**EYFS**

By the end of the EYFS, the children will be able to count confidently, develop a deep understanding of the numbers to 10, the relationship between them and the patterns within those numbers. Children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. They will develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. Children will develop positive attitudes and interests in mathematics. They will look for patterns and relationships, spot connections, ‘have a go’, talk to adults and peers about what they notice and not be afraid to make mistakes.

**Number**

Children will have a deep understanding of numbers to 10, including the composition of each number. They will be able to subitise up to 5. Children will be able to automatically recall number bonds to 5 and some number bonds to 10, including double facts.

| **Questions to Check Understanding**   * Can you say the numbers 1-10 in order? * Can you say how many \_ there are without counting them? * What number is \_? * Can you point to the \_ and count them? * Can you say the numbers \_ to \_ in order? * Can you count to\_? * Can you count back from \_? * Can you order the numbers? * Can you add \_ to \_? * Can you subtract \_ from \_? * Can you share the \_ equally? |
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**Numerical Patterns**

Children will be able to verbally count beyond 20, recognising the patterns of the counting system. They will know how to compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Children will be able to explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

| **Questions to Check Understanding**   * Can you say the numbers 1-20 in order? * Can you count to\_? * Can you compare \_ to \_? * Is this an odd/even number? |
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**Year 1**

**Number and Place Value**

Children will be able to count forwards and backwards to and across 100, beginning with 0 or 1, or from any given number. They will know how to count, read and write numbers to 100 in numerals and count in multiples of twos, fives and tens. Children will be able to identify one more and one less than a given number. They will be able to identify and represent numbers using objects and pictorial representations including the number line. They will be able to read and write numbers from 1 to 20 in numerals and words.

| **Questions to Check Understanding**   * What is one more/one less than than…? * Can you represent …using counters? * What is … written in numerals/words? |
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**Addition and Subtraction**

Children will be able to read, write and interpret mathematical statements involving addition, subtraction and equals signs. They will be able to represent and use number bonds and related subtraction facts within 20. Children will be able to add and subtract one and two-digit numbers to 20, including zero. They will be able solve one-step and missing number problems involving addition and subtraction using concrete objects and pictorial representations.

| **Questions to Check Understanding**   * What is the sum/total of \_ + \_ ? * What is the difference between \_ and \_ ? * Renee eats \_ sweets. Joseph eats \_ sweets. How many sweets do they both eat in total? |
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**Multiplication and Division**

Children will be able to solve one-step problems involving multiplication and division by calculating the answer using concrete objects, pictorial representations and arrays.

| **Questions to Check Understanding**   * How many \_ are there? * How many \_ are there in each row/column? * What is the total number of \_? * Josie has \_ apples. She shares them equally between \_ plates. How many apples are on each plate? |
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**Fractions**

Children will be able to recognise, find and name a half as one of two equal parts of an object, shape or quantity. They will be able to recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

| **Questions to Check Understanding**   * What does equal mean? * Are the groups equal? * How many equal parts has the shape/quantity been divided into? * When a shape/quantity has been divided into halves/quarters, how many equal parts has it been divided into? |
| --- |

**Measurement**

Children will be able to measure, begin to record, compare, describe and solve practical problems for length and heights; mass/weight; capacity and volume and time. Children will be able to recognise and know the value of different denominations of coins and notes. They will be able to sequence events in chronological order. They will recognise and use language relating to dates and tell the time to the hour and half past the hour and draw hands on a clock face to show these times.

| **Questions to Check Understanding**   * What is the value of the coin(s)/note(s)? * Can you sequence the events in chronological order? * What time is shown on the clock? * Can you draw hands on the clock face to show \_? |
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**Geometry**

Children will be able to recognise and name common 2-D and 3-D shapes. Children will be able to describe position, direction and movement, including whole, half and quarter and three-quarter turns.

| **Questions to Check Understanding**   * What is the name of the 2-D/3-D shape? * What is the name of the 2-D shape on the surface of the 3-D shape? * What is the same/different about the shapes? * If the \_ is facing the \_ and makes a whole/half/quarter/three-quarter turn in the direction of the arrow, what will it face? * Where is the \_ ? * The \_ moves forwards/backwards/left/right. Which \_ will it land on? * What instructions would you give to the \_ to get to the \_? |
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**Year 2**

**Number and Place Value**

Children will be able to count in steps of 2, 3 and 5 from 0 and in tens from any given number, forwards and backwards. They will be able to recognise the place value of each digit in a two-digit number. They will be able to identify, represent and estimate numbers using different representations, including a number line. Children will be able to compare and order numbers from 0 up to 100 using <, > and = signs. They will be able to read and write numbers to at least 100 in numerals and words. They will know how to use place value and number facts to solve problems.

| **Questions to Check Understanding**   * Which numbers can you make from the place value counters? * Can you partition \_ into tens and ones? * What number has been partitioned in this part-whole model? * Do you notice a pattern when you count in steps of 2, 3, 5 or 10 from 0? * What are the next \_ numbers in the sequence? * Which sequence is not correct? * Ava is counting on/back in \_s from \_. Is she correct? Explain how you know. * How do you write \_ in numerals/words? * Compare \_ and \_ using <, > or = symbols. |
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**Addition and Subtraction**

Children will be able to solve problems with addition and subtraction using concrete objects and pictorial representations including those involving numbers, quantities and measures and applying their increasing knowledge of mental and written methods. Children will be able to recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100. They will be able to add and subtract numbers using concrete objects, pictorial representations and mentally including: a two-digit number and ones; a two digit number and tens; two two-digit numbers and adding three one-digit numbers. Children will be able to show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. They will be able to recognise and use the inverse relationships between addition and subtraction and use this to check calculations and solve missing number problems.

| **Questions to Check Understanding**   * Which set of place value counters show the correct answer to the calculation? * Create two addition and subtraction calculations for the image. * What is \_ + \_ or \_ - \_ ? * Can you add \_ and \_ in any order? * Complete the missing number bond. * What can be added to \_ to make \_? * What is the same/different about these two calculations? * \_ and \_ are solving this addition/subtraction calculation. Who is correct? Explain why. |
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**Multiplication and Division**

Children will be able to recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division, within the multiplication tables, and write them using the multiplication (×), division (÷) and equals (=) signs. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. They will solve problems involving multiplication and division using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in context.

| **Questions to Check Understanding**   * What pattern do you notice? * What is \_ x \_ ? What is \_ ÷ \_ ? * Does a x b result in the same answer as b x a? * Does a ÷ b result in the same answer as b ÷ a? * How do you know a number is odd/even? * Is \_ an odd or even number? * Which multiplication/division facts match this image? * How many \_ are there in total? * Ethan buys \_ sweets. There are \_ sweets in each pack. Explain what he will do to work out how many packs he bought. |
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**Fractions**

Children will be able to recognise, find, name and write fractions ⅓, ¼, 2/4 and ¾ of length, shape, a set of objects or quantity. Write simple fractions and recognise the equivalence of 2/4 and ½.

| **Questions to Check Understanding**   * What does equal mean? Are the groups equal? * How many equal parts has the shape/quantity been divided into? * When a shape/quantity has been divided into halves/quarters thirds, how many equal parts has it been divided into? * Name the fraction represented. * Look at ½ and 2/4. What do you notice? What’s the same? What’s different? |
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**Measurement**

Children will be able to choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (०C); capacity (l/ml) to the nearest appropriate unit using rulers, scales, thermometers and measuring vessels. They will compare and order lengths, mass, volume/capacity and record results using >, < and =. They will be able to recognise and use symbols for (£) and pence (p) and combine amounts to make a particular value. They will find different combinations of coins that equal the same amount of money. Children will be able to solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. They will be able to compare and sequence intervals of time. Children will be able to tell and write the time to five minutes including quarter past/to the hour and draw the hands on a clock face to show these times. They will know the number of minutes in an hour and the number of hours in a day.

| **Questions to Check Understanding**   * What time is shown on the clock? * Which equipment would you use to measure \_? * When the balancing scale is down/up/level it shows the item(s) is/are… * Which object is heavier/lighter? * When measuring in cm, what must we start with on the ruler? \_ cm * How can we measure the length/height of \_ ? * Which image has measured the length/height of the object correctly? * Helen has measured \_. Explain her mistake. * Can you find some coins to equal the same amount as \_? * How many minutes are there in an hour? * How many hours are there in a day? |
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**Geometry**

Children will be able to identify and describe the properties of 2-D shapes, including the number of sides and lines of symmetry in a vertical line. They will identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. Children will be able to identify 2-D shapes on the surface of 3-D shapes and compare and sort common 2-D and 3-D shapes. They will organise and arrange combinations of mathematical objects in patterns and sequences. They will be able to use mathematical vocabulary to describe the position, direction and movement, including movement in a straight line and distinguish between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).

| **Questions to Check Understanding**   * How many sides/lines of symmetry/vertical lines does this 2-D shape have? * How many edges/vertices/faces does this 3-D shape have? * What is the name of this 2-D/3-D shape? * If the \_ is facing the \_ and makes a whole/half/quarter/three-quarter turn clockwise/anticlockwise, what will it face? * Describe the turn made by the \_ . In which direction did it turn? How much did it turn? * Which image shows a whole/half/quarter/three-quarter turn? |
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**Statistics**

Children will be able to interpret and construct simple pictograms, tally charts, block diagrams and simple tables. They will ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. They will be able to ask and answer simple questions about totalling and comparing categorical data.

| **Questions to Check Understanding**   * The pictogram/tally chart/block diagram/table shows \_ . Which was the most/least popular \_? * How many \_ were there altogether? * How many more/less/fewer \_ than \_ were there? * Use the pictogram/tally chart/block diagram/table to complete the statements. * \_ and \_ are looking at the data collected. Who is correct/incorrect? Explain why. |
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**Year 3**

**Number and Place Value**

Children will be able to count from 0 in multiples of 4, 8, 50 and 100; find 10 and 100 more or less than a given number. Children will recognise the place value of each digit in a three-digit number (hundreds, tens and ones). They will compare and order numbers up to 1000. They will be able to identify, represent and estimate numbers using different representations. Children will read and write numbers up to 1000 in numerals and in words. They will solve number problems and practical problems involving these ideas.

| **Questions to Check Understanding**   * Can you show me the tens/ones in this number? * What do the digits represent? * What is the value of the number shown on the place value chart? * What number completes the part/whole model? * Why is it important to put the values in the correct column on the place value grid? * What is the value of each interval on the number line? * What is 10/100 more/less than\_? * How do you know which number is smaller/greater? * Do you notice a pattern as the numbers increase/decrease? * What is the largest digit you can have in each column? Why? |
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**Addition and Subtraction**

Children will be able to add and subtract numbers mentally including a three-digit number and ones; a three-digit number and tens and a three-digit number and hundreds. They will be able to add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. They will estimate the answer to a calculation and use inverse operations to check answers. They will be able to solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

| **Questions to Check Understanding**   * How many different ways can you represent \_ + \_? * What is the same/different about the calculations? * What patterns can you see between the additions/subtractions? * How many ones do we have? How many tens do we have? * How many ones do we exchange for one ten? * How many tens do we exchange for one hundred? * What do you notice when we add/subtract 100s from a 3-digit number? * If I know \_ + \_ = \_, what else do I know? * How many ones/tens/hundreds do we have altogether? * What is the sum/total of the numbers? * What is the difference between the two numbers? * Can we exchange one ten for ten ones? * How many ones have we got left? * Why is it important to put the digits in the correct column when we add/subtract? * Does it matter which number is at the top of the subtraction? |
| --- |

**Multiplication and Division**

Children will be able to recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. They will be able to write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. They will solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems.

| **Questions to Check Understanding**   * What is the same and what is different about each group? * What other facts can you link to this one? What other times table will help you with this times table? * If you know your four times table, how can you use it to help you with your 8 times table? * What does the \_ represent? * How is a + a + a the same as a x 3? How is it different? * How many \_ go into \_? * How many do you have to begin with? * How many are in each group? How many groups can you make? * How many groups of \_ are there in \_? * How many equal groups are you sharing between? * How do you know that you have shared objects equally? * What is different about sharing into two groups and grouping in twos? * Is there a link between dividing by 2 and halving? * Can we make a multiplication sentence as well as a division sentence? What do you notice? * What can we use to represent the problem? Can you represent the problem with a picture/concrete apparatus? * Can you prove your answer using manipulatives? * What is the difference between sharing and grouping? * What is a remainder? Can a remainder ever be more than the divisor? |
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**Fractions**

Children will be able to count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. They will recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. They will be able to recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. They will be able to recognise and show, using diagrams, equivalent fractions with small denominators. They will add and subtract fractions with the same denominator within one whole. They will be able to compare and order unit fractions, and fractions with the same denominators and solve problems that involve all of the above.

| **Questions to Check Understanding**   * What is the whole? What are the parts? * How many parts is the object/shape/quantity split into? * Are the parts equal? How do you know? Do the equal parts always look the same? * What fraction is the part worth? * In the fraction notation \_, what does the \_ represent? What does the \_ represent? * How many halves/quarters/thirds makes a whole? * Show me ½, ⅓ and ¼ of the model/counter etc. What is the same? What is different? * What is a unit fraction? Why do we call them a unit fraction? * Give me an example of a unit fraction and a non-unit fraction. * Are these fractions the same? Are the numerators/denominators the same? * What does equivalent mean? Are these fractions equivalent? * How many quarters are equivalent to one half? * Is a fraction always less than 1? * If a fraction is equivalent to 1, what do you notice about the numerator and the denominator? * How many tenths make a whole? * What is the largest/smallest fraction? |
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**Measurement**

Children will be able to measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). They will measure the perimeter of simple 2-D shapes. They will be able to add and subtract amounts of money to give change, using both £ and p in practical contexts. They will be able to tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. They will estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o’clock, a.m./p.m., morning, afternoon, noon and midnight. They will be able to know the number of seconds in a minute and the number of days in each month, year and leap year. They will also be able to compare durations of events.

| **Questions to Check Understanding**   * What is the value of the coin/note? * What does £/p mean? * How many pennies are there in £1? * What is the same/different about the coins you have counted? * Is the group with the most coins always the biggest amount? * Are silver coins always worth more than copper coins? * Which unit of measure would be the best to measure \_? * Can you order the \_ in ascending/descending order? * What is the difference between the length/height of the two objects? * What is perimeter? What is the perimeter of the shape? * Which is the hour/minute hand? * Can you show me \_ o’clock? Can you show me half past/quarter past/quarter to \_? * If the minute hand is pointing to the \_, how many minutes are there until the next hour/passed the hour? * Which months come before/after \_? * What time does the day start? How many hours are there in a day? * Why does an analogue clock show \_ o’clock twice a day? * How many is it past/to the next hour? * Is \_ earlier or later than \_? What time of day does \_ happen? |
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**Geometry**

Children will be able to draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. They will be able to recognise angles as a property of shape or a description of a turn. Children will identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. They will be able to identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

| **Questions to Check Understanding**   * If we start by facing \_ and make a \_ turn, what direction will we be facing? * If we face north/south and make a quarter/half/three-quarter/full turn clockwise/anticlockwise, which direction will we be facing? * Which shapes contain right angles? Can you think of a shape which doesn’t have any right angles? * How many right angles does a \_ have? * How many right angles make a half turn/three-quarter turn/ full turn? * What is an acute/right/obtuse angle? * How long is each line in mm/cm? * What is/are a horizontal/vertical/parallel/perpendicular line(s)? * Can you draw a horizontal/vertical/parallel/perpendicular line(s)? * What is a line of symmetry? How many lines of symmetry does a \_ have? * How many faces/edges/vertices/curved surfaces does a \_ have? |
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**Statistics**

Children will be able to interpret and present data using bar charts, pictograms and tables. They will also be able to solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables.

| **Questions to Check Understanding**   * How would you show \_ as a tally? * When might it be appropriate to collect data using a tally chart? * If the symbols represent 2, how can you show 1 on a pictogram? How can you show an odd number? * How can we represent 0 on a pictogram/tally chart? * What is each symbol worth? * What’s the same and what’s different about the pictogram and the bar chart? |
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**Year 4**

**Number and Place Value**

Children will be able to count in multiples of 6, 7, 9, 25 and 1000. They will find 1000 more or less than a given number. Children will count backwards through zero to include negative numbers. They will be able to recognise the place value of each digit in a four-digit number. They will order and compare numbers beyond 1000. Children will identify, represent and estimate numbers using different representations. They will round any number to the nearest 10, 100 or 1000. Children will solve number and practical problems that involve all of the above and with increasingly large positive numbers. Additionally, they will 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.

| **Questions to Check Understanding**   * What is the value of the number shown on the place value chart? * Why is it important to put the values in the correct column on the place value chart? * What is the value of each interval on the number line? * What is a multiple of 10? Which multiples of 10 does \_ sit between? * Which column do we look at when rounding to the nearest 10? What do we do if the digit in that column is 5 or more? * What would \_ round to when rounding to the nearest 10/100? * How many hundreds make \_ thousand(s)? * When we count in thousands, which is the only digit to change? * How many ones/tens/hundreds/thousands are there in this number? * What is 10/100/1000 more/less than \_? * What happens when I subtract 10/100/100 from \_? * Which number is greatest/smallest? * What do you notice about positive and negative numbers on a number line? Can you spot any patterns? * Is \_ degrees warmer or colder than \_? |
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**Addition and Subtraction**

Children will be able to add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate. They will estimate and use inverse operations to check answers to a calculation. Children will solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

| **Questions to Check Understanding**   * Can you represent \_ + \_ using equipment? * Why is it important to put the digits in the correct column? * Why is it important to line up the digits in the correct column when adding numbers with different amounts of digits? * How many ones are there altogether? Can we make an exchange? * How many ones do we need to exchange for ten? How many tens do we need to exchange for one hundred? * How can you check if your answer is correct? * Does it matter which number is at the top of a subtraction? * Do you need to make both numbers when you are adding/subtracting with counters? Why? * Why is it important to always subtract the smallest place value column first? * Why do we exchange? When do we exchange? |
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**Multiplication and Division**

Children will be able to recall multiplication and division facts for multiplication tables up to 12 × 12. They will use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. They will be able to recognise and use factor pairs and commutativity in mental calculations. Children will multiply two-digit and three-digit numbers by a one-digit number using formal written layout. They will be able to solve problems involving multiplying and adding, including using the 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.

| **Questions to Check Understanding**   * When you multiplied the number by 10/100, what happened to the value of the digits? * When multiplying/dividing using a place value chart, in which direction did the digits move? * How can multiplying/dividing by 10 help you to multiply/divide by 100? * What does sharing/grouping mean? Give an example. What is the difference between sharing and grouping? * How many equal groups do we have? How many are in each group? How many do we have altogether? * What do you notice about the 3 times table and the 6 times table? * Which known fact did you use? * Which number is a factor of every number? * Do factors always come in pairs? * What is a remainder? Can a remainder ever be more than the divisor? * If we are dividing by \_, what is the largest remainder we can have? * How do we know \_ divided by \_ will have a remainder? |
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**Fractions and Decimals**

Children will be able to recognise and show, using diagrams, families of common equivalent fractions. They will count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Children will 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. They will be able to add and subtract fractions with the same denominator. They will recognise and write decimal equivalents of any number of tenths or hundredths and recognise and write decimal equivalents to ¼, ½ and ¾. They will be able to find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. Children will round decimals with one decimal place to the nearest whole number. They will compare numbers with the same number of decimal places up to two decimal places. In addition, they will be able to solve simple measure and money problems involving fractions and decimals to two decimal places.

| **Questions to Check Understanding**   * What is a unit/non-unit fraction? * What fraction is shaded/not shaded? * How many \_ make a whole? What do you notice about the numerator and the denominator when the fraction is equivalent to a whole? * What relationships can you see between the fractions/numerator/denominator? * If I know one of the equal parts, how can I find the whole? * What is a tenth? How many ones/tenths are there? * What number is represented on the place value chart? * One tenth/hundredth is one whole split into how many equal parts? * How many hundredths can I exchange one tenth for? * If I have \_ hundredths, how many more do I need to make one whole? * How many ones/tenths/hundredths are there in this number? * What is the value of the \_ in this number? * How do we write this as a decimal/fraction? * What is the importance of zero? When do we need to use zero as a place holder? * Which whole number does the decimal lie between? |
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**Measurement**

Children will be able to convert between different units of measure [for example, kilometre to metre; hour to minute]. They will be able to measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres and find the area of rectilinear shapes by counting squares. Children will estimate, compare and calculate different measures, including money in pounds and pence. They will be able to read, write and convert time between analogue and digital 12- and 24-hour clocks and solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

| **Questions to Check Understanding**   * If there are 100 cm in 1 metre, how many cm are there in \_ metres? * If there are 10mm in 1 cm, how many mm are there in \_ cm? * What is the difference between the length of the two \_? * What is perimeter? How can we find the perimeter of the shape? * If I know the length and width of the rectangle, how can I calculate its perimeter? * If I know the perimeter of a rectangle and the length of one of its sides, how can I work out the length of the missing side? * What is area? What is the area of the \_? * How much smaller/larger is the area of the shape? * How many pence makes a pound? * How would we write \_p in pounds? How would we write £\_ in pence? * What do we mean by ‘change’ in the context of money? * What time is the analogue/digital clock showing? * How many minutes is it passed/to the next hour? * Is \_ earlier or later than \_? * What does a.m/p.m mean? What times could be a.m/p.m? Why is it important to know if it is a.m or p.m? * How many minutes are there in an hour? How many seconds are there in a minute? * How many \_ are there in a week/month/year? * How many months/weeks/days are there in \_ years? |
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**Geometry**

Children will be able to compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. They will identify acute and obtuse angles and compare and order angles up to two right angles by size. Children will identify lines of symmetry in 2-D shapes presented in different orientations and complete a simple symmetric figure with respect to a specific line of symmetry. They will be able describe positions on a 2-D grid as coordinates in the first quadrant. Children will be able to describe movements between positions as translations of a given unit to the left/right and up/down and plot specified points and draw sides to complete a given polygon.

| **Questions to Check Understanding**   * How many degrees are there in a right angle? * Can you draw an acute/obtuse angle? * Estimate the size of the angle. * How many angles does a \_ have? * What types of angles does a \_ have? * What is a polygon? What isn’t a polygon? * What are the names of the different types of triangles? * What are the properties of a scalene/equilateral/isosceles triangle? * What is the same/different about the quadrilaterals? * Explain what you understand by the term ‘symmetrical’. * Which is the 𝓍 axis? What is the 𝑦 axis? In which order do we read the axis? * In which order do we read and plot the coordinates? * Can you describe the translation? * What do you notice about the new and original points? |
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**Statistics**

Children will be able to interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. Additionally, they will solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

| **Questions to Check Understanding**   * What is the scale? * What does a full/half/quarter/three-quarter circle represent in this pictogram? * Is this discrete or continuous data? How do you know? * How is a line graph different to a bar chart? * Which is represented on the 𝓍 axis? What is represented on the 𝑦 axis? |
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**Year 5**

**Number and Place Value**

Children will be able to read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. They will count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. Children will interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. They will round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000. They will be able to solve number problems and practical problems that involve all of the above. Additionally, they will read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

| **Questions to Check Understanding**   * What is the value of each digit? What is the value of the \_ in this number? * Which representation is the odd one out? Explain your reasoning. * Which column(s) change when adding 1,000/10,000 to \_? * Which place value column do we look at when we round to the nearest \_? * In order to compare numbers, what do we need to know? * Will there be any positive/negative numbers in this sequence? Explain. * What is the coldest/warmest temperature? * Can you create a rule for this sequence? * How many digits does one million have? * Do you notice a pattern in the Roman Numerals system? * What is \_ in Roman numerals? |
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**Addition and Subtraction**

Children will be able to add and subtract whole numbers with more than 4 digits, including using formal written methods. They will add and subtract numbers mentally with increasingly large numbers and use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. They will also be able to solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

| **Questions to Check Understanding**   * Will you have to exchange? Which columns will be affected? * Which number goes on top of the calculation? Does it affect the answer? * Why is it important that we start subtracting the smallest place value first? * How can you tell if an answer is sensible? * What is the inverse of addition/subtraction? |
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**Multiplication and Division**

Children will be able to identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. They will know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers and establish whether a number up to 100 is prime and recall prime numbers up to 19. They will be able to 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. They will multiply and divide numbers mentally drawing upon known facts. Children will 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. They will multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000. recognise and use square numbers and cube numbers, and the notation for squared and cubed. Children will solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. They will solve problems involving all four operations and a combination of these, including understanding the meaning of the equals sign. In addition the children will be able to solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

| **Questions to Check Understanding**   * What do you notice about the multiples of \_? What is the same/different? * Are all multiples of \_ also multiples of \_? * Do factors always come in pairs? * How can we use our multiplication and division facts to find factors? * What is a prime/composite number? * How many factors does a prime number have? * Why are ‘square numbers’ called square numbers? * Are the squares of even numbers always even? Are the squares of odd numbers always odd? * Why are ‘cube numbers’ called cube numbers? * How are squared and cubed numbers similar? How are they different? * Which direction do the digits move when multiplying/dividing by 10/100/1000? * How many places do the digits move left/right? * Which part of the multiplication is the product? * When do we need to make an exchange? * How many groups of \_ are there in \_? |
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**Fractions, Decimals and Percentages**

Children will be able to compare and order fractions whose denominators are all multiples of the same number. They will identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Children will recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements greater than 1 as a mixed number. They will add and subtract fractions with the same denominator and denominators that are multiples of the same number and multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Children will be able to read and write decimal numbers as fractions and recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. They will round decimals with two decimal places to the nearest whole number and to one decimal place. Children will read, write, order and compare numbers with up to three decimal places and solve problems involving numbers up to three decimal places. They will be able to recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per hundred’, and write percentages as a fraction with denominator 100, and as a decimal. Additionally, they will solve problems which require knowing percentage and decimal equivalents of ½. ¼, ⅕, ⅖ and ⅘ and those fractions with a denominator of a multiple of 10 or 25.

| **Questions to Check Understanding**   * What is the same and what is different about the numerators and denominators in equivalent fractions? * How can multiplication and division help you find equivalent fractions? * Are the fractions increasing or decreasing? How much are they increasing/decreasing by? * Can you convert this improper fraction into a mixed number fraction? * What could the common denominator be? * Which fraction is the greatest/smallest? How do you know? * What is an integer/whole number? * How is multiplying fractions by an integer similar to adding fractions? * What is the value of \_ in this number? * How many ones/tenths/hundredths/thousandths are there in this number? * Why is zero important when recording decimals? * What does the decimal point mean? * How many parts per hundred are shaded/not shaded? * If the bar is worth 100%, what is each part worth? * How many \_ is the same as \_? * What is the value of each digit? Where would the digits move if I multiplied/divided by 10/100 or 1000? |
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**Measurement**

Children will be able to convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). They will understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. Children will measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. They will be able to calculate and compare the area of rectangles (including squares), and including standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes. They will be able to estimate volume and capacity. Children will solve problems involving converting between units of time. In addition, they will use all four operations to solve problems involving measure using decimal notation, including scaling.

| **Questions to Check Understanding**   * What is the perimeter of a shape? How can we find the perimeter of a shape? * Why are opposite sides important when calculating the perimeter of a rectilinear shape? * What strategies can you use to calculate the total perimeter? * What formula can we use to find the area of a rectangle? * What does ‘kilo’/’milli’/’centi’ mean at the start of a word? * How many months/weeks/days are there in a year? * How many hours/minutes/seconds are there in a day? * What does volume mean? What does cm³ mean? * What is the volume of this shape? Which shape has the greatest/smallest volume? * How is capacity different from volume? |
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**Geometry**

Children will be able to identify 3-D shapes, including cubes and other cuboids, from 2-D representations. They will know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles and draw given angles, and measure them in degrees. They will be able to identify angles at a point and one whole turn total 360૦; angles at a point on a straight line and half a turn total 180૦ and other multiples of 90૦. Children use the properties of rectangles to deduce related facts and find missing lengths and angles and they will distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Additionally, children will 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.

| **Questions to Check Understanding**   * What unit do we use to measure angles? * How can we tell whether an angle is acute/right/obtuse? * Can you estimate the size of this angle? * What do angles on a straight line/full turn total? * How can we calculate the missing angle? * How many right angles are there in a ¼, ½, ¾, full turn? * What is a polygon? What makes a polygon regular or irregular? * Is a \_ regular/irregular? * What faces can we see on the net? Which 3-D shape would this make? |
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**Statistics**

Children will be able to solve comparison, sum and difference problems using information presented in a line graph and complete, read and interpret information in tables, including timetables.

| **Questions to Check Understanding**   * How is a line graph different to a bar chart? How is it the same? * What information is presented in a row when you read across a table/timetable? * What information is presented in a column when you read down a table/timetable? |
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**Year 6**

**Number and Place Value**

Children will be able to read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. They will round any whole number to a required degree of accuracy. They will be able to use negative numbers in context and calculate intervals across zero. Children will be able to solve number and practical problems that involve all of the above.

| **Questions to Check Understanding**   * Why is the zero important when representing large numbers? * What is the value of each digit in the number? * What is the value of the \_ in this number? * What place value column do we need to look at when we round to the nearest \_? * What is the purpose of rounding? * Are all negative numbers whole numbers? |
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**Addition, Subtraction, Multiplication and Division**

Children will be able tomultiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. They will 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. They will be able to 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. They will perform mental calculations, including with mixed operations and large numbers. They will identify common factors, common multiples and prime numbers. Children will use their knowledge of the order of operations to carry out calculations involving the four operations. They will be able to solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. They will solve problems involving all four operations and use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

| **Questions to Check Understanding**   * What happens when there is more than 9 in a place value column? * What is a factor/common factor/multiple/common multiple? Do factors always come in pairs? * What is a prime number? What is a composite number? * How many factors do prime numbers have? * Are all prime numbers odd? Why is 1 not a prime number? Why is 2 a prime number? * How can we use our multiplication and division facts to find factors? * What is the product of \_ and \_? * What is the quotient when \_ divided by \_? * How can we use multiples to help divide? * What is the inverse? When do you use the inverse? |
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**Fractions, Decimals and Percentages**

Children will be able to use common factors to simplify fractions; use common multiples to express fractions in the same denomination. They will compare and order fractions, including fractions greater than 1. They will be able to add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. Children will multiply simple pairs of proper fractions, writing the answer in its simplest form. They will divide proper fractions by whole numbers. Children will associate a fraction with division and calculate decimal fraction equivalents for a simple fraction. They will identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. Children will be able to multiply one-digit numbers with up to two decimal places by whole numbers. They will be able to use written division methods in cases where the answer has up to two decimal places. Children will solve problems which require answers to be rounded to specified degrees of accuracy. Additionally, they will recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

| **Questions to Check Understanding**   * What do you notice happens to the mixed number when the denominator increases but the numerator remains the same? * What happens when the numerator is a multiple of the denominator? * Which numbers will I say when I count in \_? * How can you find the difference between the two fractions? * If the denominators are different when adding and subtracting fractions, what do we need to do? Why? * How does finding the lowest common multiple help to find a common denominator? * What is the lowest common denominator? * What will the mixed number be as an improper fraction? * How many \_ can we exchange for one whole? * How many equal parts are there altogether? How many equal parts do we need? * What number is represented on the place value chart? * What happens to the digits when you multiply/divide by 10/100/1000? * How does converting a decimal to a fraction help us convert it into a percentage? * How do you convert a percentage to a decimal? |
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**Ratio and Proportion**

Children will be able to solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. They will solve problems involving the calculation of percentages and the use of percentages for comparison; solve problems involving similar shapes where the scale factor is known or can be found and solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

| **Questions to Check Understanding**   * What does : mean in the context of ratio? * Why is the order of the numbers important when we record a ratio? * How do we write a ratio which compares two/three quantities? * What does scale factor mean? |
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**Algebra**

Children will be able to 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 and enumerate possibilities of combinations of two variables.

| **Questions to Check Understanding**   * What is the output if…? What is the input if…? * What does it mean if a number is next to a letter? What does 2a mean? * Is a + b + b the same as a + 2b? * Can a and b be the same value? * What strategy did you use to calculate the value of b? * What tells you something is a formula? * What does the \_ represent? * What’s the difference between an expression and an equation? * What’s the difference between a formula and an equation? * Why do you have to do the same to each side of the equation? |
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**Measurement**

Children will be able to solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places, where appropriate. They will 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. They will be able to convert between miles and kilometres. Children will recognise that shapes with the same areas can have different perimeters and vice versa. They will be able to recognise when it is possible to use formulae for area and volume of shapes. Children will calculate the area of parallelograms and triangles. They will calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units, for example, mm³ and km³.

| **Questions to Check Understanding**   * Which units measure length/mass/capacity? * Why do you think \_ is not an appropriate estimate? * What does each mark represent on the scale? * How many \_ are there in a \_? * How can we convert between \_ and \_? * Can you put these measurements in order of size? * What do we need to know to work out the area of the shape? * What is the difference between the area and perimeter shapes? * How can we calculate the area and perimeter of shapes? Can you show this as a formula? * What is the relationship between the area of a rectangle and the area of a right-angled triangle? * What formula can you use to work out the area of a triangle/parallelogram? * What’s the same and what’s the difference between area and volume? * Can you identify the length, width and height of the cuboid? |
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**Geometry**

Children will be able to draw 2-D shapes using given dimensions and angles. They will recognise, describe and build simple 3-D shapes, including making nets. Children will compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons. They will be able to illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Children will recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. They will describe positions on the full coordinate grid (all four quadrants). Additionally, they will be able to draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

| **Questions to Check Understanding**   * Which way do you move along the 𝑦-axis/𝓍-axis to find negative coordinates? * What does translation mean? How do you translate a shape? * How is reflecting different from translating? * Can you name and describe the four different types of angles (right angle, obtuse, acute, reflex)? * What mistakes could you make when measuring with a protractor? * How would I measure a reflex angle? * If there are 90 degrees in one right angle, how many are there in two? Three? * What is the total of angles on a straight line/around a point? * How can you calculate the missing angle? What is the measurement of angle a? * What is the sum of the interior angles in a triangle? How can we use this to work out the interior angles of polygons? * If you know one angle in an isosceles triangle, what else do you know? * If you know three of the interior angles in a quadrilateral, how can you work out the fourth angle? * What shape will this net make? |
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**Statistics**

Children will be able to interpret and construct pie charts and line graphs and use these to solve problems. Also, they will be able to calculate and interpret the mean as an average.

| **Questions to Check Understanding**   * What will the 𝑦-axis/𝓍-axis represent? What intervals will you use? * What information does the graph tell you? * Why is the centre of the circle important? * What is the relationship between the diameter and the radius? If you know one of these, how can you calculate the other? * What does the whole pie chart represent? * How did you calculate the percentage? What fractional knowledge did you use? * How many degrees are there around a point? How will this help us to construct a pie chart? * If \_ degrees represents \_ pupils, how many pupils \_? * What is an average? What is a mean average? * What would the total be? If we know the total, how can we calculate the mean? |
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