SMART Maths

Mathematics Curriculum

2019 Guidance

Long term planning guidance by year group.

Contents

Year 1

Arithmetic

Autumn	Spring	Summer
Calculate and record addition and subtraction maths stories to 20 Add and subtract 1/2 and 1/4 Use facts to 10 to Create addition and subtraction maths stories about 0, 00 and 000	Copy and solve vertical addition and subtraction (up to 3 digit numbers)	Copy and solve vertical addition and subtraction (up to 4 digit numbers)
Additional National Curriculum guidance:		
Add and subtract one and two-digit numbers to 20 Use known facts to 10 to calculate to 20	Read and write numbers to 100	

Geometry

Autumn	Spring	Summer
Draw lines and shapes with a ruler Make 2D shapes using dm sticks and find the perimeter Measure the length of lines in cm	Make whole, half, quarter and three quarter turns Name 2D shapes: square, rectangle, triangle and circle	Recognise and compare 1D, 2D and 3D shapes Name 3D shapes: cuboid, cube, pyramid and sphere Identify 2D faces on 3D shapes
Additional National Curriculum guidance:		
Use positional language: top/middle/bottom left/right	Use positional vocabulary: left/right, top/middle/bottom, close/far, inside/outside, between/above	Recognise shapes in different orientations and sizes

Data and Measures

Autumn	Spring	Summer
Measure the length of shapes using dm Find the perimeter of shapes using dm Use actions: 1cm/1dm/1m and 1g/1kg	Measure and record length Say and write mass Compare weights Select coins for different amounts (not mixing pounds and pence)	Calculate change (not mixing pounds and pence) Draw hands on a clock face
Additional National Curriculum guidance:		
	Use a range of measuring tools Measure and record using dm/cm, g/kg and l Compare measurement using vocabulary: long/short, heavier/lighter, half full/quarter full, full/empty Recognise the value of coins and notes	Read times: o'clock and half past Use time vocabulary: before, after, today, tomorrow, yesterday, seconds, minutes, hours, morning, afternoon, quicker/slower, earlier/later

Arithmetic 2

Autumn	Spring	Summer
Calculate + and - maths stories Calculate x maths stories	Calculate ÷ maths stories Calculate maths stories involving all four operations Calculate addition and subtraction maths stories involving whole, 1/2 and 1/4	Understand embellished and basic real-life stories Solve addition and subtraction word problems
Additional National Curriculum guidance:		
+ and - using concrete objects and pictorial representation x using concrete objects, pictorial representations and arrays	÷ using concrete objects, pictorial representations and arrays	Solve problems using pictorial representations

Reasoning

Autumn	Spring	Summer
Write numbers 0-9 and fractions Calculate + and - maths stories Use comparative language: bigger/smaller, equal to, difference between	Create and draw basic and embellished real-life addition and subtraction stories	Shade $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$ of a shape Months of the year Create a bar chart
Additional National Curriculum guidance:		
Understand language involved: add, altogether, total, take away, more than, less than		Recognise and find 1/2 of an object, shape and quantity Recognise and find 1/4 of an object, shape and quantity

Year 1

Daily Practice

Count in ones along a number line	Number bonds to 10
Use positional vocabulary: top, bottom, left and write	Number bonds to 20
Count days and dates on a calendar	Find 10 more or less than a number
Identify shapes: triangles, quadrilaterals, pentagons and hexagons	Fill in missing numbers
Draw straight lines between dots	Match coins to the price of an item
Read and write fractions: $\frac{1}{2}$ and $\frac{1}{4}$	Estimate number of objects using groups of 2, 5 and 10
Calculate totals of money up to 10p	Complete a flow diagram: + - x
Recognise odd and even numbers	Compare times of the day
Count movements on a number line	Compare prices of objects

Additional National Curriculum guidance:

Count forwards and backwards to and across 100	Create repeating patterns with objects and shapes
Read and write numbers to 100	Double numbers to 10
Count in 2s, 5s and 10s forwards and backwards	Halve numbers to 20
Identify 1 more and 1 less than numbers to 100	Know and order days of the week
Order: first, second, third	Know and order months of the year
Read and write numbers to 20 in numerals and words	Know number bonds to 20 and related subtraction facts
Order numbers	Solve missing number and symbol maths stories
Compare amounts: equal to, more than, less than, fewer than, most, least	

Year 2

Arithmetic

Autumn	Spring	Summer
Calculate vertical + and - maths stories Calculate + - x and ÷ maths stories involving $^1/_2$ and $^1/_4$ Calculate vertical addition with one tricky column	Complete vertical subtraction with one tricky column Solve addition and subtraction word problems	Solve word problems involving all four operations Write horizontal maths stories vertically and solve with one tricky column
Additional National Curriculum guidance:		
Recall addition and subtraction facts to 20 Use language: sum and difference Recognise place value of each digit	Partition in different ways (when teaching funny counting) e.g. 53=50+3 or 40+13 Use pictorial representations	

Geometry

Autumn	Spring	Summer
Make and name 2D shapes using dm and find the perimeter Identify lines of symmetry in 2D shapes Identify right angles	Describe the properties of 3D shapes: number of faces, vertices, edges and shape of faces Identify lines of symmetry in 2D shapes Identify angles Recognise squares, rectangles & triangles in *different orientations* <mark>(moved from MMS2 Ge B6 for SATs)</mark>	Name 2D shapes: polygons, quadrilaterals, hexagon, pentagon, octagon Name special 2D shapes: isosceles triangle, equilateral triangle, right-angled triangle, rectangle, square Recognise 3D shapes: name prisms and pyramids Use nets for 3D shapes
Additional National Curriculum guidance:		
2D shape properties: corner, sides, diagonal, vertical, horizontal, symmetry Rotation as a turn or in terms of right angles for 1/4, 1/2 and 3/4 turns Rotate clockwise and anti-clockwise	Name 3D shapes: cuboid, prism, cylinder, cone, pyramid Sort 3D shape Sort 2D shapes Patterns/sequences of shape in different orientations	Name 2D and 3D shapes in different orientations

Data and Measures

Autumn	Spring	Summer
Read times: o'clock, quarter past, half past, quarter to Draw the hands on a clock face Read and write digital times Select and use measuring tools	Identify explicit and implicit information in grids and bar charts Measure length using cm, mm, dm, m Calculate change	Interpret bar charts and pictograms Measure length in mm Read and write digital times
Additional National Curriculum guidance:		
Know the number of minutes in an hour and hours in a day Read and write time to 5 minutes Estimate and measure in mm, cm, m, g, kg, ml, l , °C Compare measurements using <>= and 'twice as high' 'half as wide'	Use symbol £ and p separately Find combinations of coins to make totals Money word problems	Pictograms and bar charts in units of 2, 5 and 10 Interpret tally charts and tables Construct simple pictograms, tally charts, block diagrams and tables Compare and sequence intervals of time

Arithmetic 2

Autumn	Spring	Summer
Identify maths stories and basic real-life story in embellished stories Identify implicit and explicit information	Partition numbers <mark>note Language: Tens (ty) Units (cups) also as Ones interchangeably from this point onwards through KS2</mark> Write mixed numbers Difference between Number sequences Number puzzles: totals of money, missing numbers, find ways to make a total	Number puzzles: order numbers, create numbers, money puzzles, missing numbers and symbols Find $\frac{1}{2}$ and $\frac{1}{4}$ of numbers and objects Write numbers shown on an abacus Sort numbers using Carroll and Venn diagrams
Additional National Curriculum guidance:		
		Find, name, write fractions of a length, shape, quantity: $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{2}{4}$, $\frac{1}{3}$ Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$

Reasoning

Autumn	Spring	Summer
Inverse of addition	Solve word problems involving all four operations	Select and use measuring tools
Commutative law		Solve measuring word problems
Inverse of multiplication	Type 1 and Type 2 division	Type 1 and Type 2 multiplication
Grid method x and ÷		Create x and ÷ maths stories about 0, 00 and 000

Additional National Curriculum guidance:		
Solve missing number problems	Use pictorial representations	Recall multiplication and division facts for 2, 5 and 10 times tables
Use related facts e.g. 3+4=70 therefore 30+40=70		
Use arrays		

Daily Practice

Find 10 more or less than a number	Repeated addition and multiplication SVDA
Find 20 more or less than a number	Repeated subtraction and division SVDA
Recall multiplication facts for 2, 5 and 10 times tables	Missing number maths stories
Know months of the year and number of days in each month	Compare numbers to 100 using <>=
Recall addition facts and corresponding subtraction facts	Find missing tens or unit number
Number bonds to 50	Add, subtract and multiply cumulatively
Use number line to add	Round numbers to the nearest 10
Number pairs with 2 digit totals	Estimate answers to calculations
Money SVDA	Estimate number of objects
Identify totals of money	Compare time durations
Read information from calendars	Create and describe number patterns
Use calculator for all four operations	Identify symmetrical patterns
Put events in chronological order	

Additional National Curriculum guidance:	
Count in 2s, 3s, 5s and 10s forwards and backwards	Recognise odd and even numbers
Read and write 0-100 in numerals and words	Doubling and halving amounts to 100
Order numbers to 100	Recognise doubling as x 2 and halving as ÷ 2
Add and subtract mentally a 2 digit number and ones/tens	Count in fractions to 10 (e.g. 0 $\frac{1}{4}$ $\frac{1}{2}$ $\frac{3}{4}$ 1)
Add and subtract mentally two 2 digit numbers	Recognise odd and even numbers

Year 3

Arithmetic

Autumn	Spring	Summer
Calculate + and - maths stories involving mixed numbers	Calculate + - x and ÷ maths stories involving fifths and sevenths	Calculate + - x and ÷ maths stories involving negative numbers
Vertical + and - with tricky columns (TU)	Vertical + and - with tricky columns (TU)	Calculate + - x and ÷ maths stories involving fifths and sevenths
Calculate + - x and ÷ maths stories involving fifths	Calculate + - x and ÷ maths stories involving negative numbers	Vertical + and - with tricky columns (HTU)

Additional National Curriculum guidance:		
Recognise place value of each digit Partition in different ways e.g. 153=100+50+3 or 140+13	Solve problems involving fractions	

Geometry

Autumn	Spring	Summer
Investigate properties of lines	Identify degrees in $^1/_4$, $^1/_2$, $^3/_4$ turns	Use a compass and ruler to draw triangles
Draw and measure lines	Draw angles multiples of 10°	Compare and draw triangles specified by co-ordinates
Name polygons	Use set squares to identify and draw right angles	Identify pyramids and prisms from its net
Distinguish between clockwise and anti-clockwise	Recognise parallel and perpendicular lines	Recognise 3D shapes from 2D drawings
Plot co-ordinates	Plot and draw lines	Identify and draw types of triangles

Additional National Curriculum guidance:		
Recognise symmetrical and non-symmetrical polygons and polyhedra	Identify whether angles are right angles, acute or obtuse Identify horizontal and vertical lines	Make 3D shapes using modelling material Recognise 3D shapes in different orientations

Data and Measures

Autumn	Spring	Summer
Write digital times	Interpret data in grid, pie charts and bar charts	Create and interpret tally charts and bar charts
Calculate time differences and durations	Measure length and mass	Calculate totals and difference between prices
Use compass to draw and measure circles and hexagons	Calculate area, volume, length and perimeter of shapes	Estimate and measure mass and capacity
		Calculate are a and volume
		Solve area word problems

Additional National Curriculum guidance:

Autumn	Spring	Summer
Read digital 12-hour clocks	Units of 2, 5 and 10	Add and subtract money (mixed units) and record £ and p separately
Tell the time using Roman numerals	Interpret pictograms	Calculate change
Use vocabulary: o'clock, a.m., p.m., morning, afternoon, noon and midnight	Solve one and two step problems e.g. how many more/fewer?	
	Use mm/cm/m, g/kg and mixed units e.g. 1kg and 200g	
	Compare measurements	
	Add and subtract measurements	

Arithmetic 2

Autumn	Spring	Summer
Calculate fractions of quantities	Multiply TU X U using grid method	Use all four operations including tenths
Solve word problems involving fractions of quantities	Solve division word problems	Calculate vertical + and - including decimals
	Express remainders as a fraction	Write squares and square roots
		Identify the operation required to solve a word problem

Additional National Curriculum guidance:

Autumn	Spring	Summer
Compare and order fractions		Identify number of tenths e.g. 34.2 2 tenths
Equivalent fractions		Count up and down in tenths

Reasoning

Autumn	Spring	Summer
Use vertical + and - to solve word problems	Multiply TU x U by partitioning	Use known facts to calculate maths stories
Order numbers	Multiply TU x U using grid method	Identify fractions that add to 1
Solve x and ÷ word problems	Use inverse for division with remainders	Calculate difference between fractions
	Write a ratio as a fraction	Partition numbers to solve maths stories involving all four operations1
		Solve division word problems
		Odd and even numbers
		Calculate total cost and difference between prices
		Number puzzles

Additional National Curriculum guidance:

Solve problems involving four times as high, eight times as long

Daily Practice

Recall multiplication facts from 2, 5 and 10 times tables	Convert between ml/l, mm/cm/dm/m
Recall multiplication facts from 3 and 4 times tables	Convert times between analogue and digital form
Recognise equivalences e.g. 2m=200cm	Add and subtract money mentally
Convert between g/kg, cm/dm/mm	Round numbers to the nearest 10 or 100
Multiply a 2, 3 and 4 digit multiple of 10 by a 1 digit number	

Additional National Curriculum guidance:

Count in 2s, 3s, 4s, 5s, 8s, 10s, 50s and 100s forwards and backwards	Recognise acute, obtuse and right angles
Count forwards and backwards in tenths	Identify horizontal, vertical, parallel and perpendicular lines
Recall division facts from 3, 4 and 8 times tables	Know number of seconds in a minute
Find 10 more or less than a number	Know number of days in each month
Find 100 more or less than a number	Know number of days in a year and leap year
Read and write numbers to 1000 in numerals and words	Read analogue times to 5 minutes
Compare and order numbers to 1000	Read and write times to the nearest minute
	Add and subtract mentally a 3 digit number and ones/tens/hundreds

Year 4

Arithmetic

Autumn	Spring	Summer
Calculate maths stories for all four operations involving mixed numbers, halves and quarters	Calculate maths stories for all four operations involving fractions, mixed numbers and negative numbers	Calculate percentages of whole number quantity
Calculate maths stories for all four operations with vulgar fractions and negative numbers	Place value (4 digit numbers)	Calculate decimal number percentages using a calculator
Read, write and convert between fractions and decimals	Vertical + and - involving decimals	Round decimal fractions
Calculate maths stories for all four operations involving decimal fractions	Multiply TUxTU using grid method	Calculate + and - using negative numbers
	Divide HTU/TU by U using grid method	Multiply TUxTU using grid method
		Divide HTU/TU by U using grid method

Additional National Curriculum guidance:		
Compare and order decimals (up to 2dp)	Multiply HTU x U using grid method	
Identify number of hundredths e.g. 34.12 12 hundredths	Use distributive law e.g. 39x7=30x7+9x7	

Geometry

Autumn	Spring	Summer
Draw objects in a mirror line	Use vocabulary for circles accurately	Draw triangles using a compass
Use a protractor to draw angles	Draw shapes using a compass	Measure angles using a protractor
Identify angles	Label axes (positive and negative)	Draw acute and obtuse angles
	Draw shapes on axes	
	Name lines of symmetry	

Additional National Curriculum guidance:		
Compare and order angles	Describe position on a grid as co-ordinates	
	Describe movements as translations	
	Identify regular and irregular polygons	
	Identify lines of symmetry in different orientations	
	Complete a simple symmetric figure	

Data and Measures

Autumn	Spring	Summer
Read metric prefixes for length, mass and volume Compare metric units Read metric equivalences using decimal point Calculate area and volume	Calculate the circumference of circle Find the mean	Calculate equivalent fractions Calculate fractions of quantities using equivalent fractions Use ratio to convert measurements
Additional National Curriculum guidance:		
Measure using a range of units Convert between units of measure Measure and calculate perimeter		Recognise equivalent fractions e.g. $^6/_9 = {}^2/_3$

Not explicitly covered in maths lessons, but needs to be taught perhaps in thematic or science:

* Read and write analogue and digital time (12 and 24 hour)

* Solve time problems using converting: hours to minutes, minutes to seconds, years to months and weeks to days

* Present discrete and continuous data using graphical methods including bar charts and time graphs

* Use a range of scales when presenting and interpreting data

* Answer comparison, sum and difference between problems about data presented in bar charts, pictograms, tables and graphs

Arithmetic 2

Autumn	Spring	Summer
Multiply TUxTU using grid method Calculate one step word problems involving all four operations Use a calculator to solve one step measure word problems involving decimals	Group calculations to solve maths stories Solve measure word problems Solve word problems involving decimal quantities	Solve percentage word problems Solve fraction and percentage word problems involving all four operations Round decimals
Additional National Curriculum guidance:		
		Solve two step addition and subtraction word problems

Reasoning

Autumn	Spring	Summer
Read and write numbers up to billions	Mentally x three 1 digit numbers	Identify terms
Read and write powers of 10	Use index notation for powers of 10	Use algebraic expressions
Use known facts to calculate x and ÷ maths stories	Multiply three numbers with a decimal fraction using a calculator	

Additional National Curriculum guidance:

Recognise the place value of each digit

Derive fact e.g. 600÷3=200 can be derived from 2x3=6

Daily Practice

Round to the nearest 10 and 100	Recall multiples of 3, 4, 5, 6, 7, 9 and 10
Recall multiplication and division facts up to 100	Give factors of 1, 5, 7, 9
Convert m to cm, kg to g and ml to l	Give factors of 12, 15, 16 and 18
Find 1 more or less than any number (positive and negative)	Find common equivalent fractions
Convert between decimal and vulgar fractions	Give multiples of 5, 7, 8 and 10
Convert pence to pound	Give factors of 10, 15, 18, 20, 24 and 25
Convert time analogue and digital	Convert between decimals and fractions for tenths, hundredths and thousandths
Recall multiples of 8, 9 and 10	Convert between miles and km
Give factors of 4, 10, 12 and 15	
Convert mm to m and pounds to pence	

Additional National Curriculum guidance:

Count in multiples of 6, 7, 9, 25 and 1000	Recognise and use factor pairs up to 144
Find 1000 more or less than a given number	Count up and down in hundredths
Count forwards and backwards (negative numbers)	Recognise and write decimal equivalents to
Order and compare numbers beyond 1000	Compare and order decimals (up to 2dp)
Round numbers to the nearest 10, 100 or 1000	Classify triangles: equilateral, isosceles, scalene
Read Roman numerals to 100	Classify quadrilaterals: parallelogram, rhombus, trapezium
Recall multiplication and division facts up to 12x12	
Compare amounts of money in pounds and pence (using decimal notation)	

Year 5

Arithmetic

Autumn	Spring	Summer
Vertical + and - with more than one tricky column Calculate + - x ÷ maths stories involving vulgar fractions and mixed numbers Vertical + and—decimals with more than one tricky column Multiply vulgar fractions	Use fractions as divisions Convert vulgar fractions to finite decimal Use equivalent fractions in addition and subtraction calculations (bring forward from MMS6 A1 B3) Use four operations with positive and negative numbers Multiply TUxTU using grid method Multiply HTUxTU with decimals using grid method	Divide HTU÷U using grid method Multiply and divide decimals (up to 3dp) by multiples of powers of 10 Use derived products to calculate x and ÷
Additional National Curriculum guidance:		
Identify the value of each digit Order and compare fractions and decimals Recognise and use thousandths	Multiply THTUxTU/U Multiply by 10, 100 and 1000	Divide THTU÷U using grid method Divide by 10, 100 and 1000 Interpret remainders as fractions, decimals or rounding

Geometry

Autumn	Spring	Summer
Investigate properties of shape and symmetry Name and draw angles: acute, obtuse, reflex and right Name and calculate vertically opposite and supplementary angles Draw angles using a protractor	Calculate the circumference and area of a circle Explore the properties of angles	Investigate angles of polygons Recognise, name and sketch polygons Identify properties of polygons
Additional National Curriculum guidance:		
Estimate and compare angles Use markings for parallel lines and right angles		Use properties of rectangles to find missing lengths and angles Distinguish between regular and irregular shapes

Data and Measures

Autumn	Spring	Summer
Solve measure word problems involving all four operations and percentage increase/decrease	Interpret a calendar and timetable	Use ratio to convert between units of measure
Investigate 3D shapes	Use time durations in calculations and word problems	Estimate area of regular and irregular shapes (cm²)
Convert metric and imperial units	Construct a bar chart	Calculate the perimeter and the area of compound shapes (From MMS6 DM B5 for earlier SATs experience)
Read scales	Find the mode	Calculate time durations
	Draw and interpret distance-time graphs	Solve time word problems
	Round measures	

Additional National Curriculum guidance:		
Explain operations and methods when solving problems	Solve comparison, sum and difference problems about a line graph	Calculate perimeter in cm and m
Convert between fractions, decimals and percentages		Compare area of shapes using cm² and m²
		Estimate volume and capacity
		Express missing measures algebraically

Arithmetic 2

Autumn	Spring	Summer
Complete missing number grids and sentences	Use divisibility tests	Evaluate terms and products in expressions including brackets
Complete number sequences involving square numbers	Investigate factors and proper factors	
Solve one and two step word problems	Identify prime numbers (0-100)	
Use <≤>≥	Write numbers as a product of their prime factors	
Investigate factors and proper factors	Investigate factors	

Additional National Curriculum guidance:		
Find common factors of two numbers	Use vocabulary: prime number, prime factors, composite (non-prime) number	
Understand term: factor, multiple, square and cube number		
Use notation (^{2}) and (^{3})		

Reasoning

Autumn	Spring	Summer
Write and convert times using 24 hour notation	Solve measure and fraction problems by exploring relationships	Carry out investigations involving shape, number and real-life situations
Calculate time duration (24 hour)	Solve one, two and three step money problems	Use timetables
Solve algebraic equations	Solve puzzles by calculating quantities	Calculate durations: difference between, total and mean
		Calculate equivalences and fractions of periods of time

Additional National Curriculum guidance:

Solve problems involving decimals

Daily Practice

Add and subtract money	Calculate time durations
Recall multiplication and division facts (up to 12x12)	Find equivalent fractions
Give multiples of all times tables	Order decimal fractions using a number line
Give factors	Convert between fractions, decimals and percentages
Identify value of digits (including decimals)	Round to the nearest 100
Convert times 12 hour to 24 hour	Find the mode and median of a data sample
Convert measures g to kg, l to ml, cm to m, km to m	Multiply and divide by 15 and 20
Convert fractions to decimals	

Additional National Curriculum guidance:

Read and write numbers to 1 000 000	Round decimals to the nearest whole number
Order numbers to 1 000 000	Order and compare fractions
Compare numbers to 1 000 000	Order and compare decimals
Count forwards or backwards in steps of 100, 1000 and 10000	Mentally add and subtract tenths
Count forwards and backwards (negative numbers)	Add and subtract decimals finding complements of 1 e.g. 0.83+0.17
Round numbers to the nearest 10, 100, 1000, 10000, 100000	Recognise and use square roots and square numbers
Count forwards and backwards in decimals and fractions	Read Roman numerals to 1000
Mentally add and subtract large numbers e.g. 12462-2300=10162	
Recall prime numbers to 19	
Recognise years written in Roman numerals	

Year 6

Arithmetic

Autumn	Spring	Summer
Multiply HTUxTU using grid method	Calculate with vulgar fractions using the four operations (using equivalent fractions and improper fractions with tricky examples)	Use the formulae for diameter, circumference and area (not needed for SATs) of a circle
Estimate the value of products by rounding including decimals	From MMS6 A1 B6 Write a vulgar fraction as a decimal fraction to three decimal places, using a calculator for division, e.g. 7/11 = .636	Use the formulae for area and volume of cuboid & cylinder; area of a triangle
Divide THTU÷U using grid method		Convert between decimal fractions and vulgar fractions
Estimate the value of quotients, including decimals, by rounding	From MMS6 A1 B6 Convert decimal fractions to vulgar fractions using tenths, hundredths and thousandths, e.g. .625 = 625/1000	Write recurring infinite decimals in abbreviated forms
		Calculate all four operations using negative numbers (moved from MMS6 A1 B4 - not needed for SATs)

Additional National Curriculum guidance:		
Multiply one digit number with 2dp by whole numbers	Compare and order fractions	Illustrate and name parts of a circle: radius, diameter and circumference
Divide decimal numbers by U	When calculating with fractions write answers in its simplest form	Associate a fraction with division
Interpret remainders as whole numbers, fractions or by rounding	Divide proper fractions by whole numbers	
Identify the value of each digit		

Geometry

Autumn	Spring	Summer
Find the sum of interior and exterior angles of a polygon *include triangles which leads to NC6 objective 'Find missing angles' for SATs also in MMS6 Ge B3 & B5*	Measure angles	Calculate the interior, exterior and missing angles
	Measure length	Calculate the third angle in a triangle.
Recognise reflection, translation, enlargement and rotation	Draw images and complete shapes using lines of reflection	Draw the perpendicular lines
Name transformations of shapes	Calculate angles in isosceles triangle *(include missing angles for SATs)*	Draw the bisector of an angle
	Sort quadrilaterals	Draw the circum-circle of a triangle
	Complete coordinates of shapes	Draw the in-circle of a triangle
	Identify and write the order of rotational symmetry	

Additional National Curriculum guidance:		
Draw and translate simple shapes and reflect them in axes	Draw 2D shapes using given dimensions and angles	Find unknown angles: triangles, quadrilaterals and regular polygons
	Recognise, describe and build 3D shapes including making nets	
	Compare and classify geometric shapes	
	Draw and label a pair of axes in all four quadrants	
	Describe positions on the full co-ordinate grid	

Data and Measures

Autumn	Spring	Summer
Solve measuring word problem using km, ml, l, g and kg Draw a pie chart	Solve problems involving ratio and proportion Read scales (mass) Compare weighing scales Construct and interpret frequency tables, bar charts and pie charts Plan and carry out a survey using discrete and grouped data	Convert between yards and metres Calculate perimeter and area of compound shapes Calculate surface area and volume of cuboids Solve problems with cuboids Understand the golden ratio Calculate ratios and use ratios to construct shapes Collect, organise, select and present information

Additional National Curriculum guidance:

Autumn	Spring	Summer
Solve problems involving conversion between units Solve money problems Link percentages of 360° to calculating angles of pie charts	Compare quantities using the notation a:b Solve problems involving the relative sizes of two quantities Convert measurements using decimal notation up to 3dp Construct line graphs	Convert between miles and km Know approximate conversions Recognise shapes can have same area but different perimeter and vice versa Calculate the area of parallelograms and triangles Estimate and compare volumes: cm^3, m^3, mm^3, km^3

Arithmetic 2

Autumn	Spring	Summer
Multiply HTUxTU using short method Divide HTUxTU using short method with remainders Convert between fractions, decimals and percentages	Ratio of quantities Write a quantity as a fraction or percentage of the total quantity Solve word problems by involving percentage increase/decrease Solve money problems using all four operations Add and subtract squares and cubes of numbers Calculate products	Use algebraic notation for the sum, difference , product, and quotient of two numbers Find the greatest or smallest sums, difference, products and quotients of two numbers within a possible range Calculate products Solve number puzzles involving algebraic terms Identify and divide numbers by their factors

Additional National Curriculum guidance:

Autumn	Spring	Summer
Interpret remainders as whole numbers, fractions or by rounding		Express missing number problems algebraically

Reasoning

Autumn	Spring	Summer
Calculate mean, median, mode and range Express vulgar fractions as percentages <mark>*Moved from B6 to B2, needed earlier for SATs; aligns with MMS6 A2 B2 perfectly*</mark>	Interpret a distance-time graph Interpret a temperature-time graph Identify terms and products in expressions Evaluate expressions with and without brackets	Solve linear equations that involve one operation with whole and decimal numbers Measure probability, e.g. of events- the probability of rolling a 3 on a fair dice numbered 1–6 is 1/6. <mark>*Moved from B2 to B6 after SATs, not needed to meet NC Y6*</mark>
Additional National Curriculum guidance:		
	Construct line graphs Explore the order of operations using brackets	Enumerate possibilities of combinations of two variables

Daily Practice

Recall multiplication and division facts (up to 12x12) Multiply by 15 Round numbers to 1dp Write factors and multiples of given numbers Convert between m and km, cm and m, cm and mm, ml and l and g and kg Find a fraction or percentage of whole number Calculate time duration Calculate angles in a triangle	Convert between fractions, decimals and percentages Multiply by 25 Multiply and divide pairs of multiples of 10 and 100 Find equivalent fractions Round numbers to 2dp Write a number as product of its prime factor Round numbers to 3dp
Additional National Curriculum guidance:	
Read and write numbers to 10 000 000 Order numbers to 10 000 000 Compare numbers to 10 000 000 Round numbers with accuracy (nearest 10, 20, 50 etc.) Count forwards and backwards (negative numbers)	Use the four operations mentally Identify common factors, common multiples and prime numbers Partition decimals to 3dp Mentally add and subtract negative numbers Compare and order fractions including fractions >1