Moonstone Class Mathematics Curriculum overview 2018-2019

Autumn Term 1

This overview is used as a guide. It indicates the area of mathematics that teachers should focus on and outlines possible objectives from the National Curriculum which will be covered within each week. These are the main objectives but other areas of mathematics and objectives will be taught and developed alongside these. A pre learning task will be carried out for each area before teaching each concept to enable children to learn from individual starting points.

<table>
<tr><td>Week 1</td><td colspan="2">Number (Number and place value)

Y5: Read, write, order and compare numbers to at least 100000 and determine the value of each digit
Count forwards and backwards in steps of powers of 10 for any given number

Y6: Read, write, order and compare numbers to at least 10,000,000 and determine the value of each digit
Solve number problems</td></tr>
<tr><td>Week 2</td><td colspan="2">Number (Number and place value)

Y5: Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero

Y6: Use negative numbers in context and calculate across zero</td></tr>
<tr><td>Week 3</td><td rowspan="3">Place value and number starters (Developing fluency)

Saying, reading, writing numbers

Identifying the place value of numbers, including decimals</td><td>Number (Addition and subtraction / Algebra)

Y5: Add and subtract numbers mentally with increasingly large numbers

Y6: Perform mental calculations, including mixed operations and large numbers</td></tr>
<tr><td>Week 4</td><td>Number (Addition and subtraction / Algebra)

Y5: Add and subtract whole numbers with more than 4 digits, including formal written methods (columnar addition and subtraction

Y6: Add and subtract whole numbers and decimals with more than 4 digits with accuracy, including calculating inverse operations</td></tr>
<tr><td>Week 5</td><td>Number (Addition and subtraction / Algebra)

Y5: Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why</td></tr>
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		Y6: Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Express missing number problems algebraically
Week 6		**Measurement /** Algebra Y5: Convert between different units of metric measures (km and m, cm and m, cm and mm, g and kg, l and ml) Problem solving using measures. Y6: Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from smaller units of measure to a larger unit and vice versa, using decimal notation up to 3 decimal places. Use simple formulae.
Week 7		**Statistics** Y5: Continue from Y4 curriculum objectives: Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs Y6: Interpret and construct a range of charts and graphs.

Autumn Term 2

Week 1		Y5: Read, write, order and compare numbers to at least 100000 and determine the value of each digit Count forwards and backwards in steps of powers of 10 for any given number Y6: Read, write, order and compare numbers to at least 10,000,000 and determine the value of each digit Solve number problems
Week 2	Place value and number starters (Developing reasoning)	**Number (**Multiplication and Division / Ratio and proportion) Y5: Multiply and divide numbers mentally, drawing upon known facts Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Y6: Perform mental calculations using multiplication and division. Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.
Week 3		**Number (**Multiplication and Division / Ratio and proportion)

	Recognise prime numbers Recognise factors and multiples	Y5: Multiply and divide numbers up to 4 digits by a one-digit number using the formal written method, including long multiplication for two digit numbers and short division whilst interpreting remainders appropriately for the context. Y6: Perform mental calculations using multiplication and division. 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.
Week 4		**Number (**Fractions / Ratio and proportion) Y5: Compare and order fractions whose denominators are all multiples of the same Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Y6: Identify, name and write fractions. Associate a fraction with division and calculate decimal fraction equivalents.
Week 5		**Number (**Fractions / Ratio and proportion) Y5: Recognise mixed numbers and improper fractions and convert from one form to the other. Write mathematical statements >1 as a mixed number. Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths Y6: Recall and use equivalences between simple fractions, decimals and percentages including different contexts. Know and use mixed numbers and improper fractions.
Week 6		**Geometry (**Position and direction) Y5: Identify, describe and represent the position of a shape. Y6: Describe positions on the full coordinate grid (all 4 quadrants)
Week 7		**Geometry (**Properties of shape) Y5: Identify 2D shapes and their properties. Identify 3-D shapes, including cubes and other cuboids, from 2-D representations Y6: Recognise, name and draw 2D shapes.

		Recognise, describe and build simple 3-D shapes, including making nets.

Spring Term 1

Week 1	Place value and number starters Recognise and describe linear number sequences, including decimals and fractions. Generate and describe linear number sequences. Comparing and ordering numbers, including decimals and fractions. Finding the mean, median and mode.	**Number** Y5: Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 Y6: Round any whole number to a required degree of accuracy, using a range of contexts. Problem solve using rounding. Use their order of operations to carry out calculations involving the four operations (BIDMAS)
Week 2		**Measurement / Algebra** Y4: Read, write and convert time between analogue and digital using 12 and 24 hour clocks Y5 & Y6: Solve problems involving converting between units of time. Using all four operations in problems involving time including conversions or days to weeks, expressing answers in months, days, weeks.
Week 3		**Statistics** Y5: Continue from Y4 curriculum objectives: Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs Y5 & Y6: Complete, read and interpret information including timetables. Y6: Solve comparison, sum and difference problems using information presented in a line graph
Week 4		**Geometry – properties of shapes.** Y5: Use the properties of rectangles to deduce related facts and find missing lengths and angles. Distinguish between regular and irregular polygons using reasoning based on sides. Y6: Compare and classify geometric shapes based on their properties and sizes, find unknown angles in triangles, quadrilaterals and regular polygons.

Week 5		**Number (**Addition and subtraction / Measurement / Algebra) Y5: Add and subtract whole numbers with more than 4 digits, including decimals. Measure and calculate perimeter of composite rectilinear shapes in cm and m. Including using perimeter to find unknown lengths. E.g.) 4 + 2b for a rectangle of sides 2cm and b cm. Y6: Solve addition and subtraction multi-step problems in contexts, deciding which operation to use and why. Include funding perimeters of shape. Recognise shapes with the same perimeter.
Week 6		**Number (**Addition and subtraction / Number – fractions) Y5: Add and subtract fractions with the same denominator and denominators that are multiples of the same number Y6: Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.

Spring Term 2

Week 1	Place value and number starters. Recognise square numbers, cube numbers.	**Number (**Multiplication and division / Ratio and proportion) Y5: Identify multiples and factors, including finding factor pairs of a number and common factors of two numbers. Multiply and divide mentally drawing upon known facts. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Y6: Identify common factors, common multiples and prime numbers. Multiply simple pairs of proper fraction, writing the answers in its simplest form. Divide proper fractions by whole numbers.
Week 2	Identify prime numbers, prime factors and composite (non-prime numbers) Establish whether a	**Number** Multiplication and division / Ratio and proportion Y5: Multiply numbers up to 4 digits by a one digit or 2-digit number using a formal written method. Y6: Divide numbers of up to 4 digits by 2 digit numbers using a formal written method or short division where appropriate, interpret remainders as fractions or by rounding. Divide numbers with up to 2 decimal places. Multiply multi digit numbers using a formal method. Multiply one digit numbers with up to 2 decimal places.
Week 3		**Geometry / algebra/ Ratio and proportion**

	number up to 100 is prime or not. Recall prime numbers up to 19.	Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Y5: Calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres and metre squares and estimate the area of irregular shapes. Y6: Recognise when it is possible to use formulae for area. Calculate the area of parallelograms and triangles. Recognise shapes that have the same area. Recognise that shapes can have different and the same areas or perimeters. Solve problems including similar shapes where the scale factor is known or can be found. Find pairs of numbers that satisfy an equation. Solve missing values.
<u>Week 4</u>		**Geometry** Position and direction Y5: Identify, describe and represent the position of a shape following reflection or translation. Use the appropriate language and know that the shape has not changed. Y6: Draw and translate simple shapes on the coordinate planes and reflect them in the axes. Y6: Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres and cubic metres and extending to other units. (mm and km). Recognise the formula for volume.
<u>Week 5</u>		**Number** Fractions / Ratio and proportion Y5: Read, write, order and compare numbers with up to 3 decimal places. Solve problems with decimal places to the nearest whole number and to one decimal place. Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. Y6: Compare and order fractions including fractions >1. Use common factors to simplify fractions, use common multiples to express fractions in the same denomination.
<u>Week 6</u>		**Number** Fractions / Ratio and proportion Y5: Recognise the % symbol and understand that per cent relates to the ‘number’ of parts per hundred’ and write percentages as a fraction with denominator 100, and as a decimal. Y6: Solve problems requiring knowing percentage and decimal equivalents and fractions with a denominator of a multiple of 10 or 25.

Summer Term 1

Week 1	Number and place value starters. Find a rule in a sequence. Read Roman numerals. Round numbers with two decimal places to the nearest whole number. Read, write and order numbers including decimals.	**Number** Y5: Practise mental calculations. Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy Y6: Statistics, interpret and construct a pie chart.	Y6: Revision
Week 2		**Number (addition and subtraction)** Y5: Refine and practise formal written methods for addition and subtraction Solve problems involving addition and subtraction, including balancing calculations and understanding the equals sign.	Y6: Revision
Week 3		**Number (multiplication and division)** Y5: Refine and practise formal written methods for multiplication and division. Solve problems involving multiplication and division and including their knowledge of factors, multiples, squares and circles.	Y6: Revision
Week 4		**Number (multiplication and division)** Y5: Refine methods. Solve problems involving multiplication including scaling by simple fractions and problems involving simple rates.	SATS week

Week 5		**Geometry** Y5: Classify, describe and draw 2D and 3D shapes. know angles are measured in degrees, estimate and compare acute, obtuse and reflex angles. Identify angles at a point and one whole turn, angles at a point on a line, other multiples of 90 degrees. Y5: Draw given angles and measure them in degrees. Calculate missing angles. Y6: Illustrate parts of the circle, including radius, diameter and circumference and know that the circumference is twice the radius. Y6: Draw 2d shapes using given dimensions and angles. Refine knowledge of angles, including calculating missing angles.

Summer Term 2

Week 1	Count forwards and backwards in fractions Add and subtraction tenths mentally Number and place value problem solving and reasoning tasks	**Number (Fractions)** Y5: Refine knowledge of fractions, percentages and decimals, including comparing, ordering and calculating. Y6: Solve problems involving the calculation of percentages and the use of percentage comparison (ration and proportion)
Week 2		**Number (Fractions)** Y5: Refine knowledge of finding fractions, percentages and decimals of quantities and numbers, including problem solving Y6: Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. (ratio and proportion)
Week 3		**Number / Algebra** Y5 & 6: Use simple formulae, generate and describe linear number sequences, enumerate possibilities of combinations of two variables, express missing number problems algebraically.
Week 4		**Number (4 operations)** Y5: Refine 4 operations, problem solving using all operations.

		Y6: 4 operations, solve problems involving calculating and converting measures, using decimal notation where necessary.
Week 5		**Measurement** Y5: Estimate and calculate volume and capacity Use all 4 operations for measures to solve problems including length, mass, volume, money Y6: Convert between miles and kilometres. Calculate, estimate and compare volumes.
Week 6		Y5: Assessment week Y6: Maths project – using and applying skills
Week 7		Y5 & Y6 maths project – using and applying skills.

Please also refer to the non-statutory guidance in the National Curriculum 2014.