

2020-2021 Math Charts Detailed for Report Cards (Homestudy and Class)

Mathematics (Level: <i>K</i> )	T1	T2	T3
<b>Numbers:</b> This report includes the following skills: Produces written number numerals to 20      Reads written number names to ten			
<b>Counting:</b> This report includes the following skills: Counts to 20      Counts to 100      Counts to tell the number of objects			
<b>Addition and Subtraction:</b> This report includes the following skills: ___ Understands addition as putting amounts together    ___ Understands subtraction taking amounts apart or away ___ Models addition and subtraction to 10 using manipulatives    ___ Applies model to written expression ___ Identifies addition and subtraction symbols      Fluently adds and subtracts to 5 without manipulatives			
<b>Sets (Groups):</b> This report includes the following skills: ___ Compares sets and numbers (less, more)    ___ Uses strategies for ordering numbers of small sets ___ Produces sets of given sizes      Determines the number of objects in a set after combining or reducing			
<b>Geometry:</b> This report includes the following skills: ___ Sorts objects into like groups ___ Models the physical world using geometric ideas, vocabulary and spatial reasoning with basic shapes ___ Identifies, names and describes basic 2-D shapes (square, triangle, circle, rectangle, hexagon)			
<b>Time:</b> This report includes the following skills: ___ Understands concepts of time (day, week, seasons, morning, afternoon, minute, hour, yesterday etc) ___ Identifies tools to measure time (clock, calendar, etc)    ___ Names coins (penny, nickel, dime, quarter) ___ Can say by memory months of year, days of week      Identifies today's date on a calendar			

Mathematics (Level: <i>1</i> )	T1	T2	T3
<b>Numerical Concepts:</b> This report includes the following skills: ___ Compares relative sizes of whole numbers to 100    ___ Counts to 120, starting at any number ___ Builds and explains simple graphs      Extends and explains simple patterns			
<b>Addition and Subtraction:</b> This report includes the following skills: ___ Understands the relationship between addition and subtraction ___ Writes number sentences using +, -, = symbols ___ Uses models, representations and strategies to solve addition and subtraction equations within 20 ___ Applies the commutative property of addition (if $3+5=8$ ; then $5+3=8$ ) ___ Adds and subtracts real-world scenarios within 20 using models or visuals ___ Adds and subtracts two-digit numbers without regrouping			
<b>Place Value:</b> This report includes the following skills: ___ Understands place value by recognizing numbers between 10 and 100 in terms of 10s and 1s ___ Writes two-digit numerals using place value			
<b>Measurement:</b> This report includes the following skills: ___ Measures lengths and tells the measurement in units (including non-standard units) ___ Identifies standard methods of measuring length			
<b>Time and Money:</b> This report includes the following skills: ___ Relates time to events (before/after, shorter/longer, etc)    ___ Tells time to the hour, half hour ___ Correctly identifies time concepts (day, week, seasons, morning, afternoon, minute, hour, yesterday etc) ___ Identifies coins by name and amounts (penny, nickel, dime, quarter)			
<b>Geometry:</b> This report includes the following skills: ___ Determines how figures are alike or different, including recognizing complex figures from different perspectives ___ Identifies and names 3-D shapes (cube, cone, cylinder, sphere) ___ Compares 2-D and 3-D shapes ___ Determines how figures are alike or different, including recognizing complex figures from different perspectives			

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<b>Mathematics (Level: 2)</b>	<i>T1</i>	<i>T2</i>	<i>T3</i>
<b>Addition and Subtraction:</b> This report includes the following skills: ___ Commits to memory pairs that add to 10 ___ Fluently computes sums of one-digit numbers ___ Calculates addition and subtraction of two-digit numbers involving regrouping ___ Rounds to nearest 10 ___ Calculates or estimates sums and differences for numbers with only tens or hundreds			
<b>Multiplication and Division Concepts:</b> This report includes the following skills: ___ Uses groups and repeated addition to understand multiplication ___ Uses groups and repeated subtraction to understand division			
<b>Place Value:</b> This report includes the following skills: ___ Understands and recognizes 3-digit numbers written in base-ten and expanded notation ___ Displays understanding of base-ten system to include counting by and comparing 5s, 10s and 100s			
<b>Measurement:</b> This report includes the following skills: ___ Measures, estimates, and compares lengths in standard units ___ Identifies and practices using measurement tools for measuring time, liquids, length, weight, and height ___ Collects data, builds a graph, and analyzes the data presented			
<b>Time &amp; Money:</b> This report includes the following skills: ___ Memorization of relationships of time (minutes in hour, days in week, months in year) ___ Tells time to the hour, half hour, and quarter hour ___ Solves word problems using combinations of dollar bills and coins			
<b>Geometry:</b> This report includes the following skills: ___ Builds, draws and analyzes 2- and 3-dimensional shapes alone and in combination with other shapes ___ Describes and analyzes 2-dimensional shapes by examining the length and number of their sides and angles			

<b>Mathematics (Level: 3)</b>	<i>T1</i>	<i>T2</i>	<i>T3</i>
<b>Multiplication and Division:</b> This report includes the following skills: ___ Memorization of multiplication facts 0-9 ___ Solves one-digit multiplication and division word problems ___ Applies commutative property of multiplication: if $6 \times 4 = 24$ , then $4 \times 6 = 24$ ___ Applies Associative property of multiplication: $(3 \times 5) \times 2 = 3 \times (5 \times 2)$ ___ Applies distributive property of multiplication: $8 \times 7 = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ ___ Applies the inverse relationship of multiplication and division problems involving single-digit factors.			
<b>Addition &amp; Subtraction:</b> This report includes the following skills: ___ Calculates or estimates sums and differences for numbers with only tens or hundreds ___ Fluently adds and subtracts two digit numbers with regrouping ___ Rounds to nearest 10			
<b>Measurement:</b> This report includes the following skills: ___ Estimates time, length, weight, height, volume ___ Practices using tools for calculating measurements			
<b>Time &amp; Money:</b> This report includes the following skills: ___ Tells time to the minute ___ Solves word problems using combinations of dollar bills and coins ___ Calculates 1-4 quarters in relation to dollars and quarter hours, and relates it to all fractional parts			
<b>Fractions:</b> This report includes the following skills: ___ Relates area to fractions by expressing the area of part of a shape as a fraction of the whole shape ( $\frac{1}{2}$ , $\frac{1}{4}$ , etc) ___ Compares fractions by using visual models and equal numerators or denominators, ___ Recognizes that the size of the denominator determines the number and size of the pieces in a visual model ___ Uses fractions (including unit fractions) to represent numbers less than, greater than and equal to one ___ Recognizes $\frac{1}{2} = \frac{2}{4}$ , $\frac{4}{8}$ , etc			
<b>Geometry:</b> This report includes the following skills: ___ Describes, analyzes, compares, classifies, and defines 2-D shapes according to number of sides and angles ___ Measures the area of a 2-D shape by finding the number of unit squares in the shape ___ Relates rectangular arrays to multiplication ___ Identifies geometric vocabulary, including area and perimeter			

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<b>Mathematics (Level: 4)</b>	<i>T1</i>	<i>T2</i>	<i>T3</i>
<b>Multiplication:</b> This report includes the following skills: ___ Identification of factors of a number      ___ Identification of multiples of a number ___ Use of Multiplication arrays and models      ___ Calculation of Multi-Digit Multiplication			
<b>Division:</b> This report includes the following skills: ___ Division of multi-digit numbers by a one-digit divisor      ___ Rounding Multi-digit numbers ___ Expression of remainders as fractions      ___ Estimation of quotients ___ Use of Division Models      ___ Multi-digit Divisors and Dividends			
<b>Math Practice:</b> ___ Memorization of Multiplication Facts      ___ Identification of related Division facts ___ Use of whole numbers to solve word problems      ___ Identification of number patterns ___ Generalizing place value to millions      ___ Use of expanded form ___ Memorization of measurement conversions (inches to feet, meter to centimeter, etc) ___ Organization and explanation of data using a line plot			
<b>Fractions:</b> This report includes the following skills: ___ Identification and generation of equivalent fractions      ___ Making common denominators ___ Modeling equivalent fractions      ___ Addition and subtraction of fractions with like denominators			
<b>Decimals:</b> This report includes the following skills: ___ Identification of decimal notation for common fractions      ___ Comparing decimals			
<b>Geometry:</b> This report includes the following skills involving 2-dimensional shapes and symmetry: ___ Application of area and perimeter formulas for rectangles      ___ Measurement of angles ___ Classification of shapes by lines (parallel, perpendicular, etc) and angles (right, acute, obtuse, etc) ___ Draw and identify lines and angles      ___ Recognize lines of symmetry			

<b>Mathematics (Level: 5)</b>	<i>T1</i>	<i>T2</i>	<i>T3</i>
<b>Addition, Subtraction, Multiplication, Division:</b> This report includes the following skills: ___ Demonstrates fluency with multi-digit addition, subtraction, multiplication and division ___ Express a whole number as a product of its prime factors			
<b>Place Value:</b> Reading numbers from the thousandths to the millions			
<b>Fractions:</b> This report includes the following skills: ___ Addition and subtraction of Fractions with unlike denominators      ___ Multiplication of fractions ___ Multiplication of whole numbers with fractions      ___ Division of fractions ___ Add and subtract fractions with unlike denominators      ___ Multiply fractions and mixed numbers ___ Divide fractions by whole numbers and whole numbers by fractions			
<b>Decimals:</b> This report includes the following skills: ___ Read, write, and compare decimals to the thousandths      ___ Round decimals to any place ___ Add, subtract, multiply, and divide multi-digit numbers containing decimals			
<b>Algebraic Expression:</b> This report includes the following skills: ___ Write and interpret numerical expressions using parentheses, brackets, or braces ___ Analyze number patterns      ___ Organize and explain data using a line plot ___ Graph points on a coordinate graph with an x and y axis			
<b>Geometry:</b> This report includes the following skills: ___ Recognizes volume as an attribute of 3-dimensional space ___ Can find the volume of a prism by decomposing it into layers of arrays of cubes (Selects appropriate cubic units and measures necessary attributes to determine volume) ___ Calculation of the area of triangles and parallelograms ___ Sum of angles of triangle and quadrilateral ___ Comparison of rectangles to parallelograms and trapezoids ___ Calculate the volume of rectangular prisms			

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<b>Mathematics (Level: 6)</b>	<i>T1</i>	<i>T2</i>	<i>T3</i>
Utilizes strategies to solve real-world problems involving addition, subtraction, multiplication, and division of fractions with unlike denominators (rational numbers)			
Demonstrates a developing understanding of area formulas (triangles and parallelograms)			
Employs strategies to solve real world problems using rate and ratio concepts			
Compares, orders, and solves real-world problems involving addition of negative numbers			
Represents and solves real-world problems through writing, interpreting, and using equations, inequalities, and quantitative relationships between dependent and independent variables			
Represents and describes statistical variability (measures of center)			
Reasons about surface area and volume of three-dimensional figures			

<b>Mathematics (Level: 7)</b>	<i>T1</i>	<i>T2</i>	<i>T3</i>
Investigates relationships between two-dimensional figures using scale drawings and informal geometric constructions			
Employs strategies to solve real-world problems through the application of proportional relationships, including percent and unit rates			
Utilizes strategies to solve real-world problems through the use of operations with rational numbers, working with algebraic expressions, and developing linear and non-linear equations			
Applies strategies to solve real-world problems involving area of circles and surface area/volume of polygonal solids			
Understands and employs all four operations on rational numbers, including negatives			
Draws inferences about populations based on samples			

<b>Mathematics (Level: 8)</b>	<i>T1</i>	<i>T2</i>	<i>T3</i>
Formulates equations, including modeling an association in bivariate data with a linear equation and proportionality			
Solves linear equations and systems of linear equations			
Defines, evaluates, and compares functions in order to model relationships between quantities and describe quantitative relationships			
Applies the Pythagorean Theorem and uses/understands of irrational numbers			
Analyzes two and three dimensional space and figures using distance, angle, and similarity, including geometric transformations			
Uses physical models, transparencies, and/or geometry software to demonstrate congruence of figures and solves real-world problems, including volume of cylinders, cones and spheres			

<b>Mathematics (Level: Math Practices)</b>	<i>T1</i>	<i>T2</i>	<i>T3</i>
Shows fluency with operations on multi-digit numbers and can use properties of numbers to explain and use division of base-10 numbers			
Understands the relationship between fractions, decimals and percents and can estimate and calculate among the different representations			
Uses operations on fractions to represent and solve real-life problems			
Understands the relationship between perimeter, area and volume of 2- and 3-dimensional figures			
Can order and find the magnitude of negative numbers and can use addition of integers to solve real-life problems			
Utilizes the concepts of variables, expressions and equations to solve real-world problems using the coordinate grid			
Creates and analyzes data distributions and describes and compares them using measures of center			

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<b>Standards of Mathematical Practice</b>	<i>T1</i>	<i>T2</i>	<i>T3</i>
<b>Make sense of problems and persevere in solving them</b> - student understands what is being asked and if not, continues to look for entry-points to make progress on a solution			
<b>Reason abstractly and quantitatively</b> - student makes the transition between real-life math situations and symbolic representations			
<b>Construct viable arguments and critique the reasoning of others</b> - student communicates their mathematical reasoning and constructively judges someone else's thought-process			
<b>Model with mathematics</b> - student recognizes and applies mathematical processes and visual representations to solve everyday problems			
<b>Use appropriate tools strategically</b> - student properly selects and applies mathematical tools (calculators, software, ruler, etc) to explore and solve math problems			
<b>Attend to precision</b> - student communicates clearly using appropriate vocabulary, symbols and conventions			
<b>Look for and make use of structure</b> - student understands and makes use of the increasing complexity of mathematics			
<b>Look for and express regularity in repeated reasoning</b> - student recognizes patterns and makes use of them to generalize in order to solve problems			