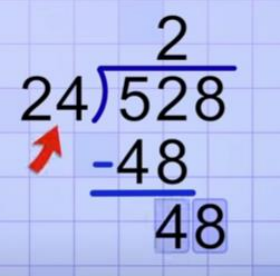


# EAGLE OWLS MATHS SUBJECT NARRATIVE SPRING TERM 2022

NC OBJECTIVES <span style="color: red;">RED Y5</span> <span style="color: blue;">BLUE Y6</span>	SEQUENCE OF LEARNING	KNOWLEDGE ORGANISER Facts and vocabulary
<p>1 week Angles</p> <ul style="list-style-type: none"> <li>• <span style="color: red;">know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</span></li> <li>• <span style="color: red;">draw given angles, and measure them in degrees</span></li> <li>• <span style="color: red;">identify: angles at a point and 1 whole turn (total 360 degrees); angles at a point on a straight line and half a turn (total 180 degrees); and other multiples of 90 degrees</span></li> <li>• <span style="color: red;">use the properties of rectangles to deduce related facts and find missing lengths and angles</span></li> <li>• <span style="color: red;">distinguish between regular and irregular polygons based on reasoning about equal sides and angles</span></li> <li>• <span style="color: blue;">draw 2-D shapes using given dimensions and angles</span></li> <li>• <span style="color: blue;">compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</span></li> <li>• <span style="color: blue;">illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</span></li> <li>• <span style="color: blue;">recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</span></li> </ul>	<p>Use and identify angles in a circle and then on a protractor            Use a protractor            Recognise common angles : 90, 180, 360            Find missing angles both with a protractor and with knowledge learned – eg missing angle in a triangle is not necessary to use a protractor</p>	<p>Obtuse Acute Right angle 90 degrees accuracy            Angles in a triangle            Angles in a quadrilateral            Radius, diameter and circumference of a circle            Angles that are vertically opposite</p>

NC OBJECTIVES RED Y5 BLUE Y6	SEQUENCE OF LEARNING	KNOWLEDGE ORGANISER Facts and vocabulary
<p>2 weeks Long DIVISION</p> <p>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</p> <p>multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000</p> <p>solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p> <p>divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</p> <p>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</p> <p>use their knowledge of the order of operations to carry out calculations involving the 4 operations</p> <p>solve problems involving addition, subtraction, multiplication and division</p>	<p>Standard written method for short division up to 4-digit numbers by one-digit number</p> <p>Long division standard written method using up to 4 digits by 2-digit whole numbers</p> <p>Examples of support videos: SHORT</p> <p><a href="https://www.youtube.com/watch?app=desktop&amp;v=FApcjdAhrY">https://www.youtube.com/watch?app=desktop&amp;v=FApcjdAhrY</a></p> <p>LONG:</p> <p>Remember that we use DMSB for every long division step and that we always do 5 x the divisor as associated facts before we start</p> <p><a href="https://www.youtube.com/watch?v=HdU_rf7eMTI">https://www.youtube.com/watch?v=HdU_rf7eMTI</a></p>	<p>DMSB</p> <p>DIVIDE – what is your divisor and what is the initial dividend?</p> <p>MULTIPLES (or multiply) – find how many multiples of the divisor can go into the initial dividend.</p> <p>SUBTRACT – subtract the number of multiples from the dividend.</p> <p>BRING DOWN – bring down the next number to make a new dividend.</p>  <p>D = 52 M = 24 X 2 S = 52-48 B = bring down the 8 to make a new dividend.</p>
<p>NC OBJECTIVES RED Y5 BLUE Y6</p>	<p>SEQUENCE OF LEARNING</p>	<p>KNOWLEDGE ORGANISER Facts and vocabulary</p>
<p>1 week</p> <p>Multi – Step Problems (Word)</p> <p>solve number and practical problems that involve all year 6 objectives</p> <p>use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</p> <p>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p>	<p>Solve a range of word problems that include deeper thinking problems that involve pupils applying more than one operation and a variety of topics including data handling, shape, area and perimeter, ratio and coordinates. Pupils are required to evidence their understanding by solving multi-step questions and using written explanations for their reasoning.</p>	<p>Estimate</p> <p>Use inverse operations</p> <p>BIDMAS</p> <p>Area and Perimeter</p> <p>Ratio</p> <p>Properties of shapes both 2d and 3d</p> <p>Written explanations using mathematical vocabulary</p>

<p>use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</p> <p>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p>perform mental calculations, including with mixed operations and large numbers</p> <p>use their knowledge of the order of operations to carry out calculations involving the 4 operations</p> <p>solve problems involving addition, subtraction, multiplication and division</p>		
<p>NC OBJECTIVES <b>RED Y5</b> BLUE Y6</p>	<p>SEQUENCE OF LEARNING</p>	<p>KNOWLEDGE ORGANISER</p> <p>Facts and vocabulary</p>
<p>3 weeks: NUMBER - Fractions/Decimals/Percentages</p> <ul style="list-style-type: none"> <li>• solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</li> <li>• compare and order fractions whose denominators are all multiples of the same number</li> <li>• recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number [eg. <math>2/5 + 4/5 = 6/5 = 1 \frac{1}{5}</math>]</li> <li>• add and subtract fractions with the same denominator, and denominators that are multiples of the same number</li> <li>• multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> </ul>	<p>Variety of ICT starters and plenaries to support learning</p> <p>Equivalent fractions</p> <p>Fractions of amounts</p> <p>Mixed Numbers and Improper fractions</p> <p>Changing from a mixed number to an improper fraction and vice versa</p> <p>Changing fractions to their simplest form</p> <p>Multiplication of fractions</p> <p>Addition and Subtraction of fractions</p> <p>Division of fractions</p> <p>Recognise the relationship between Fractions and Decimals</p> <p>Introduce Percentages – relate to <math>\div 10</math> and remind them that they can do this</p>	<p>Knowledge of times tables</p> <p>Understanding the relationship between fractions, division and times tables</p> <p>Common Denominator</p> <p>Multiples</p> <p>Numerator Denominator</p> <p>Equivalent fractions and how to make them</p> <p>Making sure fractions have a common denominator before they are added or subtracted</p> <p>Seeing the relationship between division and multiplication in fractions and how to work them out</p> <p>Converting improper fractions into Mixed numbers and understanding what that means, and converting from a mixed number into an improper fraction for the purposes of addition and subtraction</p> <p>Recognising what an improper fraction is</p> <p>Understanding the make-up of a mixed number</p> <p>Identifying a common multiple in order to find equivalent fractions</p>

- read and write decimal numbers as fractions [for example,  $0.71 = 71/100$ ]
- use common factors to simplify fractions; use common multiples to express fractions in the same denomination
- compare and order fractions, including fractions  $>1$
- 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,  $1/3 \div 2 = 1/6$ ]
- associate a fraction with division and calculate decimal fraction equivalents [for example,  $0.375$ ] for a simple fraction [for example,  $3/8$ ]

#### Decimals and Percentages

- read and write decimal numbers as fractions [for example,  $0.71 = 71/100$ ]
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
- round decimals with 2 decimal places to the nearest whole number and to 1 decimal place
- read, write, order and compare numbers with up to 3 decimal places
- solve problems involving number up to 3 decimal places
- recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with

Find 10% first then use this information to find other percentages of amounts  
 Find percentages of amounts  
 Use all four operations with decimal calculations  
 Revise rounding and apply to decimals

The number on the bottom stays the same  
 Greater than and less than symbols  
 Keep change Flip  
 Decimal numbers place value  
 How to convert fractions to decimals  
 What 10% means and how to calculate  
 Use 10% to then find other percentages of amounts  
 Revise all four operations with decimals  
 Revise rounding to the nearest

denominator 100, and as a decimal fraction

- solve problems which require knowing percentage and decimal equivalents of  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{5}$ ,  $\frac{2}{5}$ ,  $\frac{4}{5}$  and those fractions with a denominator of a multiple of 10 or 25
- associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example,  $\frac{3}{8}$ ]
- identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places
- multiply one-digit numbers with up to 2 decimal places by whole numbers
- use written division methods in cases where the answer has up to 2 decimal places
- solve problems which require answers to be rounded to specified degrees of accuracy
- recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
- solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts
- solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison

NC OBJECTIVES RED Y5 BLUE Y6	SEQUENCE OF LEARNING	KNOWLEDGE ORGANISER Facts and vocabulary
<p>1 week Geometry – position and direction (Transformations and coordinates)</p> <p>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</p> <ul style="list-style-type: none"> <li>describe positions on the full coordinate grid (all 4 quadrants)</li> <li>draw and translate simple shapes on the coordinate plane, and reflect them in the axes</li> </ul>	<p>Understand transformations and have a go at all 3 (Reflection/Rotation and Translation)</p> <p>Use all 4 quadrants</p> <p>Identify the missing coordinate from given information</p>	<p>Understand transformations and have a go at all 3 (Reflection/Rotation and Translation)</p> <p>Use all 4 quadrants</p> <p>Identify the missing coordinate from given information</p>
NC OBJECTIVES RED Y5 BLUE Y6	SEQUENCE OF LEARNING	KNOWLEDGE ORGANISER Facts and vocabulary
<p>Use all four operations to solve problems involving measure (for example length, mass, volume, money) using decimal notation, including scaling.</p> <p>Ratio and Proportion</p> <p>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplications and division facts</p> <p>Solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples</p> <p>Algebra</p> <p>Use simple formulae</p> <p>Generate and describe linear number sequences</p>	<p>Use of practical resources to show ratio and proportion</p> <p>Discussion on food tech knowledge</p> <p>Connecting percentage to dividing by 10 – which is covered in place value</p> <p>Researching the word scale and what it means mathematically</p> <p>Carrying on ratio with the same multiples both sides of the equation</p> <p>Example resource for ratio: <a href="https://www.youtube.com/watch?v=RQ2nYUBVvqI">https://www.youtube.com/watch?v=RQ2nYUBVvqI</a></p> <p>Example resource for algebra: <a href="https://www.youtube.com/watch?v=NybHckSEQBI&amp;t=95s">https://www.youtube.com/watch?v=NybHckSEQBI&amp;t=95s</a></p>	<p>The difference between ratio and proportion one is in relation to and one is a fraction of</p> <p>Being able to apply any percentage question by following the logical steps of finding 10% 5% and 1% in order to manipulate questions. EG Find 98% (SATS 2018) Pupils need to find 10% reduce to 1% and then x 2. Subtract that answer from the 100% to find 98%. They need to be able to apply the maths to a variety of problems</p> <p>Algebra in very simple terms to make the equations equal</p> <p>Knowing that if there is not an operation it is always MULTIPLY</p>

<p>Express missing number problems algebraically Find pairs of numbers that satisfy an equation with two unknowns Enumerate possibilities of combinations of two variables</p>		
<p>If time revisit: MEASUREMENT –perimeter area and volume</p> <ul style="list-style-type: none"> <li>• measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</li> <li>• calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>), and estimate the area of irregular shapes</li> <li>• estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water]</li> <li>• recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>• recognise when it is possible to use formulae for area and volume of shapes</li> <li>• calculate the area of parallelograms and triangles</li> <li>• calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>]</li> </ul>	<p>Revise and clarify difference between perimeter and area Calculate area and perimeter of shape Learn L x W to calculate regular shapes Calculate compound shapes Move to volume as an extra 3d dimension L x w x h Use practical examples to consolidate Calculate the area of parallelograms and triangles with the help of formula Understand recording using <sup>2</sup> and <sup>3</sup></p>	<p>Revise and clarify difference between perimeter and area Calculate area and perimeter of shape Learn L x W to calculate regular shapes Calculate compound shapes Move to volume as an extra 3d dimension L x w x h Use practical examples to consolidate Calculate the area of parallelograms and triangles with the help of formula Understand recording using <sup>2</sup> and <sup>3</sup></p>

