# Skills and Knowledge Progression
# Maths Year 4

| | Year 4 | |
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| **Place Value** | 1. Count in multiples of 6, 7, 9, 25 and 100<br>2. Find 1000 more or less than a given number<br>3. Count backwards through zero to include negative numbers<br>4. Recognise the place value of each digit in a four-digit number ( thousands, hundreds, tens, ones)<br>5. Order and compare numbers beyond 1000<br>6. Identify, represent and estimate numbers using different representations<br>7. Round any number to the nearest 10, 100 or 1000<br>8. Solve number and practical problems that involve all of the above and with increasingly large positive numbers<br>9. Read roman numerals to 100 ( I to C) and know that over time, the numeral system changed to include the concept of zero and place value | Demonstrate all elements of y4 expected in a range of contexts and types of problem solving(measurement; time; word problems; logic puzzles, finding all possibilities, true/false; finding and describing patterns and sequences)<br>1. **Spot the mistake:** 950,975,1000,1250<br>2. **What is wrong with the sequence of numbers?**<br>3. **What comes next?** 6706+1000=7706; 7706+1000= 8706; 8706+1000=9706.<br>4. **Do, then explain;**5035,5053,5350,5530,5503 if you wrote these numbers in order starting with the largest, which number would be third? Explain how you ordered the numbers. Show the value of the 4 digit in these numbers? 3041 4321 5497 Explain how you know.<br>5. **Possible answers type questions;** a number rounded to the nearest ten is 540. What is the smallest possible number it could be? What do you notice? Round 296 to the nearest 10. Round it to the nearest 100. What do you notice? Can you suggest other numbers like this?<br>6. Be able to demonstrate all the above using manipulatives and a range of representations as well as written methods.<br>7. Be able to explain any Y4 place value concept to another pupil so that they understand clearly. |
| **Addition and Subtraction** | 1. Add and subtract numbers with up to 4 digits using the formal written method of columnar addition and subtraction where appropriate<br>2. Estimate and use inverse operations to check answers to a calculation | Demonstrate all elements of y4 expected in a range of contexts (mental calculation, written methods, inverse operations, estimating and checking answers) and types of problem solving (measurement; time; word problems; |

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| | 3. Solve addition and subtraction two-step problems in contexts, deciding which operation and methods to use and why. | logic puzzles, finding all possibilities, true/false; finding and describing patterns and sequences)<br>1. Demonstrate application in such questions as;<br>a.) **True or false type questions**: Are these number sentences true or false? 6.7 +0.4 = 6.11 8.1 – 0.9 =7.2 give your reasons<br>b.) **Hard and easy type questions:** which questions are easy/hard 13323-70; 12893 + 300 = ; 19354 – 500= ; 19954+100=; explain why the hard questions are hard?<br>c.) **Convince me type questions**: - 666 = 85: What is the largest number that can go in the box? What is the smallest?<br>d.) **Making an estimate:** which of these number sentences have the answer that is between 550 and 600; 1744-611; 3330 -2779; 9326 – 8777.<br>e.) **Always, sometimes, never type questions**: Is it always sometimes or never true that the difference between two odd numbers is odd.<br>2. Be able to demonstrate all the above using manipulatives and a range of representations as well as written methods.<br>3. Be able to explain any Y4 Addition & Subtraction concept to another pupil so that they understand it clearly. |
| **Multiplication and Division** | 1. Recall multiplication and division facts for multiplication tables up to 12 x 12<br>2. Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers<br>3. Recognise and use factor pairs and commutativity in mental calculations<br>4. Multiply two-digit and three-digit numbers by a one-digit number using formal written layout | Demonstrate all elements of y4 expected in a range of contexts (mental calculation, written methods, inverse operations, estimating and checking answers) and types of problem solving (measurement; time; word problems; logic puzzles, finding all possibilities, true/false; finding and describing patterns and sequences)<br>1. Demonstrate applications in such questions as;<br>**a. Missing numbers type questions:** |

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| | 5. Solve problems involving multiplying and adding, including using distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects | 72 = ☐ x ☐ which pair of numbers could be written in the boxes?<br>b. **Making links type questions;** eggs are brought in boxes in 12. I need 140 eggs; how many boxes will I need to buy?<br>2. **Using number facts:** 63 ÷ 9 = 7; use this fact to work out 126 ÷ 9 = ☐ and 252 ÷ 7 = ☐<br>3. **Making links type questions;** How can you use factor pairs to solve this calculation? 13 x 12 (13 x3 x4, 13 x3 x2x2, 13 x2 x6)<br>4. '**Prove it' type questions:** what goes in the missing box? 6 x 4 = 512 Prove it. How close can you get.<br>5. ☐ ☐ ☐ X 7 using the digits3, 4 and 6 in the calculation above how close can you get to 4500? What is the largest product? What is the smallest product?<br>6. **Always, sometimes, never type questions:** Is it always sometimes or never true that the even number that is divisible by 3 is also divisible by 6?<br>7. **Use the inverse type questions;** use the inverse to check if the following calculations are correct?23 x4 =92, 117 ÷ 9 = 14. |
| **Fractions** | 1. Recognise and show, using diagrams, families of common equivalent fractions<br>2. Count up and down in hundredths; recognise that hundredths when dividing an object by 100 and dividing tenths by 10<br>3. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number<br>4. Add and subtract fractions with the same denominator<br>5. Recognise and write decimal equivalents to 1/4, 1/2, 3/4 | Demonstrate all elements of y4 expected in a range of contexts ( counting in fractional steps; recognising factors; comparing fractions; comparing decimals; rounding decimals; equivalence; addition and subtracting fractions.; multiplication and division of decimals) and types of problem solving (measurement; time; word problems; logic puzzles, finding all possibilities, true/false; finding and describing patterns and sequences)<br>1. Demonstrate application in such questions as:<br>a.) **Spot the mistake type questions:** 60 tenths 70 tenths 80 tenths 90 tenths 20 tenths….. and correct it. What comes next type |

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| | 6. Find the effect of dividing one or two-digit number by 10 and 100 identifying the value of the digits in the answer as ones, tenths and hundredths<br>7. Round decimals with one decimal place to the nearest whole number<br>8. Compare numbers with the same number of decimal places up to two decimal places<br>9. Solve simple measure and money problems involving fractions and decimals to two decimal places | questions 83/100, 82/100, 81/100, ….. , ……, or 31/100, 41/100, 51/100, …., ….,<br>b.) **What do you notice type of questions:** 1/10 of 100 = 10; 1/100 of 100 = 1; 2/10 of 100 = 20 2/100 of 100 = 2. How can you use this to work out 6/10 of 200? 6/100 of 200? |
| **Measurement** | 1. Convert between different units of measure (e.g.km to m, hour to minute)<br>2. Measure and calculate the perimeter of a rectilinear figure ( including squares) in centimetres and meters<br>3. Find the area of rectilinear shapes by counting squares<br>4. Estimate, compare and calculate different measures including money in pounds and pence<br>5. Read write and convert time between analogue and digital 12- and 24-hour clocks.<br>6. Solve problems involving converting from hours to minutes, minutes to seconds, years to months and weeks to days | Demonstrate all elements of Y4 expected in a range of contexts (comparing and estimating; measuring and calculating measures; telling the time and converting measurements and amounts) and types of problem solving(word problems; logic puzzles; finding all possibilities, true/false; finding and describing patterns and sequences etc.<br>1. **Top tips type questions.** Put these amounts in order starting with the largest. Half of three litres; Quarter of two litres;300ml. Explain your thinking.<br>2. **Position the symbols type questions:** Place the correct symbols between the measurement < or >.<br>3. **Working backwards type questions;** Imran's swimming lesson lasts 50 mins and it takes 15mins to change and get ready for the lesson. What time does Imran need to arrive if his lessons finishes at 6:15pm?<br>4. **Explain thinking type questions;** the time is 10:35am. Jack says that the time is closer to 11am than to 10am. Is Jack right? Explain why.<br>5. **Finding all possibilities type questions;** adult tickets cost £8 and children's tickets cost £4. How many adult and children |

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| | | tickets could I buy for £100 exactly? Can you find more than one way of doing this?<br>6. **What is the Question type problems**: The answer is… 225metres What is the question? What do you notice?<br>7. Be able to explain any year 4measures concept to another pupil so that they understand it clearly. |
| **Geometry** | 1. Compare and classify geometric shapes including quadrilaterals and triangles, based on their properties and sizes<br>2. Identify acute and obtuse angles and compare and order angles<br>3. Identify lines of symmetry in 2D shapes presented in different orientations<br>4. Complete a simple symmetric figure with respect to a specific line of symmetry<br>5. Describe the position on a 2-D grid as coordinates in the first quadrant.<br>6. Describe movements between positions as translations of a given unit to the left/right and up/down<br>7. Plot specified points and draw sides to complete a given polygon | Demonstrate all elements of year 4 expected in a range of contexts(Identifying shapes and their properties; drawing and constructing shapes; comparing and classifying shapes and angles) and different types of problem solving (word problems; logic puzzles; finding all possibilities, true/false; finding and describing patterns and sequences etc.<br>1. Demonstrate application in such question as;<br>a) **What is the same, what is different?** What is the same and what is different about the diagonals of these 2-D shapes?<br>b) **Visualising type questions;** imagine a square cut along the diagonal to make two triangles. Describe the triangles. Join the triangles on different sides to make new shapes. Describe them. Are the shapes symmetrical? Convince me.<br>c) **Finding other possibilities type questions;** can you draw a non-right angled triangle with a line of symmetry? Are there other possibilities?<br>d) **Other possibilities type questions**. Can you show or draw a polygon that fits both of these criteria? What do you look for?<br>e) **Convince me:-** Ayub says that he can draw a right-angled triangle, which has another angle, which is obtuse. Is he right? Explain why |

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| | | 2. Be able to explain any year 4 shape and Geometry concept to another pupil so that they understand it clearly. |
| **Statistics** | 1. Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs<br>2. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs | Demonstrate all elements of 'Y4 Expected' in a range of contexts and types of problem solving (measure, time, word problems, logic puzzles, finding all possibilities, true/false, finding and describing patterns and sequences)<br>1. **True or false?** (looking at a line graph/ Bar chart) "Twice as many people like strawberry than lime". Is this true or false? Convince me. Make up your own true or false statement about the bar chart.<br>2. **What's the same, what's different?** Pupils identify similarities and differences between different representations and explain them to each other.<br>**3. Create a question:** Pupils ask (and answer) questions about different statistical representations using key vocabulary relevant to the objectives.<br>4. Be able to demonstrate all of the above using manipulatives and a range of representations as well as written recordings.<br>5. Be able to explain any Y4 Statistics concept to another pupil so that they understand it clearly. |