

## Year-at-a-Glance (YAG) --- Grade 5 --- Mathematics

The **Year at a Glance (YAG)** lays out all of the long term learning targets a student is expected master by the end of the year by bundling and sequencing them into the right units. On this YAG you will also see the Minnesota Standards and Benchmarks that align to the learning targets.

**Learning Targets:** Learning Targets are “student friendly” versions of the benchmarks. The Learning Targets should be posted in the classroom and used with students to describe the learning of the day. **Please note:** Because the language of the learning targets has been modified to be more accessible to students they do not fully reflect the depth and rigor of the benchmarks. For this reason it is important to consult the standards and benchmarks when planning instruction.

**Standards:** Standards and benchmarks set the expectations for achievement in mathematics for K-12 students in Minnesota. The standards represent a connected body of mathematical knowledge students learn through the processes of problem solving, reasoning, communication, making connections, and representation. The standards are grouped by strands: 1) Number and Operation; 2) Algebra; 3) Geometry and Measurement; 4) Data Analysis and Probability.

**Benchmarks:** The benchmarks provide specific details about the mathematical understanding and skills that students must meet to satisfy the standards. They are designed to inform and guide schools and teachers in developing curriculum and instruction.

**Achievement Level Descriptors:** The Achievement Level Descriptors provide a description of grade-level student performance for each of the achievement levels on the MCA.

The achievement levels for the MCAs are:

- *Exceeds the Achievement Standards*
- *Meets the Achievement Standards*
- *Partially Meets the Achievement Standards*
- *Does Not Meet the Achievement Standards*

Teachers and schools should use the [Achievement Level Descriptors](#) as a way to measure the rigor of classroom instruction. While it is important for students to be able to perform the tasks described in the *Does Not Meet* and *Partially Meets* categories, students need access and exposure to the tasks in the *Meets* and *Exceeds* categories in order to meet grade level expectations on the MCA.

First Semester	Second Semester
<p><b><u><a href="#">Unit 1: Number and Operations I</a></u></b> 5 weeks, Approximate dates: August 29 – October 4, 2016</p> <p><b><u><a href="#">Unit 2: Rational Numbers I</a></u></b> 4 weeks, Approximate dates: October 5– November 11, 2016</p> <p><b><u><a href="#">Unit 3: Geometry and Measurement</a></u></b> 4 ½ weeks, Approximate dates: November 14– December 16, 2016</p> <p><b><u><a href="#">Unit 4: Algebra</a></u></b> 4 weeks, Approximate dates: January 3 – February 7, 2017</p>	<p><b><u><a href="#">Unit 5: Data</a></u></b> 2 weeks, Approximate dates: February 8 – February 24, 2017</p> <p><b><u><a href="#">Unit 6: Rational Numbers II</a></u></b> 5 ½ weeks, Approximate dates: February 27 –April 14, 2017</p> <p><b>Units 1-6 must be taught prior to MCA testing. MCA Testing suggested dates: May 1 &amp; 2, 2017</b></p> <p><b><u><a href="#">Unit 7: Rational Numbers III</a></u></b> 5 ½ weeks, Approximate dates: May 3 – June 9, 2017</p>

First Semester			
<b>Unit 1: Number and Operations I (5 weeks)</b> <i>Approximate dates: August 29 – October 4, 2016</i>			
Learning Targets	Standards		
<u>Unit Long Learning Targets</u>	Strand / Standard	No.	Benchmark
<p><b>1.1</b> I can multiply multi-digit whole numbers using multiple efficient strategies (5.1.1.4)</p> <p><b>1.2</b> I can solve real-world and mathematical problems in different ways, and assess the reasonableness of my answers. (5.1.1.4)</p> <p><b>1.3</b> I can estimate the solution of a problem to determine if my answer is reasonable (5.1.1.3)</p> <p><b>1.4</b> I can divide multi-digit whole numbers using multiple efficient strategies and represent the quotient in a variety of ways. (5.1.1.1)</p> <p><b>1.5</b> I can analyze the situation of a story problem and define the quotient based on the situation. (5.1.1.2)</p>	<b>Number &amp; Operation</b>	Divide multi-digit numbers; solve real-world and mathematical problems using arithmetic.	5.1.1.1 Divide multi-digit numbers, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms. Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal.
			5.1.1.2 Consider the context in which a problem is situated to select the most useful form of the quotient for the solution and use the context to interpret the quotient appropriately.
			5.1.1.3 Estimate solutions to arithmetic problems in order to assess the reasonableness of results.
			5.1.1.4 Solve real-world and mathematical problems requiring addition, subtraction, multiplication and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results.

First Semester			
Unit 2: Rational Numbers I (4 weeks)			
Approximate dates: October 5 – November 11, 2016			
Learning Targets	Standards		
Unit Long Learning Targets	Strand / Standard	No.	Benchmark
<p><b>2.1</b> I can create and use equivalent fractions, mixed numbers, and improper fractions in various contexts (MN Benchmark 5.1.2.4)</p> <p><b>2.2</b> I can compare and order fractions (MN Benchmark 5.1.2.3)</p> <p><b>2.3</b> I can locate fractions on the number line (MN Benchmark 5.1.2.3)</p> <p><b>2.4</b> I can represent real-world (including measurement, geometry, and data) and mathematical problems involving addition and subtraction of fractions using multiple strategies including estimation. (MN Benchmark 5.1.3.1, 5.1.3.2, 5.1.3.3, 5.1.3.4)</p> <p><b>2.5</b> I can represent real-world (including measurement, geometry, and data) and mathematical problems involving addition and subtraction of fractions using multiple strategies including standard algorithm. (MN Benchmark 5.1.3.1, 5.1.3.2, 5.1.3.3, 5.1.3.4)</p>	<b>Number &amp; Operation</b>	Read, write, represent and compare fractions and decimals; recognize and write equivalent fractions; convert between fractions and decimals; use fractions and decimals in real-world and mathematical situations.	5.1.2.3 Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line.  5.1.2.4 Recognize and generate equivalent decimals, fractions, mixed numbers and improper fractions in various contexts.
		Add and subtract fractions, mixed numbers and decimals to solve real-world and mathematical problems.	5.1.3.1 Add and subtract decimals and fractions, using efficient and generalizable procedures, including standard algorithms.  5.1.3.2 Model addition and subtraction of fractions and decimals using a variety of representations.  5.1.3.3 Estimate sums and differences of decimals and fractions to assess the reasonableness of results.  5.1.3.4 Solve real-world and mathematical problems requiring addition and subtraction of decimals, fractions and mixed numbers, including those involving measurement, geometry and data.

*\*Highlighted benchmarks indicate areas where data shows that students in MPS struggle.*

First Semester			
Unit 3: Geometry and Measurement (4 ½ weeks) Approximate dates: November 14 – December 16, 2016			
Learning Targets	Standards		
Unit Long Learning Targets	Strand / Standard	No.	Benchmark
<p><b>3.1</b> I can measure the surface area of rectangular prisms using appropriate units. (5.3.2.2)</p> <p><b>3.2</b> I can measure the volume of rectangular prisms using appropriate units. (5.3.2.3)</p> <p><b>3.3</b> I can create and use formulas to determine the volume of rectangular prisms and justify why they work. (5.3.2.4)</p> <p><b>3.4</b> I can describe and classify a pyramid based on its attributes (triangular, rectangular, square, pentagonal, hexagonal, octagonal) and draw its net. (5.3.1.1)</p> <p><b>3.5</b> I can describe and classify prisms (cube, rectangular, triangular, pentagonal, hexagonal, octagonal, cylinder) based on their attributes and draw their nets. (5.3.1.2)</p> <p><b>3.6</b> I can create and use a formula to determine the area of a parallelogram. (5.3.2.1)</p> <p><b>3.7</b> I can create and use a formula to determine the area of a triangle. (5.3.2.1)</p> <p><b>3.8</b> I can decompose other polygons into triangles to determine their area. (5.3.2.1)</p>	Geometry & Measurement	Describe, classify, and draw representations of three-dimensional figures.	5.3.1.1 Describe and classify three-dimensional figures including cubes, prisms and pyramids by the number of edges, faces or vertices as well as the types of faces. 5.3.1.2 Recognize and draw a net for a three-dimensional figure.
		Determine the area of triangles and quadrilaterals; determine the surface area and volume of rectangular prisms in various contexts.	5.3.2.1 Develop and use formulas to determine the area of triangles, parallelograms and figures that can be decomposed into triangles. 5.3.2.2 Use various tools and strategies to measure the volume and surface area of objects that are shaped like rectangular prisms. 5.3.2.3 Understand that the volume of a three-dimensional figure can be found by counting the total number of same-sized cubic units that fill a shape without gaps or overlaps. Use cubic units to label volume measurements.
		5.3.2.4	Develop and use the formulas $V = \ell wh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area $B$ and height $h$ are multiplied to find the volume of a rectangular prism by breaking the prism into layers of unit cubes.

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First Semester				
Unit 4: Algebra (4 weeks)				
Approximate dates: January 3 – February 7, 2017				
Learning Targets	Standards			
Unit Long Learning Targets	Strand / Standard	No.	Benchmark	
<p><b>4.1</b> I can represent and create real-world situations with equations and inequalities. (5.2.3.2)</p> <p><b>4.2</b> I can determine if a given value for a variable makes an equation or inequality true. (5.2.3.1)</p> <p><b>4.3</b> I can apply the commutative, associative and distributive properties to solve problems involving whole numbers. (5.2.2.1)</p> <p><b>4.4</b> I can use the order of operations to solve problems involving whole numbers. (5.2.2.1)</p> <p><b>4.5</b> I can describe patterns of change and solve problems by creating and using rules, tables, spreadsheets and graphs. (5.2.1.1)</p> <p><b>4.6</b> I can use a rule or table to represent ordered pairs of positive numbers. (5.2.1.2)</p> <p><b>4.7</b> I can graph ordered pairs on a coordinate system. (5.2.1.2)</p> <p><b>4.8</b> I can create a graph using positive numbers from a rule or table. (5.2.1.2)</p> <p><b>4.9</b> I can evaluate expressions and solve equations with multiple variables when the values of all the variables, except one, are given. (5.2.3.3)</p>	<b>Algebra</b>	Recognize and represent patterns of change; use patterns, tables, graphs and rules to solve real-world and mathematical problems.	5.2.1.1 Create and use rules, tables, spreadsheets and graphs to describe patterns of change and solve problems.	
				5.2.1.2 Use a rule or table to represent ordered pairs of positive integers and graph these ordered pairs on a coordinate system.
			Use properties of arithmetic to generate equivalent numerical expressions and evaluate expressions involving whole numbers.	5.2.2.1 Apply the commutative, associative and distributive properties and order of operations to generate equivalent numerical expressions and to solve problems involving whole numbers.
			Understand and interpret equations and inequalities involving variables and whole numbers, and use them to represent and solve real-world and mathematical problems.	5.2.3.1 Determine whether an equation or inequality involving a variable is true or false for a given value of the variable.
				<b>5.2.3.2 Represent real-world situations using equations and inequalities involving variables. Create real-world situations corresponding to equations and inequalities.</b>
				5.2.3.3 Evaluate expressions and solve equations involving variables when values for the variables are given.

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Second Semester			
Unit 5: Data (2 weeks) <i>Approximate dates: February 8 – February 24, 2017</i>			
Learning Targets	Standards		
<u>Unit Long Learning Targets</u>	Strand / Standard	No.	Benchmark
<p><b>5.1</b> I can organize, create, and analyze double bar graphs, line graphs, spreadsheets, and tables with whole numbers, fractions, and decimals. (5.4.1.2)</p> <p><b>5.2</b> I can apply the concepts of mean, median, and range to interpret a set of data. (5.4.1.1)</p>	<p><b>Data Analysis</b></p> <p>Display and interpret data; determine mean, median and range.</p>	5.4.1.1	Know and use the definitions of the mean, median and range of a set of data. Know how to use a spreadsheet to find the mean, median and range of a data set. Understand that the mean is a "leveling out" of data.
		5.4.1.2	Create and analyze double-bar graphs and line graphs by applying understanding of whole numbers, fractions and decimals. Know how to create spreadsheet tables and graphs to display data.

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Second Semester						
Unit 6: Rational Numbers II (5 ½ weeks)						
<i>Approximate dates: February 27 – April 14, 2017</i>						
Learning Targets	Standards					
<u>Unit Long Learning Targets</u>	Strand / Standard	No.	Benchmark			
<p><b>6.1</b> I can create and use decimals, fractions, mixed numbers, and improper fractions in various contexts. (5.1.2.4)</p> <p><b>6.2</b> I can locate fractions and decimal numbers on a number line. (5.1.2.3)</p> <p><b>6.3</b> I can compare and order fraction and decimal numbers. (5.1.2.3)</p> <p><b>6.4</b> I can read and write numbers from millionths to millions. (5.1.2.1)</p> <p><b>6.5</b> I can explain what happens to the value of a number when digits change by one in the tenths, hundredths, or thousandths place. (5.1.2.2)</p> <p><b>6.6</b> I can round numbers to the nearest tenth, hundredth, and thousandth. (0.1, 0.01, 0.001). (5.1.2.5)</p> <p><b>6.7</b> I can solve real-world and mathematical problems involving addition and subtraction of decimals in multiple ways. (5.1.3.1, 5.1.3.2, 5.1.3.3, 5.1.3.4)</p> <p><b>6.8</b> I can solve real world problems involving both fractions and decimals. (5.1.3.3, 5.1.3.4)</p> <p style="color: green; text-align: center;"><b>MCA Testing (1 week) Units 1-6 must be taught prior to MCA testing.</b></p>	<b>Number &amp; Operation</b>	Read, write, represent and compare fractions and decimals; recognize and write equivalent fractions; convert between fractions and decimals; use fractions and decimals in real-world and mathematical situations.	5.1.2.1	Read and write decimals using place value to describe decimals in terms of groups from millionths to millions.		
			5.1.2.2	Find 0.1 more than a number and 0.1 less than a number. Find 0.01 more than a number and 0.01 less than a number. Find 0.001 more than a number and 0.001 Less than a number.		
			5.1.2.3	Order fractions and decimals, including mixed numbers and improper fractions, and locate on a number line.		
			5.1.2.4	Recognize and generate equivalent decimals, fractions, mixed numbers and improper fractions in various contexts.		
			5.1.2.5	Round numbers to the nearest 0.1, 0.01 and 0.001.		
				Add and subtract fractions, mixed numbers and decimals to solve real-world and mathematical problems.	5.1.3.1	Add and subtract decimals and fractions, using efficient and generalizable procedures, including standard algorithms.
					5.1.3.2	Model addition and subtraction of fractions and decimals using a variety of representations.
					5.1.3.3	Estimate sums and differences of decimals and fractions to assess the reasonableness of results.
					5.1.3.4	Solve real-world and mathematical problems requiring addition and subtraction of decimals, fractions and mixed numbers, including those involving measurement, geometry and data.

Second Semester			
Unit 7: Rational Numbers III (5 ½ weeks) Approximate dates: May 3 – June 9, 2017			
Learning Targets	Standards		
<u>Unit Long Learning Targets</u>	Strand / Standard	No.	Benchmark
<p><b>7.1</b> I can use ratios to describe part-whole and part-part relationships (MN Benchmark 6.1.2.1)</p> <p><b>7.2</b> I can write ratios in different ways (MN Benchmark 6.1.2.1)</p> <p><b>7.3</b> I can compare ratios (MN Benchmark 6.1.2.1)</p> <p><b>7.4</b> I can use ratios to describe real-life situations (MN Benchmark 6.1.2.2)</p>	<b>Number &amp; Operation</b>	<p>Understand the concept of ratio and its relationship to fractions and to the multiplication and division of whole numbers. Use ratios to solve real-world and mathematical problems.</p>	<p>6.1.2.1 Identify and use ratios to compare quantities; understand that comparing quantities using ratios is not the same as comparing quantities using subtraction.</p> <p>6.1.2.2 Apply the relationship between ratios, equivalent fractions and percents to solve problems in various contexts, including those involving mixtures and concentrations.</p>