SUBJECT MATTER: Mathematics Grade: 5__

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Common Core Standards
Unit 1 – Place Value – Base 10 Number System	Why is our number system considered to be superior over past number systems in history? Do you agree that it is? How much can you fit into one place before you must regroup? How do numbers allow people to communicate?	Students will be able to: • Explain that when a place value group has a value of ten, that value is equal to one in the next higher place value group (e.g. 10 ones is equal to 1 ten) • Explain and demonstrate a place value shift. • Explain that when a place value group has a value of one, that value is equal to ten in the next lower place value group (e.g. one is equal to ten tenths). • Expand upon this to include decimal places • Interpret, use, and draw chip models to represent numbers • Explain patterns of multiplying and dividing whole numbers and decimals by powers of 10. • Interpret and write numbers from billions to thousandths in written notation, standard notation, expanded notation (e.g. 342 = 300 + 40 + 2), expanded notation with multiplication (e.g. 342 = 3x 100) + (4 x 10) + (2x1), and expanded notation with exponents. [$(3 \times 10^2) + (4 \times 10^1) + (2 \times 10^0)$] • Compare positive and negative whole numbers and decimals using greater than, less than or equal to. • Round whole numbers and decimals to any place. • Give at least three examples of how negative numbers are used in real-world situations.	Formative assessments to include observations, ongoing project work, quizzes, pre and post unit assessment Math Journal assessments	Anticipating 4 weeks (September) Scott Foresman – Chapter 1 Specific lessons 1-3, 1-4, 1-5 including enrichment, 1-8 Number search in newspapers Take it to the Bank – game with base 10 blocks Place value Chips/counters/mats Cuisenaire rods Virtual Manipulatives http://nlvm.usu.edu/en/nav/topic_t_1.html Timeline of Number systems http://timerime.com/en/timeline/204682/History+of+number+systems/ The Scale of the Universe http://htwins.net/scale2/ Brainpop	5.NBT.1 5.NBT.3 5.NBT.2 5.NBT.4

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Common Core Standards
				10 Ready to Go Math Performance Assessments – Chapter 2 Crack the Code Performance Assessment page 20 *See appendix for additional resources.	
Unit 2 – Fractions – Part 1	What is the relationship between the part and the whole? How can something be multiplied and get smaller?	Students will be able to: • Recognize fractions as a division problem. • Multiply a fraction by a whole number, explaining the process with reasoning. • Calculate the area of a rectangle with fractional sides. • Interpret word problems that involve multiplying fractions and solve these word problems with logical reasoning as to the sizes of answers.	Formative assessments to include observations, ongoing project work, quizzes, pre and post unit assessment Math Journal assessments	Anticipating 4 weeks (October) Scott Foresman Lesson 7- 2 page 398 Lesson 8-10 pgs 490 -493 Lesson 8-12 page 496 – 499 Lesson 8-13 page 500 Place value chips, Cuisenaire rods, Fraction circles & squares, Base 10 blocks, Fraction Tower Equivalency Cubes Online game http://images.etacuisenaire.com/versatiles_sampler/opener.html Hands-On Standards Book – page 46 Brain-pop	5.NF.3 5.NF.4a 5.NF.4b 5.NF.6

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Common Core Standards
				http://illustrativemathematics.org/standards/k8 - This site has useful illustrations for 5.NF.3 and 5.NF.6 *See appendix for additional resources.	
Unit 3 – Multiplication & Division (including decimals)	Why do algorithms work? What does it mean to have a remainder? How is place value related to the four operations? Besides the use of money, what kinds of things would we need to represent with decimals?	Students will be able to : • Add and subtract numbers from billions to hundredths using the addition and subtraction algorithms, chip models, model drawings and arrays. Explain reasoning for responses. • Multiply numbers from hundreds to thousandths by multi-digit numbers using the multiplication algorithm, chip model, model drawing and arrays. Explain reasoning for responses. • Divide numbers from thousands to hundredths with 1-, and 2 digit divisors and 4-digit dividends using the long division algorithm, base ten blocks, chip model, model drawing and arrays, explain reasoning for responses.	Formative assessments to include observations, ongoing project work, quizzes, pre and post unit assessment Math Journal assessments	Anticipating 3 weeks (Up to Thanksgiving) (November) Scott Foresman – Chapters 2, 3, 4 Lesson 1-12 pgs 38- 39 Lesson 1-13 pgs 40 – 41 Lesson 2-9, 2-10, 2-11 pages 88 – 97 Lessons 4-9, 4-10, 4-11 pages 230 – 237 http://illustrativemathematics.org/standards/k8 5.NF.5 Cuisenaire rods Base 10 blocks Place value chips Counters Add and Subtract decimals – Hands-On Standards page 44 Properties of Multiplication – Hands-On Standards page	5.NBT.5 5.NBT.6 5.NBT.7 5.NF.5

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Common Core Standards
				97 Division – Hands-On Standards page 48 *See appendix for additional resources.	
Unit 4- Fractions - **Part 2**	Can something look different but still mean the same thing? Can we add pieces of something to make it whole? What is the relationship between the part and the whole?	Student will be able to: • Create common denominators • Add and subtract fractions with unlike denominators • Understand, decompose and solve word problems with addition and subtraction of fractions with like and unlike denominators • Understand, decompose and solve word problems involving multiplication of fractions and mixed numbers.	Formative assessments to include observations, ongoing project work, quizzes, pre and post unit assessment Math Journal assessments	Anticipating 4 weeks (December, up to December Break) Scott Foresman Lesson 8-1 Lesson 8-2, 8-3, 8-4, 8-5 Fraction squares Base 10 blocks Cuisenaire rods Place value chips Counters Unifix cubes http://illustrativemathematics.org/standards/k8 Useful for 5.NF.6 http://nlvm.usu.edu/en/nav/frames_asid_194_g_2_t_1.html?from=topic_t_1.html Adding fractions with unlike denominators - Hands-On Standards Lesson 11 page 40 Subtract fractions with	5.NF.1 5.NF.2 5.NF.6

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Common Core Standards
				unlike denominators – Hands on standards Lesson 12 page 42 *See appendix for additional resources.	
Unit 5 – Geometry	Does everything on earth have a defined location? If so, how can movement be recorded? Does everything fit into a category? What are some ways we can describe or classify two-dimensional geometric shapes? Is it possible to categorize or classify everything in life? If not, what types of things should/can we categorize or classify?	Student will be able to : • Understand the concepts of x and y axes as a pair of perpendicular lines • Understand that the intersection of the x and y axis is arranged to coordinate with zero on both axes. • Successfully map a ordered pair of numbers, called a coordinate pair, to the coordinate plane. • Interpret coordinate values of points in the context of a situation. • Identify attributes of two dimensional shapes such as right angles, parallel and perpendicular line segments • Classify two-dimensional figures based on properties.	Formative assessments to include observations, ongoing project work, quizzes, pre and post unit assessment Math Journal assessments	Anticipating 4 weeks (January) Scott Foresman Lesson 3-14 Lesson 3-15 Lesson 6-4, Lesson 6-5, Lesson 6-9 Lesson 6-6 http://illustrativemathematics.org/standards/k8 5.G.1 (Battleship) Real Life Math Investigations – Tile in Style – project (optional) page 40 12 Real Life Math Projects Kids will Love – Graphing stock prices over time – page 28 Hands- On Standards Geometry Chapter – starts page 58 *See appendix for additional resources.	5.G.3 5.G.4 5.G.1 5.G.2

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Common Core Standards
Unit 6 – Number patterns	How do we record things that are changing? How do we find the unknown? How can something be multiplied and get smaller?	Students will be able to…. • Apply order of operations rules to solve problems. • Students will be able to transcribe real life happenings to algebraic expressions • Students will be able to create input/output tables from algebraic expressions • Students will be able to determine algebraic expressions from input/output tables. • Interpret word problems that involve multiplying fractions and solve these word problems using visual representations	Formative assessments to include observations, ongoing project work, quizzes, pre and post unit assessment Math Journal assessments	Anticipating three weeks (February – including the week after February break) Scott Foresman Chapter 12 addresses parentheses but not full PEMDAS Lesson 1-10 Lesson 2-13 Lesson 8-12 Lesson 8-13 Pattern Blocks, Color tiles, Cuisenaire Rods http://illustrativemathematics.org/standards/k8 For 5.OA.1 & 5.OA.2 Order of operations http://www.funbrain.com/algebra/index.html 12 Real Life Projects Kids will Love – Number Theory Project – page 31 (Sieve of Eratosthenes, Which Number doesn't belong, Which Number comes next, Complete the equations) Order of Operations - Hands-On Standards – Lesson 4 – Algebra – page 100	5.OA.3 5.NF.6 5.OA.1 5.OA.2

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Common Core Standards
				Additional Algebra – Hands On Standards – page 102, 104, 106 *See appendix for additional resources.	
Unit 7 – Fractions **Part 3**	Can we add pieces of something to make it whole? What is the relationship between the part and the whole? How can we represent patterns that we find in the real world?	Students will be able to…. • Successfully interpret and solve word problems involving addition and subtraction of fractions with both like and unlike denominators, using visual fraction models or equations. • Use benchmark fractions and number sense of fractions to estimate reasonableness of answers. • Extend previous understanding of fractions to include dividing whole numbers by fractional unit and a fractional unit by a whole number. • Create a line plot to display measurements in fractions of a unit. • Solve problems involving information presented in line plots.	Formative assessments to include observations, ongoing project work (Scaling project) , quizzes, pre and post unit assessment Math Journal assessments	Anticipating 4 weeks (March) Some word problems given in Scott Foresman Chapter 8 Scott Foresman Lesson 7-2, Lesson 8-14, Lesson 8-15 http://illustrativemathematics.org/standards/k8 for 5.NF.7 Scaling project – saved on share drive – Scaling Mondrian Hands-On Math Lessons 1 – 3 pages 20- 24 Fraction circles/squares Base 10 blocks (centimeter cubes) *See appendix for additional resources.	5.NF.2 5.NF.7 5.MD.2

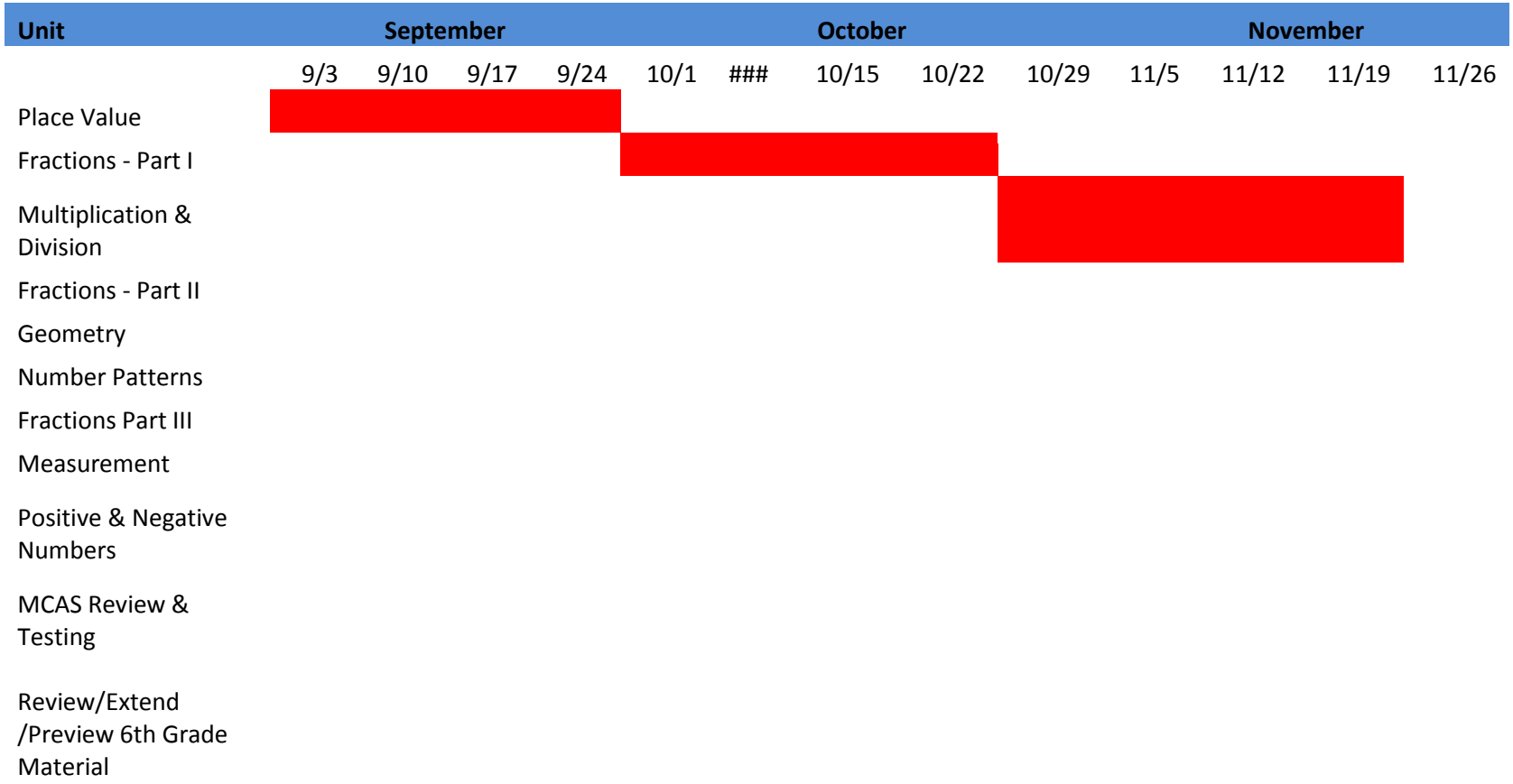
Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Common Core Standards
Unit 8 – Measurement	Can we measure everything? Is it possible to create a measurement system that measures intangible things(e.g. love, friendship, grit, determination, etc.) Can the same thing be described in more than one way? Why would we want multiple ways to represent a measurement (e.g., 1 ft. = 12 in.)	Students will be able to … • Understand and use different measuring systems (e.g. standard, metric) • Convert units within the same system of measurement (e.g. inches – feet, liters – milliliters) within word problems • Understand how the base 10 system supports conversions within the metric system and place value • Recognize volume as an attribute of solid figures and understand concepts of volume measurement. • Measure volumes by counting unit cubes using appropriate units (eg. Cubic feet, cubic inches) • Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. • Find the volume of an object by using unit cubes, applying the standard volume formulas of l x w x h and b x h • Recognize volume as additive, find volumes of non-standard figures composed of rectangular prisms.	Formative assessments to include observations, ongoing project work, quizzes, pre and post unit assessment Math Journal assessments	Anticipating 3 weeks (April) Scott Foresman Lesson 9-1, 9-4, 10-5, 10-6, 10-7, 10-8, 10-9 Also enrichment exercise from lesson 10-5 http://illustrativemathematics.org/standards/k8 For 5.MD.1 Real Life Math Investigations - A Year Is….. page 12, Line of Fries page 19 , Home for Sale – page 22, Fold and Fly – page 74 Additional activities on share drive under Grade 5 Measurement/Volume Hands-On Standards Pages 128, 138, 140 Centimeter cubes, Color tiles Metric rulers, Unifix cubes Geosolids, Sand *See appendix for additional resources.	5.MD.1 5.MD.3 5.MD.4 5.MD.5
Unit 9 - Positive & Negative Numbers	How important is position? How do numbers	• Compare positive and negative whole numbers and decimals using greater than, less than or equal to. • Give at least three examples of how	Formative assessments to include observations,	Anticipating 1 – 2 weeks April/May – up to May MCAS Scott Foresman – Lesson 12-	5.NS.MA.1

Unit/Theme	Content and Essential Questions	Skills	Methods of Assessment	Teacher Resources & Notes	Common Core Standards
	allow people to communicate?	negative numbers are used in real-word situations.	ongoing project work, quizzes, pre and post unit assessment Math Journal assessments	5, 12-8 Versa Tiles *See appendix for additional resources.	

Ware Public Schools: Fifth Grade Mathematics Pacing Guide

September	October	November	December	January	February	March	April	May	June
5.NBT.1 Place value in multi digit numbers. **5.NBT.3** Read, write, and compare decimals to thousandths. **5.NBT.2** Powers of ten and exponents. **5.NBT.4** Round decimals to any place.	**5.NF.3** Solve fractions as division word problems. **5.NF.4a** Multiply a fraction by a whole number. **5.NF.6** Solve real world problems involving multiplication of fractions and mixed numbers. *(a/b x n and a/b x c/d when d and b is not equal to 0)* **5.NF.4b** Area of a rectangle related to multiplication of fractions.	**5.NBT.5** Multiply multi digit whole numbers using standard algorithm. **5.NBT.6** Find whole number quotients up to four digit dividends and two digit divisors using strategies of place value, inverse relationships, and properties of operations. **5.NBT.7** +, -, x, ÷ decimals to hundredths using and explaining various strategies. ***Thanksgiving Break*** **5.NF.5** Interpret multiplication as scaling.	**5.NF.1** +, - fractions with unlike denominators. a/b + c/d = (ad+bc)/bd **5.NF.2** Word problems with + and – of fractions including unlike denominators. **5.NF.6** Solve real world problems involving multiplication of fractions and mixed numbers.	**5.G.3** Understand that attributes belonging to a category of 2-D figures also belong to all subcategories of that category. **5.G.4** Classify 2-D figures in a hierarchy based on properties. **5.G.1** Understand and use a coordinate plane for graphing **5.G.2** Real world problems involving coordinate planes.	**5.OA.3** Number patterns. **5.NF.6** Real world problems involving multiplication of fractions and mixed numbers. ***Winter Break*** **5.OA.1** Use parenthesis, brackets, or braces in numerical expressions, and evaluate expressions with these symbols **5.OA.2** Write simple expressions that record calculations with numbers and interpret expressions.	**5.NF.2** Word problems with + and – of fractions. **5.NF.7** Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. **5.MD.2** Make a line plot to display a data set of measurements in fractions of a unit. Use a line plot to solve problems.	**5.MD.1** Convert among different-sized standard measurement units within a given measurement system. **5.MD.3** Concepts of volume. **5.MD.4** Measure volumes using various strategies. **5.MD.5** Real world problems involving volume.	MCAS Review and Practice **5.NS.MA.1** Positive and negative integers. ***Link with science and weather***	*Preview of sixth grade content.* *Additional reinforcement if necessary.* *Re-address "power standards."* ***Power Standards:*** *NF.1* *NF.3 to 5* *NF.7* *NBT.2* *NBT.5 to 7* *OA.2 to 3* *G.1 to 2* *MD.2* *MD.5a-b*

5.NF.6: Solve real world problems involving multiplication of fractions and mixed numbers. ***This standard should be addressed throughout the year***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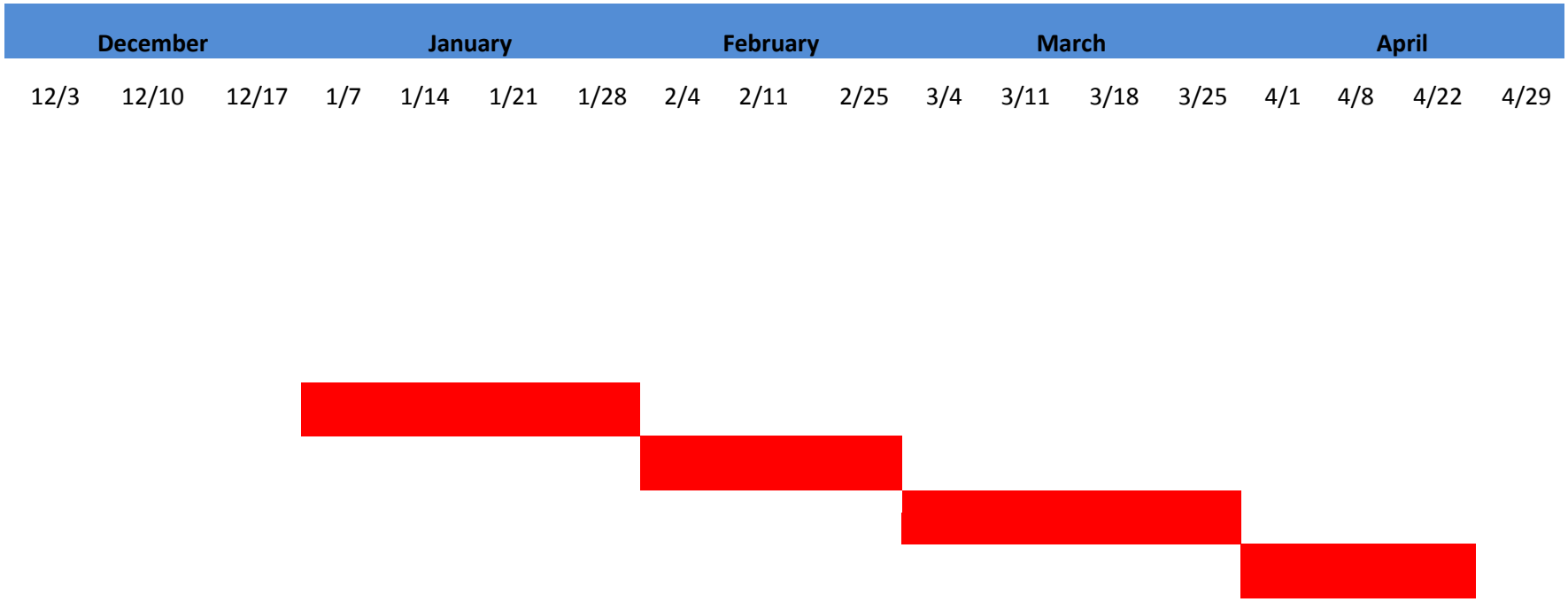
11/19
11/26
Place Value
Fractions - Part I
Multiplication & Division
Fractions - Part II
Geometry
Number Patterns
Fractions Part III
Measurement
Positive & Negative Numbers
MCAS Review & Testing
Review/Extend /Preview 6th Grade Material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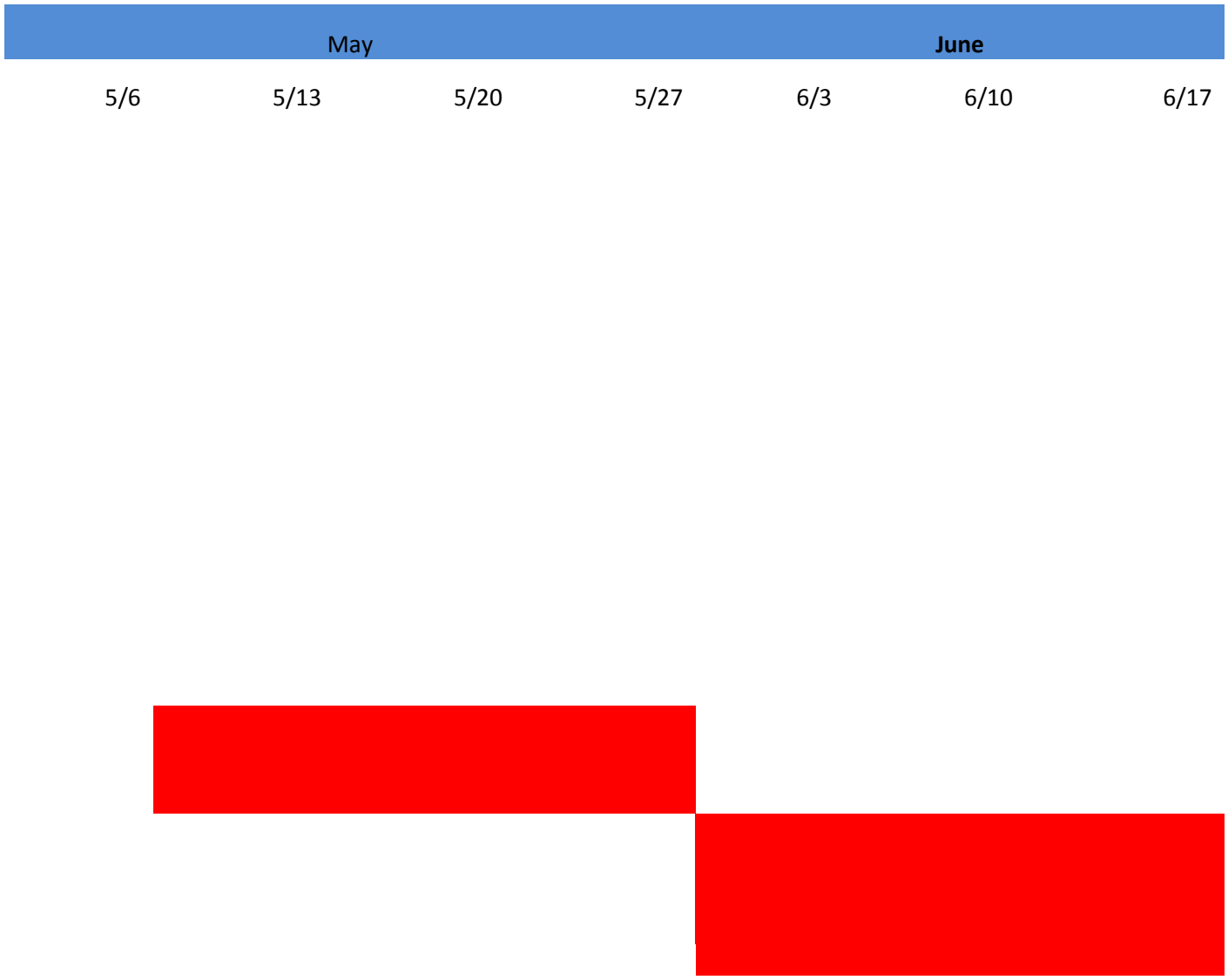
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Fifth Grade Math Teaching Resources

Operations and Algebraic Thinking		
5.OA.1	Target Number Dash	http://www.k-5mathteachingresources.com/support-files/targetnumberdash5.oa1.pdf
	Numerical Expressions Clock	http://www.k-5mathteachingresources.com/support-files/numercialexpressionswallclock.pdf
	SMART Notebook Smartboard Lessons	G6M001, G6M017
5.OA.2	Verbal Expressions	http://www.k-5mathteachingresources.com/support-files/5.oa2.pdf
	SMART Notebook Smartboard Lessons	G5M015
5.OA.3	Function Table and Graph Template	http://www.k-5mathteachingresources.com/support-files/functiontableandgraph.pdf
	Function Table and Coordinate Plane Paper	http://www.k-5mathteachingresources.com/support-files/functiontableandcoordinategridpaper.pdf
	Addition on the Coordinate Plane	http://www.k-5mathteachingresources.com/support-files/additiononthecoordinateplane.pdf
	Subtraction on the Coordinate Plane	http://www.k-5mathteachingresources.com/support-files/subtractiononthecoordinateplane.pdf
	SMART Notebook Smartboard Lessons	G5M015, G5M016, G5M017
Number and Operations in Base Ten		
5.NBT.1		
5.NBT.2	Multiplying a Whole Number by a Power of 10	http://www.k-5mathteachingresources.com/support-files/multiplyingawholenumberbyapowerof10.pdf
	Multiplying a Decimal by a Power of 10	http://www.k-5mathteachingresources.com/support-files/multiplyingadecimalbyapowerof10.pdf
	Dividing a Whole Number by a Power of 10	http://www.k-5mathteachingresources.com/support-files/dividingawholenumberbyapowerof10.pdf
	Dividing a Decimal by a Power of 10	http://www.k-5mathteachingresources.com/support-files/dividingadecimalrbyapowerof10.pdf
	SMART Notebook Smartboard Lessons	G5M006
5.NBT.3	Representing Decimals	http://www.k-5mathteachingresources.com/support-files/representingdecimalswithbase105.nbt3.pdf

	with Base 10 Blocks	
	Representing Decimals in Different Ways	http://www.k-5mathteachingresources.com/support-files/representingdecimalsindifferentways.pdf
	Hunt for Decimals	http://www.k-5mathteachingresources.com/support-files/huntfordecimals5.nbt3.pdf
	Comparing Decimals	http://www.k-5mathteachingresources.com/support-files/comparingdecimals.pdf
	SMART Notebook Smartboard Lessons	G5M001, G5M002, G5M009, G6M010
5.NBT.4	Rounding Decimals to the Nearest Hundredth	http://www.k-5mathteachingresources.com/support-files/roundingdecimalstothenearesthundredth.pdf
5.NBT.5	Make the Largest Product	http://www.k-5mathteachingresources.com/support-files/makethelargestproduct.pdf
	Make the Smallest Product	http://www.k-5mathteachingresources.com/support-files/makethesmallestproduct.pdf
	SMART Notebook Smartboard Lessons	G5M005
5.NBT.6	Creating and Solving a Division Problem	http://www.k-5mathteachingresources.com/support-files/creatingandsolvingadivisionproblem5nbt6.pdf
	SMART Notebook Smartboard Lessons	G5M005
5.NBT.7	Base 10 Pictures with Decimals	http://www.k-5mathteachingresources.com/support-files/base-10-pictures-with-decimals.pdf
	Base 10 Buildings with Decimals	http://www.k-5mathteachingresources.com/support-files/base-10-buildings-with-decimals.pdf
	Decimal Cross Number Puzzles	http://www.k-5mathteachingresources.com/support-files/decimal-cross-number-puzzles.pdf
	Base 10 Decimal Bag Addition	http://www.k-5mathteachingresources.com/support-files/base-10-decimal-bag-addition.pdf
	Base 10 Decimal Bag Subtraction	http://www.k-5mathteachingresources.com/support-files/base-10-decimal-bag-subtraction.pdf
	Total Ten	http://www.k-5mathteachingresources.com/support-files/totalten.pdf
	Decimal Subtraction Spin	http://www.k-5mathteachingresources.com/support-files/decimalsubtractionspin.pdf
	Decimal Addition to 500	http://www.k-5mathteachingresources.com/support-files/decimaladditionto500.pdf
	Decimal Addition Bingo	http://www.k-5mathteachingresources.com/support-files/decimaladditionbingo5.nbt7.pdf

	Decimal Race to Zero	http://www.k-5mathteachingresources.com/support-files/decimalracetozero5.nbt7.pdf
	Decimal Magic Triangle	http://www.k-5mathteachingresources.com/support-files/decimalmagictriangle5.nbt7.pdf
	Magic Squares (adding decimals)	http://www.k-5mathteachingresources.com/support-files/magicsquaresadditiondecimals.pdf
	Name that Portion	Investigations Curriculum "Name that Portion" Investigation 3, Sessions 1-4 (page 64) Exploring Decimals
	SMART Notebook Smartboard Lessons	G5M010, G6M011, G6M012
Number and Operations - Fractions		
5.NF.1	Fraction Word Problems (unlike denominator)	http://www.k-5mathteachingresources.com/support-files/fraction-word-problems-unlike-denominator.pdf
	Mixed Number Word Problems (unlike denominators)	http://www.k-5mathteachingresources.com/support-files/mixed-numbers-word-problems-unlike-denominators.pdf
	Closest to 25	http://www.k-5mathteachingresources.com/support-files/closest-to-25.pdf
	Magic Squares (adding fractions)	http://www.k-5mathteachingresources.com/support-files/magicsquaresadditionfractions.pdf
	Mixed Number Sum	http://www.k-5mathteachingresources.com/support-files/mixednumberswithsumof5nf1.pdf
	Mixed Number Difference	http://www.k-5mathteachingresources.com/support-files/mixednumberswithdifference5nf1.pdf
	Fraction Recipe	http://illuminations.nctm.org/WebResourceReview.aspx?ID=489
	SMART Notebook Smartboard Lessons	G5M007, G5M008, G6M002, G6M003, G6M004, G6M005, G6M006, G6M007
5.NF.2	Using Equivalent Fractions to Subtract Fractions	http://www.k-5mathteachingresources.com/support-files/usingequivfractionstosubtractfrac5nf1.pdf
	Addition Word Problems with Fractions	http://www.k-5mathteachingresources.com/support-files/fractionwordproblem1.pdf
	Subtraction Word Problems with Fractions	http://www.k-5mathteachingresources.com/support-files/fractionwordproblem2.pdf
5.NF.3		
5.NF.4	Multiplying Fractions by Dividing Rectangles	http://www.k-5mathteachingresources.com/support-files/multiplyingfractionsbydividingrectangles5.nf4a.pdf

	Fraction x Fraction Word problems	http://www.k-5mathteachingresources.com/support-files/fractionxfractionwordproblems.pdf
	Area Word Problems with Fractional Side Lengths	http://www.k-5mathteachingresources.com/support-files/area-word-problems-fractional-side-lengths-5nf4b.pdf
	Rectangle Multiplication (Fraction x Fraction)	http://nlvm.usu.edu/en/nav/frames_asid_194_g_2_t_1.html?from=topic_t_1.html
	Math Playground – Multiplying Fractions by Fractions	http://www.mathplayground.com/fractions_mult.html
5.NF.5		
5.NF.6	Fraction x Mixed Number Word Problems	http://www.k-5mathteachingresources.com/support-files/fraction-x-mixed-no.-word-problems-5nf6.pdf
	Whole Number x Mixed Number Models	http://www.k-5mathteachingresources.com/support-files/Whole-Number-x-Mixed-Number-Models.pdf
	Mixed Number x Fraction Models	http://www.k-5mathteachingresources.com/support-files/Mixed-Number-x-Fraction-Models.pdf
	SMART Notebook Smartboard Lessons	G6M008
5.NF.7	Divide a Unit Fraction by a Whole Number	http://www.k-5mathteachingresources.com/support-files/Divide-a-Unit-Fraction-by-a-Whole-Number.pdf
	Dividing a Whole Number by a Unit Fraction	http://www.k-5mathteachingresources.com/support-files/dividing-a-whole-number-by-a-unit-fraction-5.nf7b.pdf
	Divide a Whole Number by a Unit Fraction	http://www.k-5mathteachingresources.com/support-files/Divide-a-whole-number-by-a-unit-fraction.pdf
	Division of Fractions Word Problems	http://www.k-5mathteachingresources.com/support-files/divisionoffractionwordproblems.pdf
Geometry		
5.G.1	Coordinate Grid Geoboards	http://www.k-5mathteachingresources.com/support-files/coordinategridgeoboards.pdf
	Coordinate Shapes	http://www.k-5mathteachingresources.com/support-files/coordinateshapes.pdf
	Coordinate Grid Swap	http://www.k-5mathteachingresources.com/support-files/coordinategridswap.pdf
	Coordinate Grid Tangram	http://www.k-5mathteachingresources.com/support-files/coordinategridtangram.pdf
	Assorted Coordinate	http://www.k-5mathteachingresources.com/support-files/coordinategridpaperset.pdf

	Grid Paper	
	Polygon Pictures with Coordinate Geometry	Investigations Curriculum, "Picturing Polygons" Investigation 1, Session 3 (page 15)
	SMART Notebook Smartboard Lessons	G5M018
5.G.2	Geometric Shapes on the Coordinate Grid	http://www.k-5mathteachingresources.com/support-files/geometricshapesonthecoordinategrid.pdf
	Describe the Graph	http://illuminations.nctm.org/LessonDetail.aspx?id=L777
	SMART Notebook Smartboard Lessons	G5M018
5.G.3	Identifying Quadrilaterals	http://www.k-5mathteachingresources.com/support-files/identifyingquadrilaterals.pdf
	Quadrilateral Criteria	http://www.k-5mathteachingresources.com/support-files/quadrilateralcriteria.pdf
	Constructing Quadrilaterals	http://www.k-5mathteachingresources.com/support-files/constructingquadrilaterals.pdf
	Quadrilateral Tangram Challenge	http://www.k-5mathteachingresources.com/support-files/quadrilateraltangramchallenge.pdf
	Triangles and Quadrilaterals	Investigations Curriculum, "Picturing Polygons" Investigation 2, Sessions 1-5 (page 31-52)
	SMART Notebook Smartboard Lessons	G5M019, G5M020
5.G.4	Triangle Hierarchy Diagram	http://www.k-5mathteachingresources.com/support-files/trianglehierarchydiagram1.pdf
	Triangle Hierarchy Diagram 2	http://www.k-5mathteachingresources.com/support-files/trianglehierarchydiagram2.pdf
	Regular/Irregular Hierarchy Diagram	http://www.k-5mathteachingresources.com/support-files/regularirregularhierarchydiagram.pdf
	Quadrilateral Hierarchy Diagram	http://www.k-5mathteachingresources.com/support-files/quadrilateralhierarchydiagram.pdf
	SMART Notebook Smartboard Lessons	G5M019, G5M020, G5M022
Measurement and Data		
5.MD.1	Comparing Units of Metric Linear Measure	http://www.k-5mathteachingresources.com/support-files/comparingunitsofmetriclinearmeasure.pdf
	Metric Conversion Word Problems	http://www.k-5mathteachingresources.com/support-files/measurementwordproblemsmetric.pdf

	Measuring Up	http://illuminations.nctm.org/LessonDetail.aspx?id=U148
	Measures of Length and Distance	Investigations Curriculum – Investigation 1 (Page 2) – Measurement Benchmark Investigation 2 (page 44) – Measures of Weight and Liquid Volume, Investigation 3 (page 74) – Its about Time
	SMART Notebook Smartboard Lessons	G5M023, G6M022, G6M023
5.MD.2	Fractions on a Line Plot	http://www.k-5mathteachingresources.com/support-files/fractionsonalineplot.pdf
	Sacks of Flour	http://www.k-5mathteachingresources.com/support-files/sacksofflour.pdf
5.MD.3	Exploring Volume	http://www.k-5mathteachingresources.com/support-files/exploringvolume.pdf
	Building Rectangular Prisms with a Given Volume	http://www.k-5mathteachingresources.com/support-files/buildingrectangularprismswithagivenvolume.pdf
	Ordering Rectangular Prisms by Volume	http://www.k-5mathteachingresources.com/support-files/orderingrectangularprismsbyvolume.pdf
	The Packaging Factory 5.MD.3a	Investigations Curriculum "Containers and Cube Investigation 1, Sessions 1-2 (page 2)
	Doubling and Halving Boxes 5.MD.3b	Investigations Curriculum "Containers and Cubes" Investigations 3 & 4
5.MD.4	3-D Structures	http://www.k-5mathteachingresources.com/support-files/3d-structures.pdf
	Roll a Rectangular Prism	http://www.k-5mathteachingresources.com/support-files/rollarectangularprism.pdf
	Build a Cubic Meter	http://www.k-5mathteachingresources.com/support-files/build-a-cubic-meter.pdf
5.MD.5	Designing a Toy Box	http://www.k-5mathteachingresources.com/support-files/designingatoybox.pdf
	Designing a Cereal Box	http://www.k-5mathteachingresources.com/support-files/designingacerealboxx.pdf
	Packing Problems	Investigations Curriculum "Containers & Cubes" Investigation 2, Sessions 1-5 (page 24)
	Measuring the Space in our Classroom	Investigations Curriculum "Containers & Cubes" Investigation 3, Sessions 1-4 (page 38)
	SMART Notebook Smartboard Lessons	G5M026, G6M026

*Investigations Curriculum Resources are from the fifth grade Investigations Curriculum c. 1996
**Smartboard lessons can be found in the Notebook Software on the Ware Public School Computers.

- Click “Notebook Software” -> “resources” -> “team content” -> then click the drop down menu to select lessons.
- Lessons that begin with “G5” are found under fifth grade content and “G6” are found under sixth grade content.

Common Core Standards Tested in 2013

****Denotes standards that connect back to the 2004 MA Frameworks and indicate a focus on the 2013 MCAS**

1. The Number System
    - ****6.NS.1**: Dividing fractions using models; reciprocals; dividing fractions without models; estimating quotients with mixed numbers; add, subtract, multiply, and divide fractions with mixed numbers; word problems
    - ****6.NS.2**: Divisibility Rules; division patterns with zeroes; dividing numbers ending in zeroes; estimate quotients; divide whole numbers with two- and three-digit divisors; add, subtract, multiply, and divide whole numbers; word problems
    - ****6.NS.3**: Estimate sums, differences, products, and quotients of decimals; add, subtract, multiply, and divide (with decimal quotients) decimals; maps with decimal distances; multiply and divide decimals by powers of 10; evaluate expressions involving decimals; word problems
    - ****6.NS.4**: Factors and multiples; Greatest Common Factor (GCF); Least Common Multiple (LCM); Distributive Property
    - ****6.NS.5**: Understanding integers (scenarios); measurement with temperature, above and below zero
    - ****6.NS.6**: Integers (including decimals) on number lines; Coordinate Plane with 4 Quadrants; graphing points on the coordinate grid; graphing and reflecting/translating images
    - ****6.NS.7**: Inequalities on number lines, compare and order rational numbers; finding the opposite and absolute value of integers and rational numbers
2. Expressions and Equations
    - ****6.EE.1:** Write multiplication expressions using exponents; evaluate exponents, including those with decimal and fractional bases; solve for a variable when it is an exponent
    - ****6.EE.2:** Write variable expressions to represent word problems; complete a function table and write an equation; write linear functions; evaluate algebraic expressions with whole number variables, as well as decimal, fractional, and mixed numbers; two-variable equations; convert between Celsius and Fahrenheit; word problems
    - ****6.EE.6:** Write variable expressions to represent word problems; solve word problems using two-variable equations; convert between Celsius and Fahrenheit
    - ****6.EE.7:** Solve one-step equations with whole numbers, decimals, fractions, and mixed numbers
    - ****6.EE.9:** Complete a function table and write an equation; write linear functions

3. Ratios and Proportional Relationships
    - **6.RP.2:** Unit rates and equivalent rates
    - ****6.RP.3:** Coordinate planes review; ratio tables; equivalent ratios; unit prices with fractions and decimals; unit prices with Customary System unit conversions, percent of a number; sale price and original price; word problems
4. Geometry
    - ****6.G.1:** Area
    - **6.G.2:** Volume and surface area
    - **6.G.3:** Coordinate grid review
    - ****6.G.4:** Nets of 3-D figures; volume and surface area
5. Statistics and Probability
    - ****6.SP.2:** Stem-and-Leaf plots and line plots
    - ****6.SP.4:** Interpret and create pictographs; stem-and-leaf plots; create line plots and frequency tables; interpret and create single- and double-bar bar graphs and histograms; circle graphs with fractions; interpret and create single- and double-line line graphs; choose the best type of graph; interpret box-and-whisker plots
    - ****6.SP.5:** Identify random, representative, and biased samples; calculate mean, median, mode, and range, and interpret charts to find them.

SUBJECT MATTER: General Mathematics Grade: __6__

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
The Number System	**Integers**	Students will be able to apply and extend prior knowledge to the system of rational numbers: • Divisibility Rules • Understand real-world situations using positive and negative integers • Absolute Value • Opposites • Place integers on number lines and coordinate planes • Greatest Common Factor (GCF) • Least Common Multiple (LCM) • Prime Numbers & Prime Factorization Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities • Quick Quizzes • Unit Tests • Projects • Released MCAS sample questions	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives • Games, such as Integer Bingo	6.NS.2 6.NS.3 6.NS.4 6.NS.5 6.NS.6 6.NS.7 6.NS.8
	Fractions (including Mixed Numbers), Decimals, and Percents	Students will be able to apply and extend prior knowledge to dividing fractions by fractions: • Divisibility Rules • Ordering and Comparing • Reducing/Simplifying • Conversions/Equivalency • Add, Subtract, Multiply, and Divide • Greatest Common Factor (GCF) • Least Common Multiple (LCM) • Know some benchmark equivalents: halves, thirds, fourths, fifths, and tenths Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities, such as "Basketball Shooting Stats" Activity • Quick Quizzes • Unit Tests • Projects	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives, such as Fraction Circles • Games	6.NS.1 6.NS.2 6.NS.3 6.NS.4

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
			• Released MCAS sample questions		

SUBJECT MATTER: General Mathematics Grade: __6__

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
Expressions And Equations	**Numerical and Algebraic Expressions**	Students will be able to apply and extend prior knowledge of arithmetic to algebraic expressions: • Order of Operations • Knowledge of exponents • Write and evaluate numerical expressions • Write, read, evaluate/solve, and understand equivalent algebraic expressions • Apply properties to generate expressions • Use Distributive Property Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities • Quick Quizzes • Unit Tests • Projects • Released MCAS sample questions	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives, such as Algebra Tiles • Games, such as Algebraic Expression Bingo	6.EE.1 6.EE.2 6.EE.3 6.EE.4
	Equations and Inequalities	Students will be able to reason about and solve one-step equations and inequalities: • Order of Operations • Knowledge of exponents • Understand the process as answering a question • Write, read, evaluate/solve, and understand substituting variables when solving a real-world/mathematical problem Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities • Quick Quizzes • Unit Tests • Projects	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology	6.EE.5 6.EE.6 6.EE.7 6.EE.8

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
			• Released MCAS sample questions	• Manipulatives, such as Algebra Tiles • Games	
	Dependent Vs. Independent Variables	Students will be able to represent and analyze quantitative relationships between variables: • Substituting more than one variable in one problem • Use variables to represent two quantities in a real-world mathematical problem that change in relation to each other Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Cooperative Activities • Quick Quizzes • Released MCAS sample questions	• BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives, such as Algebra Tiles	6.EE.9

SUBJECT MATTER: General Mathematics Grade: __6__

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
Ratios and Proportional Relationships	**Ratios**	Students will be able to understand ratio concepts and reasoning to solve problems: • Understand a ratio is a comparison of two different quantities by division • Proportions • Cross Products • Cross Simplifying • Patterns, tables, graphs • Equivalent ratios • Use ratios to effectively convert measurement units; e.g. D = m/v Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities • Quick Quizzes • Unit Tests • Projects • Released MCAS sample questions	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives, such as grids • Supermarket Items • Games	6.RP.1 6.RP.3a 6.RP.3d 6.RP.MA.3.e
	Rates and Unit Rates	Students will be able to understand the concept of a unit rate associated with a ratio: • Proportions • Cross Products • Cross Simplifying • Equivalent ratios • Unit pricing • Constant speed; e.g. d = r(t) • Use ratios and rates to solve real world mathematical problems Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities • Quick Quizzes • Unit Tests • Projects, such as the "Thanksgiving	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives, such as grids	6.RP.2 6.RP.3b

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
			Dinner" and/or Unit Rate Project • Released MCAS sample questions	• Supermarket Items • Games	
	Percent of a Quantity	Students will be able to use ratios to find the percent of a given quantity as a rate per 100: • Proportions • Cross Products • Cross Simplifying • Equivalent Ratios • Unit pricing • Use ratios and rates to solve real world mathematical problems Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities, such as "Basketball Shooting Stats" Activity • Quick Quizzes • Unit Tests • Projects, such as "Gummy Worm" Project • Released MCAS sample questions	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives, such as grids • Games	6.RP.3c 6.RP.3d

SUBJECT MATTER: General Mathematics Grade: __6__

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
Geometry	**Perimeter and Area**	Students will be able to use correct formulas in solving real-world mathematical problems involving perimeter, circumference, and area: • Perimeter & Area of Polygons, including Triangles (specifically right triangles), and Quadrilaterals (especially squares and rectangles) • Know relationship between radius and diameter to the center of a circle; i.e., $d = 2r$ and $r = \frac{1}{2} d$ • Circumference and Area of Circles • Using coordinates, draw polygons on the coordinate plane • Manipulate data with fractional edge lengths Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities, such as the "Finding Pi with Pie" Activity • Quick Quizzes • Unit Tests • Projects • Released MCAS sample questions	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives, such as nets, blocks, solid figures, and geo-boards • Games	6.G.1 6.G.MA.1.a 6.G.MA.1.b 6.G.3
	Surface Area	Students will be able to use correct formulas in solving real-world mathematical problems involving area and surface area: • Perimeter and area of rectangles and triangles • Nets of solids, especially rectangular prisms (including cubes), rectangular pyramids, (square) pyramids, triangular prisms, and triangular pyramids Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities • Quick Quizzes • Unit Tests • Projects	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology	6.G.1 6.G.4

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
			• Released MCAS sample questions	• Manipulatives, such as nets, blocks, solid figures, and geo-boards • Games	
	Volume	Students will be able to use correct formulas in solving real-world mathematical problems involving volume: • Volume of rectangular prisms, including cubes • Manipulate data with fractional edge lengths • Know and use two formulas: $V = lwh$ and $V = Bh$ Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities • Quick Quizzes • Unit Tests • Projects • Released MCAS sample questions	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives, such as nets, blocks, solid figures, and geo-boards • Games	6.G.1 6.G.2

SUBJECT MATTER: General Mathematics Grade: __6__

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
Statistics and Probability	**Statistical Variability**	Students will be able to develop an understanding of statistical variability: • Recognize a statistical question • Describe a set of numerical data • Measures of Center summarizes all of a data set's values; e.g., mean, median, mode • Measures of Variation describe how a data set's values vary; e.g., range, mid-range Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities • Quick Quizzes • Unit Tests • Projects, such as the Survey Project • Released MCAS sample questions	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology • Manipulatives, such as dice, tiles, spinners, student questionnaires • Graph Paper • Games	6.SP.1 6.SP.2 6.SP.3
	Organizing and Displaying Data	Students will be able to record/display, summarize, and describe distributions in a data set: • Frequency Tables • Histograms • Scatter Plots, Dot Plots, and Line Plots • Bar and Line Graphs • Circle Graphs • Stem- and Leaf-Plots • Box- and Whisker-Plots • Measures of Center and Variation: mean, median, mode, range, and mid-range Students will be expected to understand and effectively speak, using grade-level vocabulary	• Teacher Observations & Questioning • Class Participation • Daily Classwork • Problems of the Day/ Warm-Up Activities • Cooperative Activities • Quick Quizzes • Unit Tests • Projects, such as	• Prentice Hall Text, Course 1 (primary text) & Software • Addison Wesley/ Scott Foresman (secondary texts) • BrainPop (online videos) • Classroom Word Walls • Overhead Projector • Smart Board Technology	6.SP.4 6.SP.MA.4.a 6.SP.5

Unit	Content	Skills	Methods of Assessment	Teacher Resources	Common Core Standards
			the M&M Project • Released MCAS sample questions	• Manipulatives, such as dice, tiles, spinners, M&M's, student questionnaires • Graph Paper • Games	

Common Core Standards Tested in 2013

Grade 7 - Mathematics

**** Denotes standards that connect back to the 2004 MA Frameworks and indicate a focus on the 2013 MCAS**

6. The Number System

- **7.NS.1: Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.
    - 7.NS.1a Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.
    - 7.NS.1b Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
    - 7.NS.1c Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
    - 7.NS.1d Apply properties of operations as strategies to add and subtract rational numbers.
- **7.NS.2: Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
    - 7.NS.2a Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(–1)(–1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
    - 7.NS.2b Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers then $–(p/q) = (–p)/q = p/(–q)$. Interpret quotients of rational numbers by describing real-world contexts.
    - 7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.
    - 7.NS.2d Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.
- **7.NS.3: Solve real world and mathematical problems involving the four operations with rational numbers. (Footnote: Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)

7. Ratios and Proportions

- **7.RP.1: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction (1/2)/(1/4) miles per hour, equivalently 2 miles per hour.

- **7.RP.2: Recognize and represent proportional relationships between quantities.
    - 7.RP.2a Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
    - 7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
    - 7.RP.2c Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.
    - 7.RP.2d Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.
- **7.RP.3: Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

8. Expressions and Equations

- 7.EE.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- **7.EE.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations as strategies to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.
- **7.EE.4: Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
    - 7.EE.4a Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?
    - 7.EE.4b Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example, As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.
    - 7.EE.4c Extend analysis of patterns to include analyzing, extending, and determining an expression for simple arithmetic and geometric sequences (e.g., compounding, increasing area), using tables, graphs, words, and expressions.

9. Geometry

- **7.G.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.
- 7.G.3: Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
- **7.G.4: Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.
- **7.G.5: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
- **7.G.6: Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

10. Statistics and Probability

- 7.SP.1: Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.
- **7.SP.4: Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.
- **7.SP.5: Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.
- **7.SP.8: Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.
    - 7.SP.8a Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.
    - 7.SP.8b Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., “rolling double sixes”), identify the outcomes in the sample space which compose the event.
    - 7.SP.8c Design and use a simulation to generate frequencies for compound events. For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?

Ware Public Schools

SUBJECT MATTER: **General Mathematics** **Grade: 7**

Unit/Theme	Content	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Number System	Rational Numbers And Fractions	• Add and subtract fractions • Multiply and divide fractions • All operations with mixed numbers • Estimate all operations with mixed numbers • Describe and solve real world contexts • Multiplicative Inverse • Divisibility Rules	• Warm-up • Classwork • Activities • Homework • Teacher observation • Quizzes • Tests • MCAS questions	• Mimio Technology • Prentice Hall Course 2 Text & Worksheets • SFAW Worksheets • MCAS questions • MCAS *Finish Line* • Word Wall • *Math on Call* • Manipulatives • Games	7.NS.1 7.NS.1.b 7.NS.1.d 7.NS.2.a 7.NS.2.b 7.NS.2.c 7.NS.3 7.EE.3
	Integers	• Add and subtract integers • Inequalities with integers and absolute value • Represent addition/subtraction on number line • Describe when opposites and absolute value combine to equal zero • Multiply and divide integers • Distributive property			7.NS.1.a 7.NS.1.b 7.NS.1.c 7.NS.2.a 7.NS.3
	Decimals	• Multiply and divide decimals • Divide decimals by whole numbers • Rounding • Estimate sums, differences, and products			7.NS.2.b 7.NS.2.c 7.NS.3 7.EE.3
	Conversion	• Convert between decimals, fractions, percents, and mixed numbers • Long division with rational numbers terminates or repeats			7.NS.2.d 7.NS.3 7.EE.3

Ware Public Schools

SUBJECT MATTER: **General Mathematics** **Grade: 7**

Unit/Theme	Content	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Expressions & Equations	Linear Expressions	• Simplify expressions with decimals • Simplify expressions with integers • Add and subtract like terms • Understand equivalent expressions	• Warm-up • Classwork • Activities • Homework • Teacher observation • Quizzes • Tests • MCAS questions	• Mimio Technology • Prentice Hall Course 2 Text & Worksheets • SFAW Worksheets • MCAS questions • MCAS *Finish Line* • Word Wall • *Math on Call* • Manipulatives • Games	7.NS.2.c 7.NS.1.d 7.EE.1 7.EE.2 7.EE.3
	Number Theory	• Convert between scientific notation and standard notation • Use Venn diagrams to solve problems			7.EE.3
	Linear Equations	• Model and solve equations using algebra tiles • Solve 1-step linear equations • Solve 2-step linear equations • Solve equations with like terms			7.EE.4.a
	Linear Inequalities	• Model and solve inequalities using algebra tiles • Inequalities on number lines • Solve 1-step linear inequalities • Solve 2-step linear inequalities			7.EE.4.a 7.EE.4.b

Ware Public Schools

SUBJECT MATTER: **General Mathematics** **Grade: 7**

Unit/Theme	Content	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Ratios & Proportional Relationships	Unit Rates	• Determine unit rate of ratios of lengths, areas, and unit conversion • Calculate unit rates • Determine unit prices • Convert units • Identify unit rate in table, graph, equation	• Warm-up • Classwork • Activities • Homework • Teacher observation • Quizzes • Tests • MCAS questions	• Mimio Technology • Prentice Hall Course 2 Text & Worksheets • SFAW Worksheets • MCAS questions • MCAS *Finish Line* • Word Wall • *Math on Call* • Manipulatives • Games	7.RP.1 7.RP.2.a 7.RP.2.b 7.RP.2.d
	Proportions	• Identify proportions • Test for proportionality • Compare proportions • Solve proportions • Write proportions as equations			7.RP.2.a 7.RP.2.c 7.RP.2.d 7.EE.3 7.EE.4.a
	Using proportions	• Find percent of a number • Solve percent equations • Find total price • Tax, tip, commission • Simple & compound interest • Probability • Determine scale factors			7.RP.2.c 7.RP.3 7.EE.3 7.G.1

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SUBJECT MATTER: **General Mathematics** **Grade: 7**

Unit/Theme	Content	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Geometry	Geometrical figures	• Identify, draw, and describe congruent figures • Identify, draw, and describe similar figures • Identify and describe congruent and corresponding parts of figures • Direct and indirect measurement • Area, perimeter, and volume: changes in scale	• Warm-up • Classwork • Activities • Homework • Teacher observation • Quizzes • Tests • MCAS questions	• Mimio Technology • Prentice Hall Course 2 Text & Worksheets • SFAW Worksheets • MCAS questions • MCAS *Finish Line* • Word Wall • *Math on Call* • Manipulatives • Games	7.G.1
	Draw geometric shapes	• Draw freehand, with ruler/protractor, and with technology to given conditions • Draw triangles from three angles or sides noticing/anticipating results			7.G.2
	Cross-sections	• Describe 2D shape resulting from 3D slicing of right rectangular pyramids and prisms • Describe front, side, and top view • Names and bases of 3D figures			7.G.3
	Circles	• Understand relationship between circumference and area of circle • Know formula for area and circumference • Know parts of a circle • Calculate area, circumference, radius, and diameter • Solve real-life word problems			7.G.4
	Angles	• Identify complementary, supplementary, vertical, adjacent, and congruent angles • Find measures of above using simple equations			7.G.5
	Area and Volume	• Determine area and perimeter of rectangles, parallelograms, triangles, and trapezoids • Draw nets of cubes and right prisms • Surface area cubes and right prisms			7.G.6

		• Volume of cubes and right prisms			

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SUBJECT MATTER: **General Mathematics** **Grade: 7**

Unit/Theme	Content	Skills	Methods of Assessment	Teacher Resources & Notes	Framework Strand/s & Standard/s
Statistics & Probability	Random Sampling	• Identify representative, random, and biased samples • Draw inferences from data	• Warm-up • Classwork • Activities • Homework • Teacher observation • Quizzes • Tests • MCAS questions	• Mimio Technology • Prentice Hall Course 2 Text & Worksheets • SFAW Worksheets • MCAS questions • MCAS *Finish Line* • Word Wall • *Math on Call* • Manipulatives • Games	7.SP.1 7.SP.2
	Measures of Variability	• Assess the degree of visual overlap using measures of variability • Calculate mean, median, mode, and range • Interpret mean, median, mode, and range • Find missing number in mean, median, mode, or range • Understand changes in mean, median, mode, and range			7.SP.3 7.SP.4
	Probability	• Understand the range (0-1) of event probability • Determine probability of simple events • Approximate and predict probabilities using experimental data • Describe differences between theoretical and experimental probability • Determine probability of opposite, mutually exclusive, and overlapping events • Identify and determine probability of independent and dependent events			7.SP.5 7.SP.6 7.SP.7.a 7.SP.7.b 7.SP.8.a 7.SP.8.b 7.SP.8.c 7.RP.3

		• Determine probability of compound events using tree diagrams, organized lists, tables, and experiments			
		• Calculate factorials • Combinations • Permutations			7.SP.8.a 7.SP.8.b