ایک قوم
ایک نصاب
ONE NATION, ONE CURRICULUM

Single National Curriculum 2022

MATHEMATICS

Math Progression Grid (1-8)

Note: *The progression grid identifies the core student learning outcomes.*
An asterisk (*) placed at the end of a student learning outcome indicates an advanced/additional skill for that specific learning outcome.
Please refer to the relevant 'Suggested Guidelines' document to be informed of more directions for advanced/additional complementary content and ideas.

Domain A: Numbers and Operations

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Benchmarks: Students will be able to demonstrate knowledge of place value (up to 4-digit numbers); represent whole numbers with words, diagrams, number lines, or symbols; order and compare numbers. They will add and subtract numbers up to 4-digit numbers; multiply (up to 3-digit numbers with 1-digit) and divide (3-digit by 1-digit number). Solve problems involving odd and even numbers, addition, subtraction, multiplication and division of numbers (involving missing numbers, money, quantities and measures), round numbers to nearest tens, hundreds and thousands and make estimates. Recognise fractions as parts of wholes or collections; represent fractions using words, numbers, equivalent fractions in simplest form; compare and order simple fractions; add and subtract simple like and unlike fractions, including those set in problem situations. Demonstrate knowledge of decimal place value to the tenth.			**Benchmarks:** Students will be able to demonstrate knowledge of place value (5-digit to 7-digit numbers); represent whole numbers with words, diagrams, number lines, or symbols; order and compare numbers. They will add and subtract numbers up to 6-digit numbers; multiply (up to 5-digit numbers with 3-digit) and divide (up to 5 digit up to 2 digit number) Solve problems involving odd and even numbers, addition, subtraction, multiplication and division of numbers (involving missing numbers, money, quantities and measures), round numbers to nearest tens, hundreds and thousands and make estimates. Recognise fractions as parts of wholes or		**Benchmarks:** Students will be able use language, notation and Venn diagrams to describe sets and their elements, operate with real numbers, their properties and identify absolute value of real numbers, apply commutative ,associative and distributive laws on real numbers , compare, arrange and round off real numbers to required degree of accuracy, calculate factors, multiples, HCF and LCM, square roots and cube roots, ratio, rate, proportion, percentages, profit, loss, discount, Zakat, Ushr, commission, Taxes, insurance, partnership and Inheritance and apply all of these concepts in real life contexts.	

			collections; represent fractions using words, numbers; compare and order simple fractions; add and subtract simple like, unlike fractions, including those set in problem situations. Demonstrate knowledge of decimal place value (up to three decimal place) compare, order, and round decimals (to the nearest whole number and up to two decimal place); add, subtract, multiply and divide decimals, including those set in real world problems (including money, quantities or measures).				
Student Learning Outcomes							
[SLO: M-01-A-01] Count objects and numbers to and across 99 (2-digit numbers) forwards and backwards, beginning from zero one, or from any given number.	[SLO: M-02-A-01] Count numbers up to and across 999 (3-digit numbers) forwards and backwards, beginning from zero or one, or from any given number.	[SLO: M-03-A-01] Count up to 9999 (4-digit numbers).	[SLO: M-04-A-01] Count up to 99,999 (5-digit numbers).	[SLO: M-05-A-01] Count up to 9,999,999 (7-digit numbers)	---	---	---
[SLO: M-01-A-02] Read and write numbers up to 99 (2-digit numbers) in	[SLO: M-02-A-02] Read and write numbers up to 999 in numerals and up to	[SLO: M-03-A-02] Read and write up to 999 in numerals and in words.	[SLO: M-04-A-02] Read and write up to 99,999 (5-digit numbers) in numerals	[SLO: M-05-A-02] Read and write up to 9,999,999 (6 and 7 digit numbers) in	---	---	---

numerals and in words.	99 in words.		and in words.	numerals and in words.			
[SLO: M-01-A-03] Recognise the place value of each digit in 2-digit numbers (tens, ones/units).	[SLO: M-02-A-03] Recognise the place value of each digit in 3-digit numbers (hundreds, tens, ones/units).	[SLO: M-03-A-03] Recognise the place value of each digit in 4-digit numbers.	[SLO: M-04-A-03] Recognise the place value of each digit in 5-digit numbers.	[SLO: M-05-A-03] Recognise the place value of each digit in 6 and 7 digit numbers.	---	[SLO: M-07-A-01] With increasing degree of challenge, use the concept of place value for whole numbers, integers, rational numbers and decimal numbers.	---
[SLO: M-01-A-04] Compare and order numbers up to 99 using appropriate language (for instance: more and less, greater, smaller, equal to, same as, increasing, decreasing, smallest to largest and vice versa etc.) [SLO: M-01-A-05] Identify numbers	[SLO: M-02-A-04] Compare and order numbers up to 999 using appropriate language and <, > and = signs.	[SLO: M-03-A-04] Compare numbers using symbols and arrange numbers up to 9999 using appropriate language	[SLO: M-04-A-04] Compare numbers using symbols and arrange numbers up to 99,999	---	---	---	---

before, after and between two numbers.							
---	[SLO: M-02-A-05] Round numbers to the nearest tens using different concrete objects and pictorial representations.	[SLO: M-03-A-05] Round numbers to the nearest tens, hundreds and thousands using different concrete and pictorial representations.	[SLO: M-04-A-05] Reinforce/recall round off numbers to the nearest tens, hundreds, thousands. [SLO: M-04-A-06] Round numbers to the nearest ten thousands.	---	---	[SLO: M-07-A-02] Round off whole numbers, integers, rational numbers and decimal numbers to a required degree of accuracy, significance or decimal places (up to 3 decimal places).	[SLO: M-08-A-01] Round off numbers up to 5 significant figures.
[SLO: M-01-A-06] Recognise the position of objects and write it using ordinal numbers up	[SLO: M-02-A-06] Recognise the position of objects and write it using ordinal numbers up to	---	---	---	---	---	---

to 10.	20.						
---	[SLO: M-02-A-07] Read and write Roman numbers up to 12.	[SLO: M-03-A-06] Read and write Roman numbers up to 20.	[SLO: M-04-A-07] Read and write Roman numbers up to 100.	---	---	---	---
[SLO: M-01-A-07] Find, recall and use addition and subtraction facts to 20.	[SLO: M-02-A-08] Find, recall and use addition and subtraction facts to 100.	---	---	---	---	---	---
[SLO: M-01-A-08] Compare numbers to find how many more and how many less [SLO: M-01-A-09] Add and subtract numbers mentally and in written form including: ● up to three 1-digit numbers ● 2-digit numbers and tens. [SLO: M-01-A-10] Add and subtract numbers mentally and in written form	[SLO: M-02-A-09] Add and subtract numbers mentally and in formal written form (with and without regrouping) including: ● 3-digit number and a 1- digit number. ● 3-digit number and tens. ● 3-digit number and a 2-digit number. ● Two 3-digit numbers.	[SLO: M-03-A-07] Add and subtract numbers mentally and in written form (with and without regrouping) including: ● 4-digit numbers with 1-, 2-, 3- and 4-digit numbers.	[SLO: M-04-A-08] Add and subtract up to 5-digit numbers mentally and in written form (with and without regrouping) including: ● 5-digit numbers with 1-digit, 2-digit, 3-digit, 4-digit and 5-digit numbers.	[SLO: M-05-A-04] Add and subtract up to 6-digit numbers mentally and in written form (with and without regrouping) including: ● 6-digit numbers with 1-digit, 2-digit, 3-digit, 4-digit, 5-digit and 6-digit numbers.	---	---	---

including: ● 2-digit numbers and 1-digit numbers (without regrouping) ● Two 2-digit numbers (without regrouping)							
[SLO: M-01-A-11] Solve real-world word problems with addition and subtraction using concrete objects and pictorial representations (involving missing numbers, money, quantities and measures)	[SLO: M-02-A-10] Solve real-world word problems with addition and subtraction (involving missing numbers, money, quantities and measures)	[SLO: M-03-A-08] Solve real-world word problems (including missing numbers and money) involving addition and subtraction.	[SLO: M-04-A-08] Solve real-world word problems (including multi step) involving addition and subtraction.	[SLO: M-05-A-05] Solve real-world word problems (including multi step) involving addition and subtraction.	---	---	---

---	[SLO: M-02-A-11] Estimate the answer to an addition and subtraction question. (using various approaches)	[SLO: M-03-A-09] Estimate the answer to an addition and subtraction question. (using various approaches)	[SLO: M-04-A-09] Estimate the answer to an addition and subtraction question. (using various approaches)	[SLO: M-05-A-06] Estimate the answer to an addition and subtraction question. (using various approaches)	---	[SLO: M-07-A-03] Use knowledge of rounding off to give an estimate to a calculation; to check the reasonableness of the solution.	[SLO: M-08-A-02] Analyze approximation error when numbers are rounded off. [SLO: M-08-A-03] Solve real-world word problems involving approximation
---	[SLO: M-02-A-12] Recognise even and odd numbers.	[SLO: M-03-A-10] Recognise and differentiate between even and odd numbers.	---	---	---	---	---
[SLO: M-01-A-12] Identify Pakistani coins (Rs. 1, 2, 5 and 10) and notes (Rs. 10, 20, 50, 100, and 500 [SLO: M-01-A-13] Solve money problems involving addition and subtraction of	[SLO: M-02-A-13] Identify international currency and denominations (for instance dollars.) [SLO: M-02-A-14] Solve money problems involving addition and subtraction of Pakistani money and	---	---	---	---	---	[SLO: M-08-A-04] Convert Pakistani currency to well-known international currencies and vice versa.

Pakistani money.	a few selected international currency notes. (for instance dollar)						
[SLO: M-01-A-14] Count and write in 2's, 5s and 10s using concrete objects (such as counters, pebbles, popsicle sticks etc) and pictorial representations (such as number line, hundred square grid) [SLO: M-01-A-15] Recognise counting in 2s, 5s and 10s as multiplication tables of two, five and ten. [SLO: M-01-A-16] Recognise multiplication as repeated addition using concrete objects and pictorial representations (for instance materials, groups and arrays)	[SLO: M-02-A-15] Count and write in 3s, 4s, 5s, 10s and 100s. [SLO: M-02-A-16] Recognise counting in 3s, 4s as multiplication tables of three and four. [SLO: M-02-A-17] Recognise multiplication as repeated addition and develop multiplication tables (times tables) for 2, 3, 4, 5 and 10.	[SLO: M-03-A-11] Count and write in multiple steps. Develop times tables for 6, 7, 8, and 9 and write multiplication sentences using concrete and pictorial representations.	---	---	---	---	---

	[SLO: M-02-A-18] Write multiplication statements (i.e., sentences) using concrete and pictorial representations.						
[SLO: M-01-A-17] Recognise using concrete objects and pictorial representations that the multiplication of any two numbers can be done in any order.	[SLO: M-02-A-19] Recognise using concrete and pictorial representations that the multiplication of any two numbers can be done in any order.	[SLO: M-03-A-12] Reinforce through concrete and pictorial representations that the multiplication of any two numbers can be done in any order.	---	---	---	---	---
---	[SLO: M-02-A-20] Multiply mentally and in written form using the multiplication tables that they know: ● 1 digit number by another 1 digit number. [SLO: M-02-A-21] Multiply mentally and in written form using the multiplication tables	[SLO: M-03-A-13] Multiply mentally and in written form: ● 2 digit numbers by 1 digit numbers. ● 3 digit numbers by 1-digit numbers.	[SLO: M-04-A-10] Multiply up to 4-digit numbers with 1-digit and 2-digit numbers mentally and in written form.	[SLO: M-05-A-07] Multiply upto 5-digit numbers with 1-digit, 2-digit and 3-digit numbers in written form.	---	---	---

	that they know: • 2-digit number by a 1-digit number using a multiplication grid. [SLO: M-02-A-22] Multiply a number with 0 and 1.						
---	[SLO: M-02-A-23] Solve real-world word problems involving multiplication.	[SLO: M-03-A-14] Solve real-world word problems involving multiplication.	[SLO: M-04-A-11] Solve real-world word problems involving multiplication.	[SLO: M-05-A-08] Solve real-world word problems involving multiplication.	---	---	---
[SLO: M-01-A-18] Recognise division as repeated subtraction using concrete objects and pictorial representation. (groups, arrays and sharing)	[SLO: M-02-A-24] Recognise division as repeated subtraction through concrete and pictorial representation. [SLO: M-02-A-25] Write division statements (i.e., sentences) using concrete and pictorial representations.	---	---	---	---	---	---

[SLO: M-01-A-19] Recognise using concrete objects and pictorial representation that the division of one number by another number cannot be done in any order.	[SLO: M-02-A-26] Recognise using concrete and pictorial representation that the division of one number by another cannot be done in any order.	[SLO: M-03-A-15] Reinforce through concrete and pictorial representation that the division of any two numbers cannot be done in any order (Commutative).	---	---	---	---	---
---	[SLO: M-02-A-27] Divide mentally and in written form: ● 1-digit number by another 1-digit number (without remainder) ● 2-digit number by a 1-digit number (without remainder)	[SLO: M-03-A-16] Divide mentally and in written form: ● 2-digit numbers by 1 digit number (with and without remainder) ● 3-digit numbers with 1-digit numbers (with and without remainder) [SLO: M-03-A-17] Divide a number by 1 and itself.	[SLO: M-04-A-12] Divide up to 4-digit numbers by 1-digit and 2-digit numbers in written form.	[SLO: M-05-A-09] Divide up to 5-digit numbers by 1-digit and 2-digit numbers in written form.	---	---	---
[SLO: M-01-A-20] Solve simple real world problems involving multiplication and	[SLO: M-02-A-28] Solve real-world word problems involving multiplication and	[SLO: M-03-A-18] Solve real-world word problems involving division.	[SLO: M-04-A-13] Solve real-world word problems involving division.	[SLO: M-05-A-10] Solve real-world word problems involving division.	---	---	---

division using any method (for instance materials, repeated addition, groups and arrays, mental methods, and known multiplication tables).	division using any method (for instance materials, repeated addition/subtraction, groups, arrays, mental and or written methods).						
---	[SLO: M-02-A-29] Solve real-world word problems (including Pakistani currency) involving addition, subtraction, multiplication and division.	[SLO: M-03-A-19] Solve real-world word problems involving addition, subtraction, multiplication and division.	[SLO: M-04-A-14] Use appropriate operations to solve real-world word problems involving addition, subtraction, multiplication and division.	[SLO: M-05-A-11] Use appropriate operations to solve real-world word problems involving addition, subtraction, multiplication and division.	---	----	---
---	---	---	[SLO: M-04-A-15] Identify divisibility rules for 2, 3, 5 and 10 and use them on up to 4-digit numbers.	[SLO: M-05-A-12] Identify divisibility rules for 7 and 11 and use them on up to 5-digit numbers.	---	---	---
---	---	---	[SLO: M-04-A-16] Identify and differentiate between multiples and factors and find: ● all factor pairs of a number	---	[SLO: M-06-A-01] Identify: ● Factors of up to 3-digit numbers ● Multiples of up to 2-digit	---	---

			• common factors of two numbers [SLO: M-04-A-17] Identify and differentiate between multiples and factors and find: • common multiples of two or more than 2-digit numbers.		numbers • Prime factors of up to 4-digit numbers and express in index notation		
---	---	---	---	---	[SLO: M-06-A-02] Identify base and exponent and express numbers given in expanded form in index notation and vice versa.	---	---
---	----	----	[SLO: M-04-A-18] Identify and differentiate between 2-digit prime and composite numbers up to 50.	[SLO: M-05-A-13] Identify and differentiate between 2-digit prime and composite numbers up to 100.	---	---	---
---	---	---	---	[SLO: M-05-A-14] Find H.C.F and	[SLO: M-06-A-03]	[SLO: M-07-A-04]	---

				L.C.M of two numbers (up to 2-digits) using various methods. (For instance prime factorization, division method etc.)	Find H.C.F and L.C.M of two or three numbers (up to 3-digits) using various methods (for instance prime factorization and division method).	Recall H.C.F and L.C.M.	
---	---	---	---	[SLO: M-05-A-15] Solve real-world word problems involving H.C.F and L.C.M.	[SLO: M-06-A-04] Solve real-world word problems involving H.C.F and L.C.M.	---	---
---	---	---	---	---	[SLO: M-06-A-05] Recognise, identify and represent integers (positive, negative and neutral integers) and their absolute or numerical value.	[SLO: M-07-A-05] Recall - Recognise, identify and represent integers (positive, negative and neutral integers) and their absolute or numerical value.	---
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					06] Arrange a given list of integers and their absolute value in ascending and descending order.		
---	---	---	---	---	[SLO: M-06-A-07] Add and subtract upto-2-digit like and unlike integers and verify commutative and associative laws (where applicable).	---	---
---	---	---	---	---	[SLO: M-06-A-08] Multiply up to 2-digit like and unlike integers and verify commutative, associative and distributive laws. [SLO: M-06-A-09]	---	---

					Divide like and unlike integers.		
[SLO: M-01-A-21] Recognise, find, name and write fractions: - half (½) - quarter (¼) - two-quarters (2/4) - three-quarters (¾) of a length, shape, set of objects or quantity using pictorial representations.	[SLO: M-02-A-30] Identify, name and write; -unit fractions -non-unit fractions -like fractions -unlike fractions of a discrete set of objects using pictorial representations.	[SLO: M-03-A-20] Recognise among: -proper fractions -improper fractions. -mixed numbers	[SLO: M-04-A-19] Differentiate among: -proper fractions -improper fractions -mixed numbers.	---	---	[SLO: M-07-A-06] Identify and represent (on a number line) rational numbers. [SLO: M-07-A-07] Represent whole numbers, integers and decimal numbers on a number line.	[SLO: M-08-A-05] Differentiate between rational and irrational numbers. [SLO: M-08-A-06] Represent real numbers on a number line and Recognise the absolute value of a real number.
---	---	[SLO: M-03-A-21] Identify equivalent fractions and show families of equivalent fractions. [SLO: M-03-A-22] Simplify fractions to the lowest term.	[SLO: M-04-A-20] Convert improper fractions to mixed numbers and vice versa.	---	---	[SLO: M-07-A-08] Identify and convert between various types of fractions.	---
---	[SLO: M-02-A-31] Compare and order	[SLO: M-03-A-23] Compare and order like	[SLO: M-04-A-21] Compare and order	[SLO: M-05-A-16] Compare and order	---	[SLO: M-07-A-09]	[SLO: M-08-A-07]

	unit fractions and like fractions (with denominators up to 10) using <, > and = sign.	fractions using symbols <, > and =.	unlike fractions.	whole numbers, proper, improper fractions and mixed numbers in ascending and descending order.		Compare (using symbols <, >, =, ≤ and ≥) and arrange (in ascending or descending order) whole numbers, integers, rational numbers and decimal numbers.	Demonstrate the ordering properties of real numbers.
---	[SLO: M-02-A-32] Add and subtract like fractions within one whole (e.g., ¼ + ¾ = 4/4).	[SLO: M-03-A-24] Add and subtract like and unlike fractions (with denominators that are multiples of the same number).	[SLO: M-04-A-22] Add and subtract like and unlike fractions (with denominators that are multiples of the same number) and write the answer in mixed numbers (if applicable).	[SLO: M-05-A-17] Add and subtract; two or three unlike fractions and mixed numbers.	---	[SLO: M-07-A-10] Verify associative and commutative properties of rational numbers.	---
---	---	---	[SLO: M-04-A-23] Multiply and divide proper, improper fractions and mixed numbers by a whole number. [SLO: M-04-A-24] Multiply two fractions	[SLO: M-05-A-18] Multiply and divide proper, improper fractions and mixed numbers and express the answer in its simplest form (if applicable).	---	[SLO: M-07-A-11] Verify associative, commutative and distributive properties of rational numbers.	[SLO: M-08-A-08] Demonstrate the following properties: -closure property -associative property - existence of

			and/or mixed numbers.				identity element -existence of inverses - commutative property - distributive property
---	---	---	[SLO: M-04-A-25] Solve real-world word problems involving fractions by identifying appropriate operations.	[SLO: M-05-A-19] Solve real-world word problems involving fractions.	---	[SLO: M-07-A-12] Solve real-world word problems involving operations on rational numbers.	[SLO: M-08-A-09] Solve real-world word problems involving calculation with decimals and fractions.
---	[SLO: M-02-A-33] Know and recognise that tenths arise by dividing an object into ten equal parts and in dividing single digit numbers and quantities by ten (using concrete and pictorial representations).	[SLO: M-03-A-25] Know and recognise that hundredths arise by dividing an object, single digit numbers and quantities into hundred equal parts.	[SLO: M-04-A-26] Recognise, read, write decimal numbers and identify the place value of decimal numbers with up to three decimal places.	---	---	---	[SLO: M-08-A-10] Identify and differentiate between decimal numbers as terminating (non-recurring) and non-terminating (recurring).
---	---	*[SLO: M-03-A-ADD] Identify that tenths arise by dividing an*	[SLO: M-04-A-27] Recognise the result of dividing 1 or 2-	---	---	---	---

		*object, single digit number and quantities into ten equal parts (e.g., 2/10 = 0.2)**	digit number by 10 and 100 and identifying the value of digits in the answer as ones, tenths and hundredths (e.g., 24/100 = 0.24)				
---	---	---	[SLO: M-04-A-28] Express -a decimal number (up to three decimal places) as a fraction whose denominator is 10, 100 and 1000. -a given fraction in its decimal equivalent (tenths, hundredths or thousandths) when the; (i) denominator of the fraction is 10, 100 or 1000. (ii) denominator of a fraction is not 10, 100, or 1000 but can be converted to 10, 100 or a 1000. [SLO: M-04-A-29] Recognise and write a quarter, a half and	[SLO: M-05-A-20] Convert fractions to decimals and vice versa.	---	---	---

			three quarters (i.e., ½, ¼, ¾. to its decimal equivalents.				
---	---		[SLO: M-04-A-30] Compare and order decimal numbers with up to two decimal places.	[SLO: M-05-A-21] Compare and order numbers up to three decimal places using signs >, < and = sign and in ascending and descending order.	---	---	---
---	---		[SLO: M-04-A-31] Round decimal numbers (with up to three decimal places) to the nearest whole number and to one and two decimal places.	[SLO: M-05-A-22] Reinforce rounding decimal numbers (with up to three decimal places) to the nearest whole number and to tenth and hundredth.	---	---	---
---	---	---	[SLO: M-04-A-32] Add and subtract 3-digit numbers with up to two decimal places.	[SLO: M-05-A-23] Add and subtract numbers up to three decimal places.	---	---	---
---	---	---	[SLO: M-04-A-33] Multiply and divide a 2-digit number with one decimal place by:	[SLO: M-05-A-24] Multiply numbers up to two decimal places by:	---	---	---

			• a 1-digit number. • a 2- digit number	•up to 2-digit whole numbers •3-digit numbers with up to two decimal places. [SLO: M-05-A-25] Divide numbers up to two decimal places by • up to 2-digit whole numbers • 2-digit numbers with one decimal place.			
---	---	---	[SLO: M-04-A-34] Multiply and divide a 2-digit number with one decimal place by 10 and 100.	[SLO: M-05-A-26] Multiply and divide a number up to two decimal places by 10, 100 and 1000.	---	---	---
---	---	---	[SLO: M-04-A-35] Use appropriate operations to solve real-world word problems including 2-digit numbers with one decimal place (including money,	[SLO: M-05-A-27] Use appropriate operations to solve real-world word problems including numbers up to two decimal places (including money,	---	---	---

			quantities and measures).	quantities and measures).			
---	---	---	[SLO: M-04-A-36] Recognise the order of operations and use it to solve mathematical expressions involving whole numbers, decimals and fractions.	[SLO: M-05-A-28] Recognise the order of operations and use it to solve mathematical expressions involving whole numbers, decimals and fractions.	[SLO: M-06-A-10] Recognise the order of operations and use it to solve mathematical expressions involving whole numbers, decimals, fractions and integers.	[SLO: M-07-A-13] Recognise the order of operations and use it to solve mathematical expressions involving whole numbers, decimals, fractions and integers.	---
---	---	---	[SLO: M-04-A-37] Recognise the percent symbol (%) and understand that percent is the 'number of parts per hundred'.		---	---	---
---	---	---	---	[SLO: M-05-A-29]	[SLO: M-06-A-11] Express one	---	---

				Express percentages as a fraction with denominator 100 and as a decimal number. [SLO: M-05-A-30] Use equivalences between simple fractions, decimals and percentages in real world contexts.	quantity as a percentage of another, compare two quantities by percentage and increase or decrease a quantity by a given percentage.		
---	---	---	---	[SLO: M-05-A-31] Solve real-world word problems involving conversion of percentage, fraction and decimal numbers. [SLO: M-05-A-32] Solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions	[SLO: M-06-A-12] Solve real-world word problems involving percentage.	---	---

				with a denominator of a multiple of ten or 25.			
---	---	---	---	[SLO: M-05-A-33] Use unitary method to calculate; the value of many objects of the same kind when the value of one is given, the value of one object when value of many is given and value of many objects when value of some is given (including related real-world problems).	[SLO: M-06-A-13] Explain rate as a comparison of two quantities where one quantity is 1.	[SLO: M-07-A-14] Calculate rate and average rate of quantities.	---
---	---	---	---	---	[SLO: M-06-A-14] Calculate ratio of two numbers (up to 3-digit) and simplify ratios.	[SLO: M-07-A-15] Calculate increase and decrease in a ratio based on change in quantities.	---
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					Explain and calculate continued ratio.		
---	---	---	---	---	[SLO: M-06-A-16] Solve real-world word problems involving ratio and rate.	---	---
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						price, cost price, loss, discount, profit percentage and loss percentage.	percentage and discount.
---	---	---	---	---	---	[SLO: M-07-A-18] Explain income tax, property tax, general sales tax, value-added tax, zakat and ushr.	[SLO: M-08-A-13] Explain and calculate profit/markup, principal amount and markup rate.
---	---	---	---	---	---	---	[SLO: M-08-A-14] Explain insurance, partnership and inheritance.
---	---	---	---	---	---	[SLO: M-07-A-19] Solve real world word problems involving profit, loss, discount, commission, tax, zakat and ushr.	[SLO: M-08-A-15] Solve real world word problems involving profit %, loss %, discount, profit, markup, insurance, partnership and inheritance.

---	---	---	---	[SLO: M-05-A-34] Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	[SLO: M-06-A-17] Recognise and calculate squares of up to 2-digit numbers.	[SLO: M-07-A-20] Recognise and calculate squares of numbers up to 3-digits.	---
---	---	---	---	---	---	[SLO: M-07-A-21] Find the square roots of perfect squares of (up to 3-digit) natural numbers, fractions and decimals.	[SLO: M-08-A-16] Find the square root of natural numbers, common fractions and decimal numbers (up to 6-digit).
---	---	---	---	---	---	[SLO: M-07-A-22] Solve real-world word problems involving squares and square roots.	[SLO: M-08-A-17] Solve real-world word problems involving squares and square roots.
---	---	---	---	---	--	---	[SLO: M-08-A-18] Recognise perfect cubes

							and find: -cubes of up to 2-digit numbers - cube roots of up to 5-digit numbers which are perfect cubes
---	---	---	----	---	---	---	[SLO: M-08-A-19] Solve real-world word problems involving cubes and cube roots.
---	---	---	---	---	[SLO: M-06-A-18] Use language, notation and Venn Diagrams to represent different types of sets and their elements. (finite, infinite, empty, singleton and universal set)	[SLO: M-07-A-23] Use language, notation and Venn Diagrams to represent different sets and their elements. (natural numbers, whole numbers, integers, even numbers, odd numbers, prime numbers)	[SLO: M-08-A-20] Describe sets using language (tabular, descriptive and set-builder notation) and Venn diagrams
---	---	---	---	---	---	[SLO: M-07-A-24]	[SLO: M-08-A-21]

						Identify and differentiate between: ● subset and superset ● proper and improper ● equal and equivalent ● disjoint and overlapping.	Find the power set (P) of set A where A has up to four elements.
---	---	---	---	---	---	[SLO: M-07-A-25] Describe and perform operations on sets (union, intersection, difference and complement). [SLO: M-07-A-26] Verify the following: A ∩ Ac = ∅ A ∪ Ac = U ($A \cup B$)c= $Ac \cap Bc$ ($A \cap B$)c=	[SLO: M-08-A-22] Describe operations on sets and verify commutative, associative, distributive laws with respect to union and intersection.

						$Ac \cup Bc$.	
---	---	---	---		---	---	[SLO: M-08-A-23] Verify De Morgan's laws and represent through Venn Diagram.
---	---	---	---	---	---	---	[SLO: M-08-A-24] Apply sets in real-life word problems.

Domain B: Algebra

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Benchmarks: Students will be able to analyse and complete geometrical and number patterns; find the missing number or operation in a number sentence.			**Benchmarks:** Students will be able to analyse and complete number patterns; find the missing number or operation in a number sentence.		**Benchmarks:** Students will be able to recognise and manipulate number patterns, use letters to represent numbers, expand, simplify, factorise, evaluate and manipulate algebraic expressions, use algebraic identities, interpret and plot graphs of linear equations, solve linear and simultaneous linear equations and linear inequalities and apply all of these concepts in real life context.		

Student Learning Outcomes							
[SLO: M-01-B-01] Identify and extend the next shape in patterns with 2 or 3 orientations.	[SLO: M-02-B-01] Complete geometrical patterns (e.g., on a square grid) according to one or two of the following orientations: Shape, size or colour.	---	---	---	---	---	---
[SLO: M-01-B-02] Identify and extend patterns using 2-D and 3-D shapes as well as through pictorial illustrations.	[SLO: M-02-B-02] Explore patterns in a variety of ways using 2-D and 3-D shapes.	---	---	---	---	---	---
---	[SLO: M-02-B-03] Identify and extend repeating, increasing and decreasing number patterns. (for e.g., on a number line or on a hundreds chart)	[SLO: M-03-B-01] Recognise and extend a given number pattern in increasing and decreasing order.	[SLO: M-04-B-01] Using a pattern rule, describe the pattern found in a given table or chart.	[SLO: M-05-B-01] Using a pattern rule, describe the pattern found in a given table or chart.	[SLO: M-06-B-01] Recognise simple patterns from various number sequences.	[SLO: M-07-B-01] Recall recognizing simple patterns from various number sequences.	[SLO: M-08-B-01] Differentiate between an arithmetic sequence and a geometric sequence.
---	---	---	[SLO: M-04-B-02] Complete the given	[SLO: M-05-B-02] Identify and apply	[SLO: M-06-B-02]	[SLO: M-07-B-02]	[SLO: M-08-B-02]

			increasing and decreasing number patterns.	the pattern rule of a given increasing and decreasing pattern to: -extend the pattern for the next three terms -determine missing elements in a given pattern.	Continue a given number sequence and find: -term to term rule -position to term rule	Recall how to continue a given number sequence and find: -term to term rule -position to term rule	Find terms of an arithmetic sequence using: -term to term rule -position to term rule
---	---	---	---	---	---	[SLO: M-07-B-03] Find terms of a sequence when the general term (nth term) is given.	[SLO: M-08-B-03] Construct the formula for the general term (nth term) of an arithmetic sequence.
---	---	---	---	---	[SLO: M-06-B-03] Solve real life problems involving number sequences and patterns.	[SLO: M-07-B-04] Solve real life problems involving number sequences and patterns.	[SLO: M-08-B-04] Solve real life problems involving number sequences and patterns.
---	---	[SLO: M-03-B-02] Find the missing number or operation in	[SLO: M-04-B-03] Identify and write expressions or	---	---	---	---

		a number sentence (e.g., 20 + w = 100).	number sentences to represent problems that may involve unknowns.				
---	---	---	[SLO: M-04-B-04] Identify and use relationships in a well-defined pattern (e.g.,, describe the relationship between adjacent terms and generate pairs of whole numbers given a rule).	---	---	---	---
---	---	---	---	---	[SLO: M-06-B-04] Explain the term algebra as an extension of arithmetic, where letters, numbers and symbols are used to construct algebraic expressions.	[SLO: M-07-B-05] Students will know Muhammad bin Musa Al-Khwarizmi as the founding father of Algebra. [SLO: M-07-B-06] Recall variables as a quantity	[SLO: M-08-B-05] Recall the difference between: ➔ open and close sentences ➔ expression and equation ➔ equation and

						which can take various numerical values. [SLO: M-07-B-07] Recognise open and close sentences, like and unlike terms, variable, constant, expression, equation and inequality. [SLO: M-07-B-08] Recognise polynomials as algebraic expressions in which the powers of variables are whole numbers.	inequality
---	---	---	---	---	---	[SLO: M-07-B-09] Identify a	---

						monomial, a binomial and a trinomial as a polynomial.	
---	---	---	---	---	[SLO: M-06-B-05] Evaluate algebraic expressions by substitution of variables with numerical values.	[SLO: M-07-B-10] Add and subtract two or more polynomials.	[SLO: M-08-B-06] Recall the addition and subtraction of polynomials.
---	---	---	---	---	[SLO: M-06-B-06] Manipulate simple algebraic expressions using addition and subtraction.	[SLO: M-07-B-11] Find the product of: - monomial with monomial - monomial with binomial/trinomial - binomials with binomial/trinomial	[SLO: M-08-B-07] Recall the multiplication of polynomials.
---	---	---	---	---	---	---	[SLO: M-08-B-08]

							Divide a polynomial of degree up to 3 by -a monomial -a binomial
---	---	---	---	---	[SLO: M-06-B-07] Simplify algebraic expressions.	[SLO: M-07-B-12] Simplify algebraic expressions (by expanding products of algebraic expressions by a number, a variable or an algebraic expression) involving addition, subtraction, and multiplication division.	[SLO: M-08-B-09] Simplify algebraic expressions involving addition, subtraction, multiplication and division.
---	---	---	---	---	---	[SLO: M-07-B-13] Explore the following algebraic identities and	[SLO: M-08-B-10] Recognise the following algebraic identities and

						use them to expand expressions: $(a+b)^2$ $= a^2 + b^2 + 2ab$ $(a-b)^2$ $= a^2 + b^2 - 2ab$ $(a+b)(a-b)$ $= a^2 - b^2$	use them to expand expressions: $(a+b)^2$ $= a^2 + b^2 + 2ab$ $(a-b)^2$ $= a^2 + b^2 - 2ab$ $(a+b)(a-b) = a^2 - b^2$.
---	---	---	---	---	---	---	[SLO: M-08-B-11] Apply algebraic identities to solve problems like $(103)^2$, $(1.03)^2$, $(99)^2$, 101×99.
---	---	---	---	---	---	[SLO: M-07-B-14] Factorize algebraic expressions (by taking out common terms and by regrouping) [SLO: M-07-B-	[SLO: M-08-B-12] Factorize the following types of expressions: ● ka + kb + kc ● ac + ad + bc + bd ● $a^2 \pm 2ab + b^2$ ● $a^2 - b^2$

						15] Factorize quadratic expressions (by middle term breaking method).	• $a^2 \pm 2ab + b^2 - c^2$
---	---	---	---	---	---	---	[SLO: M-08-B-13] Manipulation of algebraic expressions $(a + b)^3 = a^3 + 3a^2 b + 3ab^2 + b^3$ $(a - b)^3 = a^3 - 3a^2 b + 3ab^2 - b^3$
---	---	---	---	---	[SLO: M-06-B-08] Recognise and construct linear equations in one variable.	[SLO: M-07-B-16] Construct linear equations in two variables such as; $ax + by = c$, where a and b are not	[SLO: M-08-B-14] Construct simultaneous linear equations in two variables.

						zero.	
---	---	---	---	---	[SLO: M-06-B-09] Solve linear equations involving integers, fractions and decimal coefficients.	[SLO: M-07-B-17] Recall solving linear equations in one variable.	[SLO: M-08-B-15] Solve simultaneous linear equations in two variables using: - elimination method - substitution method - graphical method division and factorisation method
---	---	---	---	---	[SLO: M-06-B-10] Solve real-world problems involving linear equations.		[SLO: M-08-B-16] Solve real-world word problems involving two simultaneous linear equations in two variables.
---	---	---	---	---	---	---	[SLO: M-08-B-17]

							Identify base, index/ exponent and its value.
---	---	---	---	---	---	---	[SLO: M-08-B-18] Deduce and apply the following laws of Exponents/ Indices: -Product Law -Quotient Law -Power Law
---	---	---	---	---	---	---	[SLO: M-08-B-19] Solve simple linear inequalities i.e.,, ax > b or cx < d ax + b < c ax + b>c [SLO: M-08-B-20] Represent the solution of linear inequality on the number line.
---	---	---	---	---	---	[SLO: M-	---

						07-B-18] Introduction to Cartesian coordinate system.	
---	---	---	---	---	---	[SLO: M-07-B-19] Plot the graph of the linear equation ax + b=0 where a ≠ 0 and of linear equations in two variables.	---
---	---	---	---	---	---	[SLO: M-07-B-20] Recognise and state the equation of a horizontal line and a vertical line.	[SLO: M-08-B-21] Recognise the gradient of a straight line. Recall the equation of horizontal and vertical lines i.e.,,

							$y = c \ and \ x = a$
---	---	---	---	---	---	[SLO: M-07-B-21] Find values of 'x' and 'y' from the graph.	[SLO: M-08-B-22] Find the value of 'y' when 'x' is given from the equation and vice versa.
---	---	---	---	---	---	---	[SLO: M-08-B-23] Plot graphs of linear equations in two variables i.e.,, $y = mx$ and $y = mx + c$
---	---	---	---	---	---	---	[SLO: M-08-B-24] Interpret the gradient/ slope of the straight line.
---	---	---	---	---	---	---	[SLO: M-08-B-25] Determine the y-intercept of a

							straight line.

Domain C: Measurement

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Benchmarks: Students will be able to measure, compare and order lengths (Kilometres/metres/ centimetres), mass (kilograms/grams/milligrams), and capacity (litres/ millilitres); read, write and compare time (hours and minutes); measure area and perimeter using square grids. They would also solve problems involving mass, length, weight/mass, capacity, and time (including addition and subtraction).			**Benchmarks:** Students will be able to measure, compare and convert lengths, mass, capacity and time from one standard unit to another; read, write and convert time in 24 hour and 12 hour notation. They would also solve problems involving length, mass/weight, capacity and time; solve problems involving perimeter and area of parallelogram, triangle, square, rectangle and rectilinear shapes.		**Benchmarks:** Students will be able to convert between different units of measure, solve problems involving speed, distance, time, area and perimeter of 2D shapes, surface area and volume of 3D shapes and apply the Pythagorean Theorem.		
Student Learning Outcomes							
[SLO: M-01-C-01] Use mathematical language to compare the height/length of two or more objects. [SLO: M-01-C-02]	[SLO: M-02-C-01] Compare the lengths of different objects using standard units of length (metre and centimetre) using <, >, and = signs.	---	---	---	---	---	---

Measure and compare the length of objects using non-standard units.							
---	[SLO: M-02-C-02] Recognise and use the standard units of length (metre and centimetre) to measure and record the length of different objects.	[SLO: M-03-C-01] Recognise and use the standard units of length (kilometre, metre, centimetre and millimetre) to measure and record the length of different objects.	---	---	---	---	---
---	---	---	[SLO: M-04-C-01] Convert units of length from larger to smaller units (Kilometre, metre, centimetre and millimetre).	[SLO: M-05-C-01] Convert units of length from larger to smaller and vice versa.	---	[SLO: M-07-C-01] Convert different units of distance.	---
---	[SLO: M-02-C-03] Add and subtract lengths, given in the same units to solve real-world word problems.	[SLO: M-03-C-02] Add and subtract lengths, given in the same units to solve real-world word problems.	[SLO: M-04-C-02] Convert, add and subtract lengths, to solve real-world word problems.	[SLO: M-05-C-02] Convert, add and subtract lengths, to solve real-world word problems.	---	---	---
[SLO: M-01-C-03] Use mathematical language to compare	[SLO: M-02-C-04] Compare the mass of different objects using	---	---	---	---	---	---

the mass of two or more objects. [SLO: M-01-C-04] Measure and compare the mass of objects using non-standard units.	standard units of mass (kilogram and gram) using <, >, and = signs.						
---	[SLO: M-02-C-05] Recognise and use the standard units of mass (Kilograms and grams) to measure and record the mass of different objects.	[SLO: M-03-C-03] Recognise and use the standard units of mass (Kilograms, grams and milligrams) to measure and record the mass of different objects.	---	---	---	---	---
---	---	---	[SLO: M-04-C-03] Convert units of mass from larger to smaller units (kilogram and gram).	[SLO: M-05-C-03] Convert units of mass from larger to smaller and vice versa.	---	---	---
---	[SLO: M-02-C-06] Add and subtract mass, given in the same units to solve real-world word problems.	[SLO: M-03-C-04] Add and subtract mass, given in the same units to solve real-world word problems.	[SLO: M-04-C-04] Convert, add and subtract mass to solve real-world word problems.	[SLO: M-05-C-04] Convert, add and subtract mass to solve real-world word problems.	---	---	---
[SLO: M-01-C-05] Use mathematical	[SLO: M-02-C-07] Compare the capacity	---	----	---	---	---	---

language to compare the capacity of two or more objects.	of different objects using standard units of capacity (litre and millilitre) using <, >, and = signs.						
[SLO: M-01-C-06] Measure and compare the capacity of objects using non-standard units	[SLO: M-02-C-08] Recognise and use the standard units of capacity (litre and millilitre) to measure and record the capacity of different objects.	[SLO: M-03-C-05] Recognise and use the standard units of capacity (litre and millilitre) to measure and record the capacity of different objects.	[SLO: M-04-C-05] Convert units of capacity from larger to smaller units (litre and millilitre).	[SLO: M-05-C-05] Convert units of capacity from larger to smaller and vice versa.	---	---	---
[SLO: M-01-C-07] Read and write temperature to the nearest appropriate unit i.e., (℃) using pictorial representations and relating temperature scale to number line.	[SLO: M-02-C-09] Read and write temperature to the nearest appropriate unit i.e., (℃) using pictorial representations and relating temperature scale to number line. [SLO: M-02-C-10] Compare and order temperature using <, >, and = signs.	[SLO: M-03-C-06] Read and write temperature to the nearest appropriate unit i.e., (℃) using pictorial representations and relating temperature scale to number line. [SLO: M-03-C-07] Compare and order temperature using <, >, and = signs.	[SLO: M-04-C-06] Recognise the other temperature measuring scales; Kelvin, Celsius and Fahrenheit		---	---	---
---	[SLO: M-02-C-11]	[SLO: M-03-C-08]	[SLO: M-04-C-07]	[SLO: M-05-C-06]	---	----	----

	Add and subtract capacities given in the same units to solve real-life word problems.	Add and subtract capacities given in the same units to solve real-life word problems.	Convert, add and subtract capacities to solve real-life word problems.	Convert, add and subtract capacities to solve real-life word problems.			
[SLO: M-01-C-08] Read and write time in hours (o'clock) from analogue clock and digital clock. [SLO: M-01-C-09] Show time in an hour on an analogue clock.	[SLO: M-02-C-12] Read and write time in hours and minutes (with five minute intervals, half past, quarter past and quarter to) from analogue and digital clocks. [SLO: M-02-C-13] Show time in hours and minutes on an analogue clock.	[SLO: M-03-C-09] Read and write time in hours and minutes from analogue and digital clocks.	[SLO: M-04-C-08] Read and write time from digital and analog clocks in 12-hour and 24-hour format.	---	---	---	---
---	---	[SLO: M-03-C-10] Recognise and use a.m. and p.m.	---	---	---	---	---

---	[SLO: M-02-C-14] Recognise intervals of time (for instance · to estimate/give a rough calculation of the time taken by particular events or tasks)	---	[SLO: M-04-C-09] Convert larger units to smaller units of time (hours, minutes, seconds, years, months, weeks and days). [SLO: M-04-C-10] Calculate duration of different events using start time and end time.	[SLO: M-05-C-06] Convert larger units to smaller units of time and vice versa.	---	[SLO: M-07-C-02] Convert 12 hour clock to 24 hour clock and vice versa. [SLO: M-07-C-03] Convert between different units of time and speed.	----
---	---	[SLO: M-03-C-11] Add and subtract measures of time given in the same units to solve real-life word problems.	[SLO: M-04-C-11] Add, subtract and convert measures of time to solve real-life word problems.	[SLO: M-05-C-07] Add, subtract and convert measures and intervals of time to solve real-life word problems.	---	[SLO: M-07-C-04] Calculate arrival time, departure time and journey time in a given situation (on the previous day and the next day).	---
---	---	---	---	---	---	[SLO: M-07-C-05] Solve real-world word problems	---

						involving distance, time and average speed. [SLO: M-07-C-06] Differentiate between uniform and average speeds.	
[SLO: M-01-C-10] Name days of the week and months of the Solar and Islamic year.	[SLO: M-02-C-15] Use Solar and Islamic Calendar to find a particular day/date in real-life situations.	[SLO: M-03-C-12] Read and write days and dates from the Solar Calendar.	---	---	---	---	---
---	[SLO: M-02-C-16] Recognise perimeter and area.	[SLO: M-03-C-13] Recognise and identify the units of measurement of area and perimeter and find the perimeter and area of 2-D figures (Squares and rectangles) and irregular figures (figures covers either ½ or 1 square unit only) on a square grid.	[SLO: M-04-C-12] Identify the units of measurement for perimeter and area, [SLO: M-04-C-13] Differentiate between the perimeter and area of a square, rectangular and rectilinear shapes. [SLO: M-04-C-14] Apply formulas to find the perimeter and	[SLO: M-05-C-08] Recognise that the shapes with the same area can have different perimeters and vice versa. [SLO: M-05-C-09] Calculate the area of parallelograms and triangles.	[SLO: M-06-C-01] Calculate the area of; a path (inside or outside) a rectangle or square, parallelogram, triangle and trapezium.	[SLO: M-07-C-07] Calculate the area and perimeter of the shaded/unshaded region in composite shapes. [SLO: M-07-C-08] Calculate the circumference	[SLO: M-08-C-01] State the Pythagoras theorem and use it to solve right angled triangles. [SLO: M-08-C-02] Calculate the arc length and the area of the sector of a

			area of squares, rectangles and rectilinear shapes.			and area of a circle.	circle.
---	---	---	---	[SLO: M-05-C-10] Solve real life word problems involving perimeter and area of square and rectangular regions.	[SLO: M-06-C-02] Solve real life word problems involving perimeter and area.	---	[SLO: M-08-C-03] Solve real life word problems using Pythagoras theorem.
---	---	---	---	---	[SLO: M-06-C-03] Calculate the surface area and volume of cube and cuboids.	[SLO: M-07-C-09] Calculate the surface area and volume of any simple 3-D shape including right prisms and cylinders.	[SLO: M-08-C-04] Calculate the surface area and volume of the pyramid, sphere, hemisphere and cone.

---	---	---	---	---	---	[SLO: M-07-C-10] Convert between standard units of area (m2, cm2, mm2 and vice versa) and volume (m3, cm3 and mm3 and vice versa)	---
---	---	---	---	---	[SLO: M-06-C-04] Solve real life word problems involving the surface area and volume of cubes and cuboids.	[SLO: M-07-C-11] Solve real life word problems involving the surface area and volume of right prisms and cylinders.	[SLO: M-08-C-05] Solve real life word problems involving the surface area and volume pyramid, sphere, hemisphere and cone.

Domain D: Geometry

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Benchmarks:			**Benchmarks:**		**Benchmarks:**		

Students will be able to use properties to describe and compare three-dimensional shapes (cube, cuboid, cone, cylinder, sphere, prism and pyramids) and relate those with two dimensional shapes; differentiate and classify polygons. Identify parallel and perpendicular lines; reflective symmetry, right angles and angles smaller and larger than a right angle; positions, directions and movements, centre, radius, and diameter of a circle**.**			Students will be able to use properties to describe and compare quadrilaterals; identify three dimensional shapes and relate three dimensional shapes with their two dimensional representations. They will also identify and draw types of angles up to 180 degrees and lines of symmetry in 2-D shapes; compare and order angles by size; identify circumference of a circle.		Students will be able to construct lines, angles of different measure, bisectors of angles, line segments, triangles and quadrilaterals ,use the properties of triangles ,quadrilaterals, polygons and circles to calculate unknown angles and lengths, apply facts of congruence and similarity and analyse and apply concepts of symmetry and transformations from two and three-dimensional perspectives.		
Student Learning Outcomes							
[SLO: M-01-D-01] Recognise and identify 2-D shapes (Rectangle, square, circle and triangle) with respect to their characteristics (i.e., sides and corners).	[SLO: M-02-D-01] Recognise, identify and draw 2-D shapes (Rectangle, square, circle, triangle, semi-circle and quarter-circle) with respect to their characteristics. [SLO: M-02-D-02] Identify pairs of perpendicular and parallel lines.	[SLO: M-03-D-01] Differentiate and classify polygons with respect to their attributes (pentagon, hexagon, octagon and decagon).	---	[SLO: M-05-D-01] Recognise, compare and classify types of quadrilaterals and their characteristics (parallel sides, equal sides, equal angles, right angles, lines of symmetry etc). (Square, rectangle, parallelogram, rhombus, trapezium and kite).	---	[SLO: M-07-D-01] Recognise quadrilaterals and their characteristics (parallel sides, equal sides, equal angles, right angles, lines of symmetry etc). (Square, rectangle, parallelogram, rhombus,	---

						trapezium and kite) [SLO: M-07-D-02] Differentiate between convex and concave polygons.	
[SLO: M-01-D-02] Recognise and identify 3-D Shapes (cube, cuboid, cone, cylinder and sphere) with respect to their characteristics.	[SLO: M-02-D-03] Recognise, identify 3-D shapes in different orientations. [SLO: M-02-D-04] Make 3-D Shapes using varied modelling materials (cube, cuboid, cone, cylinder, sphere,) with respect to their characteristics.	[SLO: M-03-D-02] Identify and differentiate between prisms and pyramids with respect to their attributes.	---	[SLO: M-05-D-02] Recognise and draw nets of prisms and pyramids.	[SLO: M-06-D-01] Recognise and identify 3-D shapes (i.e., cube, cuboid, cone, cylinder, sphere, hemisphere and cone) with respect to their characteristics.	---	---
[SLO: M-01-D-03] Describe the position, movement and direction of an object including moving in a straight line using positional	[SLO: M-02-D-05] Describe the position, direction and movement of an object including moving clockwise, anti-clockwise,	[SLO: M-03-D-03] Describe the movement of objects (i.e., slide and rotation).	---	---	[SLO: M-06-D-02] Reflect an object using grid paper and compass and find the line of reflection by	[SLO: M-07-D-03] Translate an object and give precise description of transformation	[SLO: M-08-D-01] Rotate an object and find the centre of rotation by

language (for instance: inside, outside, above, below, over, under, far, near, before, after, straight, backward, right and left).	quarter, half and three quarters turns using appropriate positional language (for instance: inside, outside, above, below, over, under, far, near, before, after, beside, between, left, right and in front of, quarter turn, half turn, three quarter turns, clockwise, anti- clockwise, behind etc). [SLO: M-02-D-06] Recognise turn as a rotation.				construction.		construction. [SLO: M-08-D-02] Enlarge a figure (with the given scale factor) and find the centre and scale factor of enlargement.
---	[SLO: M-02-D-07] Identify and differentiate between a straight and curved line. [SLO: M-02-D-08] Identify horizontal and vertical lines.	[SLO: M-03-D-04] Recognise point, line, ray and line segment; and draw and measure line segments.	[SLO: M-04-D-01] Recognise and identify parallel and non-parallel lines.	---	[SLO: M-06-D-03] Identify and differentiate between parallel lines, perpendicular lines and transversal.	[SLO: M-07-D-04] Know that the perpendicular distance from a point to a line is the shortest distance to the line.	---

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---	[SLO: M-02-D-09] Identify quarter turns.	[SLO: M-03-D-06] Recognise and Identify quarter turns and identify quarter turns as right angles (and vice versa). [SLO: M-03-D-07] Identify half and 3-quarter turns (clockwise and anti-clockwise) as two and three right angles respectively.	[SLO: M-04-D-03] Recognise and identify acute, right and obtuse angles. [SLO: M-04-D-04] Compare and order angles up to 180 degrees by size. [SLO: M-04-D-05] Measure and draw angles (using a protractor) within 180 degrees.	[SLO: M-05-D-03] Identify - angles at a point on a straight line and half a turn (180 degrees). - angles at a point and 1 whole turn (360 degrees). [SLO: M-05-D-04] Describe and calculate complementary and supplementary angles.	[SLO: M-06-D-04] Identify adjacent angles and find unknown angles related to parallel lines and transversals. (corresponding, alternate and vertically opposite angles)	[SLO: M-07-D-06] Calculate unknown angles in quadrilaterals using the properties of quadrilaterals. (square, rectangle, parallelogram, rhombus, trapezium and kite).	---
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						D-07] Understand the relationship between interior and exterior angles of polygons and between opposite interior and exterior angles in a triangle. [SLO: M-07-D-08] Calculate the interior and exterior angles of a polygon and the sum of interior angles of a polygon.	
---	---	[SLO: M-03-D-08] Identify reflective symmetry in 2-D shapes.	[SLO: M-04-D-06] Recognise and draw lines of symmetry in 2-D shapes and complete symmetrical figures with respect to a given line of symmetry.	[SLO: M-05-D-05] Explore, identify and draw lines of symmetry in 2-D shapes and complete symmetrical figures with respect to a given line of symmetry.	[SLO: M-06-D-05] Recognise rotational symmetry, find the point of rotation and order of rotational symmetry.	[SLO: M-07-D-09] Recognise identity and draw lines of symmetry in 2-D shapes and rotate objects using rotational	---

						symmetry; and find the order of rotational symmetry.	
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					perpendicular bisector.		are given. [SLO: M-08-D-05] Construct different types of quadrilaterals (square, rectangle, parallelogram, trapezium, rhombus and kite). [SLO: M-08-D-06] Draw angle and line bisectors to divide angles and sides of triangles and quadrilaterals.
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							surroundings), apply properties of two figures to be congruent or similar and apply postulates for congruence between triangles.

Domain E: Statistics and Probability

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Benchmarks: Read and interpret data from pictographs, bar graphs, tally charts, block graphs and Carroll diagrams. Organise and represent data using pictographs, bar graphs, tally charts, block graphs and Carroll diagrams to answer questions. Describe the probability of an event.			**Benchmarks:** Read and interpret data from tables, pictographs, bar graphs, tally charts, block graphs, line graphs, pie charts and Carroll diagrams. Organise and represent data using tables, pictographs, bar graphs, tally charts, block graphs, line graphs, pie charts and Carroll diagrams to answer questions. Solve problems in context in relation to		**Benchmarks:** Students will be able to collect, classify and tabulate statistical data, interpret, construct and use statistical graphs, calculate and interpret measures of central tendency and solve problems using various concepts pertaining to Experimental and Theoretical Probability.		

	averages of quantities, measures and numbers. Describe the probability of an event; represent the probability of an event including real world problems.	
Student Learning Outcomes		

[SLO: M-01-E-01] Read and interpret data using pictographs, block graphs and tally charts. (including real-world problems)	[SLO: M-02-E-01] Read and interpret data using pictographs, bar graphs and tally charts and; represent data using tally charts. (including real-world problems)	[SLO: M-03-E-01] Represent data; read and interpret data using Carroll Diagrams. (including real-world problems)	[SLO: M-04-E-01] Draw, read and interpret horizontal and vertical single and double bar graphs. (including real-world problems)	[SLO: M-05-E-01] Draw, read and interpret bar and line graphs. Interpret pie charts. (including real-world problems)	[SLO: M-06-E-01] Draw, read and interpret horizontal and vertical multiple bar graphs and pie charts. (including real-world problems)	[SLO: M-07-E-01] -Recognise drawing and interpreting of bar graphs, line graphs and pie charts. -Differentiate between a histogram and a bar graph. -Construct and compare histograms for both discrete and continuous data with equal interval range. -Select and justify the most appropriate graph(s) for a given data set and draw simple conclusions based on the shape of the graph.	[SLO: M-08-E-01] Select and justify the most appropriate graph(s) for a given data set and draw simple conclusions based on the shape of the graph.

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[SLO: M-01-E-02] Describe the likelihood that everyday events will occur, using mathematical language (i.e., impossible, less likely and more likely).	[SLO: M-02-E-02] Describe the likelihood that everyday events will occur, using mathematical language (i.e., impossible, less likely, more likely, unlikely and certain).	[SLO: M-03-E-02] Describe the likelihood that everyday events will occur, using mathematical language (i.e., impossible, possible, less likely, more likely, equally likely, unlikely and certain).	M-04-E-02] Describe the outcome of a simple probability experiment (spinner and dice), using mathematical language (i.e., impossible, less likely, more likely, equally likely, unlikely and certain).	[SLO: M-05-E-04] Explain experiments and outcomes; and represent the probability (using a fraction) that an event will occur, in simple games and probability experiments (including real-world word problems).	[SLO: M-06-E-04] Explain experiments, outcomes, sample space, events, equally likely events and probability of a single event. Differentiate the outcomes that are equally likely and not equally likely	[SLO: M-07-E-05] \Explain and compute the probability of; certain events, impossible events and complement of an event. (including real-world word problems).	[SLO: M-08-E-05] Explain and compute the probability of; mutually exclusive, independent, simple combined and equally likely events. (including real-world

					to occur. (including real-world word problems).		word problems). [SLO: M-08-E-06] Perform probability experiments (for example tossing a coin, rolling a die, spinning a spinner etc. for certain number of times) to estimate probability of a simple event [SLO: M-08-E-07] Compare experimental and theoretical probability in simple events.