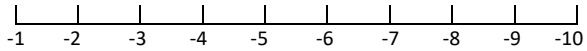
South Farnborough Junior School

Year 4 Long Term Planning

Topic	Objectives / Key concepts	Misconceptions
Number: Place Value	• recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • 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 • identify, represent and estimate numbers using different representations • order and compare numbers beyond 1000 • count in multiples of 6, 7, 9, 25 and 1000 • count backwards through zero to include negative numbers compare numbers with the same number of decimal places up to two decimal places	• Some pupils may think that zero is positive as it does not have a negative symbol • Some pupils may use 'base 10 thinking' to write Roman numerals, for example 49 as 'IL' as it is 'one less than fifty' • Some pupils may write four digits numbers literally, for example, four thousand and twenty six as '400026' • Some pupils may ignore place value and simply write the digits mentioned in a number, for example, four thousand and twenty six as '426' • Some pupils may think the negative number line is:  • Some pupils think that 1.32 > 1.4 because it has more decimal places • Some pupils may think that multiples stop at the 'end of the times tables', e.g. 84 is the highest multiple of 7.
Number: Addition and Subtraction	• find 1000 more or less than a given number • add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	• Some pupils incorrectly assume and use commutativity within column subtraction; for example: 4 1 2 6 – 3 7 3 4 1 6 1 2 Some pupils may not use place value settings correctly (especially when the numbers have a different number of digits)
Number: Length and Perimeter	• measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres find the area of rectilinear shapes by counting squares	• Some pupils may find perimeters by counting the squares that are around the outside of the shape, rather than the associated lengths. This will result in an answer four less than the correct answer if working with rectangles. • Some pupils may confuse the concepts of area and perimeter • Some pupils may think that perimeter is always given by 2(a + b) or 2a + 2b, but this is only the case for certain 2D shapes • Some pupils may think that you multiply the numbers to find the perimeter of a shape. • Some pupils may think that you cannot find the perimeter of a shape unless all the dimensions are given. Some pupils may just add the given dimensions, rather than consider any unlabelled dimensions

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Number: Multiplication and Division	• recall multiplication and division facts for multiplication tables up to 12 × 12 • recognise and use factor pairs and commutativity in mental calculations • 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 • multiply two-digit and three-digit numbers by a one-digit number using formal written layout • 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	• Some pupils may write statements such as 2 ÷ 8 = 4 • Some pupils may carry the wrong digit when using short multiplication; for example: 3 4 5 × 3 1
Number: Fractions	• add and subtract fractions with the same denominator • 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 • recognise and show, using diagrams, families of common equivalent fractions	• Some pupils may think that you simply add/subtract the numerators and add/subtract the denominators when adding fractions. • Some pupils may think that you find the non-unit fraction of an amount by dividing by the denominator (as with unit fractions) and then dividing by the numerator. They do not make the connection that ¾ = 3 x ¼. • Some pupils may think that diagrams to show fractions must always be circular.
Number: Decimals	• count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten • 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 • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to $^1/_4$, $^1/_2$, ^{¾}	• Some pupils may think that the first place value heading after the decimal point is 'one-ths' /'unit-ths' and the second place value heading is 'tenths'. • Some pupils may read 0.25 as 'nought point twenty five' • Some pupils may think that $^1/_4$ = 1.4
Measurement: Time / Money	• read, write and convert time between analogue and digital 12- and 24-hour clocks • solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days • estimate, compare and calculate different measures, including money in pounds and pence	• Some pupils may write amounts of money incorrectly; e.g. £3.5 for £3.50, especially if a calculator is used at any point • Some pupils may apply an incorrect understanding that there are 100 minutes in a hour when solving problems • Some pupils may struggle when converting between 12- and 24-hour clock notation; e.g. thinking that 15:00 is 5 o' clock

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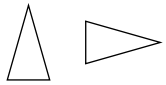
Statistics	• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	• Some pupils may interpret bar charts as one unit of frequency for each one square on the paper used. • Some pupils may not leave gaps between the bars in a bar chart • Some pupils may think that one centimetre on the frequency axis of a bar chart always represents one unit in a bar chart. • Some pupils may think that a symbol always represents one unit in a pictogram. • Some pupils may think that the bars of a bar chart must be vertical
Geometry: Properties of Shape	• identify lines of symmetry in 2-D shapes presented in different orientations • complete a simple symmetric figure with respect to a specific line of symmetry • compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes identify acute and obtuse angles and compare and order angles up to two right angles by size	• Some pupils may think a rectangle has four lines of symmetry • Some pupil may think that a triangle always has to have a horizontal base:  • Some pupils think that all hexagons, pentagons, octagons and decagons are regular. • Some pupils think that a rhombus is a square 'standing' on one of its edges. • Some pupils think that a quarter turn is an acute angle; some may think it's an obtuse angle. • Some pupils may think that one part of a drawn angle must be horizontal • Some pupils may think that all turns have to be in a clockwise direction Some pupils may think that a drawn angle must use two lines of equal length
Geometry: Position and Direction	• describe positions on a 2-D grid as coordinates in the first quadrant • plot specified points and draw sides to complete a given polygon • describe movements between positions as translations of a given unit to the left/right and up/down	• When describing or carrying out a translation, some pupils may count the squares between the two shapes rather than the squares that describe the movement between the two shapes. • Some pupils may muddle left and right • Some pupils will confuse the order of x-coordinates and y-coordinates When constructing axes, some pupils may not realise the importance of equal divisions on the axes