William Gilpin School
Lower Key Stage 2 – Long Term Planning

Year 3	Year 4
NUMBER **Number & place value** ▪ count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Autumn: children can count in 50's and 100's from any number. Spring: children can find 10 or 100 more than a given number. Summer: children can count in 4's and 8's. ▪ recognise the place value of each digit in a three-digit number (hundreds, tens, ones) Autumn: children can recognise the place value of each digit in a 2 digit and 3 digit numbers. Spring: children can partition and recombine 2 and 3 digit numbers for calculation. Summer: revisit in calculation and maths mash up. ▪ compare and order numbers up to 1000 Autumn: children can orders to 100 and 500. Spring: children can order numbers to 1000 and use the =, <,> signs. Summer: children can order numbers to 1000 and use the =, <,> sign. ▪ identify, represent and estimate numbers using different representations Autumn: children can estimate and recognise numbers on scales, partial and blank number lines. Spring: children can recognise, represent and estimate decimal and negative numbers on scales, partial and blank number lines. Summer: children can represent numbers in different forms where suitable for problem solving. ▪ read and write numbers up to 1000 in numerals and in words Autumn: children can write numbers up to 3 digits in numbers and words. Spring: children can write numbers up to 3 digits in numbers and words. Summer: children can read and write numbers up to four digits in numbers and words. ▪ solve number problems and practical problems involving these ideas.	**NUMBER** **Number & place value** ▪ count in multiples of 6, 7, 9, 25 and 1000 Autumn: children can count in 1000's and 25's. Spring: children can count in 6's, 7's and 9's. Summer: children can count in 6's, 7's and 9's. ▪ find 1000 more or less than a given number Autumn: children can find 1000 more and less than whole thousands. Spring: children can find 1000 more or less than any number. Summer: children can cross any barrier including 0. ▪ count backwards through zero to include negative numbers Autumn: children can recognise negative numbers and their purpose. Spring: children can count backwards to include negative numbers Summer: children can calculate backwards to include negative numbers. ▪ recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) Autumn: children can recognise the place value of each digit in a 3 and 4 digit number. Spring: children can partition and recombine 3 and 4 digit numbers for calculation. Summer: revisit in calculate and maths mash up. ▪ order and compare numbers beyond 1000 Autumn: children can order numbers to 1000. Spring: children order and can compare numbers to 1000 use the =, <,> signs. Summer: revisit ordering and comparing numbers to 1000 in maths mash up. ▪ identify, represent and estimate numbers using different representations Autumn: children can estimate and recognise numbers on scales, partial and blank number lines.

Autumn: children solve problems, including word problems, by applying knowledge gained throughout the term. Spring: children solve problems, including word problems, by applying knowledge gained throughout the term. Summer: children solve problems, including word problems, by applying knowledge gained throughout the term.	Spring: children can recognise, represent and estimate decimal and negative numbers on scales, partial and blank number lines. Summer: children can represent numbers in different forms where suitable for problem solving. ▪ round any number to the nearest 10, 100 or 1000 Autumn: children can round to the nearest 10 and 100. Spring: children can round to the nearest 10, 100 and 1000. Summer: children can round to the nearest 10, 100 and 1000. ▪ solve number and practical problems that involve all of the above and with increasingly large positive numbers Autumn: children solve problems, including word problems, by applying knowledge gained throughout the term. Spring: children solve problems, including word problems, by applying knowledge gained throughout the term. Summer: children solve problems, including word problems, by applying knowledge gained throughout the term. ▪ read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. Autumn: not covered. Spring: children learn the Roman Numerals. Summer: children learn why the numeral systems changed.

Addition & subtraction ▪ add and subtract numbers mentally, including: ▪ a three-digit number and ones ▪ a three-digit number and tens ▪ a three-digit number and hundreds Autumn: children learn to add and subtract a 3 digit numbers and ones. Spring: children learn to add and subtract 3 digit numbers and tens. Summer: children learn to add and subtract 3 digit numbers and hundreds. ▪ add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Autumn: children learn to complete extended column method addition and subtraction with 3 digit numbers. Spring: children secure to complete extended column method addition and subtraction with 3 digit numbers. Summer: children learn compact column addition and subtraction with 3 and 4 digit numbers. ▪ estimate the answer to a calculation and use inverse operations to check answers Autumn: children learn how to find the inverse calculations to given four operation (x-+÷) calculations and estimate answers to problems. Spring: children estimate answers to questions and use inverse operations to check answers. Summer: children estimate answers to questions and use inverse operations to check answers. ▪ solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. Autumn: children learn how to find the inverse calculations to given four operation (x-+÷) calculations and estimate answers to problems. Spring: children estimate answers to questions and use inverse operations to check answers. Summer: children estimate answers to questions and use inverse operations to check answers.	**Addition & subtraction** ▪ add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Autumn: children learn to complete extended column method addition and subtraction with 3 and 4 digit numbers. Spring: children learn to complete extended column method addition and subtraction with 3 and 4 digit numbers. Summer: children learn compact column addition and subtraction with 3 and 4 digit numbers. ▪ estimate and use inverse operations to check answers to a calculation. Autumn: children use inverse operations to check and estimate answers. Spring: children estimate answers to questions and use inverse operations to check answers. Summer: children estimate answers to questions and use inverse operations to check answers. ▪ solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. Autumn: children practice one and two step problems in contexts using skills taught this term. Spring: children answer two step word and other problems in contexts using skills taught this term. Summer: children answer two step word and other problems in contexts using skills taught this term.

Multiplication & division

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables

  Autumn: children learn multiplication facts for 3, 4 and 8 multiplication tables.
  Spring: children learn multiplication and division facts for 3, 4 and 8 tables.
  Summer: children learn multiplication and division facts for 3, 4 and 8 tables.

- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

  Autumn: children learn how to write multiplication and division number sentences and use empty number lines to complete calculations.
  Spring: children learn how to write multiplication and division number sentences and use multiplication grids to multiply and chunking to divide.
  Summer: children learn how to write multiplication and division number sentences and use multiplication grids to multiply and chunking to divide.

- solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.

  Autumn: children answer multiplication and division word and real life problems.
  Spring: children answer multiplication and division word and real life problems. Children answer missing number problems involving multiplication and division.
  Summer: children solve problems related to scaling and simple algebraic problems.

Multiplication & division

- recall multiplication and division facts for multiplication tables up to 12 × 12

  Autumn: children secure multiplication facts for 3, 4, 6, 7 and 8 multiplication tables.
  Spring: children secure multiplication and division facts for 3, 4, 6, 7, 8 and 9 multiplication tables.
  Summer: children have rapid recall of multiplication and division facts up to 12x12.

- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers

  Autumn: children use their knowledge of place value to multiply and divide numbers by 10, 100 and 1000.
  Spring: children learn to multiply and divide numbers by 0 and 1. Continue to practice multiplying and dividing numbers by 10, 100 and 1000.
  Summer: children learn practice multiplying and dividing by 0 and 1. Children learn to multiply together three numbers.

- recognise and use factor pairs and commutativity in mental calculations

  Autumn: children understand the commutativity of calculations and use this knowledge in mental calculations.
  Spring: children learn what a factor is and how to find the factors of a given number.
  Summer: children learn to use factor pairs to help them with written and mental calculations.

- multiply two-digit and three-digit numbers by a one-digit number using formal written layout

  Autumn: children learn the grid method to multiply a two-digit number by a one-digit number.
  Spring: children learn the grid method to multiply a two-digit number by a one digit or two-digit number.
  Summer: children learn the grid method to multiply a three digit number by a one, two or three-digit number.

- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

  Autumn: children answer multiplication and division word and real life

	problems, involving two digit numbers. Spring: children answer multiplication and division word and real life problems also involving money and decimals. Summer: children solve problems related to scaling and simple algebraic problems.

Fractions

- count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
  - Autumn: children learn what a tenth is and to count up and down in tenths.
  - Spring: children recognise a tenth is when you divide an object, quantity or single digit number into ten equal parts. Children find tenths of single digit numbers.
  - Summer: children find a tenth of quantities.

- recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
  - Autumn: children find and write unit and non-unit fractions of shapes.
  - Spring: children find and write unit and non-unit fractions of discrete sets of objects.
  - Summer: children practice finding and writing unit and non-unit fractions of shapes and sets of objects.

- recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
  - Autumn: children identify fractions (with small denominators) of 100.
  - Spring: children identify fractions (with small denominators) of 100 and 1.
  - Summer: children identify fractions (with small denominators) of 100, 1 and given numbers.

- recognise and show, using diagrams, equivalent fractions with small denominators.
  - Autumn: children recognise equivalent fractions of halve.
  - Spring: children recognise equivalent fractions of a half, quarter and a third.
  - Summer: children recognise and show equivalent fractions of fractions with small denominators.

- add and subtract fractions with the same denominator within one whole (e.g. $^{5}/_{7} + {}^{1}/_{7} = {}^{6}/_{7}$)
  - Autumn: children add fractions with the same denominator within one whole.
  - Spring: children add and subtract fractions with the same denominator within one whole.

Fractions

- recognise and show, using diagrams, families of common equivalent fractions
  - Autumn: children recognise equivalent fractions of a half, a quarter and a third.
  - Spring: children recognise and show fractions of fractions with small denominators.
  - Summer: children group families of common equivalent fractions.

- count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.
  - Autumn: children learn what a hundredth is and count up and down in hundredths.
  - Spring: children find a hundredth of single digit numbers.
  - Summer: counting in hundredths and dividing by tenths and hundredths to be covered in maths mash up.

- solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
  - Autumn: children find unit fractions (half, quarter, third, fifth) of quantities where the answers are whole numbers.
  - Spring: children find unit fractions of quantities where the answers are whole numbers.
  - Summer: children find unit and non-unit fractions of quantities where the answers are whole numbers.

- add and subtract fractions with the same denominator
  - Autumn: children add fractions with the same denominator.
  - Spring: children add and subtract fractions with the same denominator.
  - Summer: to cover in maths mash up.

- recognise and write decimal equivalents of any number of tenths or hundredths
  - Autumn: children know how to write a tenth and hundredth.
  - Spring: children know how write more than one tenth or hundredth.
  - Summer: to cover in maths mash up.

- recognise and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; ^{¾}
  - Autumn: children identify the equivalent decimals of a half, quarter and a

Summer: to cover in maths mash up. ▪ compare and order unit fractions, and fractions with the same denominators Autumn: children say which fraction of the same denominator is bigger or smaller. Spring: children compare and order fractions with the same denominator. Summer: children compare and order fractions with the same denominator. ▪ solve problems that involve all of the above. Autumn: children find the fractions (half and a quarter) of an amount with support. Spring: children find the fractions (half, quarter, a third, a fifth) of amounts. Summer: children solve problems involving fractions.	third. Spring: children identify the equivalent decimals of unit fractions. Summer: children identify the equivalent decimals of unit and non-unit fractions. ▪ find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths Autumn: children divide one and two digit numbers by 10 and 100. Spring: children divide identify the place value of tens, ones, tenths and hundredths and partition numbers confidently in this way. Summer: to practice in maths mash up. ▪ round decimals with one decimal place to the nearest whole number Autumn: children recognise decimals with one digit places. Spring: children round decimals with one digit place to the nearest whole number. Summer: children round decimals with one digit place to the nearest whole number. ▪ compare numbers with the same number of decimal places up to two decimal places Autumn: children recognise decimals with two digit places. Spring: children round decimals with two digit place to the nearest whole number. Summer: children round decimals with two digit place to the nearest whole number. ▪ solve simple measure and money problems involving fractions and decimals to two decimal places. Autumn: children find fractions of monetary amounts. Spring: children find fractions of money and measures. Summer: children solve measure and money problems involving fractions and decimals to two decimal places.

GEOMETRY

Properties of shapes

- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.
  - Autumn: children name and identify properties of common 2D and 3D shapes.
  - Spring: children name and identify properties independently of 2D and 3D shapes. Children make models of 3D shapes and label.
  - Summer: children sort 2D and 3D shapes according to their properties. Children match definitions to shapes.

- recognise angles as a property of shape or a description of a turn
  - Autumn: children to be introduced to basic angle vocabulary (right, acute, obtuse)
  - Spring: children recognise angles as a number of degrees in a turn.
  - Summer: children to be able to identify and describe some angles independently.

- identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle
  - Autumn: children recognise a right angle and understand it is 90 degrees and a quarter turn.
  - Spring: children recognise a half turn is two right angles and calculate how many degrees this is.
  - Summer: children understand a whole turn is 360 degrees and that four right angles fit in this. Children identify angles bigger or smaller than a right angle.

- identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
  - Autumn: children recognise horizontal and vertical lines.
  - Spring: children identify pairs of parallel lines and perpendicular lines.
  - Summer: children find parallel and perpendicular lines in shapes.

GEOMETRY & MEASURES

Properties of shapes

- compare and classify geometric shapes, including quadrilaterals and triangles**,** based on their properties and sizes
  - Autumn: children can give examples of quadrilaterals and describe these clearly.
  - Spring: children recap work on quadrilaterals. Children to be introduced to types of triangles (equilaterals, isosceles, scalene and right angle)
  - Summer: children compare and classify triangles and quadrilaterals.

- identify acute and obtuse angles and compare and order angles up to two right angles by size
  - Autumn: children identify acute and obtuse angles in shapes and turns.
  - Spring: children compare angles and say which is bigger or smaller and label as acute and obtuse.
  - Summer: children order several angles within 180 degrees.

- identify lines of symmetry in 2-D shapes presented in different orientations
  - Autumn: children understand symmetry is an equal reflection, a mirror line. They can find this in regular 2D shapes using a mirror.
  - Spring: children find symmetry in regular 2D shapes in varying orientations using a mirror.
  - Summer: children identify symmetry in regular 2D shapes through visualisation. To identify symmetry in irregular 2D shapes using a mirror.

- complete a simple symmetric figure with respect to a specific line of symmetry.
  - Autumn: children complete squared pictures using a mirror in respect to a specific line of symmetry.
  - Spring: children complete squared pictures without a mirror to a specific line of symmetry.
  - Summer: children complete symmetry within different shapes using a mirror (stars, hexagons).

Position, direction, motion	**Position, direction, motion** ▪ describe positions on a 2-D grid as coordinates in the first quadrant Autumn: children to be able to name the horizontal and vertical axis and recognise the horizontal axis is first in written coordinates. Spring: children describe the position of 2D shapes on a coordinate's grid. Summer: children recap in maths mash up. ▪ describe movements between positions as translations of a given unit to the left/right and up/down Autumn: children recognise shapes can be translated. Spring: children describe with support how a shape would be translated left/right or up/down. Summer: children describe independently how a shape would be translated left/right or up/down. ▪ plot specified points and draw sides to complete a given polygon. Autumn: children to be able to plot a point in the first quadrant. Spring: children plot specified points and draw sides to complete a polygon. Summer: children name the missing point when given a partially plotted polygon and its name.

Measures

- measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

  Autumn: children measure lengths to the nearest centimetre. Children will compare masses and capacities.
  Spring: children measure lengths to the nearest half centimetre. Children read scales and measuring jugs in practical situations such as cooking. Children compare the capacities of containers through filling and reading scales. To answer some simple word problems.
  Summer: children add and subtract lengths, masses and capacities using their knowledge of scales also.

- measure the perimeter of simple 2-D shapes

  Autumn: children recognise common 2D shapes and have rapid recall of number of sides.
  Spring: children understand that perimeter is the length all the way around the edge of 2D shapes. To understand how to calculate the perimeter of a shape.
  Summer: children to be secure in calculating the perimeter of 2D shapes and record their answer in centimetres.

- add and subtract amounts of money to give change, using both £ and p in practical contexts

  Autumn: children add and subtract money using a number line. Children understand how many pence in a pound.
  Spring: children to be able to convert pounds to pence and vice versa confidently. Children to be able to add and subtract amounts of money and find change using a number line or the extended column method.
  Summer: children taught to partition monetary amounts into tens, units, tenths and hundredths in order to use the extended column method if confident. Children solve real life money problems using most relevant method.

- tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks

  Autumn: children tell the time on an analogue clock. To begin to recognise the 12-hour and 24-hour clock and tell the time using these
  Spring: children answer time questions involving both the 12-hour and 24 hour clock (to be covered in maths mash up).
  Summer: children revisit in maths mash up.

Measures

- Convert between different units of measure (e.g. kilometre to metre; hour to minute)

  Autumn: children research the definitions of the words, 'kilo', 'centi' and 'milli'. Children convert minutes to hours, multiples of 60 minutes.
  Spring: children to be able to convert between different units of measure (cm/metre, millilitres/litres, grams/kilograms, minutes/hours).
  Summer: children to be able to convert between different units of measure (cm/metre, millilitres/litres, grams/kilograms, minutes/hours).

- measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres

  Autumn: children to be able to define perimeter. To calculate the perimeter of a 2D shape by adding the length of all the sides.
  Spring: children calculate the perimeter of a regular shape by multiplying the length of the side by the number of sides. Children calculate the perimeter of irregular shapes by adding the length of the sides.
  Summer: children to be able to calculate the perimeter of a compound shape where the length of some of the sides may be missing.

- find the area of rectilinear shapes by counting squares

  Autumn: children to be able to define area. To calculate the area of a rectilinear shape by counting squares.
  Spring: children calculate the area of a rectilinear shape by multiplying length and width.
  Summer: children to be able to calculate the area of a rectilinear shape by multiplying length and width. Children find the area of a right angle triangle by calculating the area of a rectilinear shape then halving.

- estimate, compare and calculate different measures, including money in pounds and pence

  Autumn: children compare monetary amounts using their knowledge of pounds and pence. Children estimate and compare length, mass and capacity.
  Spring: children complete questions involving money and measures.
  Summer: children estimate answers then calculate in questions involving money and measures.

▪ estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight Autumn: children read the time to the nearest five minutes. Spring: children answer questions about minutes, hours and use vocabulary such as a.m. /p.m. Summer: children can read time to the nearest minute. ▪ know the number of seconds in a minute and the number of days in each month, year and leap year Autumn: children learn how many days in a week and each month. To know how many seconds in a minute. Spring: children learn how many days in a year and a leap year. Summer: children revisit in maths mash up. ▪ compare durations of events, for example to calculate the time taken by particular events or tasks. Autumn: children see how many of certain activities can be completed in 60 seconds. Spring: children answer word and real life problems to calculate the durations of given events e.g. length of a film when given the starting and finishing time. Summer: children answer to answer word and real life problems to calculate the duration of given events, children also given multiple events/tasks to calculate durations of.	▪ read, write and convert time between analogue and digital 12 and 24-hour clocks Autumn: children read, write and tell the time on analogue and digit 12 and 24-hour clocks. Spring: children convert times between analogue and 12 and 24-hour clocks. Summer: children to be able to confidently tell the time on both analogue and digit clocks. ▪ solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. Autumn: children know how many minutes in an hour; seconds in a minute; months in a year and days in a week. Spring: children convert hours to minutes; minutes to seconds; months to years and days to weeks and vice versa verbally. Summer: children solve problems in which they need to convert hours to minutes; minutes to seconds; months to years and days to weeks and vice versa.

Statistics	Statistics
▪ interpret and present data using bar charts, pictograms and tables Autumn: children learn to read and interpret data on bar charts, pictograms and tables. Spring: children learn to present data they have collected in a table in a bar chart or pictogram. Summer: children use ICT to present data they have collected into a bar chart or pictogram. ▪ solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables. Autumn: children read information presented in a bar chart (where the scale has been explained to them) and answer questions based on this information. Spring: children read information presented in a bar chart and answer questions based on this information. Summer: children read information presented in a bar chart and answer questions based on this information. The bar chart may have been made by them or a peer.	▪ interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs Autumn: children to be able to read and interpret bar charts and time graphs. Spring: children learn how to create a bar chart and time graph to present data they have collected. Summer: children understand the difference between discrete and continuous data and present data in either a bar chart or time graph using ICT. ▪ solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. Autumn: children to be able to solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. Spring: children to be able to solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. Summer: children to be able to solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.