Lansdowne School

Schemes of Work – Mathematics

By the end of the Access pathway pupils will:
Have gained the skills to successfully access Functional Skills Level 1 at the end of KS4 and Levels 2 and 3 at the end of KS5.
Pupils will have a basic understanding of number and other mathematical concepts, which they can explain and record.
They will apply this understanding to a range of life-skills situations, such as money, time, timetables etc.
Pupils will successfully use mathematical knowledge for work experience and community living.

By the end of the M.1 pathway pupils will:
Have gained the skills to access Entry Level 2 accreditation at the end of KS4 and Entry Level 3 at the end of KS5.
Pupils will show an understanding of number and mathematical concepts, which they are able to explain and record.
They will apply this understanding to a range of life-skills situations, such as money, time, timetables etc, as well as accessing travel apps and on-line shopping.

By the end of the M.2 pathway pupils will:
Have gained the skills to access Entry Level 3 accreditation at the end of KS4 and IGCSE at the end of KS5.
They will be able to read, write and understand a range of texts in the community, access apps and other media to travel plan and shop.
Pupils will be able to enjoy a range of fiction and non-fiction texts as a leisure activity.
Pupils will use their English skills to access a vocational course at college.
They will have the skills to have a meaningful conversation with peers, adults, family and community. Pupils will be confident to communicate in the community, Further Education College, or apprenticeship.

By the end of the M.3 pathway pupils will:
Have gained the skills to access IGCSE accreditation at the end of KS4 and English Project (GCSE equivalent) at the end of KS5.
They will be able to read, write and understand a range of texts in the community, access apps and other media to travel plan and shop.
Pupils will be able to enjoy a range of fiction and non-fiction texts as a leisure activity.
They will use their English skills to access a wide range of FE courses, including vocational courses and further GCSE options.
They will have the skills to have a meaningful conversation with peers, adults, family and community.
Pupils will be confident to communicate in the community, Further Education College, or apprenticeship.

By the end of the M.4 pathway pupils will:

Learning Intention	Skills	Learning Strategies
Number and Place Value	Access: • Identify how many objects there are in a group of 10 up to 10 objects. • Recognise smaller groups on sight and counting larger groups up to 10 • Recognising the last number counted represents the total number of the count M.1: • Count to and across 100 • Count, read and write numbers to 100 • Count in multiples of twos, fives, tens • 1 more, 1 less • Read and write numbers from 1-20 • Identify and represent numbers with objects and pictorially. M.2: • Count in steps of 2, 3, 5 from 0 and 10 from any number forwards and backwards. • Recognise place value of 2 digit numbers • Compare and order numbers from 0-100 using < and > signs • Read and write numbers to a 100 • Use these facts to solve number problems M.3: • Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Compare and order numbers up to 1000	Access: Pupil will be given the opportunity to: • Use objects to, such as blocks, playdough and counters, to count up to 10. • Use visual supports i.e. counting boards/ • Interactive games on top marks and various other websites to aid counting skills. M.1: Pupil will be given the opportunity to: • Use objects to, such as blocks or playdough, to count up to 10. • Use visual supports i.e. counting boards and number squares. • Interactive games on top marks and various other websites to aid counting skills. • Using white boards to draw M.2: Pupil will be given the opportunity to: • Use manipulatives and hundreds squares to count on • Use place value matts and base 10 blocks to make place value • Use visual supports i.e. Mr Crock eats the bigger number M.3: Pupil will be given the opportunity to: • Use manipulatives and hundreds squares to count on • Use place value matts and base 10 blocks to make place value • Use visual supports i.e. Mr Crock eats the bigger number

	• Identify, represent and estimate numbers using different representations • Read and write numbers up to 1000 in numerals and in words • Solve number problems and practical problems involving these ideas M4: • Count in multiples of 6,7,9,25 and 1000; • Count backwards through zero to include negative numbers; • Find 0.1,1,10,100 or 1000 more or less than a given number; • Describe and extend number sequences involving counting on or back in different steps, including multiplication and division steps • Identify, represent and estimate numbers using different representations, including the number line; • Order and compare numbers beyond 1000; Round any number to the nearest 10, 100 or 1000 • Recognise the place value of each digit in a four-digit number and can identify the value of each digit to two decimal places; • Partition numbers in different ways (e.g. 2.3+2+0.3 and 1+1.3); • Round decimals (one decimal place) to the nearest whole number • Recognises that hundredths arise when dividing an object by one hundred and dividing tenths by ten; • Count up and down in hundredths; • Read and write numbers with up to two decimal places and order and compare numbers with the same number of decimal places up to two decimal places	

Addition and Subtraction	Access:
	• Use real life objects and materials to add and subtract one from a group of objects and to say how many are now present.
	
	M.1:
	• Number bonds to 20
	• Understand statements using addition(+), subtraction (-) and equals (=)
	• Add subtract numbers to 20
	• Using pictorial and real objects solve one step number problems
	
	M.2:
	• Add and subtract numbers using concrete objects, visuals and mentally, including 2 digit numbers.
	• Show that the addition of two numbers can be done in any order and that subtraction of one number from another cannot.
	• Recognise and use inverse relationships between addition and subtraction
	
	M.3:
	• 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,
		Access:
		Pupil will be given the opportunity to:
		• Use visual supports i.e. number lines to add and subtract.
		• Use objects to, such as counters to carry out addition and subtraction facts up to 10.
		
		M.1:
		Pupil will be given the opportunity to:
		• Use visual supports i.e. number lines to add and subtract.
		• Use objects to, such as counters to carry out addition and subtraction facts up to 10.
		
		M.2:
		Pupil will be given the opportunity to:
		• Use manipulatives and hundreds squares to count on
		• Use place value matts and base 10 blocks to make place value
		• Use using a range of addition and subtraction methods such as part whole model, number lines, algorithms (column method).
		• Use fact families
		• Use of interactive activities
		
		M.3:
		Pupil will be given the opportunity to:
		• Use manipulatives and hundreds squares to count on
		• Use place value matts and base 10 blocks to make place value
		• Use using a range of addition and subtraction methods such as part whole model, number lines, algorithms (column method).
		• Use fact families
		• Use of interactive activities

	place value, and more complex addition and subtraction.	
Shape	Access: • Make, copy and continue patterns using real life materials • Use junk material to make 3D shapes. M.1: • Recognise and name 2D and 3D shapes. M.2: • Identify and describe the properties of 2D and 3D shapes. • Identify 2D shapes on the surface of 3D shapes M.3: • 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 • 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 M.4: • Pupil can compare and classify shapes, including quadrilaterals and triangles, based on their properties and sizes	Access: Pupil will be given the opportunity to: • Explore the differences in shapes using 3D/2D objects • Draw and trace shapes. M.1: Pupil will be given the opportunity to: • Explore the differences in shapes using 3D/2D objects M.2: Pupils will be given the opportunity to: • Trace different 2D shapes to compare different shapes • Build different 3D shapes using nets to compare and discuss the deliverance between 2D shapes and their 3D counterparts M.3: Pupil will be given the opportunity to: • Using shape blocks to manipulate and identify different shapes. • Recognising and identifying shapes within the classroom and outside. • Use of interactive activities.

	• Pupil can identify lines of symmetry in 2-D shapes presented in different orientations • Pupil can complete a simple symmetric figure with respect to a specific line of symmetry • Pupil can use a variety of sorting diagrams to compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. Pupil can continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines • Pupil can identify acute and obtuse angles and compare and order angles up to two right angles by size • Pupil can continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines • Pupil can describe positions on a 2-D grid as co-ordinates in the first quadrant • Pupil can plot specified points and draw sides to complete a given polygon • Pupil can describe movements between positions as translations of a given unit to the left/right and up/down	
Measurement	Access: • Exchange objects for money using a role play shop. • Using practical situations and a timer measure how long an activity takes. M.1: • Compare, describe, solve, record • Lengths and heights – long/short • Mass weight - heavy/light • Capacity – full/empty	Access: Pupil will be given the opportunity to: • Measure using ruler's metre sticks. • Time an event using a stop watch • Identify different coins and notes with pretend money M.1: Pupil will be given the opportunity to: • Measure using ruler's metre sticks. • Time an event using a stop watch

	• Time - earlier/later • Recognise the value of the different denominations of coins and notes. • Sequence events in chronological order. • Days of the week. • Hours and half past. M.2: • Choose and use standard units to estimate and measure length, height, mass, capacity. • Compare and order length, mass, height, capacity. • Recognise and use symbols for pounds (£) and pence (p) • Combine amounts using pounds and pence to make a particular value. • Find different amounts of coins that equal the same value • Solve simple problems involving addition and subtraction of money. • Tell and write the time to 5 minutes and show these times on a clock face. • Know the number of minutes in an hour and the number of hours in a day M.3: • Measure, compare, add and subtract: lengths (m/cm/ mm); mass (kg/g); volume/capacity (l/ml). • Measure the perimeter of simple 2-D shapes • Add and subtract amounts of money to give change, using both £ and p in practical contexts • Tell and write the time from an analogue clock, including using Roman numerals	M.2: Pupil will be given the opportunity to: • Using real measuring equipment such as ruler's tape measures and trundle wheels to measure distances and length. I.e. measure the perimeter of a classroom. • Use role play and real life examples, i.e. shopping and exchanging coins and notes. • The use of analogue and digital clocks to tell and measure time. M.3: Pupil will be given the opportunity to: • Using real measuring equipment such as ruler's tape measures and trundle wheels to measure distances and length. I.e. measure the perimeter of a classroom. • Use role play and real life examples, i.e. shopping and exchanging coins and notes. • The use of analogue and digital clocks to tell and measure time. • Use of interactive activities

	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] M.4: • Pupil can write amounts of money using decimal notation; • Pupil recognises that one hundred 1p coins equal £1 and that each coin is 1/100 of £1; Pupil solves problems involving money • Pupil can estimate, compare and calculate different measures, including money in pounds and pence • Pupil can order temperatures including those below 0°C • Pupil can measure and calculate the perimeter of a rectilinear figure (including squares) in cm and metres • Pupil knows area is a measure of surface within a boundary. Pupil finds the area of shapes by counting squares • Pupil can convert between different units of measure [e.g. kilometre to metre; hour to minute]	

	• Pupil can read, write and convert time between analogue and digital 12- and 24-hour clocks	
Multiplication and Division	M.1: • Solve one step number problems involving multiplication and division using concrete objects and pictorial representation. M.2: • Recall and use multiplication and division facts for 2, 5 and 10 multiplication tables, including odd and even numbers. • Solve problems using multiplication and division. M.3: • 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	M.1: Pupil will be given the opportunity to: • Use visual supports i.e. number lines to add and subtract. • Use objects to, such as counters to carry out addition and subtraction facts up to 10. M.2: Pupil will be given the opportunity to: • Use counters to show grouping and sharing • Skip counting on a number line or hundreds chart • Use using a range of addition and subtraction methods such as part whole model, number lines, algorithms (box method). • Use fact families • Use of interactive activities M.3: Pupil will be given the opportunity to: • Use counters to show grouping and sharing • Skip counting on a number line or hundreds chart • Use using a range of a multiplication and division methods such as part whole model, number lines, algorithms (box method). • Use fact families • Use of interactive activities

	M.4: • Recalls multiplication and division facts for multiplication tables up to 12 x 12 ; • Pupil solves problems involving multiplying and adding, including using the distributive law to multiply two digits numbers by one digit, division (including interpreting remainders) and integer scaling problems • Pupil can multiply two-digit and three-digit numbers by a one-digit number using a formal written layout; • Pupil can divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • Pupil can choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method) • Pupil can use partitioning to double and halve any number, including decimals to one decimal place	
Fractions	M.1: • Name half as one of two equal parts • Find and name a quarter as one of four equal parts. M.2: • Understand recognise, find, name and write the following fractions • 1/2, 1/4., 2/4., 3/4., of a length, shape set of objects.	M.1: Pupil will be given the opportunity to: • Use visual supports i.e. number lines to add and subtract. • Use objects to, such as counters to carry out addition and subtraction facts up to 10. M.2: Pupil will be given the opportunity to: • Use of tangible items such as playdough, folding paper, cutting fruit, counters to work out fractions. • Using class Data collection to make a fraction

	• Write simple fraction and recognise the equivalence of 2/4., and ½. M.3: • Count and write down in tenths • Recognise tenths arise from dividing an object into 10 equal parts. • Recognise and use fractions as numbers, unit fractions and non-unit fractions with small denominations. • Add and subtract fractions with the same denominator within one whole. • Compare and order unit fractions and fractions with the same denominator. • Solve fraction problems using the above M.4: • Pupil can count in multiples of 6,7,9,25 and 1000; • Pupil can count backwards through zero to include negative numbers; • Pupil can find 0.1,1,10,100 or 1000 more or less than a given number; • Pupil can describe and extend number sequences involving counting on or back in different steps, including multiplication and division steps • Pupil can identify, represent and estimate numbers using different representations, including the number line; • Pupil can order and compare numbers beyond 1000; • Pupil can round any number to the nearest 10, 100 or 1000 • Pupil can recognise the place value of each digit in a four-digit number and can identify the value of each digit to two decimal places;	• Use paper models to show that 4/8, 2/4 and ½ are the same value. M.3: Pupil will be given the opportunity to: • Use of tangible items such as playdough, folding paper, cutting fruit, counters to work out fractions. • Using class Data collection to make a fraction • Use paper models to show that 4/8, 2/4 and ½ are the same value. • Use fraction models to manipulate.

	• Pupil can partition numbers in different ways (e.g. 2.3+2+0.3 and 1+1.3); • Pupil can round decimals (one decimal place) to the nearest whole number • Pupil recognises that hundredths arise when dividing an object by one hundred and dividing tenths by ten; • Pupil can count up and down in hundredths; • Pupil can read and write numbers with up to two decimal places and order and compare numbers with the same number of decimal places up to two decimal places	
Statistics	M.2: • Interpret and construct simple pictograms, tally charts, block graphs and simple tables. • Ask and answer simple questions by counting the number of objects in each category. • Compare and total categorical data. M.3: • Interpret and present data using bar charts, pictograms and tables. • 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. M.4: • Pupil uses a variety of sorting diagrams to compare and classify numbers based on their properties and sizes	M.2: Pupils will be given the opportunity to: • Create engaging questions to collect data from the class • Build data displays using tangibles such as blocks or sweets M.3: Pupil will be given the opportunity to: • The use of tally charts, pictograms, and block diagrams. • Use of interactive activities in groups or individually. • Use of collecting data within classroom and outside, for example, colour pencils, hair colour, leaves etc. • Use of gathering information and summarizing.

	• Pupil can interpret and present discrete and continuous data using appropriate graphical methods, including bar charts, time graphs	