

Mathematics K to 7 IRP: Prescribed Learning Outcomes

Mathematical Processes (Integrated)

The following mathematical processes have been integrated within the prescribed learning outcomes and achievement indicators for all grades: communication [C], connections [CN], mental mathematics and estimation [ME], problem solving [PS], reasoning [R], technology [T], and visualization [V].

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
Number	<p>A1 say the number sequence by 1s starting anywhere from 1 to 10 and from 10 to 1 [C, CN, V]</p> <p>A2 recognize, at a glance, and name familiar arrangements of 1 to 5 objects or dots [C, CN, ME, V]</p> <p>A3 relate a numeral, 1 to 10, to its respective quantity [CN, R, V]</p> <p>A4 represent and describe numbers 2 to 10, concretely and pictorially [C, CN, ME, R, V]</p> <p>A5 compare quantities, 1 to 10, using one-to-one correspondence [C, CN, V]</p>	<p>A1 say the number sequence, 0 to 100, by</p> <ul style="list-style-type: none"> 1s forward and backward between any two given numbers 2s to 20, forward starting at 0 5s and 10s to 100, forward starting at 0 [C, CN, V, ME] <p>A2 recognize, at a glance, and name familiar arrangements of 1 to 10 objects or dots [C, CN, ME, V]</p> <p>A3 demonstrate an understanding of counting by</p> <ul style="list-style-type: none"> indicating that the last number said identifies "how many" showing that any set has only one count using the counting on strategy using parts or equal groups to count sets [C, CN, ME, R, V] <p>A4 represent and describe numbers to 20 concretely, pictorially, and symbolically [C, CN, V]</p> <p>A5 compare sets containing up to 20 elements to solve problems using</p> <ul style="list-style-type: none"> referents one-to-one correspondence [C, CN, ME, PS, R, V] <p>A6 estimate quantities to 20 by using referents [C, ME, PS, R, V]</p> <p>A7 demonstrate, concretely and pictorially, how a given number can be represented by a variety of equal groups with and without singles [C, R, V]</p> <p>A8 identify the number, up to 20, that is one more, two more, one less, and two less than a given number. [C, CN, ME, R, V]</p> <p>A9 demonstrate an understanding of addition of numbers with answers to 20 and their corresponding subtraction facts, concretely, pictorially, and symbolically by</p> <ul style="list-style-type: none"> using familiar and mathematical language to describe additive and subtractive actions from their experience creating and solving problems in context that involve addition and subtraction modelling addition and subtraction using a variety of concrete and visual representations, and recording the process symbolically [C, CN, ME, PS, R, V] <p>A10 describe and use mental mathematics strategies (memorization not intended), such as</p> <ul style="list-style-type: none"> counting on and counting back making 10 doubles using addition to subtract to determine the basic addition facts to 18 and related subtraction facts [C, CN, ME, PS, R, V] 	<p>A1 say the number sequence from 0 to 100 by</p> <ul style="list-style-type: none"> 2s, 5s and 10s, forward and backward, using starting points that are multiples of 2, 5, and 10 respectively 10s using starting points from 1 to 9 2s starting from 1 [C, CN, ME, R] <p>A2 demonstrate if a number (up to 100) is even or odd [C, CN, PS, R]</p> <p>A3 describe order or relative position using ordinal numbers (up to tenth) [C, CN, R]</p> <p>A4 represent and describe numbers to 100, concretely, pictorially, and symbolically [C, CN, V]</p> <p>A5 compare and order numbers up to 100 [C, CN, R, V]</p> <p>A6 estimate quantities to 100 using referents [C, ME, PS, R]</p> <p>A7 illustrate, concretely and pictorially, the meaning of place value for numerals to 100 [C, CN, R, V]</p> <p>A8 demonstrate and explain the effect of adding zero to or subtracting zero from any number [C, R]</p> <p>A9 demonstrate an understanding of addition (limited to 1 and 2-digit numerals) with answers to 100 and the corresponding subtraction by</p> <ul style="list-style-type: none"> using personal strategies for adding and subtracting with and without the support of manipulatives creating and solving problems that involve addition and subtraction explaining that the order in which numbers are added does not affect the sum explaining that the order in which numbers are subtracted may affect the difference [C, CN, ME, PS, R, V] <p>A10 apply mental mathematics strategies, such as</p> <ul style="list-style-type: none"> using doubles making 10 one more, one less two more, two less building on a known double addition for subtraction to determine basic addition facts to 18 and related subtraction facts [C, CN, ME, R, V] 	<p>A1 say the number sequence forward and backward from 0 to 1000 by</p> <ul style="list-style-type: none"> 5s, 10s or 100s using any starting point 3s using starting points that are multiples of 3 4s using starting points that are multiples of 4 25s using starting points that are multiples of 25 [C, CN, ME] <p>A2 represent and describe numbers to 1000, concretely, pictorially, and symbolically [C, CN, V]</p> <p>A3 compare and order numbers to 1000 [CN, R, V]</p> <p>A4 estimate quantities less than 1000 using referents [ME, PS, R, V]</p> <p>A5 illustrate, concretely and pictorially, the meanings of place value for numerals to 1000 [C, CN, R, V]</p> <p>A6 describe and apply mental mathematics strategies for adding two 2-digit numerals, such as</p> <ul style="list-style-type: none"> adding from left to right taking one addend to the nearest multiple of ten and then compensating using doubles [C, ME, PS, R, V] <p>A7 describe and apply mental mathematics strategies for subtracting two 2-digit numerals, such as</p> <ul style="list-style-type: none"> taking the subtrahend to the nearest multiple of ten and then compensating thinking of addition using doubles [C, ME, PS, R, V] <p>A8 apply estimation strategies to predict sums and differences of two 2-digit numerals in a problem-solving context [C, ME, PS, R]</p> <p>A9 demonstrate an understanding of addition and subtraction of numbers with answers to 1000 (limited to 1, 2 and 3-digit numerals) by</p> <ul style="list-style-type: none"> using personal strategies for adding and subtracting with and without the support of manipulatives creating and solving problems in contexts that involve addition and subtraction of numbers concretely, pictorially, and symbolically [C, CN, ME, PS, R] <p>A10 apply mental mathematics strategies and number properties, such as</p> <ul style="list-style-type: none"> using doubles making 10 using the commutative property using the property of zero thinking addition for subtraction to recall basic addition facts to 18 and related subtraction facts [C, CN, ME, R, V] <p>A11 demonstrate an understanding of multiplication to 5×5 by</p> <ul style="list-style-type: none"> representing and explaining multiplication using equal grouping and arrays creating and solving problems in context that involve multiplication modelling multiplication using concrete and visual representations, and recording the process symbolically relating multiplication to repeated addition relating multiplication to division [C, CN, PS, R] <p>A12 demonstrate an understanding of division by</p> <ul style="list-style-type: none"> representing and explaining division using equal sharing and equal grouping creating and solving problems in context that involve equal sharing and equal grouping modelling equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically relating division to repeated subtraction relating division to multiplication (limited to division related to multiplication facts up to 5×5) [C, CN, PS, R] <p>A13 demonstrate an understanding of fractions by</p> <ul style="list-style-type: none"> planning that a fraction represents a part of a whole scribing situations in which fractions are used comparing fractions of the same whole with like denominators [C, CN, ME, R, V] 	<p>A1 represent and describe whole numbers to 10,000, pictorially, and symbolically [C, CN, V]</p> <p>A2 compare and order numbers to 10,000 [C, CN]</p> <p>A3 demonstrate an understanding of addition of numbers with answers to 10,000 and their corresponding subtractions (limited to 3 and 4-digit numerals) by</p> <ul style="list-style-type: none"> using personal strategies for adding and subtracting estimating sums and differences solving problems involving addition and subtraction [C, CN, ME, PS, R] <p>A4 explain the properties of 0 and 1 for multiplication, and the property of 1 for division [C, CN, R]</p> <p>A5 describe and apply mental mathematics strategies, such as</p> <ul style="list-style-type: none"> skip counting from a known fact using doubling or halving using doubling or halving and adding or subtracting one more group using patterns in the 9s facts using repeated doubling <p>to determine basic multiplication facts to 9×9 and related division facts [C, CN, ME, PS, R]</p> <p>A6 demonstrate an understanding of multiplication (2- or 3-digit by 1-digit) to solve problems by</p> <ul style="list-style-type: none"> using personal strategies for multiplication with and without concrete materials using arrays to represent multiplication connecting concrete representations to symbolic representations estimating products [C, CN, ME, PS, R, V] <p>A7 demonstrate an understanding of division (1-digit divisor and up to 2-digit dividend) to solve problems by</p> <ul style="list-style-type: none"> using personal strategies for dividing with and without concrete materials estimating quotients relating division to multiplication [C, CN, ME, PS, R, V] <p>A8 demonstrate an understanding of fractions less than or equal to one by using concrete and pictorial representations to</p> <ul style="list-style-type: none"> name and record fractions for the parts of a whole or a set compare and order fractions model and explain that for different wholes, two identical fractions may not represent the same quantity provide examples of where fractions are used [C, CN, PS, R, V] <p>A9 describe and represent decimals (tenths and hundredths) concretely, pictorially, and symbolically [C, CN, R, V]</p> <p>A10 relate decimals to fractions (to hundredths) [CN, R, V]</p> <p>A11 demonstrate an understanding of addition and subtraction of decimals (limited to hundredths) by</p> <ul style="list-style-type: none"> using compatible numbers relating multiplication to division [C, CN, PS, R] using mental math strategies to solve problems [C, ME, PS, R, V] 	<p>A1 represent and describe whole numbers to 1,000,000 [C, CN, V, T]</p> <p>A2 use estimation strategies including</p> <ul style="list-style-type: none"> front-end rounding compensation compatible numbers <p>in problem-solving contexts [C, CN, ME, PS, R, V]</p> <p>A3 apply mental mathematics strategies and number properties, such as</p> <ul style="list-style-type: none"> skip counting from a known fact using doubling or halving using patterns in the 9s facts using repeated doubling or halving to determine answers for basic multiplication facts to 81 and related division facts [C, CN, ME, R, V] <p>A4 apply mental mathematics strategies for multiplication, such as</p> <ul style="list-style-type: none"> annexing then adding zero halving and doubling using the distributive property [C, ME, R] <p>A5 demonstrate an understanding of multiplication (2-digit by 2-digit) to solve problems [C, CN, PS, V]</p> <p>A6 Demonstrate, with and without concrete materials, an understanding of division (3-digit by 1-digit) and interpret remainders to solve problems [C, CN, PS]</p> <p>A7 demonstrate an understanding of fractions by using concrete and pictorial representations to</p> <ul style="list-style-type: none"> create sets of equivalent fractions compare fractions with like and unlike denominators [C, CN, PS, R, V] <p>A8 describe and represent decimals (tenths, hundredths, thousandths) concretely, pictorially, and symbolically [C, CN, R, V]</p> <p>A9 relate decimals to fractions (to thousandths) [CN, R, V]</p> <p>A10 compare and order decimals (to thousandths) by using</p> <ul style="list-style-type: none"> benchmarks place value equivalent decimals [CN, R, V] <p>A11 demonstrate an understanding of addition and subtraction of decimals (limited to thousandths) [C, CN, PS, R, V]</p>	<p>A1 demonstrate an understanding of place value for numbers</p> <ul style="list-style-type: none"> greater than one million less than one thousandth [C, CN, R, T] <p>A2 solve problems involving large numbers, using technology [ME, PS, T]</p> <p>A3 demonstrate an understanding of factors and multiples by</p> <ul style="list-style-type: none"> determining multiples and factors of numbers less than 100 identifying prime and composite numbers solving problems involving multiples [PS, R, V] <p>A4 relate improper fractions to mixed numbers [CN, ME, R, V]</p> <p>A5 demonstrate an understanding of ratio, concretely, pictorially, and symbolically [C, CN, PS, R, V]</p> <p>A6 demonstrate an understanding of percent (limited to whole numbers) concretely, pictorially, and symbolically [C, CN, PS, R, V]</p> <p>A7 demonstrate an understanding of integers, concretely, pictorially, and symbolically [C, CN, R, V]</p> <p>A8 demonstrate an understanding of multiplication and division of decimals (1-digit whole number multipliers and 1-digit natural number divisors) [C, CN, ME, PS, R, V]</p> <p>A9 explain and apply the order of operations, excluding exponents, with and without technology (limited to whole numbers) [CN, ME, PS, T]</p>	<p>A1 determine and explain why a number is divisible by 2, 3, 4, 5, 6, 8, 9, or 10 and why a number cannot be divided by 0 [C, R]</p> <p>A2 demonstrate an understanding of the addition, subtraction, multiplication, and division of decimals (for more than 1-digit divisors or 2-digit multipliers, the use of technology is expected) to solve problems [ME, PS, T]</p> <p>A3 solve problems involving percents from 1% to 100% [C, CN, PS, R, T]</p> <p>A4 demonstrate an understanding of the relationship between positive repeating decimals and positive fractions, and positive terminating decimals and positive fractions [C, CN, R, T]</p> <p>A5 demonstrate an understanding of adding and subtracting positive fractions and mixed numbers, with like and unlike denominators, concretely, pictorially, and symbolically (limited to positive sums and differences) [C, CN, ME, PS, R, V]</p> <p>A6 demonstrate an understanding of addition and subtraction of integers, concretely, pictorially, and symbolically [C, CN, PS, R, V]</p> <p>A7 compare and order positive fractions, positive decimals (to thousandths) and whole numbers by using</p> <ul style="list-style-type: none"> benchmarks place value equivalent fractions and/or decimals [CN, R, V]
Patterns and Relations Patterns	<p>B1 demonstrate an understanding of repeating patterns (two or three elements) by</p> <ul style="list-style-type: none"> identifying reproducing extending creating <p>patterns, using manipulatives, sounds, and actions [C, CN, PS, V]</p>	<p>B1 demonstrate an understanding of repeating patterns (two to four elements) by</p> <ul style="list-style-type: none"> describing reproducing extending creating <p>patterns using manipulatives, diagrams, sounds, and actions [C, PS, R, V]</p> <p>B2 translate repeating patterns from one representation to another [C, R, V]</p>	<p>B1 demonstrate an understanding of repeating patterns (three to five elements) by</p> <ul style="list-style-type: none"> describing extending comparing creating <p>patterns using manipulatives, diagrams, sounds, and actions. [C, CN, PS, R, V]</p> <p>B2 demonstrate an understanding of increasing patterns by</p> <ul style="list-style-type: none"> describing reproducing extending creating <p>patterns using manipulatives, diagrams, sounds, and actions (numbers to 100) [C, CN, PS, R, V]</p>	<p>B1 demonstrate an understanding of increasing patterns by</p> <ul style="list-style-type: none"> describing extending comparing creating <p>patterns using manipulatives, diagrams, sounds, and actions (numbers to 1000) [C, CN, PS, R, V]</p> <p>B2 demonstrate an understanding of decreasing patterns by</p> <ul style="list-style-type: none"> describing extending comparing creating <p>patterns using manipulatives, diagrams, sounds, and actions (numbers to 1000) [C, CN, PS, R, V]</p>	<p>B1 identify and describe patterns found in tables and charts, including a multiplication chart [C, CN, PS, V]</p> <p>B2 reproduce a pattern shown in a table or chart using concrete materials [C, CN, V]</p> <p>B3 represent and describe patterns and relationships using charts and tables to solve problems [C, CN, PS, R, V]</p> <p>B4 identify and explain mathematical relationships using charts and diagrams to solve problems [CN, PS, R, V]</p>	<p>B1 determine the pattern rule to make predictions about subsequent elements [C, CN, PS, R, V]</p>	<p>B1 demonstrate an understanding of the relationships within tables of values to solve problems [C, CN, PS, R]</p> <p>B2 represent and describe patterns and relationships using graphs and tables [C, CN, ME, PS, R, V]</p>	<p>B1 demonstrate an understanding of oral and written patterns and their equivalent linear relations [C, CN, R]</p> <p>B2 create a table of values from a linear relation, graph the table of values, and analyze the graph to draw conclusions and solve problems [C, CN, R, V]</p>
Variables and Equations		<p>B3 describe equality as a balance and inequality as an imbalance, concretely, and pictorially (0 to 20) [C, CN, R, V]</p> <p>B4 record equalities using the equal symbol [C, CN, PS, V]</p>	<p>B3 demonstrate and explain the meaning of equality and inequality by using manipulatives and diagrams (0 to 100) [C, CN, R, V]</p> <p>B4 record equalities and inequalities symbolically using the equal symbol or the not equal symbol [C, CN, R, V]</p>	<p>B3 solve one-step addition and subtraction equations involving symbols representing an unknown number [C, CN, PS, R, V]</p>	<p>B5 express a given problem as an equation in which a symbol is used to represent an unknown number [CN, PS, R]</p> <p>B6 solve one-step equations involving a symbol to represent an unknown number [C, CN, PS, R, V]</p>	<p>B2 solve problems involving single-variable, one-step equations with whole number coefficients and whole number solutions [C, CN, PS, R]</p>	<p>B3 represent generalizations arising from number relationships using equations with letter variables. [C, CN, PS, R, V]</p> <p>B4 demonstrate and explain the meaning of preservation of equality concretely, pictorially and symbolically [C, CN, PS, R, V]</p>	<p>B3 demonstrate an understanding of preservation of equality by</p> <ul style="list-style-type: none"> modelling preservation of equality concretely, pictorially, and symbolically applying preservation of equality to solve equations [C, CN, PS, R, V] <p>B4 explain the difference between an expression and an equation [C, CN]</p> <p>B5 evaluate an expression given the value of the variable(s) [CN, R]</p> <p>B6 model and solve problems that can be represented by one-step linear equations of the form $x + a = b$, concretely, pictorially, and symbolically, where a and b are integers [CN, PS, R, V]</p> <p>B7 model and solve problems that can be represented by linear equations of the form</p> <ul style="list-style-type: none"> $ax + b = c$ $ax = b$ $\frac{x}{a} = b, a \neq 0$ <p>concretely, pictorially, and symbolically, where a, b, and c are whole numbers [CN, PS, R, V]</p>



Mathematics K to 7 IRP: Prescribed Learning Outcomes

Mathematical Processes (Integrated)

The following mathematical processes have been integrated within the prescribed learning outcomes and achievement indicators for all grades: communication [C], connections [CN], mental mathematics and estimation [ME], problem solving [PS], reasoning [R], technology [T], and visualization [V].

	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
Shape and Space Measurement	<p>C1 use direct comparison to compare two objects based on a single attribute such as length (height), mass (weight), and volume (capacity) [C, CN, PS, R, V]</p>	<p>C1 demonstrate an understanding of measurement as a process of comparing by</p> <ul style="list-style-type: none"> identifying attributes that can be compared ordering objects making statements of comparison filling, covering, or matching [C, CN, PS, R, V] 	<p>C1 relate the number of days to a week and the number of months to a year in a problem-solving context [C, CN, PS, R]</p> <p>C2 relate the size of a unit of measure to the number of units (limited to non-standard units) used to measure length and mass (weight) [C, CN, ME, R, V]</p> <p>C3 compare and order objects by length, height, distance around, and mass (weight) using non-standard units, and make statements of comparison [C, CN, ME, R, V]</p> <p>C4 measure length to the nearest non-standard unit by</p> <ul style="list-style-type: none"> using multiple copies of a unit using a single copy of a unit (iteration process) [C, ME, R, V] <p>C5 demonstrate that changing the orientation of an object does not alter the measurements of its attributes [C, R, V]</p>	<p>C1 relate the passage of time to common activities using non-standard and standard units (minutes, hours, days, weeks, months, years) [CN, ME, R]</p> <p>C2 relate the number of seconds to a minute, the number of minutes to an hour, and the number of days to a month in a problem-solving context [C, CN, PS, R, V]</p> <p>C3 demonstrate an understanding of measuring length (cm, m) by</p> <ul style="list-style-type: none"> selecting and justifying referents for the units cm and m modelling and describing the relationship between the units cm and m estimating length using referents measuring and recording length, width, and height [C, CN, ME, PS, R, V] <p>C4 demonstrate an understanding of measuring mass (g, kg) by</p> <ul style="list-style-type: none"> collecting and justifying referents for the units g and kg modelling and describing the relationship between the units g and kg estimating mass using referents measuring and recording mass [C, CN, ME, PS, R, V] <p>C5 demonstrate an understanding of perimeter of regular and irregular shapes by</p> <ul style="list-style-type: none"> estimating perimeter using referents for centimetre or metre measuring and recording perimeter (cm, m) constructing different shapes for a given perimeter (cm, m) to demonstrate that many shapes are possible for a perimeter [C, ME, PS, R, V] 	<p>C1 read and record time using digital and analog clocks, including 24-hour clocks [C, CN, V]</p> <p>C2 read and record calendar dates in a variety of formats [C, V]</p> <p>C3 demonstrate an understanding of area of regular and irregular 2-D shapes by</p> <ul style="list-style-type: none"> recognizing that area is measured in square units selecting and justifying referents for the units cm^2 or m^2 estimating area by using referents for cm^2 or m^2 determining and recording area (cm^2 or m^2) constructing different rectangles for a given area (cm^2 or m^2) in order to demonstrate that many different rectangles may have the same area [C, CN, ME, PS, R, V] 	<p>C1 design and construct different rectangles given either perimeter or area, or both (whole numbers) and draw conclusions [C, CN, PS, R, V]</p> <p>C2 demonstrate an understanding of measuring length (mm) by</p> <ul style="list-style-type: none"> selecting and justifying referents for the unit mm modelling and describing the relationship between mm and cm units, and between mm and m units [C, CN, ME, PS, R, V] <p>C3 demonstrate an understanding of volume by</p> <ul style="list-style-type: none"> selecting and justifying referents for cm^3 or m^3 units estimating volume by using referents for cm^3 or m^3 measuring and recording volume (cm^3 or m^3) constructing rectangular prisms for a given volume [C, CN, ME, PS, R, V] <p>C4 demonstrate an understanding of capacity by</p> <ul style="list-style-type: none"> describing the relationship between mL and L selecting and justifying referents for mL or L units estimating capacity by using referents for mL or L measuring and recording capacity (mL or L) [C, CN, ME, PS, R, V] 	<p>C1 demonstrate an understanding of angles by</p> <ul style="list-style-type: none"> identifying examples of angles in the environment classifying angles according to their measure estimating the measure of angles using 45°, 90° and 180° as reference angles determining angle measures in degrees drawing and labelling angles when the measure is specified [C, CN, ME, V] <p>C2 demonstrate that the sum of interior angles is:</p> <ul style="list-style-type: none"> 180° in a triangle 360° in a quadrilateral [C, R] <p>C3 develop and apply a formula for determining the</p> <ul style="list-style-type: none"> perimeter of polygons area of rectangles volume of right rectangular prisms [C, CN, PS, R, V] 	<p>C1 demonstrate an understanding of circles by</p> <ul style="list-style-type: none"> describing the relationships among radius, diameter, and circumference of circles relating circumference to pi determining the sum of the central angles constructing circles with a given radius or diameter solving problems involving the radii, diameters, and circumferences of circles [C, CN, R, V] <p>C2 develop and apply a formula for determining the area of</p> <ul style="list-style-type: none"> triangles parallelograms circles [CN, PS, R, V]
3-D Objects and 2-D Shapes	<p>C2 sort 3-D objects using a single attribute [C, CN, PS, R, V]</p> <p>C3 build and describe 3-D objects [CN, PS, V]</p>	<p>C2 sort 3-D objects and 2-D shapes using one attribute, and explain the sorting rule [C, CN, R, V]</p> <p>C3 replicate composite 2-D shapes and 3-D objects [CN, PS, V]</p> <p>C4 compare 2-D shapes to parts of 3-D objects in the environment [C, CN, V]</p>	<p>C6 sort 2-D shapes and 3-D objects using two attributes and explain the sorting rule [C, CN, R, V]</p> <p>C7 describe, compare, and construct 3-D objects, including</p> <ul style="list-style-type: none"> cubes spheres cones cylinders pyramids [C, CN, R, V] <p>C8 describe, compare, and construct 2-D shapes, including</p> <ul style="list-style-type: none"> triangles squares rectangles circles [C, CN, R, V] <p>C9 identify 2-D shapes as parts of 3-D objects in the environment [C, CN, R, V]</p>	<p>C6 describe 3-D objects according to the shape of the faces, and the number of edges and vertices [C, CN, PS, R, V]</p> <p>C7 sort regular and irregular polygons, including</p> <ul style="list-style-type: none"> triangles quadrilaterals pentagons hexagons octagons <p>according to the number of sides [C, CN, R, V]</p>	<p>C4 describe and construct rectangular and triangular prisms [C, CN, R, V]</p>	<p>C5 describe and provide examples of edges and faces of 3-D objects, and sides of 2-D shapes that are</p> <ul style="list-style-type: none"> parallel intersecting perpendicular vertical horizontal [C, CN, R, T, V] <p>C6 identify and sort quadrilaterals, including</p> <ul style="list-style-type: none"> rectangles squares trapezoids parallelograms rhombuses <p>according to their attributes [C, R, V]</p>	<p>C4 construct and compare triangles, including</p> <ul style="list-style-type: none"> scalene isosceles equilateral right obtuse acute <p>in different orientations [C, PS, R, V]</p> <p>C5 describe and compare the sides and angles of regular and irregular polygons [C, PS, R, V]</p>	<p>C3 perform geometric constructions, including</p> <ul style="list-style-type: none"> perpendicular line segments parallel line segments perpendicular bisectors angle bisectors [CN, R, V]
Transformations					<p>C5 demonstrate an understanding of line symmetry by</p> <ul style="list-style-type: none"> identifying symmetrical 2-D shapes creating symmetrical 2-D shapes drawing one or more lines of symmetry in a 2-D shape [C, CN, V] 	<p>C7 perform a single transformation (translation, rotation, or reflection) of a 2-D shape (with and without technology) and draw and describe the image [C, CN, T, V]</p> <p>C8 identify a single transformation, including a translation, rotation and reflection of 2-D shapes [C, T, V]</p>	<p>C6 perform a combination of translation(s), rotation(s) and/or reflection(s) on a single 2-D shape, with and without technology, and draw and describe the image [C, CN, PS, T, V]</p> <p>C7 perform a combination of successive transformations of 2-D shapes to create a design, and identify and describe the transformations [C, CN, T, V]</p> <p>C8 identify and plot points in the first quadrant of a Cartesian plane using whole number ordered pairs [C, CN, V]</p> <p>C9 perform and describe single transformations of a 2-D shape in the first quadrant of a Cartesian plane (limited to whole number vertices) [C, CN, PS, T, V]</p>	<p>C4 identify and plot points in the four quadrants of a Cartesian plane using integral ordered pairs [C, CN, V]</p> <p>C5 perform and describe transformations (translations, rotations or reflections) of a 2-D shape in all four quadrants of a Cartesian plane (limited to integral number vertices) [CN, PS, T, V]</p>
Statistics and Probability Data Analysis			<p>D1 gather and record data about self and others to answer questions [C, CN, PS, V]</p> <p>D2 construct and interpret concrete graphs and pictographs to solve problems [C, CN, PS, R, V]</p>	<p>D1 collect first-hand data and organize it using</p> <ul style="list-style-type: none"> tally marks line plots charts lists <p>to answer questions [C, CN, V]</p> <p>D2 construct, label and interpret bar graphs to solve problems [PS, R, V]</p>	<p>D1 demonstrate an understanding of many-to-one correspondence [C, R, T, V]</p> <p>D2 construct and interpret pictographs and bar graphs involving many-to-one correspondence to draw conclusions [C, PS, R, V]</p>	<p>D1 differentiate between first-hand and second-hand data [C, R, T, V]</p> <p>D2 construct and interpret double bar graphs to draw conclusions [C, PS, R, T, V]</p>	<p>D1 create, label, and interpret line graphs to draw conclusions [C, CN, PS, R, V]</p> <p>D2 select, justify, and use appropriate methods of collecting data, including</p> <ul style="list-style-type: none"> questionnaires experiments databases electronic media [C, PS, T] <p>D3 graph collected data and analyze the graph to solve problems [C, CN, PS]</p>	<p>D1 demonstrate an understanding of central tendency and range by</p> <ul style="list-style-type: none"> determining the measures of central tendency (mean, median, mode) and range determining the most appropriate measures of central tendency to report findings [C, PS, R, T] <p>D2 determine the effect on the mean, median, and mode when an outlier is included in a data set [C, CN, PS, R]</p> <p>D3 construct, label, and interpret circle graphs to solve problems [C, CN, PS, R, T, V]</p>
Chance and Uncertainty						<p>D3 describe the likelihood of a single outcome occurring using words such as</p> <ul style="list-style-type: none"> impossible possible certain [C, CN, PS, R] <p>D4 compare the likelihood of two possible outcomes occurring using words such as</p> <ul style="list-style-type: none"> less likely equally likely more likely [C, CN, PS, R] 	<p>D4 demonstrate an understanding of probability by</p> <ul style="list-style-type: none"> identifying all possible outcomes of a probability experiment differentiating between experimental and theoretical probability determining the theoretical probability of outcomes in a probability experiment determining the experimental probability of outcomes in a probability experiment comparing experimental results with the theoretical probability for an experiment [C, ME, PS, T] 	<p>D4 express probabilities as ratios, fractions, and percents [C, CN, R, T, V]</p> <p>D5 identify the sample space (where the combined sample space has 36 or fewer elements) for a probability experiment involving two independent events [C, ME, PS]</p> <p>D6 conduct a probability experiment to compare the theoretical probability (determined using a tree diagram, table or another graphic organizer) and experimental probability of two independent events [C, PS, R, T]</p>

