Maths Medium Term Plan Gryffindor Class
Spring Term 1 2018

Teaching focus	Y5	Y6	SEN (As appropriate)
Numbers and the number system	identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers establish whether a number up to 100 is prime and recall prime numbers up to 19 recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	• identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • use negative numbers in context, and calculate intervals across zero • identify common factors, common multiples and prime numbers	• recognise the place value of each digit in a two-digit number (tens, ones) • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems • identify, represent and estimate numbers using different representations, including the number line
Counting and comparing; checking, approximating and estimating	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • read Roman numerals to 1000 (M) and recognise years written in Roman numerals • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • round decimals with two decimal places to the nearest whole number and to one decimal place • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	• solve problems which require answers to be rounded to specified degrees of accuracy • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy • round any whole number to a required degree of accuracy	• compare and order numbers from 0 up to 100; use <, > and = signs • count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward

Calculating: addition and subtraction	• add and subtract numbers mentally with increasingly large numbers • add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	• perform mental calculations, including with mixed operations and large numbers • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • solve problems involving addition, subtraction and multiplication • use their knowledge of the order of operations to carry out calculations	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems • solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; applying their increasing knowledge of mental and written methods

Calculating: multiplication and division	• multiply and divide numbers mentally drawing upon known facts • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	• divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division; interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • use written division methods in cases where the answer has up to two decimal places • solve problems involving division • use their knowledge of the order of operations to carry out calculations involving the four operations	• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
Exploring fractions	• compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • read and write decimal numbers as fractions [for example, $0.71 = {}^{71}/_{100}$] • read, write, order and compare numbers with up to three decimal places • recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1 • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, ${}^{3}/_{8}$] • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts	• recognise, find, name and write fractions ${}^{1}/_{3}$, ${}^{1}/_{4}$, ${}^{2}/_{4}$ and ${}^{3}/_{4}$ of a length, shape, set of objects or quantity • write simple fractions for example, ${}^{1}/_{2}$ of 6 = 3 and recognise the equivalence of ${}^{2}/_{4}$ and ${}^{1}/_{2}$

Calculating fractions, decimals and percentages	• recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $^2/_5 + ^4/_5 = ^6/_5 = 1\ ^1/_5$] • add and subtract fractions with the same denominator and denominators that are multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • solve problems which require knowing percentage and decimal equivalents of $^1/_2$, $^1/_4$, $^1/_5$, $^2/_5$, $^4/_5$ and those fractions with a denominator of a multiple of 10 or 25 • solve problems involving number up to three decimal places	• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $^1/_4 \times ^1/_2 = ^1/_8$] • divide proper fractions by whole numbers [for example, $^1/_3 \div 2 = ^1/_6$] • multiply one-digit numbers with up to two decimal places by whole numbers • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison	•
Measuring and calculating space	• convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	• use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places	• choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and =
Mathematical movement: Investigating angles	• know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees (°) • identify: angles at a point and one whole turn (total 360°); angles at a point on a straight line and $^1/_2$ a turn (total 180°); other multiples of 90°	• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles	•

Exploring money	• Revision and consolidation of previous years' objectives	• Revision and consolidation of previous years' objectives	• recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • find different combinations of coins that equal the same amounts of money • solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
Presentation of data	• solve comparison, sum and difference problems using information presented in a line graph	• interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average	• interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data
Investigating, visualising and constructing (shape)	• use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles • identify 3-D shapes, including cubes and other cuboids, from 2-D representations	• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius	• identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] • identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line • compare and sort common 2-D and 3-D shapes and everyday objects • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces

Exploring time	• solve problems involving converting between units of time • complete, read and interpret information in tables, including timetables	•	• know the number of minutes in an hour and the number of hours in a day. • compare and sequence intervals of time • tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times
Mathematical movement	• identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	• describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes	• use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise) • order and arrange combinations of mathematical objects in patterns and sequences