



## **Eagle Owls – What to expect**

### **In Maths Lessons....**

**The following content will be introduced during Year Five and Six.**

#### Counting and number

##### Year 5

- Count forwards and backwards in steps of powers of 10 for any number up to 1,000,000.
- Use negative numbers in context and be able to count forwards and backwards using positive and negative whole numbers.
- Read, write, order and compare numbers to 1,000,000 and know the value of each digit.
- Round any number to 1,000,000 to the nearest 10, 100, 1000, 10000 and 100000.
- Read Roman numerals to 100 (M) and recognise years written in Roman numerals.
- Recognise and use square and cube number and understand the notation ( $^2$ ), ( $^3$ ).
- Identify multiples and factors, being able to find all factor pairs of a given number and common multiples of any given two numbers.
- Establish whether any number up to 100 is a prime number and recall all prime numbers to 19.

##### Year 6

- Use negative numbers in context and calculate intervals across zero
- Read, write order and compare numbers up to 10,000,000 and determine the value of each digit.
- Round any whole number to a required degree of accuracy.

#### Calculating

##### Year 5

- Add and subtract numbers mentally with increasingly larger numbers (numbers with three and four digits).
- Mentally multiply and divide whole numbers using known facts.
- Be able to mentally multiply and divide whole and decimal numbers by 10, 100 and 1000.
- Use formal written methods and jottings to add and subtract whole numbers with 4 digits.
- Use formal written methods and jottings to multiply numbers up to 4 digits by a 1 or 2 digit number.
- Use long multiplication for multiplying by 2 digit numbers.
- Use formal written method of short division to divide numbers up to 4 digits by a 1 digit number and interpret remainders appropriate for the context.
- Use rounding and context to check accuracy of answers.



- Solve addition and multiplication multi-step word problems, deciding which operation and methods to use and explain why they were chosen.
- Solve problems involving multiplication and division including using knowledge of factors, multiples, square and cube numbers.
- Solve problems which combine using addition, subtraction, multiplication and division, including understanding the equals sign.
- Solve scale problems using simple fractions and problems involving simple rates.

#### Year 6

- Perform mental calculations including mixed operations and large numbers.
- Identify common factors, multiple and prime numbers.
- Multiply multi-digit numbers up to four digits by a two-digit whole number using the formal written method of long multiplication.
- Divide numbers up to four-digits by a two-digit whole number using the formal written method of long and short division and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context.
- Use their knowledge of the order of operations to carry out calculations involving the four operations.
- Solve addition and subtraction multi-step problems in contexts deciding on which operations and methods to use and why.
- Solve problems addition, subtraction, multiplication and division.
- Use estimation to check answers to calculations and determine, in the context of the problem, an appropriate degree of accuracy.

#### Fractions

#### Year 5

- Recognise mixed numbers and improper fractions and convert from one to the other.
- Be able to write mathematical statements greater than one as a mixed number.
- Compare and order fractions where the denominators are all multiples of the same number.
- Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths.
- Add and subtract fractions with the same denominator and denominators which are multiples of the same number.
- Multiply proper fractions and mixed numbers by whole numbers with support.
- Read and write decimal numbers as fractions.
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
- Round a number with two decimal places to the nearest whole number and to one decimal place.
- Recognise the percent symbol (%) and understand that percent relates to 'a number of parts per hundred'.
- Be able to write a percentage as a fraction out of 100 and as a decimal. Solve problems involving numbers to three decimal places.



- Solve problems which require knowing percentage and decimal equivalents to  $\frac{1}{4}$   $\frac{1}{2}$   $\frac{1}{5}$   $\frac{2}{5}$   $\frac{4}{5}$  and those with denominators which are multiples of 10 or 25.

#### Year 6

- Use common fractions 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.
- Divide proper fractions by whole numbers
- Associate a fraction with division and calculate decimal fraction equivalence e.g. 0.375 for a simple fraction.
- Identify the value of each digit in numbers given to three-decimal places; multiply and divide numbers by 10/100/1000 giving answers up to three-decimal places.
- Multiply one-digit number with up to two-decimal places by whole numbers.
- Use written division methods in cases where the answer has up to two-decimal places.
- Solve problems involving the calculation of percentages (e.g. of measures and such as 15% of 360) and the use of percentages for comparison).
- 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 two quantities where missing values can be found by using multiplication and division facts.
- Solve problems involving similar shapes where the scale factor is known or can be found.
- Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

#### Measure and shape

#### Year 5

- Convert between different units of metric measure.
- Understand and use approximate equivalences between metric units and common imperial units (e.g. inches, pounds and pints).
- Estimate volume and capacity.
- Measure and calculate the perimeter of composite rectilinear shapes in cm and m.
- Calculate and compare the area of rectangles, including squares, and include using standard units ( $\text{cm}^2$  and  $\text{m}^2$ ).
- Estimate the area of irregular shapes.
- Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation and including scaling.
- Solve problems involving converting between units of time.
- Use knowledge of properties of rectangles to deduce related facts, find missing lengths and angles.



- Distinguish between regular and irregular polygons based on knowledge about equal sides and angles.
- Identify 3D shapes from 2D representations (nets).
- Know angles are measured in degrees, estimate and compare acute, obtuse and reflex angles.
- Draw given angles and measure them in degrees.
- Identify angles which are multiples of  $90^\circ$ .
- Identify angles at a point and one whole turn, at a point on a straight line and a quarter turn

#### Year 6

- Solve problems involving the calculation and conversion of units of measure using decimal notation up to three-decimal places where appropriate.
- 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.
- Convert between miles and kilometres
- Recognise that shapes with same areas can have different perimeters and vice versa.
- Recognise when it is possible to use formulae for area and volume of shapes.
- Calculate the area of parallelograms and triangles.
- Calculate, estimate and compare volume of cubes and cuboids using standard units including cubic centimetres and cubic metres and extending to other units.
- Illustrate and name parts of circles including radius, diameter and circumference and know that the diameter is twice the radius.
- Draw 2D-shapes using given dimensions and angles.
- Compare and classify geometric shapes based on their properties and sizes.
- Recognise, describe and build simple 3D shapes including making nets.
- Find unknown angles in any triangles, quadrilaterals and regular polygons.
- Recognise angles where they meet at a point, are on a straight line or are vertically opposite and find the missing angles.

#### Position and direction/statistics

##### Year 5

- Identify, describe and represent a position of a shape following a reflection or translation and know the shape has not changed.
- Use the appropriate language of statistics.
- Complete, read and interpret information in tables, including timetables.
- Solve comparison, sum and difference questions using information presented in a line graph.

##### Year 6

- 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.



- Interpret and construct pie charts and line graphs; calculate and interpret the mean as an average.
- Use pie charts and line graphs to solve problems.

### Algebra

#### Year 6

- Use simple formulae; generate and describe linear number sequences.
- Express missing number problems algebraically
- Find pairs of numbers that satisfy an equation with two unknowns
- Enumerate possibilities of combinations of two variables.