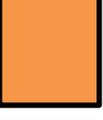
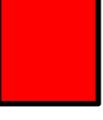




Maths Progression 2017-2018

Name: _____

Class: _____

| Stage 6 | Number | Measurement | Geometry |
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|        | <p>To demonstrate an understanding and be able to read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (e.g. what is the value of the '7' in 276,541?); find the difference between the largest and smallest whole numbers that can be made from using three digits; $8.09 = 8 + 9?$; $28.13 = 28 + + 0.03$.</p> <p>To round any whole number to a required degree of accuracy</p> <p>To use negative numbers in context, and calculate intervals across zero</p> <p>To solve number and practical problems that involve all of the above.</p> <p>To multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</p> <p>The pupil can calculate mentally, using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation</p> <p>(e.g. $53 - 82 + 47 = 53 + 47 - 82 = 100 - 82 = 18$; $20 \times 7 \times 5 = 20 \times 5 \times 7 = 100 \times 7 = 700$; $53 \div 7 + 3 \div 7 = (53 + 3) \div 7 = 56 \div 7 = 8$).</p> <p>To divide numbers up to 4 digits by a two digit number using the formal written method of short division where appropriate ,</p> <p>To divide numbers up to 4 digits by a two digit whole number using the formal written method for long division</p> <p>To interpret remainders as whole number reminders, or by rounding , as appropriate for the context</p> <p>To perform mental calculations , including with mixed operations and large numbers</p> <p>To identify</p> <ul style="list-style-type: none"> • common factors • common multiples • prime numbers <p>To use their knowledge of the order of operations to carry out calculations involving the four operations</p> <p>To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p>The pupil can use formal methods to solve multi-step problems</p> <p>(e.g. find the change from £20 for three items that cost £1.24, £7.92 and £2.55; a roll of material is 6m long: how much is left when 5 pieces of 1.15m are cut</p> | <p>The pupil can calculate with measures (e.g. calculate length of a bus journey given start and end times; convert 0.05km into m and then into cm).</p> <p>To solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</p> <p>To use, read, write and convert between standard units, converting measurements of</p> <ul style="list-style-type: none"> • mass • length • volume • time <p>from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places</p> <p>To convert between miles and kilometres</p> <p>To recognise that shapes with the same areas can have different perimeters and vice versa</p> <p>To recognise when it is possible to use formulae for area</p> <p>To recognise when it is possible to use formulae for volume of shapes</p> <p>To calculate the area of parallelograms</p> | <p>To draw 2-D shapes using given dimensions and angles</p> <p>To recognise, describe and build simple 3-D shapes, including making nets</p> <p>To compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</p> <p>To illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</p> <p>To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p> <p>The pupil can use mathematical reasoning to find missing angles (e.g. the missing angle in an isosceles triangle when one of the angles is given; the missing angle in a more complex diagram using knowledge about angles at a point and vertically opposite angles).</p> <p>Statistics</p> <p>To interpret and construct pie charts and use these to solve problems</p> <p>To interpret and construct line graphs and use these to solve problems</p> <p>To calculate and interpret the mean as an average</p> |

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| <p>from the roll?; a bottle of drink is 1.5 litres, how many cups of 175ml can be filled from the bottle, and how much drink is left?).</p> <p>To use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>To use their knowledge of the order of operations to carry out calculations</p> <p>To use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>To use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>To compare and order fractions, including fractions >1</p> <p>To add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p> <p>To multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$)</p> <p>To divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)</p> <p>To associate a fraction with division</p> <p>To calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)</p> <p>To identify the value of each digit to three decimal places</p> <p>To multiply and divide numbers by 10,100 and 1000 where the answers are up to three decimal places</p> <p>To multiply one-digit numbers with up to two decimal places by whole numbers</p> <p>To use written division methods in cases where the answer has up to two decimal places</p> <p>To solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>The pupil can recognise the relationship between fractions, decimals and percentages and can express them as equivalent quantities (e.g. one piece of cake that has been cut into 5 equal slices can be expressed as 1/5 or 0.2 or 20% of the whole cake).</p> <p>The pupil can calculate using fractions, decimals or percentages same as 721 and that this is equal to 1/3; 15% of 60; $1\frac{1}{2} + \frac{3}{4}$; 7/9 of 108; 0.8×70).</p> | <p>To calculate the area of triangles</p> <p>To calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3.</p> | <p>Algebra</p> <p>To use simple formulae</p> <p>To generate and describe linear number sequences</p> <p>To express missing number problems algebraically</p> <p>To find pairs of numbers that satisfy number sentences involving two unknowns</p> <p>To enumerate all possibilities of combinations of two variables.</p> <p>The pupil can substitute values into a simple formula to solve problems(e.g. perimeter of a rectangle or area of a triangle).</p> <p>Ratio and proportion</p> <p>To solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</p> <p>To solve problems involving the calculation of percentages (eg of measures and such as 15% of 360) and the use of percentages for comparison</p> <p>To solve problems involving similar shapes where the scale factor is known or can be found</p> <p>To solve problems involving unequal sharing and grouping using knowledge of fractions, and multiples</p> |
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| End of year: | Below POS | Emerging | High Emerging | Expected | High Expected | Exceeding | High Exceeding |
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