

Curriculum Quick Reference Mathematics Kindergarten

	Is the MCPS curriculum being taught?	Are instructional practices consistent with MCPS curriculum? Are assessments being used as described in the instructional guide?
August September October	Unit 1 – Essential Questions <input type="checkbox"/> Where are patterns found? <input type="checkbox"/> In what ways can objects be sorted? <input type="checkbox"/> What words can be used to describe the position of an object? <input type="checkbox"/> What kinds of questions generate data?	The teacher: <ul style="list-style-type: none"> • provides 60 minutes of math instruction using the math instructional block model. • maintains a dynamic mathematical learning environment. • facilitates interactive and thoughtful student discussions about mathematical concepts and processes. • maintains a high level of student engagement. • helps students make connections to prior knowledge. • uses a variety of strategies to check for student understanding. • uses assessment to guide instruction. • differentiates instruction to meet students’ needs. The students: <ul style="list-style-type: none"> • work individually, in pairs, in small groups, and as a whole class. • solve problems using multiple strategies. • engage in classroom discussions that focus on problem solving strategies and reasoning. • use the language of mathematics to express mathematical ideas precisely through speaking and writing. • use computational skills and mathematical processes to solve meaningful problems. • develop an understanding of mathematical concepts before using an algorithm. • use calculators to develop and enhance conceptual understanding and as a tool in problem solving. • monitor their own learning.
November December January	Unit 2 – Essential Questions <input type="checkbox"/> Why are numbers necessary? <input type="checkbox"/> What makes a quantity odd or even? <input type="checkbox"/> How can quantities be shown? <input type="checkbox"/> How are numbers used to name positions?	
January February March	Unit 3 – Essential Questions <input type="checkbox"/> Why are objects measured? <input type="checkbox"/> How can objects be measured? <input type="checkbox"/> How can the order of events be described? <input type="checkbox"/> Where are shapes found in the world? <input type="checkbox"/> How can shapes be described?	
April May June	Unit 4 – Essential Questions <input type="checkbox"/> How can quantities be shown? <input type="checkbox"/> Why are coins different? <input type="checkbox"/> What are some ways quantities can be made? <input type="checkbox"/> How are estimates made?	

Curriculum Quick Reference Mathematics Grade 1

	Is the MCPS curriculum being taught?	Are instructional practices consistent with MCPS curriculum? Are assessments being used as described in the instructional guide?
August September October	Unit 1 – Essential Questions <input type="checkbox"/> What is the repeating unit in the pattern? <input type="checkbox"/> How does finding patterns help in counting? <input type="checkbox"/> What are some ways to find a number that is more than another number? Less than another number? Between numbers? <input type="checkbox"/> How can counting strategies be used to join, separate, or compare sets? <input type="checkbox"/> What questions can be answered using subtraction and/or addition?	The teacher: <ul style="list-style-type: none"> • provides 60 minutes of math instruction using the math instructional block model. • maintains a dynamic mathematical learning environment. • facilitates interactive and thoughtful student discussions about mathematical concepts and processes. • maintains a high level of student engagement. • helps students make connections to prior knowledge. • uses a variety of strategies to check for student understanding. • uses assessment to guide instruction. • differentiates instruction to meet students’ needs. The students: <ul style="list-style-type: none"> • work individually, in pairs, in small groups, and as a whole class. • solve problems using multiple strategies. • engage in classroom discussions that focus on problem solving strategies and reasoning. • use the language of mathematics to express mathematical ideas precisely through speaking and writing. • use computational skills and mathematical processes to solve meaningful problems. • develop an understanding of mathematical concepts before using an algorithm. • use calculators to develop and enhance conceptual understanding and as a tool in problem solving. • monitor their own learning.
October November December	Unit 2 – Essential Questions <input type="checkbox"/> How are nonstandard units used to measure objects? <input type="checkbox"/> How are measuring units selected? <input type="checkbox"/> How is estimation helpful in measurement? <input type="checkbox"/> How can sets and numbers be compared and ordered? <input type="checkbox"/> What strategies help in learning addition and subtraction facts? <input type="checkbox"/> How can symbols be used to represent quantities, operations, or relationships?	
December January February	Unit 3 – Essential Questions <input type="checkbox"/> How does knowing basic facts make problem solving easier? <input type="checkbox"/> What are some ways to gather and record information? <input type="checkbox"/> What information do bar graphs and pictographs show?	
February March April	Unit 4 – Essential Questions <input type="checkbox"/> How can a shape be described? <input type="checkbox"/> What are some ways to decide if shapes are congruent? <input type="checkbox"/> How do measurements help compare objects?	
April May June	Unit 5 – Essential Questions <input type="checkbox"/> How can $\frac{1}{2}$ and $\frac{1}{4}$ be represented? <input type="checkbox"/> What are some ways an amount of money can be represented? <input type="checkbox"/> What strategy is helpful to decide if a solution makes sense (is reasonable)?	

Curriculum Quick Reference Mathematics Grade 2

	Is the MCPS curriculum being taught?	Are instructional practices consistent with MCPS curriculum? Are assessments being used as described in the instructional guide?
August September October	Unit 1 – Essential Questions <input type="checkbox"/> How does the position of a digit in a number affect its value? <input type="checkbox"/> In what different ways can numbers be grouped? <input type="checkbox"/> What strategies can be used to continue a numerical sequence? <input type="checkbox"/> How are increasing and repeating patterns different? <input type="checkbox"/> What are some ways data can be displayed to communicate information? <input type="checkbox"/> What questions can be answered from a graph?	<p>The teacher:</p> <ul style="list-style-type: none"> • provides 60 minutes of math instruction using the math instructional block model. • maintains a dynamic mathematical learning environment. • facilitates interactive and thoughtful student discussions about mathematical concepts and processes. • maintains a high level of student engagement. • helps students make connections to prior knowledge. • uses a variety of strategies to check for student understanding. • uses assessment to guide instruction. • differentiates instruction to meet students’ needs. <p>The students:</p> <ul style="list-style-type: none"> • work individually, in pairs, in small groups, and as a whole class. • solve problems using multiple strategies. • engage in classroom discussions that focus on problem solving strategies and reasoning. • use the language of mathematics to express mathematical ideas precisely through speaking and writing. • use computational skills and mathematical processes to solve meaningful problems. • develop an understanding of mathematical concepts before using an algorithm. • use calculators to develop and enhance conceptual understanding and as a tool in problem solving. • monitor their own learning.
October November December	Unit 2 – Essential Questions <input type="checkbox"/> What are the attributes of a shape? <input type="checkbox"/> What are ways shapes can be sorted? <input type="checkbox"/> How are plane shapes different from solids? <input type="checkbox"/> What makes a shape symmetric? <input type="checkbox"/> What makes shapes congruent?	
December January February	Unit 3 – Essential Questions <input type="checkbox"/> What happens to a quantity when a number is composed in a different way? <input type="checkbox"/> What are efficient strategies for adding or subtracting two given numbers? <input type="checkbox"/> How does a mathematical expression differ from a number sentence? <input type="checkbox"/> How is a number sentence like a balance scale?	
February March April	Unit 4 – Essential Questions <input type="checkbox"/> How are the numerator and denominator related? <input type="checkbox"/> How can the fractional parts of a set be modeled? <input type="checkbox"/> What units and tools measure the different attributes? <input type="checkbox"/> Why are standard units of measurement used? <input type="checkbox"/> Why are units used in measuring?	
April May June	Unit 5 – Essential Questions <input type="checkbox"/> What strategies can be used to multiply and to divide? <input type="checkbox"/> What are strategies to make a reasonable estimation? <input type="checkbox"/> What does the decimal point represent? <input type="checkbox"/> What are strategies for counting money? <input type="checkbox"/> What are strategies for mastering the basic facts?	

Curriculum Quick Reference Mathematics Grade 3

	Is the MCPS curriculum being taught?	Are instructional practices consistent with MCPS curriculum? Are assessments being used as described in the instructional guide?
August September October	Unit 1 – Essential Questions <input type="checkbox"/> What are some ways to organize data? <input type="checkbox"/> How can the elements of a graph help people to understand and to interpret the data? <input type="checkbox"/> How does changing the scale affect how data is communicated? <input type="checkbox"/> How can the next step in a pattern be found? <input type="checkbox"/> What strategies can be used for finding sums and differences? <input type="checkbox"/> What strategies can be used to read and compare large numbers?	<p>The teacher:</p> <ul style="list-style-type: none"> provides 60 minutes of math instruction using the math instructional block model. maintains a dynamic mathematical learning environment. facilitates interactive and thoughtful student discussions about mathematical concepts and processes. maintains a high level of student engagement. helps students make connections to prior knowledge. uses a variety of strategies to check for student understanding. uses assessment to guide instruction. differentiates instruction to meet students' needs. <p>The students:</p> <ul style="list-style-type: none"> work individually, in pairs, in small groups, and as a whole class. solve problems using multiple strategies. engage in classroom discussions that focus on problem solving strategies and reasoning. use the language of mathematics to express mathematical ideas precisely through speaking and writing. use computational skills and mathematical processes to solve meaningful problems. develop an understanding of mathematical concepts before using an algorithm. use calculators to develop and enhance conceptual understanding and as a tool in problem solving. monitor their own learning.
October November	Unit 2 – Essential Questions <input type="checkbox"/> When is an estimate more appropriate than an actual measurement? <input type="checkbox"/> How are units of measurement related? <input type="checkbox"/> How are area and perimeter different? <input type="checkbox"/> Why is area measured in square units? <input type="checkbox"/> What strategies can be used to find area and perimeter of a shape or a region? <input type="checkbox"/> How could two different shapes have the same area or the same perimeter?	
November December January	Unit 3 – Essential Questions <input type="checkbox"/> What is the relationship among factors, products, and quotients? <input type="checkbox"/> How can models for multiplication be used to divide? <input type="checkbox"/> What strategies can be used to learn basic multiplication and division facts? <input type="checkbox"/> What strategies are used to estimate products and quotients?	
January February	Unit 4 – Essential Questions <input type="checkbox"/> How are one, two, or three-dimensional shapes described and classified? <input type="checkbox"/> What makes one angle different from another? <input type="checkbox"/> How are geometric properties used to solve problems in everyday life? <input type="checkbox"/> What strategies can be used to check for symmetry? <input type="checkbox"/> What strategies can be used to check for congruency? <input type="checkbox"/> In what ways can the position of geometric figures be changed?	
February March April	Unit 5 – Essential Questions <input type="checkbox"/> How can fractions be modeled using numerals, regions, sets, and number lines? <input type="checkbox"/> Why is it important to represent currency amounts in different ways? <input type="checkbox"/> What are some strategies for calculating with money? <input type="checkbox"/> How can knowledge of place value help with multiplication and division of large numbers? <input type="checkbox"/> How are symbols used to represent mathematical relationships including operations, equality, and inequality? <input type="checkbox"/> How can the possible outcomes for an event be determined?	
April May June	Unit 6 – Essential Questions <input type="checkbox"/> What determines the choice of a measurement tool? <input type="checkbox"/> What estimation strategies are used in measurement? <input type="checkbox"/> How is the location of a point on a grid described?	

Curriculum Quick Reference Mathematics Grade 4

	Is the MCPS curriculum being taught?	Are instructional practices consistent with MCPS curriculum? Are assessments being used as described in the instructional guide?
August September October	Unit 1 – Essential Questions <input type="checkbox"/> How does the type of data influence the choice of graph? <input type="checkbox"/> What kinds of questions can be answered using different data displays? <input type="checkbox"/> In what ways can sets of data be represented by statistical measures? <input type="checkbox"/> How are place value patterns repeated in large numbers? <input type="checkbox"/> How are angles classified? <input type="checkbox"/> How can real-world objects be represented and compared using geometric attributes? <input type="checkbox"/> How are points, lines, line segments, rays, and angles related?	The teacher: <ul style="list-style-type: none"> • provides 60 minutes of math instruction using the math instructional block model. • maintains a dynamic mathematical learning environment. • facilitates interactive and thoughtful student discussions about mathematical concepts and processes. • maintains a high level of student engagement. • helps students make connections to prior knowledge. • uses a variety of strategies to check for student understanding. • uses assessment to guide instruction. • differentiates instruction to meet students' needs. The students: <ul style="list-style-type: none"> • work individually, in pairs, in small groups, and as a whole class. • solve problems using multiple strategies. • engage in classroom discussions that focus on problem solving strategies and reasoning. • use the language of mathematics to express mathematical ideas precisely through speaking and writing. • use computational skills and mathematical processes to solve meaningful problems. • develop an understanding of mathematical concepts before using an algorithm. • use calculators to develop and enhance conceptual understanding and as a tool in problem solving. • monitor their own learning.
October November December	Unit 2 – Essential Questions <input type="checkbox"/> Why are variables used? <input type="checkbox"/> What strategies can be used to solve for unknowns in algebraic equations? <input type="checkbox"/> How can a pattern be generalized? <input type="checkbox"/> How are parentheses used in numeric expressions? <input type="checkbox"/> What strategies aid in mastering multiplication and division facts?	
December January February	Unit 3 – Essential Questions <input type="checkbox"/> How are numbers that represent fractional parts compared? <input type="checkbox"/> How are common and decimal fractions alike and different? <input type="checkbox"/> How are models used to show how fractional parts are combined or separated? <input type="checkbox"/> What strategies can be used to solve estimation problems with common and decimal fractions? <input type="checkbox"/> How is probability represented numerically? <input type="checkbox"/> How is the likelihood of an event determined and communicated?	
February March April	Unit 4 – Essential Questions <input type="checkbox"/> How can multiples be used to solve problems? <input type="checkbox"/> What is the difference between length of time and time of day?	
May June	Unit 5 – Essential Questions <input type="checkbox"/> What are translations, rotations, and reflections? <input type="checkbox"/> What tools and units are used to measure the attributes of an object? <input type="checkbox"/> How are the units of measure within a standard system related? <input type="checkbox"/> How can patterns be used to determine standard formulas for area and perimeter? <input type="checkbox"/> How are perimeter, area, and volume related? <input type="checkbox"/> What situations are represented by negative numbers?	

Curriculum Quick Reference Mathematics Grade 5

	Is the MCPS curriculum being taught?	Are instructional practices consistent with MCPS curriculum? Are assessments being used as described in the instructional guide?
August September October	Unit 1 – Essential Questions <input type="checkbox"/> How can a number be broken down into its smallest factors? <input type="checkbox"/> What is the relationship between patterns and functions? <input type="checkbox"/> How are graphs, tables, and symbols used to represent relationships? <input type="checkbox"/> When are algebraic and numeric expressions used?	<p>The teacher:</p> <ul style="list-style-type: none"> provides 60 minutes of math instruction using the math instructional block model. maintains a dynamic mathematical learning environment. facilitates interactive and thoughtful student discussions about mathematical concepts and processes. maintains a high level of student engagement. helps students make connections to prior knowledge. uses a variety of strategies to check for student understanding. uses assessment to guide instruction. differentiates instruction to meet students' needs. <p>The students:</p> <ul style="list-style-type: none"> work individually, in pairs, in small groups, and as a whole class. solve problems using multiple strategies. engage in classroom discussions that focus on problem solving strategies and reasoning. use the language of mathematics to express mathematical ideas precisely through speaking and writing. use computational skills and mathematical processes to solve meaningful problems. develop an understanding of mathematical concepts before using an algorithm. use calculators to develop and enhance conceptual understanding and as a tool in problem solving. monitor their own learning.
October November	Unit 2 – Essential Questions <input type="checkbox"/> How are properties used to classify geometric figures? <input type="checkbox"/> How are geometric figures constructed or drawn? <input type="checkbox"/> How is the size of an angle related to rotation? <input type="checkbox"/> How are angles measured?	
December January	Unit 3 – Essential Questions <input type="checkbox"/> When is it appropriate to use percents? Decimals? Fractions? <input type="checkbox"/> How does the knowledge of greatest common factor and least common multiple help in comparing fractions? <input type="checkbox"/> How is the ordering of fractions and decimals the same as ordering whole numbers and how is it different? <input type="checkbox"/> What strategies can be developed to show computation with fractions, decimals, and percents? <input type="checkbox"/> How are the four basic operations related to one another?	
February March	Unit 4 – Essential Questions <input type="checkbox"/> What data display is appropriate for a given set of data? <input type="checkbox"/> How can the mean, median, mode, and range be used to describe the shape of the data? <input type="checkbox"/> How can mean, median, and mode be computed and compared?	
March April	Unit 5 – Essential Questions <input type="checkbox"/> How are transformations found in designs? <input type="checkbox"/> Why are all measurements approximations? <input type="checkbox"/> How can problems involving two- and three-dimensional measures be solved? <input type="checkbox"/> How can the area of closed figures be estimated? <input type="checkbox"/> Why are formulas used in measurement? <input type="checkbox"/> What is the relationship between linear measures and area and volume?	
May June	Unit 6 – Essential Questions <input type="checkbox"/> How do number properties assist in computation? <input type="checkbox"/> When are algebraic and numeric expressions used? <input type="checkbox"/> How is the probability of an event determined and described? <input type="checkbox"/> How are predictions made based on the outcomes of a probability experiment?	

MATHEMATICS CURRICULUM LOOK FORS

The teacher:

- ◆ ***provides 60 minutes of math instruction using the math instructional block model.***
 - Does the warm-up connect to prior learning and the essential question for the lesson?
 - Does the focus problem/lesson address the essential question and provide opportunity for exploration, direct instruction, and guided practice?
 - Is the independent practice meaningful and does it meet the needs of students?
 - Does the closure summarize and clarify the mathematics learned in the lesson?
- ◆ ***maintains a dynamic mathematical learning environment.***
 - Is student work displayed and related to the unit?
 - Does the student work contain appropriate teacher feedback?
 - Is there a relevant mathematical word wall in the classroom?
 - Are appropriate mathematical tools and models accessible to students?
- ◆ ***facilitates interactive and thoughtful student discussions about mathematical concepts and processes.***
 - Does the discussion build on student understanding and lead to greater clarity?
 - Does the discussion include connections to other problems and alternative solution methods?
 - Does the teacher ask probing questions rather than just giving an answer?
- ◆ ***maintains a high level of student engagement.***
 - Are the tasks in the lesson meaningful for students?
 - Does the teacher use appropriate scaffolding?
 - Is there ample time for students to share and analyze multiple strategies?
 - Is there sustained emphasis on explanation and the development of meaning?
- ◆ ***helps students make connections to prior knowledge.***
 - Is there a link to prior knowledge in the warm-up?
 - Is the connection to prior knowledge made explicit in the focus lesson?
 - Do the tasks in the lesson build on students' prior knowledge?
- ◆ ***uses a variety of strategies to check for student understanding.***
 - Do the strategies include opportunities for students to offer solutions, make generalizations, ask questions, and provide explanations?
- ◆ ***uses assessment to guide instruction.***
 - Does the teacher modify instruction based on feedback from checks for understanding?
 - Does the teacher use pre-assessment to determine what students know and are able to do?
- ◆ ***differentiates instruction to meet students' needs.***
 - Does the teacher use pre-assessment to differentiate instruction?
 - Does the teacher use flexible grouping strategies to differentiate instruction?
 - Does the teacher use a variety of differentiation strategies so that all students have access to the curriculum?

The students:

- ◆ work independently, in pairs, in small groups, and as a whole class.
- ◆ solve problems using multiple strategies.
- ◆ engage in classroom discussions that focus on problem solving strategies and reasoning.
- ◆ use the language of mathematics to express mathematical ideas precisely through speaking and writing.
- ◆ use computational skills and mathematical processes to solve meaningful problems.
- ◆ develop an understanding of mathematical concepts before using an algorithm.
- ◆ use calculators to develop and enhance conceptual understanding and as a tool in problem solving.
- ◆ monitor their own learning.