

Draft Schemes of Work – Edexcel Primary Curriculum

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Dear Centre,

The Schemes of Work in this booklet have been prepared to provide teachers with an overview of the coverage provided by the Edexcel Primary Curriculum for Mathematics. Centres which register for the Edexcel Primary Curriculum will receive the final version of this document.

In addition to these Schemes of Work centres which register for the Edexcel Primary Curriculum will receive six completed units, including unit tests and mark schemes, for English and Mathematics for Years 3-6 and three completed units, including unit tests and mark schemes, for Science for Years 3-6. They will also have the opportunity to purchase Achievement Tests for English, Mathematics and Science for Year 6 and Progress Tests for each of Years 3-6 for English, Mathematics and Science. The Achievement Tests will be externally marked by Edexcel. The Progress Tests will be internally assessed by centres. Further information about the availability of Achievement Tests and Progress Tests will be provided to centres as soon as it is available.

Draft sample units for Mathematics for Year 6 and draft sample units for Mathematics for Year 9 are available on the Edexcel web site for the Edexcel Primary Curriculum and the Edexcel Lower Secondary Curriculum.

Further information about the Edexcel Primary Curriculum and the Edexcel Lower Secondary Curriculum is available from the Edexcel Regional Development Manager for your region. Details of international Regional Development Managers are available on the Edexcel web site: www.edexcel.com



Mathematics Scheme of Work Year 3 – Overview

Term One	Objectives
Unit 1 (Algebra 1)	<ul style="list-style-type: none"> ● Use mental recall of addition facts for numbers up to 20 ● Use mental recall of subtraction facts for numbers up to 20 ● Create and describe number patterns ● Explore and record patterns related to addition and subtraction ● Add and subtract numbers up to 10 to and from 1-digit numbers ● Use subtraction as the inverse of addition ● Know doubles of numbers to 10 and work out the corresponding halves of numbers to 10 ● Count in 2s, 5s and 10s ● Explore patterns of multiples of 2, 5 and 10, explaining the patterns and using them to make predictions ● Recognise sequences, including odd and even numbers to 30 ● Recognise and extend number sequences formed by counting from any number in steps of constant size ● Begin to generate terms of a number sequence given a rule
Unit 2 (Number 1)	<ul style="list-style-type: none"> ● Begin to relate addition to combining 2 then 3 groups of objects ● Understand subtraction as 'taking away', as 'the difference between' ● Use a range of mental addition strategies ● Read, write, order and compare whole numbers to 100 ● Know addition and subtraction facts to 10 ● Add multiples of 10 ● Recognise the use of symbols such as \square, \triangle or \diamond to stand for an unknown number ● Know $2\times$ and $10\times$ tables and begin to use corresponding division facts ● Recognise and use the relationship between halving and doubling
Unit 3 (Geometry and measures 1)	<ul style="list-style-type: none"> ● Suggest non-standard uniform measures to estimate then measure ● Use everyday language to describe the positions of 2-D shapes ● Begin to use everyday standard units to measure length, suggest suitable measuring equipment ● Estimate, measure and compare lengths using standard units ● Use mathematical names for common 2-D shapes



Term One	Objectives
Unit 4 (Number 2)	<ul style="list-style-type: none"> • Checked by counting (up to about 30) • Begin to recognise and find one half, one quarter and one third of shapes and small numbers of objects • Read the time to the hour, half hour or quarter hour on analogue clocks • Use the vocabulary of estimation and approximation; estimate one half and one quarter of a set of objects • Consolidate relationship between halving and dividing by 2
Unit 5 (Statistics 1)	<ul style="list-style-type: none"> • Begin to understand simple vocabulary of probability • Begin to differentiate between likely and unlikely outcomes • Begin to differentiate between possible and impossible outcomes • Begin to differentiate between certain and uncertain outcomes • Begin to use a basic probability scale to order a set of outcomes • Begin to list all possible outcomes of an event • Begin to understand the concept of even chance • Sort and classify objects, using one or more criteria, explain the criteria used • Use and understand simple vocabulary for data handling • Use simple lists, tables and block graphs to communicate findings • Solve a given problem by collecting, sorting and organising information in simple ways, including Venn and Carroll diagrams • Begin to construct bar charts and pictograms where a symbol represents a group of units • Begin to extract and interpret data presented in simple tables, lists, graphs, charts and diagrams • Begin to interpret simple block graphs and bar charts • Begin to interpret simple line graphs
Unit 6 (Algebra 2)	<ul style="list-style-type: none"> • Begin to represent work using symbols and diagrams • Count sets of objects reliably • Use mental recall of addition facts of numbers to 10 • Use mental recall of addition facts of numbers to 30 and subtraction facts of numbers to 10 • Know that addition and multiplication can be carried out in any order, but that order is important in subtraction and division • Choose the appropriate operation (addition or subtraction) to solve problems • Recognise sequences of numbers including odd numbers and even numbers



Term Two	Objectives
Unit 7 (Geometry and measures 2)	<ul style="list-style-type: none"> ● Use everyday language to describe properties of 2-D and 3-D shapes ● Use mathematical names for common 2-D shapes ● Use mathematical language to describe properties of common 2-D and 3-D shapes ● Understand angle as a measure of turn; recognise right angles ● Begin to use language of position, direction and movement, using compass directions and coordinate grids
Unit 8 (Statistics 2)	<ul style="list-style-type: none"> ● Sort and classify objects, using one or more criteria, explaining criteria used ● Collect data in a tally chart ● Use simple tables to display data ● Begin to draw and interpret bar charts and pictograms, and simplified pie charts
Unit 9 (Number 3)	<ul style="list-style-type: none"> ● Measure using non-standard units, eg straws, bricks ● Use the vocabulary for length, mass and capacity ● Add multiples of 10 ● Partition 2-digit numbers into a multiple of tens and ones (TU) ● Begin to relate subtraction to 'taking away' by using a range of strategies ● Understand subtraction using suitable mental strategies ● Begin to understand doubles by adding on ● Begin to use known number facts and place value to add any pair of 2-digit whole numbers using mental methods ● Add and subtract using a range of mental strategies ● Understand subtraction as 'take away' or 'difference' using the – and = signs ● Estimate, measure and compare lengths, masses and capacities, using cm, m, kg, l ● Suggest suitable units and equipment for estimated measurements ● For numbers up to 30, find numbers that are 1 or 10 more ● Recall quickly all pairs of numbers with a total of 10 ● Recall quickly subtraction facts from 10 ● Recall quickly each digit represents in a 2-digit number ● Recall quickly doubles of all numbers to at least 5, be able to derive near doubles, doubles of numbers up to 10, and doubles of multiples of 10 ● Recall quickly facts for the 2× and 10× tables, and begin to know the 5× table



Term Two	Objectives
Unit 9 (Number 3) <i>continued</i>	<ul style="list-style-type: none"> ● Understand the operation of multiplication as repeated addition
Unit 10 (Algebra 3)	<ul style="list-style-type: none"> ● Find the next terms in a sequence by counting forwards or backwards ● Continue sequences of shapes ● Begin to read and plot coordinates in the first quadrant ● Know doubles of numbers to 10 ● Begin to recognise square numbers ● Use a calculator for multiplication
Unit 11 (Geometry and measures 3)	<ul style="list-style-type: none"> ● Make symmetrical shapes by folding ● Use everyday language to describe position, direction and movement ● Use everyday language to describe properties of 2-D and 3-D shapes ● Identify reflection symmetry, and a line of symmetry ● Use mathematical names for common 2-D shapes and mathematical language to describe properties of common 2-D and 3-D shapes ● Understand angle as a measure of turn
Unit 12 (Number 4)	<ul style="list-style-type: none"> ● Recognise halves, quarters and thirds of shapes ● Recognise one fifth of shapes and begin to find one fifth of small amounts ● Recognise one tenth of shapes and begin to find one tenth of small amounts ● Begin to understand the relationship between fifths and tenths ● Begin to recognise simple fractions that are several parts of a whole ● Write tenths using a decimal point ● Begin to use a decimal point for metres and cm



Term Three	Objectives
Unit 13 (Algebra 4)	<ul style="list-style-type: none"> ● Add several 1-digit numbers ● Understand and find perimeters of triangles and quadrilaterals ● Find missing numbers in addition and subtraction sentences ● Begin to recognise multiples of 2, 5 and 10 ● Add and subtract two numbers under 20
Unit 14 (Geometry and measures 4)	<ul style="list-style-type: none"> ● Use everyday language to describe properties of 2-D and 3-D shapes ● Use everyday language to describe position, direction and movement ● Use mathematical names for common 2-D and 3-D shapes ● Use mathematical language to describe properties of common 2-D and 3-D shapes ● Begin to use everyday standard units to measure length ● Begin to recognise line symmetry ● Use mathematical vocabulary to describe position ● Discuss work using mathematical language ● Explain why an answer is correct
Unit 15 (Statistics 3)	<ul style="list-style-type: none"> ● Begin to understand the vocabulary of probability, including 'even chance' ● Begin to construct and use tally charts, frequency tables, bar charts and pictograms ● Begin to interpret tally charts, frequency tables, bar charts and pictograms ● Order simple visual data and locate the median value; identify the mode ● Begin to analyse data and draw conclusions



Term Three	Objectives
Unit 16 (Number 5)	<ul style="list-style-type: none"> ● Review addition and subtraction and strategies ● Review multiplication strategies, including doubling, and knowing the 2×, 5× and 10× tables ● Know subtraction bonds to 10 ● Begin to count in steps of 3 from zero ● Know and use halving as the inverse of doubling ● Begin to understand halves of all multiples of 10 to 100 and halves of even numbers to 20 ● Begin to understand division facts corresponding to the 2×, 10× and 5× tables ● Add two or three single digit numbers, bridging a 10s number ● Add two 2-digit numbers, bridging a multiple of 10 ● Add TU + U and TU + TU, including bridging a 10s number ● Subtract TU – U and TU – TU, including bridging a 10 ● Double numbers, bridging a 10s number
Unit 17 (Algebra 5)	<ul style="list-style-type: none"> ● Find the next pattern in a sequence ● Find doubles involving money ● Read and plot coordinates in the first quadrant ● Interpret simple conversion graphs ● Understand and use addition as the inverse of subtraction and vice versa ● Use a calculator effectively
Unit 18 (Geometry and measures 5)	<ul style="list-style-type: none"> ● Understand angle as a measure of turn ● Recognise right angles ● Use mathematical names for common 2-D shapes and mathematical language to describe properties of common 2-D and 3-D shapes



Mathematics Scheme of Work Year 4 – Overview

Term One	Objectives
Unit 1 (Algebra 1)	<ul style="list-style-type: none"> ● Use mental calculation strategies to solve number problems involving money and measures ● Explore and record patterns using to addition and subtraction ● Recognise and extend number sequences formed by counting on from any number in steps of a constant size ● Use practical contexts to generate sequences ● Recall quickly the addition and subtraction facts of numbers up to 20 ● Use all four operations to solve simple number problems ● Begin to use symbols to represent mathematical work ● Recall quickly 2, 3, 4, 5 and 10 multiplication tables ● Use a rule to generate terms of a number ● Describe the rules of simple sequences ● Begin to explore the positions of terms in a sequence ● Begin to understand the concept of a function machine
Unit 2 (Number 1)	<ul style="list-style-type: none"> ● Read and write whole numbers to at least 1000 in figures and words ● Order whole numbers to at least 100, then 1000, and position them on a number line ● Know what each digit represents, and partition 3-digit numbers into multiples of 100, 10 and 1 (HTU) ● Recall quickly addition and subtraction facts for all numbers to 20, pairs of multiples of 10 totalling 100, and multiples of 100 totalling 1000 ● Use mental calculation strategies including using known number facts and place value to add mentally ● Derive quickly all number pairs that total 100 and the related subtraction facts ● Subtract mentally using multiples of 10 ● Use informal pencil and paper methods to support, record or explain $HTU + TU$, $HTU + HTU$, $HTU - TU$ and $HTU - HTU$ ● Begin to use column methods for $HTU + TU$ and $HTU - TU$ where the calculation can not be done mentally ● Find a small difference by counting on ● Check results of calculations, understand that addition and subtraction are inverse operations, know that addition can be done in any order, or that an equivalent calculation can be used ● Round numbers to the nearest 10 and 100 and use rounding to estimate answers ● Use rounding to estimate answers to addition and subtraction answers



Term One	Objectives
Unit 3 (Geometry and measures 1)	<ul style="list-style-type: none"> ● Solve one-step and two-step problems involving measures ● Identify and estimate fractions of shapes ● Know the relationships between kilometres and metres, metres and centimetres, kilograms and grams, litres and millilitres ● Read, to the nearest division and half-division, scales that are numbered or partially numbered; use the information to measure and draw to a suitable degree of accuracy ● Choose and use appropriate units to estimate, measure, and record measurements ● Find the area of shapes drawn on a square grid by counting squares ● Measure and calculate perimeters of rectangles
Unit 4 (Number 2)	<ul style="list-style-type: none"> ● Recognise and compare simple unit fractions ● Recognise fractions making one whole ● Estimate and find fractions of shapes and numbers ● Position simple fractions on a number line ● Recognise fractions that are several parts of a whole ● Compare simple non-unit fractions using diagrams ● Recognise simple equivalent fractions ● Begin to find remainders after simple division
Unit 5 (Statistics 1)	<ul style="list-style-type: none"> ● Use simple lists and tables to communicate findings ● Use Venn and Carroll diagrams to sort and classify data ● Extract data from simple graphs, charts and diagrams ● List possible outcomes ● Collect and record data ● Interpret and construct bar charts
Unit 6 (Algebra 2)	<ul style="list-style-type: none"> ● Know that addition and multiplication can be carried out in any order, but that order is important in subtraction and division ● Recall quickly addition and subtraction facts of numbers to 20 ● Choose and use appropriate number operations and ways of calculating to solve problems ● Add tens and units without crossing a boundary ● Recognise the use of symbols (such as \blacksquare and \blacktriangle) to stand for unknown numbers



Term Two	Objectives
Unit 7 (Geometry and measures 2)	<ul style="list-style-type: none"> ● Recognise that a straight line is equivalent to two right angles ● Read and record the vocabulary of position, direction and movement, using the four compass directions to describe movement about a grid ● Know that angles are measured in degrees and that one whole turn is 360° ● Compare and order angles less than 180° ● Use the eight compass points to describe direction ● Describe and identify the position of a square on a grid of squares
Unit 8 (Statistics 2)	<ul style="list-style-type: none"> ● Formulate questions and possible responses for a survey ● Determine possible outcomes of a survey ● Extract and interpret data from pictograms ● Construct pictograms where a symbol represents a group of units ● Extract and interpret data presented in a bar graph ● Construct a bar graph
Unit 9 (Number 3)	<ul style="list-style-type: none"> ● Choose and use appropriate operations to solve simple word problems and begin to explain thinking ● Understand place value and order numbers up to 1000 ● Use understanding of place value to multiply whole numbers by 10 or 100 ● Round numbers to the nearest 10 and 100 ● Recognise and interpret decimal notation, including in the context of money ● Compare, add and subtract simple decimals ● Recognise and use standard metric units of length, capacity, mass and time in a range of contexts ● Add, subtract, double, halve and multiply small numbers using mental methods ● Recall quickly 2, 3, 4, 5, and 10 multiplication tables ● Use a formal written method for $TU \times U$ ● Use a calculator to solve problems involving larger numbers and simple decimals
Unit 10 (Algebra 3)	<ul style="list-style-type: none"> ● Explore and record patterns using addition and subtraction ● Explore patterns of multiples of 2, 5 and 10, explaining the patterns and using them to make predictions ● Recognise and extend number sequences formed by counting on from any number in steps of a constant size ● Use a rule to generate terms of a number sequence ● Begin to explore the position of terms in a sequence ● Solve number problems using all four operations



Term Two	Objectives
Unit 10 (Algebra 3) <i>continued</i>	<ul style="list-style-type: none"> • Begin to understand the concept of a function machine • Begin to express simple functions in words • Find outputs of simple functions • Describe and identify the position of a square on a grid of squares • Begin to read and plot coordinates in the first quadrant • Extract and interpret data presented in bar graphs • Begin to plot simple straight-line graphs
Unit 11 (Geometry and measures 3)	<ul style="list-style-type: none"> • Use mathematical names for common 3-D and 2-D shapes • Sort shapes and describe some of their features • Classify and describe 3-D and 2-D shapes • Classify polygons as regular or irregular • Reason about shapes, explaining methods and thinking • Solve mathematical problems or puzzles involving shapes
Unit 12 (Number 4)	<ul style="list-style-type: none"> • Recognise and understand unit fractions (hundredths) • Understand fractions which are several parts of a whole (hundredths) • Begin to understand percentage as the number of parts in 100 • Understand and use percentages • Find simple fractions of whole number amounts • Use multiplication and division to solve word problems • Solve word problems involving money and measures • Use a calculator for calculations involving money • Begin to use ideas of simple proportion • Develop calculator skills and use a calculator effectively

Term Three	Objectives
Unit 13 (Algebra 4)	<ul style="list-style-type: none"> • Understand the relationship between addition and subtraction, and between multiplication and division • Know that addition and multiplication can be carried out in any order but subtraction and division cannot, and use this to perform mental calculation strategies • Recognise the use of symbols (such as ■ and ▲) to stand for unknown numbers and complete calculations using mental recall and a range of calculation strategies • Begin to represent expressions using symbols



Term Three	Objectives
Unit 14 (Geometry and measures 4)	<ul style="list-style-type: none"> ● Read and record the vocabulary of position, direction and movement, using compass directions to describe movement about a grid ● Recognise horizontal and vertical lines ● Describe and identify the position of a square on a grid of squares ● Know that angles are measured in degrees and that one whole turn is 360° ● Identify and sketch lines of symmetry in simple shapes ● Recognise shapes with no lines of symmetry ● Draw and complete shapes with reflective symmetry and draw the reflection of a shape in a mirror line along one side ● Derive and recall doubles of all numbers to 20 and corresponding halves ● Use understanding of place value to multiply whole numbers by 10 or 100 ● Use understanding of place value to multiply and divide numbers to 1000 by 10 or 100 (whole number answers), and relate this to scaling up or down ● Solve one-step and two-step problems involving measures, choosing and carrying out appropriate calculations ● Read scales and measure and draw to a suitable degree of accuracy ● Find the area of rectilinear shapes drawn on a square grid by counting squares ● Draw rectangles and measure and calculate their perimeters
Unit 15 (Statistics 3)	<ul style="list-style-type: none"> ● Use frequency tables to represent results ● Answer a question by identifying what data to collect ● Organise and present data in tables, diagrams, tally charts and bar charts ● Interpret data in bar charts
Unit 16 (Number 5)	<ul style="list-style-type: none"> ● Know what a square number is ● Recognise square numbers up to 10×10 ● Use a calculator to work out and check simple multiplication calculations ● Develop calculator skills required to calculate with powers ● Understand what a factor is ● Be able to find factor pairs ● Begin to understand what a prime number is ● Mentally recall 2, 5 and 10 times tables ● Use the term 'multiple'



Term Three	Objectives
Unit 16 (Number 5) <i>continued</i>	<ul style="list-style-type: none"> ● Find multiples of familiar numbers ● Recognise multiples of 2, 5 and 10 up to 1000 ● Know and extend knowledge of the 2, 5 and 10 times tables ● Explore patterns of multiples of 2, 5 and 10, explain the patterns, and use them to make predictions ● Understand the relationship between division and multiplication ● Recall multiplication facts for 2, 5 and 10 times tables and corresponding divisibility rules ● Recognise that fractions make one whole ● Add two simple fractions ● Recognise simple fractions equivalent to one half ● Use simple fractions in context ● Add and subtract 2-digit whole numbers, and numbers with one decimal, in the context of measures ● Multiply $TU \times U$ ● Find half or quarter of lengths ● Understand the relationship between division and repeated subtraction ● Solve one- and two-step word problems involving multiplication and division ● Understand why division problems often have remainders ● Round remainders up or down depending on context
Unit 17 (Algebra 5)	<ul style="list-style-type: none"> ● Recognise and extend number sequences formed by counting on or back in steps of equal size ● Add and subtract mentally combinations of 1- and 2-digit numbers ● Derive and recall multiplication facts for the 2, 3, 4, 5, 6 and 10 times tables ● Solve one- and two-step problems involving numbers, money or measures ● Use positive and negative numbers in context and position them on a number line ● State inequalities using the symbols $<$ and $>$ ● Use knowledge of number operations and corresponding inverses ● Derive and record related multiplication and division number sentences



Term Three	Objectives
Unit 18 (Geometry and measures 5)	<ul style="list-style-type: none"> ● Relate 2-D shapes and 3-D solids to drawings of them ● Use a set square to draw right angles and to identify right angles in 2-D shapes ● Describe, visualise, classify, draw and make 2-D and 3-D shapes ● Classify and describe 3-D and 2-D shapes referring to properties ● Represent the information in a puzzle or problem using numbers, images or diagrams; use these to find a solution and present it in context, including units of measure where appropriate ● Identify patterns and relationships involving numbers or shapes, and use these to solve problems ● Make shapes, eg construct polygons by paper folding



Mathematics Scheme of Work Year 5 – Overview

Term One	Objectives
Unit 1 (Number / Algebra 1)	<ul style="list-style-type: none"> ● Add several numbers and add and subtract pairs of 2-digit numbers using mental methods ● Find a difference by counting up through the next multiple of 10, 100 or 1000 ● Calculate a rise and fall of temperature across 0°C ● Develop effective calculator skills ● Understand negative numbers as positions on a number line ● Order, add and subtract positive and negative numbers (integers) in context ● Generate and describe simple integer sequences ● Extend and describe sequences with decimals ● Generate sequences from practical contexts
Unit 2 (Geometry and measures 1)	<ul style="list-style-type: none"> ● Measure and draw lines to the nearest millimetre ● Record estimates and readings from scales to a suitable degree of accuracy ● Use correct notation for labelling lines and angles ● Identify parallel and perpendicular lines ● Distinguish between acute, obtuse and reflex angles ● Identify simple angles ● Know a straight line is 180° ● Identify right angles ● Record estimates and readings from scales (protractor) to a suitable degree of accuracy ● Use a protractor to measure acute and obtuse angles to the nearest degree ● Use correct notation for labelling triangles ● Solve simple geometrical problems using properties of triangles ● Begin to estimate the size of angles ● Classify triangles (isosceles, equilateral, scalene) using properties of sides and angles ● Recognise properties of squares and rectangles ● Recognise and name quadrilaterals



Term One	Objectives
Unit 3 (Statistics 1)	<ul style="list-style-type: none"> ● Use vocabulary and ideas of probability, drawing on experience ● Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts ● Collect data from an experiment and record in a frequency table; estimate probabilities based on this data ● Construct graphs and diagrams, including bar line graphs, on paper and using ICT, to represent data ● Extract and interpret data in tables, graphs, charts and diagrams, eg line graphs, frequency tables and bar charts ● Solve problems using data in tables, graphs, charts and diagrams, eg line graphs, frequency tables and bar charts
Unit 4 (Number 2)	<ul style="list-style-type: none"> ● Read and write whole numbers in figures and words ● Use doubling and halving ● Relate fractions to division ● Find simple fractions of whole number quantities ● Recognise when two simple fractions are equivalent, including relating hundredths to tenths ● Use decimal notation for tenths and hundredths; know what each digit represents in numbers with up to two decimal places ● Know multiplication facts up to 10×10 ● Understand and use decimal notation and place value; multiply and divide integers by 10, 100, 1000 and explain the effect ● Consolidate the rapid recall of number facts, including positive integer complements to 100 and multiplication facts to 10×10, and quickly derive associated division facts ● Use fraction notation to describe parts of shapes ● Identify equivalent fractions ● Change an improper fraction to a mixed number (simple cases) ● Compare and order decimals in different contexts ● Understand percentage as 'the number of parts per 100,' recognise the equivalence of percentages, fractions and decimals; calculate simple percentages



Term One	Objectives
Unit 5 (Algebra 2)	<ul style="list-style-type: none"> ● Understand and use relationships between the four operations ● Apply the principles of the commutative and distributive laws with numbers ● Apply the principles of associativity with numbers ● Use brackets in calculations ● Understand and use conventions for arithmetic operations with numbers ● Use formulae, substitute positive integers into linear expressions and formulae and derive simple formulae ● Simplify linear algebraic expressions by collecting like terms ● Generate and describe integer sequences ● Use a rule to generate terms of a sequence
Unit 6 (Geometry and measures 2)	<ul style="list-style-type: none"> ● Measure lines to the nearest millimetre ● Read and interpret scales on a range of measuring instruments ● Choose suitable metric units to estimate length ● Solve problems involving time ● Convert between simple metric units ● Understand and measure perimeters of rectangles and regular polygons ● Find the perimeter of a square/rectangle by counting ● Calculate perimeters of rectangles and regular polygons ● Find the measurement of a side given the perimeter of squares and rectangles ● Draw circles using compasses ● Understand the vocabulary associated with a circle ● Estimate area by counting squares ● Choose suitable metric units to estimate area ● Use the word formula for the area of a rectangle



Term Two	Objectives
Unit 7 (Algebra 3)	<ul style="list-style-type: none"> ● Recognise number sequences ● Interpret coordinates in a simple table ● Add three or more multiples of 10 ● Find outputs of simple function machines in words and symbols ● Express simple functions in words, then using symbols ● Generate coordinate pairs ● Plot coordinates in the first quadrant ● Plot graphs of simple linear functions ● Substitute positive integers into simple formulae
Unit 8 (Number 3)	<ul style="list-style-type: none"> ● Round positive whole numbers to the nearest 10, 100 or 1000 ● Round decimals to the nearest whole number and to one decimal place ● Consolidate the rapid recall of addition and subtraction and positive integer complements to 100 ● Add and subtract mentally pairs of 2-digit numbers ● Use standard column procedures to add and subtract whole numbers and decimals with up to two places ● Check a result by working it backwards ● Multiply and divide integers by 10 and 100 and explain the effect ● Approximate before carrying out an addition or subtraction ● Divide integers by 10 and 100 and explain the effect ● Consolidate the rapid recall of multiplication facts to 10×10 and quickly derive associated division facts ● Partition to multiply mentally $TU \times U$ ● Extend written methods to $HTU \times U$ and $HTU \div U$ ● Quickly derive associated division facts ● Apply simple tests of divisibility ● Use inverse functions of multiplication and division ● Use a calculator effectively ● Develop calculator skills involving the use of clear and clear entry keys, memory and bracket keys, all operation keys and the decimal point ● Enter numbers and interpret the display on a calculator in different contexts



Term Two	Objectives
Unit 9 (Geometry and measures 3)	<ul style="list-style-type: none"> ● Classify triangles (equilateral, isosceles, scalene) using lines of symmetry ● Recognise and visualise the symmetry of a 2-D shape: line symmetry ● Identify properties of triangles, including side lengths, angle sizes and symmetry ● Recognise where a shape will be after a reflection ● Understand the term congruent ● Recognise where a shape will be after a translation ● Recognise where a shape will be after a rotation ● Recognise where a shape will be after a reflection, translation and rotation ● Understand and use the language associated with reflection, translation and rotation ● Recognise and visualise the transformation of a 2-D shape: reflection, translation and rotation ● Solve simple geometrical problems using properties of triangles ● Solve simple problems involving transformations
Unit 10 (Algebra 4)	<ul style="list-style-type: none"> ● Understand and use the relationship between the four operations ● Apply the principles of the commutative and distributive laws with numbers ● Solve simple equations using inverse relationships between operations ● Understand and apply the order of operations in simple calculations (first no brackets, then with brackets) ● Carry out calculations on a calculator with more than one step using brackets or memory ● Know the first 10 square and triangular numbers ● Use the x^2 button on a calculator to square numbers ● Generate and describe simple integer sequences – square and triangular numbers ● Work out missing numbers in sequences of decimals ● Generate terms of simple sequences ● Use trial and improvement to solve number puzzles



Term Two	Objectives
Unit 11 (Statistics 2)	<ul style="list-style-type: none"> ● Collect primary data ● Design a data collection sheet ● Discuss when and how to collect secondary data ● Find the mode and range of a small set of discrete data ● Find the median of a set of data ● Begin to find the mean of a set of data ● Extract data and interpret pictograms using a key ● Extract data and interpret bar charts ● Interpret dual bar charts ● Extract data and interpret line graphs ● Interpret a simple pie chart



Term Three	Objectives
Unit 12 (Number 4)	<ul style="list-style-type: none"> ● Revise standard written methods of multiplication and division ● Interpret the display of a calculator in different contexts ● Recognise the equivalence of percentages, fractions and decimals ● Find fractions of numbers and amounts ● Check work on fractions using a calculator ● Revise understanding of percentages ● Find percentages of amounts ● Solve simple problems using ratio and proportion
Unit 13 (Algebra 5)	<ul style="list-style-type: none"> ● Read and plot x and y coordinates in the first quadrant ● Plot coordinates in the first quadrant ● Plot a graph from a table of values ● Find outputs of simple and complex functions in symbols ● Read and interpret information from a simple real-life graph ● Recognise and use multiples and factors and use simple tests of divisibility ● Identify factors of 2-digit numbers with three or four factors ● Identify at least four factors if numbers with more than four factors ● Identify numbers with exactly two factors (primes) ● Understand the difference between factors, multiples and prime numbers ● Recognise and use common factor and common multiple ● Use informal idea of trial and improvement ● Solve simple number puzzles ● Work out missing numbers in sequences, including decimals ● Generate terms of more complex sequences using the term-to-term rule ● Generate terms of sequences using the term-to-term rule given as a 'word formula' ● Substitute integers into simple formulae expressed in words ● Collect like terms



Term Three	Objectives
Unit 14 (Solving problems)	<ul style="list-style-type: none"> ● Solve problems involving shape, space and measures ● Use coordinates in first quadrant ● Choose the appropriate number operation to solve a problem ● Decide the appropriate way of calculating to solve a problem (mentally, using paper and pencil, calculator) ● Check answers are sensible ● Select suitable measuring equipment for a task ● Find and use the median and mode of sets of data ● Use a calculator to solve problems ● Solve problems involving algebraic thinking ● Check solutions using the inverse operations ● Solve problems involving fractions, decimals, percentages, ratio and proportion ● Solve problems and puzzles using mathematics, making appropriate decisions ● Explain methods and reasoning ● Use known mathematics to work out things not known
Unit 15 (Geometry and measures 4)	<ul style="list-style-type: none"> ● Name 3-D shapes ● Identify faces, edges and vertices on 3-D shapes ● Identify simple and complex nets of open and closed cubes ● Identify and draw nets of simple 3-D shapes, including cuboids ● Visualise 3-D shapes from 2-D drawings ● Draw simple shapes on isometric, squared or plain paper ● Solve one- and two-step problems involving numbers, money or measures, choose and carry out appropriate calculations, using calculator methods where appropriate ● Use the formula $\text{length} \times \text{width}$ to calculate the area of a rectangle ● Identify and use patterns, relationships and properties of numbers or shapes ● Read and plot coordinates in the first quadrant ● Use the eight compass points to describe direction ● Read, choose, use and record standard metric units to estimate and measure length to a suitable degree of accuracy



Term Three	Objectives
Unit 16 (Statistics 3)	<ul style="list-style-type: none"> ● Understand how to use a tally chart ● Extract data and interpret frequency tables, bar charts and line graphs ● Construct on paper, and using ICT, frequency diagrams of grouped discrete data ● Devise a simple questionnaire ● Carry out an effective survey ● Construct on paper, and using ICT, bar charts of simple discrete data ● Find the mode from a bar chart of discrete data ● Find the range, median and mode of a set of data ● Compare simple distributions using range and mode ● Use a probability scale with words ● Use the vocabulary of probability ● Find the most common from a set of discrete data ● Collect data from a simple experiment and record in a simple frequency table



Mathematics Scheme of Work Year 6 – Overview

Term One	Objectives
Unit 1 (Algebra 1)	<ul style="list-style-type: none"> ● Recognise and extend number sequences formed by counting on from any number in steps of constant size, extending beyond zero when counting back ● Know square numbers to at least 10×10 ● Generate and describe simple integer sequences ● Generate terms of a simple sequence, given a rule (i.e. finding a term from the previous term, finding a term given its position in the sequence) ● Represent mappings expressed algebraically ● Express simple functions in words, then using symbols; represent them in mappings ● Use letter symbols to represent unknown numbers or variables ● Suggest extensions to problems by asking ‘What if...?’ ● Begin to generalise and to understand the significance of a counter-example ● Begin to distinguish the different roles played by letter symbols ● Generate terms of a linear sequence using term-to-term and position-to term definitions of the sequence ● Begin to use linear expressions to describe the nth term of an arithmetic sequence
Unit 2 (Number 1)	<ul style="list-style-type: none"> ● Read and write whole numbers in figures and words ● Use decimal notation for tenths and hundredths ● Know what each digit represents in numbers with up to two decimal places ● Calculate a rise and fall in temperature across 0°C ● Know square numbers to at least 10×10 ● Develop calculator skills and use a calculator effectively ● Understand and use decimal notation and place value ● Multiply and divide integers and decimals by 10, 100 and 1000, and explain the effect ● Compare and order decimals in different contexts ● Know that when comparing measurements they must be in the same units ● Understand negative numbers as positions on a number line ● Order, add and subtract positive and negative numbers (integers) in context ● Mentally add and subtract pairs of 2-digit numbers ● Consolidate the rapid recall of number facts, including positive integer complements to 100



Term One	Objectives
Unit 2 (Number 1) <i>continued</i>	<ul style="list-style-type: none"> ● Consolidate the rapid recall of number facts, including multiplication facts to 10×10, and quickly derive associated division facts ● Make and justify estimates and approximations of calculations
Unit 3 (Geometry 1)	<ul style="list-style-type: none"> ● Identify different nets for an open cube ● Measure and draw lines to the nearest millimetre ● Record estimates and readings from scales to a suitable degree of accuracy ● Understand that area can be measured in square centimetres ● Understand, measure and calculate perimeters of rectangles, shapes made from rectangles and regular polygons ● Use 2-D representations to visualise 3-D shapes and their properties ● Use names and abbreviations of units of measurements to measure, estimate and solve problems in everyday context involving length and area ● Know and use the formula for the area of a rectangle; calculate the area of shapes made from rectangles ● Use nets to calculate the surface area of simple cuboids ● Solve word problems and investigate in a range of contexts: length, perimeter and area
Unit 4 (Number 2)	<ul style="list-style-type: none"> ● Change an improper fraction to a mixed number ● Recognise when two simple fractions are equivalent ● Find a difference by counting up through the next multiple of 10, 100 or 1000 ● Use fraction notation to describe parts of shapes ● Simplify fractions by cancelling all common factors and identify equivalent fractions ● Convert terminating fractions to decimals ● Use a diagram to compare two or more simple fractions ● Begin to add and subtract simple fractions and those with common denominators ● Calculate fractions of quantities and measurements (whole-number and fraction answers) ● Multiply a fraction by an integer ● Understand percentages as the 'number of parts per 100' ● Recognise the equivalence of percentages, fractions and decimals ● Calculate simple percentages



Term One	Objectives
Unit 4 (Number 2) <i>continued</i>	<ul style="list-style-type: none"> ● Consolidate and extend mental methods of calculation to include decimals, fractions and percentages, accompanied where appropriate by suitable jottings ● Solve simple word problems mentally ● Consider if an answer is realistic, and check it by working the problem backwards
Unit 5 (Handling data 1)	<ul style="list-style-type: none"> ● Calculate statistics for small sets of discrete data ● Extract data and interpret line graphs and discrete bar charts ● Find the most common group from a bar chart of discrete grouped data ● Find the mode from any bar chart ● Extract data and interpret frequency tables ● Interpret data from simple compound and comparative bar charts ● Interpret charts and diagrams; interpret simple pie charts ● Draw conclusions based on the shape of line graphs ● Draw conclusions from simple statistics for a single distribution ● Use the vocabulary of probability; use a probability scale with words ● Understand and use the probability scale 0 to 1 ● Find the probabilities of equally likely outcomes ● Answer simple questions about most likely outcomes from a tally chart ● Collect data from a simple experiment and record in a frequency table ● Estimate probabilities based on data gathered from simple experiments ● Know that if the probability of an event is p then the probability that it will not happen is $1 - p$ ● List all the outcomes when one or two events happen
Unit 6 (Algebra 2)	<ul style="list-style-type: none"> ● Understand and use the relationships between the four operations and the principles (not the names) of the arithmetic laws ● Use letter symbols to represent unknown numbers or variables ● Know the meanings of the words 'term', 'expression' and 'equation' ● Know that algebraic operations follow the same conventions and order as arithmetic operations; use index notation for small positive powers



Term One	Objectives
Unit 6 (Algebra 2) <i>continued</i>	<ul style="list-style-type: none"> • Simplify linear algebraic expressions by collecting like terms • Begin to multiply a single term over a bracket (integer coefficients) • Use simple formulae from mathematics and other subjects • Substitute positive integers into simple linear expressions and formulae • In simple cases, derive a formula • Begin to distinguish the different roles played by letter symbols in equations, formulae and functions; know the meanings of the words formula and function
Term Two	Objectives
Unit 7 (Geometry and measures 2)	<ul style="list-style-type: none"> • Recognise positions • Classify triangles (isosceles, equilateral, scalene), using criteria such as equal sides, equal angles, lines of symmetry • Read and plot coordinates in the first quadrant • Use correctly the vocabulary, notation and labelling conventions for lines, angles and shapes • Identify parallel and perpendicular lines; know the sum of angles at a point, on a straight line and in a triangle; and recognise vertically opposite angles • Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals • Use conventions and notation for 2-D coordinates in all four quadrants; find coordinates of points determined by geometric information • Distinguish between, use the language of and estimate the size of acute, obtuse and reflex angles • Begin to classify quadrilaterals by their geometric properties
Unit 8 (Handling data 2)	<ul style="list-style-type: none"> • Decide what data would be relevant to an enquiry and possible sources • Plan how to collect and organise the data • Select a suitable level of accuracy of the data • Select the sample size to use when collecting data • Design a question for a questionnaire • Design a data collection sheet • Construct frequency tables for discrete data • Construct a grouped frequency table for discrete data • Construct a simple frequency table for continuous data • Construct and interpret pictograms • Draw conclusions from pictograms and bar charts



Term Two	Objectives
Unit 8 (Handling data 2) <i>continued</i>	<ul style="list-style-type: none"> ● Interpret and construct bar charts for discrete data ● Construct and interpret bar-line graphs ● Construct and interpret dual and compound bar charts ● Design a data collection sheet ● Interpret pie charts
Unit 9 (Number 3)	<ul style="list-style-type: none"> ● Know multiplication facts up to 10×10; add several numbers; use doubling and halving; partition to multiply mentally $TU \times U$ ● Extend written methods to: $HTU \div U$, $U.T \times U$; round up/down after division, depending on context ● Develop calculator skills and use a calculator effectively ● Know and use the order of operations, including brackets ● Carry out calculations with more than one step using brackets and the memory; use the square root key ● Round positive whole numbers to the nearest 10, 100 or 1000 and decimals to the nearest whole number or one decimal place ● Check a result by working the problem backwards ● Consolidate and extend mental methods of calculation to include decimals, fractions and percentages, accompanied where appropriate by suitable jottings; solve simple word problems mentally ● Make and justify estimates and approximations of calculations ● Round positive numbers to any given power of 10 ● Consider if an answer is realistic, and check it by working the problem backwards ● Multiply and divide three-digit by two-digit whole numbers; extend to dividing decimals with one or two places by single-digit whole numbers ● Understand where to position the decimal point by considering equivalent calculations ● Multiply decimals with one or two places by single-digit whole numbers ● Use, read and write standard metric units of length, mass and capacity ● Suggest suitable units and measuring equipment to estimate or measure length, mass or capacity ● Read and interpret scales on a range of measuring instruments ● Use names and abbreviations of measurement to measure, estimate, calculate and solve problems in everyday contexts involving length, area, mass, capacity and time



Term Two	Objectives
Unit 10 (Algebra 3)	<ul style="list-style-type: none"> ● Recognise multiples up to 10×10; know and apply simple tests of divisibility ● Use a calculator to square numbers and use the square root key ● Recognise and extend number sequences ● Read and plot coordinates in the first quadrant ● Represent and interpret data in a graph (eg for a multiplication table) ● Recognise and use multiples, factors (divisors), common factor and primes (less than 100); use simple tests of divisibility ● Recognise the first few triangular numbers, squares of numbers to at least 12×12, and the corresponding roots ● Generate terms of a simple sequence, given a rule (eg finding a term from the previous term, finding a term given its position in the sequence) ● Generate sequences from practical contexts and describe the general term in simple cases ● Express simple functions in words, then using symbols; represent them in mappings ● Generate coordinate pairs that satisfy a simple linear rule; plot the graphs of simple linear functions, where y is given specifically in terms of x ● Recognise straight-line graphs parallel to the x-axis or y-axis
Unit 11 (Geometry and measures 3)	<ul style="list-style-type: none"> ● Recognise reflection symmetry ● Recognise where a shape will be after reflection and after a translation ● Calculate angles in a triangle or around a point ● Use a protractor to measure and draw acute and obtuse angles to the nearest degree ● Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals; solve geometrical problems involving these properties, using step-by-step deduction and explaining reasoning with diagrams and text ● Use 2-D representations to visualise 3-D shapes and deduce some of their properties ● Use a ruler and protractor to measure and draw angles, including reflex angles, to the nearest degree ● Use a ruler and protractor to construct a triangle given two sides and the included angle, or two angles and the included side ● Solve geometric problems using side and angle properties of equilateral, isosceles and right-angled triangles and special quadrilaterals



Term Three	Objectives
Unit 12 (Number 4)	<ul style="list-style-type: none"> • Relate fractions to division • Find simple fractions and percentages of whole-number quantities • Solve simple problems using ideas of ratio ('one for every...') • Recognise the equivalence of percentages, fractions and decimals • Calculate simple percentages and use percentages to compare simple proportions • Understand the relationship between ratio and proportion • Use direct proportion in simple contexts • Use ratio notation, reduce a ratio to its simplest form and divide a quantity into two parts in a given ratio • Solve simple problems about ratio or proportion using informal strategies • Consider if an answer is realistic, and check it by working the problem backwards • Express one given number as a percentage of another • Use percentages to compare simple proportions • Use the unitary method to solve simple word problems involving ratio and direct proportion
Unit 13 (Algebra 4)	<ul style="list-style-type: none"> • Understand and use brackets in calculations • Know the meanings of the words 'term', 'expression' and 'equation' • Understand that algebraic operations follow the same conventions and order as arithmetic operations • Simplify linear algebraic expressions by collecting like terms • Begin to multiply a single term over a bracket (integer coefficients) • Use letter symbols to represent unknown numbers or variables • Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method (eg inverse operations) • Use the distributive law with brackets • Begin to multiply a single term over a bracket containing a linear expression



Term Three	Objectives
Unit 14 (Geometry and measures 4)	<ul style="list-style-type: none"> • Understand and use the language and notation associated with rotations; translations and reflections • Recognise and visualise the transformation and symmetry of a 2-D shape • Recognise where a shape will be after a translation • Recognise and visualise reflection and line symmetry in a 2-D shape • Transform 2-D shapes by simple combinations of rotations, reflections and translations • Solve problems and investigate in a range of contexts • Suggest extensions to problems by asking 'What if...?' • Begin to generalise and to understand the significance of a counter-example
Unit 15 (Handling data 3)	<ul style="list-style-type: none"> • Decide which data is relevant to an enquiry and identify possible sources • Plan how to collect and organise small sets of data; design a data collection sheet or questionnaire to use in a simple survey • Construct frequency tables for discrete data, grouped where appropriate in equal class intervals • Calculate statistics for sets of discrete data: find the mode, median, range, and modal class for grouped data; calculate the mean, including from a simple frequency table, using a calculator for a larger number of items. • Construct graphs and diagrams to represent data, including: bar-line graphs; frequency diagrams for grouped discrete data. • Interpret diagrams and graphs (including pie charts), and draw conclusions based on the shape of graphs and simple statistics for a single distribution • Compare two distributions using the range and mode, median or mean • Write a short report of a statistical enquiry and illustrate with appropriate diagrams, graphs and charts; justify the choice of what is presented • Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts; identify all the possible mutually exclusive outcomes of a single event • Collect data from a simple experiment and record in a frequency table; estimate probabilities based on this data



Term Three	Objectives
Unit 16 (Number 5)	<ul style="list-style-type: none"> ● Recognise multiples up to 10×10; know simple tests of divisibility ● Identify factors of two-digit numbers; consolidate mental methods: find a difference by counting up; add or subtract a multiple of 10 then adjust; add and subtract mentally pairs of two-digit numbers ● Approximate first and use informal pencil and paper methods to support additions and subtractions; consolidate the rapid recall of number facts, including positive integer complements to 100 ● Extend written methods to $\text{ThHTU} \times \text{U}$, $\text{U.t} \times \text{U}$, $\text{TU} \times \text{TU}$ and $\text{HTU} \div \text{U}$ ● Round up or down after division, depending on context ● Recognise and use multiples, factors (divisors), common factor, highest common factor and lowest common multiple in simple cases ● Recognise and use primes (less than 100); use simple tests of divisibility ● Consolidate the rapid recall of number facts, including multiplication facts to 10×10, and quickly derive associated division facts ● Extend mental calculations to squares and square roots ● Consolidate and extend mental methods to include decimals, fractions and percentages, accompanied where appropriate by suitable jottings; solve simple word problems mentally ● Make and justify estimates and approximations of calculations ● Understand where to position the decimal point by considering equivalent calculations ● Use standard column procedures to add and subtract whole numbers and decimals with up to two places ● Multiply and divide three-digit by two-digit whole numbers; extend to using decimals with one or two places and single-digit whole numbers ● Consider if an answer is realistic, and check it by working the problem backwards ● Carry out calculations with more than one step using brackets and calculator memory; use the square root and sign change keys on a calculator; interpret the display of a calculator in different contexts ● Recognise the equivalence of percentages, fractions and decimals; calculate percentages; use percentages to compare simple proportions ● Recall known facts, including fraction to decimal conversion



Term Three	Objectives
Unit 17 (Algebra 5)	<ul style="list-style-type: none"> • Read and plot coordinates in all four quadrants • Construct and solve simple linear equations with integer coefficients (unknown on one side only) using an appropriate method • Derive a formula expressed in letter symbols • Generate sequences from practical contexts and describe the general term in simple cases • Express simple functions (in words, then) using symbols; represent them in mappings • Generate coordinate pairs that satisfy a simple linear rule; plot the graphs of simple linear functions, where y is given explicitly in terms of x; recognise straight-line graphs parallel to the x-axis or y-axis • Begin to plot and interpret the graphs of simple linear functions arising from real-life situations • Suggest extensions to problems by asking 'What if...?'; begin to generalise and to understand the significance of a counter-example • Substitute integers into formulae written in words and using algebra • Begin to use linear expressions to describe the nth term of an arithmetic sequence
Unit 18 (Geometry and measures 5)	<ul style="list-style-type: none"> • Use a protractor to measure and draw acute and obtuse angles to the nearest degree • Visualise 3-D shapes from 2-D drawings and identify different nets for a closed cube • Begin to identify and use angle, side and symmetry properties of triangles and quadrilaterals; solve geometrical problems involving these properties, using step-by-step deduction and explaining reasoning with diagrams and text • Use a ruler and protractor to construct a triangle given two sides and the included angle (SAS) or two angles and the included side (ASA) • Use a ruler and pencil to construct simple nets of 3-D shapes, eg cuboid, regular tetrahedron, square-based pyramid, triangular prism