geometric problems.

Resources

Internet	Harcourt Learning Site Activities http://classzone.com/books/msmath_3/ Chapter 8	<ul style="list-style-type: none"> • eTutorial Plus Online • eWorkbook Plus Online • Parents as Partners (pdf) • Audio Summaries Transcripts • Road Trip Activity • Flipcard Activity 	<ul style="list-style-type: none"> • More Examples • Test Practice • Problem of the Week • Activity of the Month • Project Support
	www.Brainpop.com	<ul style="list-style-type: none"> • Geometry Movies 	
Textbook	Problem of the Day	Per lesson	
	Intervention	<ul style="list-style-type: none"> • Corresponding activities and exercises from the <u>Mathematics in Action Series</u> with recommended private tutoring 	
	Enrichment	<ul style="list-style-type: none"> • Chapter 8 Resource Books <ul style="list-style-type: none"> - Activities and Applications - Projects 	
Enrichment	<i>Balanced Assessment Middle Grades Assessment: Package 1</i> Dale Seymour Publications	<ul style="list-style-type: none"> • Stacking Cubes 	
Writing	TE pg 373		
Technology	Online Math Quizzes		

Geometric Relationships

NB: Mandatory portfolio items are in bold . Strands addressed are shaded grey.	Standards by CONTENT STRANDS							Standards by PROCESS STRANDS				
	8G1	8G2	8G3	8G4	8G5	8G6	8A12	PS	RP	CM	CN	R
Lesson 8.1 Angle Pairs												
Lesson 8.5 Congruent Polygons												
Apply Algebra to Transversals												
Problem Solving Activity												
Performance Assessment Project												
Unit Test												
Quiz 1												
Quiz 2												
<p>Post-March Grade 7</p> <p>7.G.5 Identify the right angle, hypotenuse, and legs of a right triangle</p> <p>7.G.6 Explore the relationship between the lengths of the three sides of a right triangle to develop the Pythagorean Theorem</p> <p>7.G.8 Use the Pythagorean Theorem to determine the unknown length of a side of a right triangle</p> <p>7.G.9 Determine whether a given triangle is a right triangle by applying the Pythagorean Theorem and using a calculator</p>												
<p>Expanded Content Strands</p> <p>8.G.1 Identify pairs of vertical angles as congruent</p> <p>8.G.2 Identify pairs of supplementary and complementary angles</p> <p>8.G.3 Calculate the missing angle in a supplementary or complementary pair</p> <p>8.G.4 Determine angle pair relationship when given two parallel lines cut by a transversal</p> <p>8.G.5 Calculate the missing angle measurements when given two parallel lines cut by a transversal</p> <p>8.G.6 Calculate the missing angle measurements when given two intersecting lines and an angle</p> <p>8.G.12 Identify the properties preserved and not preserved under a reflection, rotation, translation, and dilation</p>												

Unit Title	Transformational Geometry
Text	McDougal Little Middle School Math Course 3
Strand Addressed	Geometry
Unit Objectives (Students will...)	<p><i>Content:</i></p> <ul style="list-style-type: none"> • Draw the image of a figure under a dilation, translation, reflection over a given line, and rotations of 90 and 180 degrees • Describe and identify transformations in the plane <p><i>Attitudinal:</i></p> <ul style="list-style-type: none"> • Appreciate that geometry is an integral part of our lives e.g. architecture • Be willing to correctly manipulate geometric figures <p><i>Process:</i></p> <ul style="list-style-type: none"> • Make connections between geometry and the real world. • Work in cooperative groups to solve geometric problems.

Resources			
Internet	Harcourt Learning Site Activities http://classzone.com/books/msmath_3/ Chapter 8	<ul style="list-style-type: none"> • eTutorial Plus Online • eWorkbook Plus Online • Parents as Partners (pdf) • Audio Summaries Transcripts • Road Trip Activity • Flipcard Activity 	<ul style="list-style-type: none"> • More Examples • Test Practice • Problem of the Week • Activity of the Month • Project Support
	www.Brainpop.com	<ul style="list-style-type: none"> • Geometry Movies 	
Textbook	Problem of the Day	Per lesson	
	Intervention	<ul style="list-style-type: none"> • Corresponding activities and exercises from the <u>Mathematics in Action</u> Series with recommended private tutoring 	
	Enrichment	<ul style="list-style-type: none"> • Chapter 8 Resource Books <ul style="list-style-type: none"> - Activities and Applications - Projects 	
Enrichment	<i>Balanced Assessment</i> <i>Middle Grades Assessment:</i> <i>Package 1</i> Dale Seymour Publications	<ul style="list-style-type: none"> • Similar Triangles 	
Critical Thinking	TE pg 373		
Technology	Online Math Quizzes		

Transformational Geometry

NB: Mandatory portfolio items are in bold . Strands addressed are shaded grey.	Standards by CONTENT STRANDS						Standards by PROCESS STRANDS				
	8G7	8G8	8G9	8G10	8G11	8G12	PS	RP	CM	CN	R
Lesson 8.6 Reflections and Symmetry											
Lesson 8.7 Translations and Rotations											
Lesson 8.8 Similarity and Dilations											
Problem Solving Activity											
Performance Assessment Project											
Unit Test											
Quiz 1											
Quiz 2											
<p>Expanded Content Strands</p> <p>8.G.1 Identify pairs of vertical angles as congruent</p> <p>8.G.7 Describe and identify transformations in the plane, using proper function notation (rotations, reflections, translations, and dilations.)</p> <p>8.G.8 Draw the image of a figure under rotations of 90 and 180 degrees</p> <p>8.G.9 Draw the image of a figure under a reflection over a given line</p> <p>8.G.10 Draw the image of a figure under a translation</p> <p>8.G.11 Draw the image of a figure under a dilation</p> <p>8.G.12 Identify the properties preserved and not preserved under a reflection, rotation, translation, and dilation</p>											

More Internet Resources

- [ENC Focus Magazine](http://www.enc.org/focus) <http://www.enc.org/focus>
- [The NEA Foundation for the Improvement of Education](http://www.nfie.org/news.htm) <http://www.nfie.org/news.htm>
- [Teaching tips.com](http://www.teachingtips.com/articles.html) <http://www.teachingtips.com/articles.html>
- [Math Stamps](http://jeff560.tripod.com/) <http://jeff560.tripod.com/>
- [Journey into Complex Numbers](http://mathforum.org/johnandbetty/frame.htm) <http://mathforum.org/johnandbetty/frame.htm>
- [Space and Shape in Geometry](http://www.learner.org/teacherslab/math/geometry/) <http://www.learner.org/teacherslab/math/geometry/>
- [Brain Bashers](http://www.brainbashers.com/) <http://www.brainbashers.com/>
- [World of Numbers](http://www.worldofnumbers.com/) <http://www.worldofnumbers.com/>
- [mathartfun.com](http://mathartfun.com/shopsite_sc/store/html/index.html) http://mathartfun.com/shopsite_sc/store/html/index.html
- [mathpuzzle.com](http://www.mathpuzzle.com/) <http://www.mathpuzzle.com/>
- [coolmath.com](http://www.coolmath.com/) <http://www.coolmath.com/>
- [Quia Math Games](http://www.quia.com/dir/math/) <http://www.quia.com/dir/math/>
- [Math Mistakes](http://www.mathmistakes.com/) <http://www.mathmistakes.com/>
- [aplusmath.com](http://www.aplusmath.com/) <http://www.aplusmath.com/>
- [Education World](http://www.educationworld.com/) <http://www.educationworld.com/>