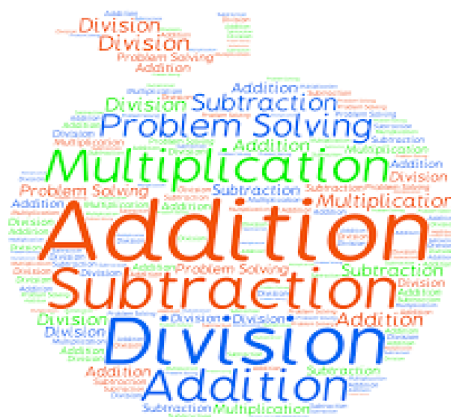# Oscar Academy

Primary Mathematics Curriculum

Grade 1 to 6

Academic year 2021-2022

The Oscar Academy Curriculum is aligning with National Curriculum of England and Cambridge Primary Mathematics.

Academy Vision:

Oscar aims to provide our students quality educational services and be motivated to reach their full potentials aligned with National Identity and Islamic practices.

Academy Mission:

Oscar Academy endeavors towards quality education where students are encouraged to achieve their best potentials morally, socially and intellectually and to be an active member in their community.

The Oscar Academy Curriculum is aligning with the National Curriculum of England and Cambridge Primary Mathematics.

Aims:

- Recognize that mathematics fill the world around us.
- Appreciate the usefulness, power and beauty of mathematics.
- Enjoy mathematics and develop patience and persistence when solving problems.
- Understand and be able to use the language, symbols and notation of mathematics.
- Develop mathematical curiosity and use inductive and deductive reasoning when solving problems.
- Become confident in using mathematics to analyze and solve problems both in school and in real-life situations.
- Develop the knowledge, skills and attitudes necessary to pursue further studies in mathematics.
- Develop abstract, logical and critical thinking and the ability to reflect critically upon their work and the work of others.
- Develop a critical appreciation of the use of information and communication technology in mathematics.
- Appreciate the international dimension of mathematics and its multicultural and historical perspectives.

Objectives:

A. Knowledge and understanding:

Knowledge and understanding are fundamental to studying mathematics and form the base from which to explore concepts and develop problem-solving skills. Through knowledge and understanding students develop mathematical reasoning to make deductions and solve problems.

At the end of the course, students should be able to:

- know and demonstrate understanding of the concepts from the five branches of mathematics (number, algebra, geometry and trigonometry, statistics and probability, and discrete mathematics)
- use appropriate mathematical concepts and skills to solve problems in both familiar and unfamiliar situations including those in real-life contexts
- select and apply general rules correctly to solve problems including those in real-life contexts.

B. Investigating patterns:

Investigating patterns allows students to experience the excitement and satisfaction of mathematical discovery. Mathematical inquiry encourages students to become risk-takers, inquirers and critical thinkers. The ability to inquire is invaluable and contributes to lifelong learning.

Through the use of mathematical investigations, students are given the opportunity to apply mathematical knowledge and problem-solving techniques to investigate a problem, generate and/or analyze information, find relationships and patterns, describe these mathematically as general rules, and justify or prove them.

At the end of the course, when investigating problems, in both theoretical and real-life contexts, student should be able to:

- select and apply appropriate inquiry and mathematical problem-solving techniques
- recognize patterns
- describe patterns as relationships or general rules
- draw conclusions consistent with findings
- justify or prove mathematical relationships and general rules.

C. Communication in mathematics:

Mathematics provides a powerful and universal language. Students are expected to use mathematical language appropriately when communicating mathematical ideas, reasoning and findings—both orally and in writing.

At the end of the course, students should be able to communicate mathematical ideas, reasoning and findings by being able to:

- use appropriate mathematical language (notation, symbols, terminology) in both oral and written explanations
- use different forms of mathematical representation (formulae, diagrams, tables, charts, graphs and models)
- move between different forms of representation.

Students are encouraged to choose and use ICT tools as appropriate and, where available, to enhance communication of their mathematical ideas. ICT tools can include graphic display calculators, screenshots, graphing, spreadsheets, databases, and drawing and word-processing software.

D. Reflection in mathematics:

Mathematics encourages students to reflect upon their findings and problem-solving processes. Students are encouraged to share their thinking with teachers and peers and to examine different problem-solving strategies. Critical reflection in mathematics helps students gain insight into their strengths and weaknesses as learners and to appreciate the value of errors as powerful motivators to enhance learning and understanding.

MATHEMATICS 1

COURSE DESCRIPTION

Review of Number Sense, basic fundamental operations (addition, subtraction, multiplication and division) fractions, measurement, shapes and symmetry and geometry

GENERAL OBJECTIVES

- The learner demonstrates understanding and appreciation of key concepts and skills involving numbers and number sense (place value of a 2-digit number, compare and order numbers from 0 up to 100, read and write numbers up to 100, odd and even numbers up to 100, ordinal numbers and the four fundamental operations); geometry (basic shapes, symmetry);fractions(halves and quarters) measurement (time, length, mass, and capacity); as applied - using appropriate technology - in critical thinking, problem solving, reasoning, communicating, making connections, representations, and decisions in real life.

Standard	UK Curriculum Statutory Requirements	Oscar Curriculum
Number and Number Sense	- Pupils should be taught to: - count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	- Recite from 1 to 100 forward and backward starting with 0 or any number - Count, read and write numbers to 100 in numerals. - Ordering numbers from smaller to larger and larger to smaller.

	● count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens ● given a number, identify one more and one less ● identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least ● Read and write numbers from 1 to 20 in numerals and words.	● Count on in twos, beginning to recognize odd/even numbers up to 20. ● Given a number, identify 1 more and 1 less ● Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least ● Read and write numbers from 1 to 20 in numerals and words ● Recognize greater and smaller number up to 100 ● Compare and order numbers including ordinal numbers. ● Talk about, recognize and recreate simple patterns e.g. counting in 2's and 10's. *Macmillan Math 1A pages 42, 43, 52, 53* *Macmillan Math 1A pages 76, 77, 86, 87, 88* *Macmillan Math 1A pages 102, 103* *Macmillan Math 1A pages 76, 77, 78, 79* *Macmillan Math 1A pages 106, 107* *Macmillan Math 1B pages 4, 5*
Addition and subtraction	● Pupils should be taught to: ● read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs ● represent and use number bonds and related subtraction facts within 20 ● add and subtract one-digit and two-digit numbers to 20, including zero ● solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 ☐ 9.	● Understand addition as counting on and combining two sets; record related addition sentences ● Understand subtraction as counting back and 'take away'; record related subtraction sentences. ● Know all number pairs to 10 and record the related addition/subtraction facts ● Understand difference as 'how many more to make? ● Add/subtract a single-digit number by counting on/back. ● Find two more or less than a number to 20, recording the jumps on a number line. ● Relate counting on and back in tens to finding 10 more/less than a number (< 100). ● Begin to use the +, – and = signs to record calculations in number sentences. ● Understand that changing the order of addition does not change the total. ● Add a pair of numbers by putting the larger number first and counting on. ● Recognize the use of a sign such as to represent an unknown, e.g. 6 + = 10. ☐

		● Begin to add single and two-digit numbers *Macmillan Math 1A pages 44, 45, 54, 55* *Macmillan Math 1A pages 66, 67* *Macmillan Math 1B pages 14, 15* *Macmillan Math 1B pages 16, 17* *Macmillan Math 1A pages 63, 63*
Multiplication and Division	● Pupils should be taught to: ● Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	● Double any single-digit number. ● Find halves of even numbers of objects up to 10. ● Try to share numbers to 10 to find which are even and which are odd. ● Share objects into two equal groups in a context. ● 2, 5 and 10 times table *Supported by Mental math*
Fractions	● Recognize, find and name a half as one of two equal parts of an object, shape or quantity Recognize, find and name a quarter as one of four equal parts of an object, shape or quantity	● Recognize, find and name a half as 1 of 2 equal parts of an object, shape or quantity. ● Recognize, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity. *Macmillan Math 1B pages 60, 61* *Macmillan Math 1B pages 64, 65, 66, 67, 68, 69*

Measurement	● Pupils should be taught to:
	● compare, describe and solve practical problems for:
	● lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]
	● mass/weight [for example, heavy/light, heavier than, lighter than]
	● capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]
	● time [for example, quicker, slower, earlier, later]
	● measure and begin to record the following:
	● lengths and heights
	● mass/weight
	● capacity and volume
	● time (hours, minutes, seconds)
		● Compare, describe and solve practical problems for:
		  ● Lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]
		  ● Mass/weight [for example, heavy/light, heavier than, lighter than]
		  ● Capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]
		  ● Time [for example, quicker, slower, earlier, later]
		● measure and begin to record the following:
		  ● Lengths and heights
		  ● Mass/weight
		  ● Capacity and volume
		  ● Time (hours, minutes, seconds)
		  ● Recognize and know the value of different denominations of coins and notes
		  ● Sequence events in chronological order using language [for example, before and after, next, first,

	- Recognize and know the value of different denominations of coins and notes - Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] - Recognise and use language relating to dates, including days of the week, weeks, months and years Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	- today, yesterday, tomorrow, morning, afternoon and evening] - Recognize and use language relating to dates, including days of the week, weeks, months and years - Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. *Macmillan Math 1B pages 76, 77* *Macmillan Math 1A pages 86, 87* *Macmillan Math 1A pages 88, 89* *Macmillan Math 1B pages 24, 25* *Macmillan Math 1B pages 94*
Shapes and symmetry	- Pupils should be taught to: - Recognize and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles] 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	- Name (begin to) 3-D (solid) shapes and 2-D (flat) shapes. (Square, circle, triangle, rectangle, cube, cuboid, cylinder, cone, pyramid) - put sets of objects and shapes in order of size. - identify symmetrical objects in the environment. *Macmillan Math 1B pages 40, 41, 42, 43, 44, 45*
Geometry-position and direction	- Pupils should be taught to: - Describe position, direction and movement, including whole, half, quarter and three quarter turns.	- Describe position, direction and movement, including whole, half, quarter and three-quarter turns - Follow instructions about positions, directions and movement. *Macmillan Math 1B pages 60, 61, 64, 65, 68, 69*

MATHEMATICS 2

COURSE DESCRIPTION

Review of Number Sense, basic fundamental operations (addition, subtraction, multiplication and division) fractions, measurement, shapes and symmetry, geometry and basic statistics.

GENERAL OBJECTIVES

- The learner demonstrates understanding and appreciation of key concepts and skills involving numbers and number sense (place value of a 2-digit number, compare and order numbers from 0 up to 100, read and write numbers up to 100, odd and even numbers up to 100, ordinal numbers and the four fundamental operations); geometry (basic shapes, symmetry, and tessellations);fractions(halves and quarters, simple fractions) measurement (time, length, mass, and capacity); and statistics and probability (tables, pictographs, and outcomes) as applied - using appropriate technology - in critical thinking, problem solving, reasoning, communicating, making connections, representations, and decisions in real life.

Standards	UK Curriculum Statutory Requirements	Oscar Curriculum
Number and Number Sense	Pupils should be taught to: ● Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	● Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward ● Recognize the place value of each digit in a two-digit number (10s, 1s)

	- Recognize the place value of each digit in a two-digit number (tens, ones) - Identify, represent and estimate numbers using different representations, including the number line - Compare and order numbers from 0 up to 100; use <,>and = signs - Read and write numbers to at least 100 in numerals and in words - Use place value and number facts to solve problems.	- Identify, represent and estimate numbers using different representations, including the number line - Compare and order numbers from 0 up to 100; use <, > and = signs - Read and write numbers to at least 100 in numerals and in words - Use place value and number facts to solve problems - Recognize odd and even number up to 100. - Describe order or relative position using ordinal numbers. ***Macmillan Mathematics Book A pages 7,8,9,10,11,12,13, 80, 81***
Addition and subtraction	Pupils should be taught to: Solve problems with addition and subtraction: - Using concrete objects and pictorial representations, including those involving numbers, quantities and measures - Applying their increasing knowledge of mental and written methods - Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: - a two-digit number and ones - a two-digit number and tens - two two-digit numbers - adding three one-digit numbers - Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot - Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Solve problems with addition and subtraction: - Using concrete objects and pictorial representations, including those involving numbers, quantities and measures - Applying their increasing knowledge of mental and written methods - Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: - A two-digit number and 1s - A two-digit number and 10s 2 two-digit numbers - Adding 3 one-digit numbers - Show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot - Recognize and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. - Understand the operation of addition, and of subtraction (as 'take away', 'difference', and 'how many more to make', 'altogether', 'sum'), and use the related vocabulary. - Addition up to three digits with and without carry - Subtraction up to three digits with and without borrowing.

		● solve simple problems and word problems leading to sum and difference of whole numbers up to 20. *Macmillan Mathematics Book A pages 24,25,26,27,28, 29,30,40,42,46,* *Macmillan Mathematics Book B pages 16,17,18,19,20,21,22,23,36,37* *Supported by Mental Math Booklet*
Multiplication and Division	Pupils should be taught to: ● Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers ● Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs ● Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot ● Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	● Identify and use the symbol x and the mathematical concepts, "factor", "product". ● Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs ● Divide up to 100 by, 5 and 10 (no remainder). ● Solve word problems using multiplication and division of 2 and 10. ● Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher ● Use the relation between multiplication and division for all 1-digit number ● Solve word problems in division by 1- digit numbers *Macmillan Mathematics Book A pages 4,5,6,7,50,51, 52,53,54,55,56,57,59,64,65,66,67,68,69* *Supported by Mental Math Booklet*
Fractions	Pupils should be taught to: ● Recognise, find, name and write fractions 3 1 , 4 1 , 4 2 and 4 3 of a length, shape, set of objects or quantity ● Write simple fractions for example, 2 1 of 6 = 3 and recognise the equivalence of 4 2 and 2 1 .	● Draw and show halves of concrete objects. ● Draw and show quarters of concrete objects. ● Show the relation between halves and quarters using drawing. ● Add halves and quarters using drawing. ● Draw and show thirds of objects. ● Identify the relation between wholes and halves, quarters and thirds. ● Write the symbols for half, quarters and thirds. ● Recognize, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity

		● Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognize the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ *Macmillan Mathematics Book A pages 86,87,88,89,90, 91,92,93,94,95*
Measurement	Pupils should be taught to: ● Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels ● Compare and order lengths, mass, volume/capacity and record the results using >, < and = ● Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value ● find different combinations of coins that equal the same amounts of money ● Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change ● Compare and sequence intervals of time ● Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times ● Know the number of minutes in an hour and the number of hours in a day.	● Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels ● Compare and order lengths, mass, volume/capacity and record the results using >, < and = ● Recognize and use symbols for dollar ($) and cents (c); combine amounts to make a particular value ● Find different combinations of coins that equal the same amounts of money ● Solve simple problems in a practical context involving addition and Subtraction of money of the same unit, including giving change ● Compare and sequence intervals of time ● Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times ● Know the number of minutes in an hour and the number of hours in a day. *Macmillan Mathematics Book B pages 24,25,26,27,32, 33,96,97,98,99,100,101*
Shapes and symmetry	Pupils should be taught to: ● identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line ● identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces ● Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] ● Compare and sort common 2-D and 3-D shapes and everyday objects.	● Identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line. ● Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. ● Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]. ● Compare and sort common 2-D and 3-D shapes and everyday objects.

		● Recognize and draw the line of symmetry of familiar objects and shapes around them. ***Macmillan Mathematics Book B pages 44,45,46,47,48,49 56,57,58,59***
Geometry-position and direction	Pupils should be taught to: ● Order and arrange combinations of mathematical objects in patterns and sequences ● Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).	● Order and arrange combinations of mathematical objects in patterns and sequences. ● Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise). ***Macmillan Mathematics Book B pages 84,85***
Statistics	Pupils should be taught to: ● interpret and construct simple pictograms, tally charts, block diagrams and simple tables ● Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ● Ask and answer questions about totaling and comparing categorical data.	● Interpret and construct simple pictograms, tally charts, block diagrams and tables ● Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ● Ask-and-answer questions about totaling and comparing categorical data ***Macmillan Mathematics Book B pages 96,97,98,99,100 101,102,103,104,105***

MATHEMATICS 3

COURSE DESCRIPTION

Review of Number Sense, basic fundamental operations (addition, subtraction, multiplication and division) fractions, measurement, geometry and basic statistics.

GENERAL OBJECTIVES

- The learner demonstrates understanding and appreciation of key concepts and skills involving numbers and number sense (whole numbers up to 1,000 and the four fundamental operations including money, basic concepts of fractions); measurement (time, length, mass, capacity, perimeter , area of square and rectangle); geometry (2-dimensional and 3-dimensional objects, lines, symmetry, and tessellation); statistics and probability (data collection and representation in tables, pictographs and bar graphs and outcomes)as applied - using appropriate technology - in critical thinking, problem solving, reasoning, communicating, making connections, representations, and decisions in real life.

Standard	UK Curriculum Statutory Requirements	Oscar Curriculum

Number and Number Sense	Pupils should be taught to: Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Visualizes numbers up to 10,000 *Pages. 4- 5, Book A*
	Recognize the place value of each digit in a three-digit number (hundreds, tens, ones) Compare and order numbers up to 1000	Gives the place value and value of a digit in 4- to 5- digit numbers. Compare numbers up to 10 000 using relation symbols. Order 4- to 5-digit numbers in increasing or decreasing order. *Pages 8- 19, Book A*
	Identify, represent and estimate numbers using different representations	Round numbers to the nearest ten, hundred and thousand. Identify, represent and estimate numbers using different representations *Pages 20- 21, Book A*
	Read and write numbers up to 1000 in numerals and in words Solve number problems and practical problems involving these ideas.	Read and write numbers up to 10,000 in symbols and in words. *Pages 6- 7, Book A* *Pages 22-23, Book A*

| **Addition and Subtraction** | Pupils should be taught to:
Add and subtract numbers mentally, including:

● a three-digit number and ones

● a three-digit number and tens

● a three-digit number and hundreds

● add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

● Estimate the answer to a calculation and use inverse operations to check answers

● solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. | Adds 3- to 4-digit numbers up to three addends with sums up to 10 000 without and with regrouping.

Estimates the sum of 3- to 4-digit addends with reasonable results.

Adds mentally 2-digit and 1-digit numbers without or with regrouping using appropriate strategies.

Adds mentally 2- to 3-digit numbers with multiples of hundreds using appropriate strategies.

Solves routine and non-routine problems involving addition of whole numbers with sums up to 10 000 using appropriate problem solving strategies and tools.

Pages 24 – 33, Book A |
| | | Subtracts 3-to 4-digit numbers from 3- to 4-digit numbers without and with regrouping.

Estimates the difference of two numbers with three to four digits with reasonable results.

Subtracts mentally 1- to 2 – digits numbers without and with regrouping using appropriate strategies.

Subtracts mentally 2- to 3 – digits numbers with multiples of hundreds without and with regrouping using appropriate strategies.

Solves routine and non-routine problems involving subtraction without or with addition of whole numbers using appropriate problem solving strategies and tools.

Pages 40 – 49, Book A |

Multiplication and Division	Pupils should be taught to: Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	Visualizes multiplication of numbers 1 to 10 by 6,7,8 and 9. Visualizes and states basic multiplication facts for numbers up to 10. Multiplies 2- to 3-digit numbers by 1- digit numbers without or with regrouping. Multiplies mentally 2-digit by 1-digit numbers without regrouping with products of up to 100. *Pages 76-95, Book A*
		Solves routine and non-routine problems involving multiplication using appropriate problem solving strategies and tools. Visualizes division of numbers up to 100 by 6,7,8,and 9 (multiplication table of 6, 7, 8, and 9). Visualizes and states basic division facts of numbers up to 10. Divides 2- to 3-digit numbers by 1- to 2- digit numbers without remainder Solves routine and non-routine problems involving division of 2- to 4-digit numbers by 1- to 2-digit numbers using appropriate problem solving strategies and tools. *Pages 96-105, Book A*
Fractions	Pupils should be taught to: Count up and down in tenths; Recognize that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 Recognize, find and write fractions of a discrete set of objects: unit fractions and no unit fractions with small denominators Recognize and use fractions as numbers: unit fractions and non-unit fractions with small denominators	Visualizes, represents, and arranges similar fractions in increasing or decreasing order. *Pages 76-77, Book B* *Pages 80-81, Book B*

	Recognize and show, using diagrams, equivalent fractions with small denominators	Visualizes and generates equivalent fractions. ***Pages 78-79, Book B***
	Add and subtract fractions with the same denominator within one whole [for example, 7 5 + 7 1 = 7 6]	Add and subtract similar fractions ***Pages 84-85, Book B***
	Compare and order unit fractions, and fractions with the same denominators Solve problems that involve all of the above.	Visualizes, represents, and compares fractions. ***Pages 82-83, Book B*** ***Pages 86-95, Book B***
Measurement	Pupils should be taught to: Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	Visualizes, and represents, and solves problems involving conversion of time measure. Visualizes, and represents, and converts common units of measure from larger to smaller unit and vice versa: meter and centimeter, kilogram and gram, liter and milliliter. Visualizes, and represents, and solves routine and non-routine problems involving conversions of common units of measure. Visualizes, and represents, and finds the capacity of a container using milliliter and liter. Visualizes, and represents, and solves routine and non-routine problems involving capacity measure. ***Pages 50-59, Book B***

	Measure the perimeter of simple 2-D shapes	Visualizes, and represents, and finds the perimeter and area of a rectangle and square in sq.cm and sq. m.
	Add and subtract amounts of money to give change, using both £ and p in practical contexts	*Pages 60- 67, Book B*
	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks

Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight

Know the number of seconds in a minute and the number of days in each month, year and leap year

Compare durations of events [for example to calculate the time taken by particular events or tasks]. | Visualizes, and represents, and converts time measure from seconds to minutes, minutes to hours, and hours to a day and vice versa.

Visualizes, and represents, and converts time measure (a) days to week, month and year and vice versa (b) weeks to months and year and vice versa (c) months to year and vice versa.

Pages 60-69, Book A |
| | | |
| **Geometry** | Pupils should be taught to:
Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them

Recognise angles as a property of shape or a description of a turn | Recognizes and draws a point, line, line segment and ray.

Draw 2-D and 3-D shapes

Recognize 3-D shapes in different orientations and describe them.

Pages 4-5, Book B
Pages 24 – 33, Book B |

	Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	Recognize clockwise and anticlockwise turns. Identifies and visualizes symmetry in the environment and in design. Identifies and draws the line of symmetry in a given symmetrical figure. Completes a symmetric figure with respect to a given line of symmetry. Tessellates the plane using triangles, squares and other shapes that can tessellate. *Pages 6-7, Book B* *Pages 8-17, Book B*	
Statistics	Pupils should be taught to: Interpret and present data using bar charts, pictograms and tables	Collects data on one variable using existing records. Sorts, classifies, and organizes data in tabular form and presents this into a vertical or horizontal bar graph. Infers and interprets data presented in different kinds of bar graphs (vertical/ horizontal). Solves routine and non-routine problems using data presented in a single-bar graph. *Pages 96 – 101, Book B*	
	Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	Tells whether an event is sure, likely, equally likely, unlikely, and impossible to happen. Describes events in real-life situations using the phrases "sure to happen," likely to happen", "equally likely to happen", "unlikely to happen", and "impossible to happen". *Pages 102 – 111, Book B*	

MATHEMATICS 4

COURSE DESCRIPTION

Review of Number Sense, basic fundamental operations (addition, subtraction, multiplication and division) fractions, measurement, geometry and basic statistics.

GENERAL OBJECTIVES

● The learner demonstrates understanding and appreciation of key concepts and skills involving numbers and number sense (whole numbers up to 1,000 and the four fundamental operations including money, basic concepts of fractions); measurement (time, length, mass, capacity, perimeter , area of square and rectangle); geometry (2-dimensional and 3-dimensional objects, lines, symmetry, and tessellation); statistics and probability (data collection and representation in tables, pictographs and bar graphs and outcomes)as applied - using appropriate technology - in critical thinking, problem solving, reasoning, communicating, making connections, representations, and decisions in real life.

Standard	UK Curriculum Statutory Requirements	Oscar Curriculum
Numbers	● Count in multiples of 6, 7, 9, 25 and 1000	● Multiples and factors **Pages 24-33 Bk. A**
	● Find 1000 more or less than a given number	● Number patterns, counting and sequences. **Pages 14-19 Bk. A**
	● Count backwards through zero to include negative numbers	● Negative numbers Count backwards through 0 to include negative numbers. **(supp0rted by worksheets)**
	● Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)	. Partition numbers into thousands (TH), hundreds (H), tens (T) and units (U). **Pages 4-9 Bk. A**
	● Order and compare numbers beyond 1000	● Find 1,000 more or less than a given number. ● Sequences **Pages 10-11 Bk. A**
	● Identify, represent and estimate numbers using different representations	● Approximation ● Use symbols correctly. **Pages 13-14 Bk. A**
	● Round any number to the nearest 10, 100 or 1000	● Round any two-digit number to the nearest 10. ● Round any three-digit number to the nearest 100. ● Round any three-digit number to the nearest 1000. **Page 12Bk. A**
	● Solve number and practical problems that involve all of the above and with increasingly large positive numbers	● Solve number and practical problems that involve all of the above and with increasingly large positive **Pages 15,17 (try this), 19 (try this) Bk. A**
	● Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	● Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. **Supported by mental math booklet (Dictation part)**

Addition and Subtraction	● Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	● Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate ***Pages 40-47,50-51,54 Bk. A***
	● Estimate and use inverse operations to check answers to a calculation	● Estimate and use inverse operations to check answers to a calculation. ***Pages 24-27 Bk. B***
	● Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	● Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ***Pages 58-59 Bk. A***
Multiplication and division	● Recall multiplication and division facts for multiplication tables up to 12 × 12	● Recall multiplication and division facts for multiplication tables up to 12 × 12 ***(mental math workbook supported)***
	● Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers	● Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers ***Page 22 Bk. B***
	● Recognise and use factor pairs and commutativity in mental calculations	● Recognise and use factor pairs and commutativity in mental calculations ***Pages 26-28 Bk. B***
	● Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	● Multiply two-digit and three-digit numbers by a one-digit number using formal written layout ***Pages 4-11 Bk. B***
	● Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	● Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects ***Pages 11, 34-35 Bk. B***

Fractions and decimals	● Recognise and show, using diagrams, families of common equivalent fractions	● Recognize and show, using diagrams, families of common equivalent fractions. *Pages 44-45 Bk. B*
	● Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	● Count up and down in hundredths; recognize that hundredths arise when dividing an object by 100 and dividing tenths by 10. *Pages 66-67Bk. B*
	● Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number	● Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. *Pages 68-69 Bk. B*
	● Add and subtract fractions with the same denominator	● Add and subtract fractions with the same denominator. *Pages 56-57 Bk. B*
	● Recognise and write decimal equivalents of any number of tenths or hundredths ● Recognise and write decimal equivalents to $3/4$, $\frac{1}{4}$, $\frac{1}{2}$, .	● Recognize and write decimal equivalents of any number of tenths or hundreds. ● Recognize and write decimal equivalents $\frac{3}{4}$, $\frac{1}{4}$, $\frac{1}{2}$, . *Pages 58 Bk. B*
	● Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths	● Find the effect of dividing a one- or two-digit number by 10 and 100, Identifying the value of the digits in the answer as ones, tenths and hundredths. *Pages 64-67 Bk. B*
	● Round decimals with one decimal place to the nearest whole number	● Round decimals with 1 decimal place to the nearest whole number. *Pages 74-75 Bk. B*
	● Compare numbers with the same number of decimal places up to two decimal places	● Compare numbers with the same number of decimal places up to 2 decimal places. *Pages 72-73 Bk. B*
	● Solve simple measure and money problems involving fractions and decimals to two decimal places.	● Solve simple measure and money problems involving fractions and decimals to 2 decimal places. *Pages 70-73 Bk. B*
Measurement	● Convert between different units of measure [for example, kilometre to metre; hour to minute]	● convert between different units of measure [for example, kilometre to metre; hour to minute]

			Pages 76-83 Bk. B
	●	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	● measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres *Pages 72-73 Bk. B*
	●	Find the area of rectilinear shapes by counting squares	● find the area of rectilinear shapes by counting squares *Pages 92-95 Bk. B*
	●	Estimate, compare and calculate different measures, including money in pounds and pence	● Estimate, compare and calculate different measures, including money in dollars and cents *Pages 60-65 Bk. A*
	●	Read, write and convert time between analogue and digital 12- and 24-hour clocks	● read, Time a.m and p.m *Pages 84-85 Bk. B*
	●	♣ solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	● solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days. *Pages 84-85 Bk. B with worksheets*
Geometry-properties of shapes	●	compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	● Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes *Pages 92-93, 100-101 Bk. A*
	●	Identify acute and obtuse angles and compare and order angles up to two right angles by size	● identify acute and obtuse angles and compare and order angles up to 2 right angles by size *Pages 77-81 Bk. A*
	●	Identify lines of symmetry in 2-D shapes presented in different orientations	● identify lines of symmetry in 2-D shapes presented in different orientations *Pages 90-93 Bk. A*
	●	complete a simple symmetric figure with respect to a specific line of symmetry.	● complete a simple symmetric figure with respect to a specific line of symmetry. *Pages 96-97 Bk. A*
Geometry - position and direction	●	Describe positions on a 2-D grid as coordinates in the first quadrant	● Describe positions on a 2-D grid as coordinates in the first quadrant *Pages 98-99 Bk. A*

		• Describe movements between positions as translations of a given unit to the left/right and up/down • Plot specified points and draw sides to complete a given polygon.	• Describe movements between positions as translations of a given unit to the left/right and up/down Plot specified points and draw sides to complete a given polygon *Pages 104-105 Bk. A*
Statistics		• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs *Pages 96-101 Bk. B*
		• Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	• Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs *Pages 106-111 Bk. B*

MATHEMATICS 5

COURSE DESCRIPTION

Review of Number Sense, basic fundamental operations (addition, subtraction, multiplication and division) fractions, measurement, geometry, algebra and basic statistics.

GENERAL OBJECTIVES

- The learner demonstrates understanding and appreciation of key concepts and skills involving numbers and number sense (whole numbers up to 1,000 and the four fundamental operations including money, basic concepts of fractions); measurement (time, length, mass, capacity, perimeter , area of square and rectangle); geometry (2-dimensional and 3-dimensional objects, lines, symmetry, and tessellation); statistics and probability (data collection and representation in tables, pictographs and bar graphs and outcomes)as applied - using appropriate technology - in critical thinking, problem solving, reasoning, communicating, making connections, representations, and decisions in real life.

Standard	UK Curriculum Statutory Requirements	Oscar Curriculum
Numbers	Pupils should be taught to: ● Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.	● Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit ***Page 10, 14 Bk. A***
	● Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.	● Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 ***Page 14; Bk. A***
	● Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	● Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0. ***Page 16- 17; Bk. A***
	● Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	● Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 ***Page 44-45; Bk. A***
	● Solve number problems and practical problems that involve all of the above	● Solve number problems and practical problems that involve all of the above. ***Page 46-47; Bk. A***
	● Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	● Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals.
		● Explore and understand square numbers. ***Pages 32-33; Bk. A***
		● Recognise and extend number sequences formed by counting from any number in steps of constant size (including square numbers). ***Pages 32-33; Bk. A***
		● Compare and order numbers. Include symbols such as , =. Estimate and approximate. ***Pages 10-11; Bk. A***

Addition and Subtraction	Pupils should be taught to: ● Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	● Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). ***Pages 46-47; Bk. A***
	● Add and subtract numbers mentally with increasingly large numbers	● Add and subtract numbers mentally with increasingly large numbers. ***Pages 40-41; Bk. A***
	● Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	● Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. ***Pages 44-45; Bk. A***
	● Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	● Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ***Pages 40-47; Bk. A***
Multiplication and Division	Pupils should be taught to: ● Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers	● Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers. ***Pages 26-29; Bk. A***
	● Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers	● Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. ***Pages 30-31; Bk. A***
	● Establish whether a number up to 100 is prime and recall prime numbers up to 19	● Establish whether a number up to 100 is prime and recall prime numbers up to 19. ***Pages 30-31; Bk. A***
	● Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers	● Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.
	● Multiply and divide numbers mentally drawing upon known facts	● Multiply and divide numbers mentally, drawing upon known facts. ***Pages 14-15; Bk. B***
	● Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context	● Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. ***Pages 16-21; Bk. B***

	● Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	● Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000. ***Pages 18-19; Bk. B***
	● recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	● Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}). ***Pages 32-33; Bk. A***
	● Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	● Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes. ***Pages 32-33; Bk. A***
	● Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	● Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. ***Pages 44-49; 58-59; Bk. A***
	● Solve problems involving multiplication and division, including scaling by simple fractions and problems involving	● Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple . ***Pages 44-49; 58-59; Bk. A***
Fractions	Pupils should be taught to: ● Compare and order fractions whose denominators are all multiples of the same number	● Compare and order fractions whose denominators are all multiples of the same number. ***Pages 8-10; Bk. B***
	● Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	● Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. ***Pages 6-7; Bk. B***
	● Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 =6/5 = 1 1/5]	● Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$]. ***Pages 4-5; Bk. B***
	● Add and subtract fractions with the same denominator and denominators that are multiples of the same number	● Add and subtract fractions with the same denominator, and denominators that are multiples of the same number. ***Pages 10-11; Bk. B***
	● Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	● Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. ***Pages 92-93; Bk. B***

	• Read and write decimal numbers as fractions [for example, 0.71 = 71/100]	• Read and write decimal numbers as fractions [for example, 0.71 = $\frac{71}{100}$] ***Pages 4-5; Bk. A***
	• Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	• Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. ***Pages 4-6; Bk. A***
	• Round decimals with two decimal places to the nearest whole number and to one decimal place	• Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place. ***Pages 12-13; Bk. A***
	• Read, write, order and compare numbers with up to three decimal places	• Read, write, order and compare numbers with up to 3 decimal places. ***Pages 10-11; Bk. A***
	• Solve problems involving number up to three decimal places	• Solve problems involving number up to 3 decimal places. ***Pages 12-13; Bk. A***
	• Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal	Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction. ***Pages 78-81; Bk. B***
	• Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.	• Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25. ***Pages 82-83; Bk. B***
Measurement	• Pupils should be taught to: • Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	• Convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre]. ***Pages 40-41; Bk. B***
	• Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints	• Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. ***Pages 42-43; Bk. B***

	● Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	● Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. *Pages 44-45; Bk. B*
	● Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes	● Calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm²) and square metres (m²), and estimate the area of irregular shapes. *Pages 50-51; Bk. B*
	● Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]	● Estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]. *Pages 56-57; Bk. B*
	● Solve problems involving converting between units of time	● Solve problems involving converting between units of time *Pages 60-65; Bk. B*
	● Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	● Use all four operations to solve problems involving measure [for example, length, mass. *Pages 42-43; Bk. B*
Geometry- properties of shapes; position, direction and angle	● Pupils should be taught to: ● Identify 3-D shapes, including cubes and other cuboids, from 2-D representations	● Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. *Pages 86-95; Bk. A*
	● Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	● Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. *Pages 90-95; Bk. A*
	● Draw given angles, and measure them in degrees (o)	● Draw given angles, and measure them in degrees (°) *Pages 90-95; Bk. A*

	- Identify: - Angles at a point and one whole turn (total 360o) - Angles at a point on a straight line and 2 1 a turn (total 180o) - Other multiples of 90o - Use the properties of rectangles to deduce related facts and find missing lengths and angles - Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	- Identify: - angles at a point and 1 whole turn (total 360°) - angles at a point on a straight line and half a turn (total 180°) - other multiples of 90° - use the properties of rectangles to deduce related facts and find missing lengths and angles - distinguish between regular and irregular polygons based on reasoning about equal sides and angles. ***Pages 90-95; Bk. A***
		Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed ***Pages 98-99; Bk. A***
Statistics	- Pupils should be taught to: - Solve comparison, sum and difference problems using information presented in a line graph	Solve comparison, sum and difference problems using information presented in a line graph ***Pages 96-101; Bk. B***
	Complete, read and interpret information in tables, including timetables.	Complete, read and interpret information in tables, including timetables ***Pages 96-103; Bk. B***

MATHEMATICS 6

COURSE DESCRIPTION

Review of Number Sense, basic fundamental operations (addition, subtraction, multiplication and division) fractions, measurement, geometry, algebra and statistics.

GENERAL OBJECTIVES

- The learner demonstrates understanding and appreciation of key concepts and skills involving numbers and number sense (whole numbers up to 1,000 and the four fundamental operations including money, basic concepts of fractions); measurement (time, length, mass, capacity, perimeter , area of square and rectangle); geometry (2-dimensional and 3-dimensional objects, lines, symmetry, and tessellation); statistics and probability (data collection and representation in tables, pictographs and bar graphs and outcomes)as applied - using appropriate technology - in critical thinking, problem solving, reasoning, communicating, making connections, representations, and decisions in real life.

Standards	UK Curriculum Statutory Requirements	Oscar Curriculum
Numbers and Decimals	● Pupils should be taught to: ● Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit	● read, write, order and compare numbers up to 10,000,000 and determine the value of each digit *Pages 8,9 Bk. A*
	● Round any whole number to a required degree of accuracy	● round any whole number to a required degree of accuracy *Pages 6,7 Bk. A*
	● Use negative numbers in context, and calculate intervals across zero	● use negative numbers in context, and calculate intervals across 0 *Pages 4,5 Bk. A*
	● Solve number and practical problems that involve all of the above.	● solve number and practical problems that involve all of the above. *Pages 12,13 Bk. A*
Addition, Subtraction, Multiplication and Division	● Pupils should be taught to: ● Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication	● multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication *Pages 50,51,52,53 Bk. A*
	● Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context	● divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context

		Pages 62,63 Bk. A
	• Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context	• divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context *Pages 60,61 Bk. A*
	• Perform mental calculations, including with mixed operations and large numbers	• perform mental calculations, including with mixed operations and large numbers *Pages 44,45 Bk. A*
	• Identify common factors, common multiples and prime numbers	• identify common factors, common multiples and prime numbers *Pages 16,17,18,19 Bk. A*
	• Use their knowledge of the order of operations to carry out calculations involving the four operations	• use their knowledge of the order of operations to carry out calculations involving the 4 operations *Pages 46,47,48,49 Bk. A*
	• Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why *Pages 12,13 Bk. A*
	• Solve problems involving addition, subtraction, multiplication and division	• solve problems involving addition, subtraction, multiplication and division *Pages 40,41,51,52,61,62,63 Bk. A*
Fractions and Decimals	Pupils should be taught to: • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination *Pages 24-29 Bk. A*
	• Compare and order fractions, including fractions > 1	• compare and order fractions, including fractions >1

		Pages 50-56 Bk. A
	● Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions	● add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions *Pages 24,25 Bk. A*
	● Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 4 1 × 2 1 = 8 1]	● multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{4} = \frac{1}{8}$] *Pages 58,59 Bk. A*
	● Divide proper fractions by whole numbers [for example, 3 1 ÷ 2 = 6 1]	● divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$] *Pages 68,69 Bk. A*
	● Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 8 3]	● associate a fraction with division and calculate decimal fraction equivalents *Pages 62-65 Bk. A*
	● Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places	● identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places *Pages 24,25 Bk. A*
	● multiply one-digit numbers with up to two decimal places by whole numbers	● multiply one-digit numbers with up to 2 decimal places by whole numbers *Pages 54,55 Bk. A*
	● Use written division methods in cases where the answer has up to two decimal places	● use written division methods in cases where the answer has up to 2 decimal places *Pages 66,67 Bk. A*
	● Solve problems which require answers to be rounded to specified degrees of accuracy	● solve problems which require answers to be rounded to specified degrees of accuracy *Page 13 Bk A*

	● Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	● recall and use equivalences between simple fractions, decimals and percentages, including in different contexts ***Pages 60,61 Bk. B***
Ratio and Proportion	Pupils should be taught to: ● Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts ● Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison	● solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts ***Pages 64-69 Bk. B*** ● solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison ***Pages 62,63 Bk. B***
	● Solve problems involving similar shapes where the scale factor is known or can be found	● solve problems involving similar shapes where the scale factor is known or can be found ***Pages 90,91 Bk. A***
	● Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	● solve problems involving unequal sharing and grouping using knowledge of fractions and multiples ***Pages 66-69 Bk. B***
Algebra	Pupils should be taught to: ● Use simple formulae ● Generate and describe linear number sequences	● use simple formulae ● generate and describe linear number sequences ***Pages 10-11 Bk. B***
	● Express missing number problems algebraically	● express missing number problems algebraically ***Pages 8-9 Bk. B***

	● Find pairs of numbers that satisfy an equation with two unknowns	● find pairs of numbers that satisfy an equation with 2 unknowns ***Pages 5 Bk. B***
	● Enumerate possibilities of combinations of two variables.	● enumerate possibilities of combinations of 2 variables ***Page 5, Bk. A***
Measurement	Pupils should be taught to: ● Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	● solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate ***Page 47 Bk. A***
	● Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places	● use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places ***Pages 54,55 Bk. B***
	● Convert between miles and kilometres	● convert between miles and kilometres ***Pages 44,45 Bk. B***
	● Recognise that shapes with the same areas can have different perimeters and vice versa	● recognise that shapes with the same areas can have different perimeters and vice versa ***Pages 14-22 Bk. B***
	● Recognise when it is possible to use formulae for area and volume of shapes	● recognise when it is possible to use formulae for area and volume of shapes ***Pages 24-33 Bk. B***
	● Calculate the area of parallelograms and triangles	● calculate the area of parallelograms and triangles ***Pages 16,21 Bk. B***

	• Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].	• calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³] ***Pages 24,27 Bk. B***
Geometry Properties of Shapes; position and direction	• Pupils should be taught to: • Draw 2-D shapes using given dimensions and angles	• draw 2-D shapes using given dimensions and angles ***Pages 86,94 Bk. A***
	• Recognise, describe and build simple 3-D shapes, including making nets	• recognise, describe and build simple 3-D shapes, including making nets ***Pages 94,95 Bk. A***
	• Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons	• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons ***Pages 106,107 Bk. A***
	• Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius	• illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius ***Pages 96-99 Bk. A***
	• Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles describe positions on the full coordinate grid (all 4 quadrants) draw and translate simple shapes on the coordinate plane, and reflect them in the axes ***Pages 104-107 Bk. A***

Statistics	Pupils should be taught to: • Interpret and construct pie charts and line graphs and use these to	• interpret and construct pie charts and line graphs and use these to solve problems ***Pages 90-63 Bk. A***
	• Calculate and interpret the mean as an average.	• calculate and interpret the mean as an average ***Pages 102,103 Bk. A***

Prepared by:

Ms. Raquel Villaflor _____

Ms. Jeremy Villanueva _____

Ms. Glaiza Menguita _____

Mr. Roger _____

Ms. Fritz _____

Ms. Eden Erese _____