# Maths

# Year 5

Non-negotiable
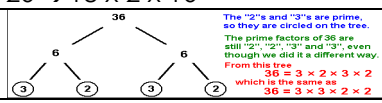
| Know number bonds to 10, 20 and 100 and related subtractions facts |
| Know decimal number bonds to 1 and 10 |

## Number and place value

| N | Assessed | Examples |
|---|----------|----------|
| 1 | **Read and write numbers up to 1,000,000** | |
| 2 | **Know the value of each digit in numbers up to 1,000,000** | |
| 3 | **Order and compare numbers up to 1,000,000** | |
| 4 | **Understand negative numbers in context** | |
| 5 | Count forwards and backwards with positive and negative whole numbers through zero | |
| 6 | Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000 | |
| 7 | Solve number and practical problems that involve all of the above | Estimate the answers to calculations involving + - x ÷. |
| 8 | Read Roman numerals to 1000 (M) | |
| 9 | Recognise years written in Roman numerals | |

## Addition, subtraction, multiplication and division

| A | Assessed | Examples |
|---|----------|----------|
| 1 | Use formal written (column) method to add whole numbers with more than 4 digits | |
| 2 | Use formal written (column) method to subtract whole numbers with more than 4 digits | |
| 3 | Add and subtract numbers mentally with increasingly large numbers | 12,462 – 2300 = 10,162 |
| 4 | Use rounding to check answers to calculations | |
| 5 | Solve addition and subtraction multi-step problems in contexts | |
| 6 | **Identify common multiples** | |
| 7 | **Identify factors, including all factor pairs of a numbers and common factors of two numbers** | |
| 8 | **Use known factors and multiples to solve multiplication and division problems** | 18 x 20 = <br> Factors of 20 → 2 and 10 <br> 18 x 20 → 18 x 2 x 10 = |
| 9 | Know and use the vocabulary of prime numbers, prime factors and non-prime or composite numbers |  |
| 10 | Be able to work out if a number up to 100 is prime | |
| 11 | Know prime numbers up to 19 | |
| 12 | Use a formal written method to multiply numbers up to 4 digits by one or two-digit whole numbers, using long multiplication for 2 digit numbers | See route through calculation |
| 13 | Multiply and divide numbers mentally using known facts | 42x6= <br> Know 4x6 so can find 40x6, know 2x6 |
| 14 | Use short division to divide numbers up to 4 digits by a one or two-digit number | |
| 15 | Show remainders in division appropriately for the context | |
| 16 | Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | |
| 17 | Recognise and use squared numbers and cubed numbers using ($\Box^2$) and ($\Box^3$) | |
| 18 | Solve problems involving + - x ÷ problems and a combination of these | |
| 19 | **Solve multiplication and division problems involving scaling by simple fractions** | If 30 sweets cost £1.50, how much do 90 cost? <br> 30 is 1/3 of 90 so 90=£1.50x3=£4.50 |
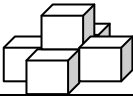
### Fractions

| F | Assessed | Examples |
|---|---|---|
| 1 | **Compare and order fractions with the same denominator** | 3/4>1/4<br>1/5, 3/5, 4/5 |
| 2 | Identify and write equivalent fractions | 1/2=2/4=3/6 |
| 3 | Recognise mixed numbers and improper fractions and convert from one to the other | Mixed number: 1 3/4<br>Improper fraction: 7/4<br>7/4 = 1 3/4 |
| 4 | Write mathematical statements more than one as a mixed number | 2/5 + 4/5 = 6/6 = 1 1/5 |
| 5 | Add and subtract fractions with the same denominator and multiples of the same number | |
| 6 | Multiply proper fractions and mixed numbers by whole numbers | |
| 7 | **Read and write decimal numbers as fractions** | 0.71 = 71/100 |
| 8 | Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents | Know that 1/1000 is 10x smaller than 1/100 and 100x smaller than 1/10<br>7/1000 = 0.007 |
| 9 | Round decimals with 2dp to the nearest whole number and to 1dp | |
| 10 | **Read, write, order and compare numbers with up to 3dp** | |
| 11 | Solve problems involving number up to 3dp | |
| 12 | Recognise the % symbol and know that it means number of parts per hundred | |
| 13 | Write percentages as a fraction with the denominator 100 and as a decimal fraction | 50% = 50/100 = 0.5 |
| 14 | **Solve problems where you need to know percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5 and 4/5** | 1/2=50%=0.5<br>1/4=25%=0.25<br>1/5=20%=0.2 |
| 15 | **Solve problems where the denominator of a fraction is a multiple of 10 or 25** | |

### Measurement

| M | Assessed | Examples |
|---|---|---|
| 1 | **Convert between different units of measure** | 250 m = 0.25 km |
| 2 | Understand and use equivalences between metric units and common imperial units e.g. inches, pounds and pints | 8 km $\approx$ 5 miles    2.5 cm $\approx$ 1 inch<br>1 m $\approx$ 40 inches   1 kg $\approx$ 2.2 lbs<br>30 cm $\approx$ 1 foot    1 litre $\approx$ 1.75 pts |
| 3 | **Measure and calculate the perimeter of compound shapes in cm and m<br>– start to use algebra to show working out missing lengths** | <br>5+Y=15        Y=10 |
| 4 | **Calculate the area of squares and rectangles using cm², and m²<br>- start to use algebra to show working out missing lengths** | |
| 5 | Estimate the area of irregular shapes | |
| 6 | Estimate volume using e.g. using 1 cm³ blocks to build cubes and cuboids | |
| 7 | Estimate capacity | |
| 8 | Solve problems involving converting between units of time | |
| 9 | Use all four operations to solve problems involving measure using decimal notation including scaling | Scaling: 1.5 times as wide as... |

## Properties of shapes

| Sh | Assessed | Examples |
|---|---|---|
| 1 | Identify 3D shapes from 2D representations | How many cubes in:  |
| 2 | Know angles are measured in degrees | |
| 3 | Estimate and compare acute, obtuse and reflex angles | Acute=<90°<br>Obtuse = >90° but <180°<br>Reflex = >180° but <360° |
| 4 | **Draw given angles** | |
| 5 | **Measure angles in degrees** | |
| 6 | Identify angles at a point and whole turn (360°), angles on a straight line and half turn (180°) and other multiples of 90° | identify right angles |
| 7 | Use the properties of rectangles to deduce related facts and work out missing lengths and angles | Recognise and compare different triangles, isosceles, right angle and equilateral |
| 8 | **Understand and describe what regular and irregular polygons are** | Identify and name parallelogram, rhombus and trapezium. Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. |

## Position and direction

| P | Assessed | Examples |
|---|---|---|
| 1 | Identify, describe and draw the position of a shape after reflection and know the shape has not changed | Reflection:<br>Every point is the same distance from the mirror line<br>The reflection has the same size as the original image |
| 2 | Identify, describe and draw the position of a shape after translation and know the shape has not changed | Translation:<br>Moving without rotating, resizing or anything else<br>All points of a shape must move the same amount |

## Statistics

| S | Assessed | Examples |
|---|---|---|
| 1 | Solve questions and problems using a line graph | How many?<br>How many more?<br>What is the difference?<br>Comparisons |
| 2 | **Complete, read and interpret information in tables, including timetables** | |