



## **Year 5 End of Year Maths Expectations**

### **Working at the Expected Standard (EXP):**

*Pupil(s) are confidently and independently able to apply their knowledge:*

#### **Number & Place Value**


- Read, write, order and compare numbers up to at least 1,000,000 and determine the value of each digit.
- Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.
- 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.
- Solve number problems and practical problems that involve ordering and comparing numbers up to 1,000,000, counting forwards or backwards in steps, interpreting negative numbers and rounding.
- Read Roman numerals up to 1000 (M) and recognise years written in Roman numerals.

#### **Addition & Subtraction**


- Add and subtract whole numbers with more than 4 digits, using formal written methods (columnar addition and subtraction).
- Add and subtract numbers mentally with increasingly large numbers.
- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.


#### **Multiplication & Division**

- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.

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- 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.
  - 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.
  - Multiply and divide numbers mentally, drawing upon known facts.
  - 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.
  - Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
  - Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).
  - Solve problems involving multiplication and division, including using his/her knowledge of factors and multiples, squares and cubes.
  - Solve problems involving addition, subtraction, multiplication and division, and a combination of these, including understanding the meaning of the equals sign.
  - Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

## **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 mixed numbers and improper fractions and convert from one form to the other, and write mathematical statements  $> 1$  as a mixed number e.g.  $2/5 + 4/5 = 6/5 = 1$  and  $1/5$ .
  - 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.
  - Read and write decimal numbers as fractions e.g.  $0.71 = 71/100$ .
  - Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
  - Round decimals with two decimal places to the nearest whole number and to one decimal place.
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- Read, write, order and compare numbers with up to three decimal places.
  - Solve problems involving numbers with up to three decimal places.
  - Recognise the percent symbol (%), understand that percent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.
  - 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.


### **Properties of Shape**

- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.
- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
- Draw given angles and measure them in degrees ( $^{\circ}$ ).
- Identify angles at a point and one whole turn (total  $360^{\circ}$ ).
- Identify angles at a point on a straight line and  $\frac{1}{2}$  a turn (total  $180^{\circ}$ ).
- Identify other multiples of 90.
- 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.

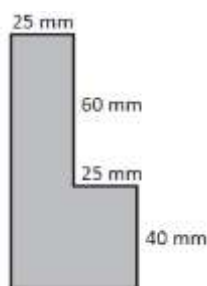
### **Position & Direction**

- 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.

### **Measurement**

- 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.
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- Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.



- Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres ( $\text{cm}^2$ ) and square metres ( $\text{m}^2$ ), and estimate the area of irregular shapes.
- Estimate volume e.g. using  $1\text{cm}^3$  blocks to build cuboids (including cubes) and capacity e.g. using water.
- Solve problems involving converting between units of time.
- Use all four operations to solve problems involving measure e.g. length, mass, volume, money, using decimal notation, including scaling.

## **Statistics**

- Solve comparison, sum and difference problems using information presented in a line graph.
- Complete, read and interpret information in tables, including timetables.