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|  **Y6 section** | **Autumn** | **Spring** | **Summer** |
| **NUMBER** |  |  |  |
| **Number and place value**  | **I can read, write, order and compare numbers up to 10 000 000, identifying the value of each digit.**The pupil can place the correct sign (=, < and >) in statements such as between 8,282,828 and 8,202,828.**I can round a whole number to a required degree of accuracy.**( to the nearest 1,10,100,1000,10,000)**I can solve number problems using my knowledge of place value and rounding.**What is the smallest 4-digit integer whose digits sum to 20? (10199).***I can use negative numbers in context and calculate intervals across zero.****It is -3°C in Norway. In London, it is 9°C warmer. What is the temperature in London?**It is -7°C in Iceland and 9°C in Germany. What is the difference in temperature?* | I can read, write, order and compare numbers up to 10 000 000, identifying the value of each digit.How much greater is 756,657 than 734,554?I can round a whole number to a required degree of accuracy.**I can round a decimal number to a required degree of accuracy.****I can solve number problems using my knowledge of place value and rounding.***I rounded a 3 digit number to the nearest 100 and the answer was 300. What is the smallest number I could have started with?**What is the biggest number I could have started with?*I can use negative numbers in context and calculate intervals across zeroContinue the sequence:150, 90, 30, \_\_\_, \_\_\_, \_\_\_ | I can read, write, order and compare numbers up to 10 000 000, identifying the value of each digit.**I can decide on an appropriate degree of accuracy and round a number to this, e.g.** £10 divided between 3 friends means they get how much each? (£3.33).Would you round 765,478 attendance at football match to the nearest 10, 100 or 1000?**I can solve number problems using my knowledge of place value and rounding.**I can use negative numbers in context and calculate intervals across zeroWhat is 100 less than -21?What is 50 more than -75? |
| **Addition, subtraction, multiplication and division** | **I know my multiplication and division facts up to 12 x 12 and can recall them quickly and accurately.****I can use my knowledge of multiplication facts to solve problems with decimal and larger whole numbers,** i.e 300 x 6; 7 x 0.9.**I can use a columnar method to add and subtract with numbers up to 6/7 digits.****I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication (expanded).** **I can divide a range of numbers by a single digit using short division in the context of problems, giving my answer in an appropriate form:** 367 football cards are shared between James and his six friends. James’ younger brother is given what cards remain – how many is this?**I can divide a HTU number by a TU number using the formal method of long division, e.g. 546÷13=42****I can perform mental calculations including with mixed operations and large numbers, e.g** (13 500 × 2) ÷ 9 = 3000**I can identify the calculation and choose an appropriate method to solve addition and subtraction problems in context.**A concert takes place over 3 days. 320,768 people attend in total. 189,450 go on Monday. Half as many go on Tuesday. How many attend on the final night?**I can use multiplication and division to solve multi-step problems.**A baker cooks 462 muffins in one day. They are packed into boxes of 6 to go to the supermarket. How many boxes did he fill?**I can use estimation and rounding to check that my answers are reasonable.**20 x 4.5 = 900? 4.5 can be rounded to 5 and 5 x 20 = 100 so I need to check my answer.**I can find all the pairs of factors of a number.****48: 1x48; 2x24; 3x16; 4x12; 6x8****I can use my knowledge of factors and tests of divisibility to help me identify prime numbers and composite numbers.**39 is divisible by 1,39,3,13 so is a composite number.19 is only divisible by 1,19 so is a prime number.**I can identify the factors that two numbers share.****15: 1,15,3,5****25: 1,25,5****I can identify the lowest common multiple of two numbers.****3,6,9,12,15,18,21,24****8,16,24****I can use my knowledge of order of operations to carry out calculations involving brackets,** e.g.(2.9+0.9) x 4 = 3.5 + \_\_\_\_ | I know my multiplication and division facts up to 12 x 12 and can recall them quickly and accurately.**I can use my knowledge of multiplication facts to solve problems with decimal and larger whole numbers,** i.e 0.9 x 7=6.3 or 6.3 ÷ 7=0.9I can use a columnar method to add and subtract with numbers up to 6/7 digits **including decimals.****I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication (compact).** **I can divide a range of numbers by a single digit using short division in the context of problems, giving my answer in an appropriate form:** An inheritance of £45,758 is shared between Tom, Kim and Sally in the ratio 2:4:1. How much will each receive?**I can divide a THTU number by a TU number using the formal method of long division, e.g. 9202÷43=**I can perform mental calculations including with mixed operations and large numbers, e.g(30,500-8000)÷5 = 4500I can solve addition and subtraction problems in context.Write a number story to match: 23.5=20.4 + 4.9 – 1.8Three people won £365 496 on the lottery; one received £197 540, another received £40 010; how much did the third person receive? I can use multiplication and division to solve multi-step problems.I think of a number and subtract 5.6 from it then multiply the result by 6; the answer is 7.2; what was my number?I can use estimation and rounding to check that my answers are reasonable.A machine makes 9,895 yoyos in one hour. They are packed in boxes of 48. How many boxes are filled in two hours?I can find all the pairs of factors of a number.48: 1x48; 2x24; 3x16; 4x12; 6x8I can use my knowledge of factors and tests of divisibility to help me identify prime numbers and composite numbers. Name me a prime number between 50 and 60, 60 and 70 etc.I can identify common factors, common multiples and prime numbers. e.g. Find the smallest common multiple of 5, 6 and 8 (120) **I can use my knowledge of order of operations to carry out calculations involving brackets,** *e.g. 2 + 1 x 3 = 5 and* *(2 + 1) x 3 = 9.*  | I know my multiplication and division facts up to 12 x 12 and can recall them quickly and accurately.**I can use my knowledge of multiplication facts to solve problems with decimal and larger whole numbers,** i.e 0.07 x 900=I can use a columnar method to add and subtract with numbers up to 6/7 digits **including decimals.****I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication (compact).** I can divide a range of numbers by a single digit using short division in the context of problems, giving my answer in an appropriate form: Write a number ‘story’ to match this calculation, 458÷7=65$\frac{2}{7}$**I can divide a THTU number by a TU (and thereafter increasingly complex numbers) using the formal method of long division, often in the context of a problem.** 654 children go on a school trip. If coaches have 53 seats, how many coaches are required and how many empty seats the ‘final’ coach have?I can perform mental calculations including with mixed operations and large numbers.e.g. *(13 400 + 10 600) × 4* *÷ 12 = 8000***I can solve problems which involve addition, subtraction, multiplication and division.**e.g. Club A sold 3500 tickets for £9.50 each and Club B sold 8150 tickets for £3.50; how much more money did Club A make than Club B?I can use estimation and rounding to check that my answers are reasonable.**I can find all the pairs of factors of a number.****48: 1x48; 2x24; 3x16; 4x12; 6x8**I can use my knowledge of factors and tests of divisibility to help me identify prime numbers and composite numbers.Sarah says 2541 is a prime number – is she correct? No – this number can be divided by 3.I can identify common factors, common multiples and prime numbers to solve problems. *e.g. Three buses leave the depot at the same time. Their routes are 9,12,15 minutes long. How long will it be before they are back at the depot together? 180 minutes.***I can use my knowledge of order of operations to carry out calculations involving brackets,** *e.g. 14 x (29 – 12) + 7 = 245*   |
| **FRACTIONS**  |  |  |  |
| **Fractions (including decimals and percentages)** | **I can use common factors to simplify fractions.****I can list equivalent fractions to identify fractions with common denominators.** **Which is greater** $\frac{2}{3}$ **or** $\frac{15}{18}$ ?**I can order unitary fractions.****I can link a fraction with division and calculate decimal fraction equivalents**.**I can associate a fraction with division and calculate decimal fraction equivalents:****I can add and subtract fractions with the same denominators e.g:****I can identify the value of each digit to three decimal places,** **i.e 3.478 = 3 + 0.4 + 0.07 + 0.008****I can multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places** *e.g. 205.6 ÷ 100 =2.056***I can multiply one-digit numbers with one decimal places by whole numbers,*****e.g. 0.6 x 7 = 4.2*****I can use written division methods in cases where the answer has up to two decimal places *e.g. 458 ÷ 8 = 57.25******I can* recall and use equivalences between simple fractions, decimals and percentages, including in different contexts *e.g:*** | I can use common factors to simplify fractions.**I can use common multiples to express fractions in the same denomination.****I can compare and order fractions, including fractions >1 by converting from improper fractions to mixed numbers**.I can link a fraction with division and calculate decimal fraction equivalents.**Using the link between fractions and division, I can find the whole quantity when given a fraction of it.**I can associate a fraction with division and calculate decimal fraction equivalents:**I can add and subtract fractions with different denominators, using the concept of equivalent fractions**.I can identify the value of each digit to three decimal places, i.e: \_\_\_\_ + 0.45 + 0.009 =5.769**I can multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places** e.g. × 100 = 140.8**I can multiply one-digit numbers with one decimal places by whole numbers,*****e.g. 0.63 x 7 = (0.6 x 7) + (0.03 x 7) =4.41******I can* solve problems which require answers to be rounded to specified degrees of accuracy *and check the reasonableness of answers*.****I can recall and use equivalences between simple fractions, decimals and percentages, including in different contexts,** **I can *use a variety of images to support understanding of multiplication with fractions.*****I can multiply simple pairs of proper fractions, writing the answer in its simplest form e.g. ¼× *1/2* = *1/8*****I can *multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers e.g. 93.15 ÷ 5*** | I can use common factors to simplify fractionsI can use common multiples to express fractions in the same denomination.**I can compare and order fractions, including fractions >1 by converting from improper fractions to mixed numbers**.I can convert between fractions and decimal fractions to order values and to solve problems: **¾ of people chose a comedy; one out of ten chose an action film. The rest chose a sci-fi film. What fraction is this?**Using the link between fractions and division, I can find the whole quantity when given a fraction of it.I can associate a fraction with division and calculate decimal fraction equivalents:**I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions**.I can identify the value of each digit to three decimal places.I can multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places to solve a problem.***I can multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers e.g. 3.15 × 62*** *I can* solve problems which require answers to be rounded to specified degrees of accuracy *and check the reasonableness of answers*.**I can recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. 45% of children have blue eyes; 1/5 have brown. What % have neither blue nor brown?****I can divide proper fractions by whole numbers e.g. *1/3* ÷ 2 = *1/6***I can multiply simple pairs of proper fractions, writing the answer in its simplest form e.g. ¼× *1/2* = *1/8*I can *multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers e.g. 93.15 ÷ 15 = 6.21* |
| **Ratio and proportion** | **I can solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts** **e.g. adjust a recipe for 4 people, to serve 20 people.****I can begin to use the notation a:b to record ratio, e.g; on a radio station, five modern songs are played for every 3 old one. This can be recorded as 5:2.****I can solve problems involving the calculation of simple percentages, e.g Tom spends 20% of his wages on a gift – how much did it cost?**  | I can solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts **e.g. 300ml of milk is required to make a smoothie for 5 people, how much is needed for 1 person/ 6 people/ 12 people.****I can solve problems involving similar shapes where the scale factor is known or can be found e.g. two rectangular picture frames are the same shape, but one is bigger than the other; the smaller one measures 10cm by 15cm; the larger frame has a width of 30cm, what is its length?****I can begin to solve problems involving unequal sharing and grouping. In a fruit bowl, there are 6 oranges for every four bananas. If there are 36 oranges, how many bananas are there? How many pieces of fruit in total?****I can solve problems involving the calculation of a range of percentages, e.g A car cost £2470. Sam contributes 35%, John 25%, Cara 12%. They borrow the rest. How much do they need to borrow?****I can use percentages of 360° when calculating angles of pie charts.** | I can solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. I can solve problems involving similar shapes where the scale factor is known or can be found **e.g. on a map 2cm represents 1km; a road measures 7cm on the map, how long is it in real life?****I can begin to solve problems involving unequal sharing and grouping.** **£426 is shared between Tom, Jane & Sue in the ratio 2:3:1. How much do they get each?**I can use percentages of 360° when calculating angles of pie charts. |
| **Algebra** | **I can use symbols and letters to represent variables and unknowns in mathematical situations, e.g. angles in a triangle are 35°, 120° and y°; find y****I can express missing number problems algebraically e.g. 17 = x + 4.5****I can use simple formulae expressed in words e.g. write a formula for the number of months, m, in y years. (y=12m).****I can enumerate all possibilities of combinations of two variables** **e.g. investigate how many different ways 2 red eggs can be placed in a 6-space egg carton, by starting with a 3-space carton, 4-space carton etc?****I can describe and continue linear number sequences, e.g. 35,26,17…. (decrease by 9).** | I can use symbols and letters to represent variables and unknowns in mathematical situations, **e.g: mathematics and science formulae e.g. P=2(l+w) and arithmetic rules e.g. a×b=b×a.**I can express missing number problems algebraically **e.g. the perimeter of a triangle is 20cm; it has two sides of length 8cm; what is the length of the other side? (20=2×8+x so x=4cm)**I can use simple formulae expressed in words **e.g. write a formula for the cost of a party, C, which costs £100 plus £2 per person, n. (C=100+2n)**I can enumerate all possibilities of combinations of two variables **e.g. investigate all possible half-time scores when the full time score of a football match is 4:2****I can find the nth term of a simple sequence e.g. 4, 8, 12, 16, … 4n or 5,9,13,17 … 4n +1****I can find pairs of numbers that satisfy number sentences involving two unknowns. e.g. a – b = 5, give pairs of values that a and b could have (e.g. 8, 3 or 6.5, 1.5 or …) or. p×q=24; if p and q are both positive, even numbers, list all the possible combinations (e.g. 2×12, 4×6, …)** | I can use symbols and letters to represent variables and unknowns in mathematical situations, **e.g: plot points (x, y) where x+y=10; when generalising number patterns e.g. 6, 11, 16, 21, … 5n+1 and when solving number puzzles e.g. x+y=10 and 2x+y=13.**I can express missing number problems algebraically **e.g. I’m thinking of a number; I double it and subtract 12 from the result; the answer is 60; what was my number? (2x-12=60, so 2x=72, so x=36)**I can use simple formulae expressed in words **e.g. write a formula for the cost of a taxi journey, C, which is £2.10 plus £1.60 per kilometre, k. (C=2.10+1.60k)**I can enumerate all possibilities of combinations of two variables **e.g. list all the combinations of boys and girls in a class where there are twice as many boys as girls and between 25 & 35 children in the class altogether.****I can find the nth term of more complex sequences, e.g 2,8,14,20 … 6n – 4 or 19,16,13,10 … 22 – 3n.**I can find pairs of numbers that satisfy number sentences involving two unknowns. e.g. a – b = 5, give pairs of values that a and b could have (e.g. 8, 3 or 6.5, 1.5 or …)  |
| **MEASUREMENT** |  |  |  |
| **Measurement** | **I can 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 two decimal places** **e.g. 4.5kg = 4500g; 1.35km = 1350m** **I can recognise that shapes with the same areas can have different perimeters and vice versa** **e.g. investigate rectangles with areas of 24cm2 to find which has the smallest perimeter.****I can recognise when it is possible to use formulae for area of shapes,****e.g. find the length of rectangle which is 4m wide and has the same area as a square with a side length of 8cm.** **I can calculate the area of triangles, relating it to the area of rectangles, using counting method.** **I can solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate e.g. Ben walked 850m to the bus stop, travelled on a bus for 8.67km and then a train for 120.9km; how far did he travel altogether?** | **I can 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 three decimal places, e.g 0.709l = 709ml; 0.015kg = 15g.** I can recognise that shapes with the same areas can have different perimeters and vice versa, **e.g. I buy 24 metre long fence panels. What is the biggest/ smallest area this will enclose?**I can recognise when it is possible to use formulae for area and volume of shapes, e.g. find the length of the side of a cube with a volume of 27cm3 **I can calculate the area of triangles using a mathematical formula, i.e****I can solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate e.g. A jug holds 550ml; how may jugs of water are needed to fill a 4.8 litre bucket?****I can convert between miles and kilometres and other units commonly used e.g. know that a mile is approximately 1.6km (and 1km is approximately 0.6miles) and use this to make rough calculations****I can calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3) and extending to other units, such as mm3 and km3.**  | **I can use, read, write and convert between standard units to solve problems, e.g A guinea pig eats 30g of food a day. How long will a 1.5kg bag last?**I can recognise when it is possible to use formulae for area and volume of shapes. **I can calculate the area of parallelograms and triangles, relating it to the area of rectangles****I can solve problems involving the calculation and conversion of units of measure, using decimal notation to 3 decimal places.**I can convert between miles and kilometres and other units commonly used **e.g. use a conversion line graph or be able to work out that 6 pints of milk is a bit more than 3 litres.**I can calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3) and extending to other units, such as mm3 and km3.  |
| **GEOMETRY** |  |  |  |
| **Properties of shapes** | **I can draw 2-D shapes using given dimensions and angles using measuring tools and conventional markings and labels for lines and angles** **e.g. same length lines, parallel lines and same size angles:****I can recognise, describe and build simple 3-D shapes, including making nets** **e.g. investigate different nets for a cube, recognising when ‘nets’ will fold to make a cube and when they will not.** | I can draw 2-D shapes using given dimensions and angles using measuring tools and conventional markings and labels for lines and angles **e.g. complete a triangle with given lengths and angles.**I can recognise, describe and build simple 3-D shapes, including making nets**,** **e.g. visualise 3-D shapes drawn on isometric paper and begin to draw 2-D representations of 3-D shapes.****I can compare and classify geometric shapes based on their properties and sizes (e.g. parallel sides, line symmetry, types of angles etc) and find unknown angles in any triangles, quadrilaterals, and regular polygons.** **I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles describing them algebraically e.g. a=180-(b+c).**  | I can draw 2-D shapes using given dimensions and angles using measuring tools and conventional markings and labels for lines and angles **e.g. construct a triangle or complete a parallelogram with given lengths and angles**I can recognise, describe and build simple 3-D shapes, including making nets. **I can compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.** I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles describing them algebraically. |
| **Position and direction** | **I can describe positions on the full coordinate grid (all four quadrants)** **e.g. (-3, 7).****I can draw and translate simple shapes on the coordinate plane, and reflect them in the axes.****I can predict missing coordinates of quadrilaterals by using the properties of shapes, which may be expressed algebraically e.g. translating vertex (a, b) to (a-2, b+3), or find the other vertices of a square, given two of them are (a, b) and (a+d, b+d)** | I can describe positions on the full coordinate grid (all four quadrants). I can draw and translate simple shapes on the coordinate plane, and reflect them in the axes. I can predict missing coordinates of quadrilaterals by using the properties of shapes, which may be expressed algebraically. | **I can describe positions on the full coordinate grid (all four quadrants) both before and after the shape is transformed.** I can draw and translate simple shapes on the coordinate plane, and reflect them in the axes. I can predict missing coordinates of quadrilaterals by using the properties of shapes, which may be expressed algebraically. |
| **STATISTICS** |  |  |  |
| **Use and interpret data** | **I can interpret and construct pie charts and line graphs and use these to solve problems** **e.g. draw a pie chart to show how Jack spends his £36 birthday money:** **£9 snacks****£15 toys****£12 books****I can encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects** **e.g. a scattergraph connecting heights of children and their long-jump distance.**  | I can interpret and construct pie charts and line graphs and use these to solve problems **e.g. create a conversion graph for pounds and Euros****I can calculate and interpret the mean as an average. e.g. find the mean height of these children: 1.2m, 1.07m and 1.12m.**I can encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects.  | **I can interpret and construct pie charts and line graphs and use these to solve problems** **e.g. connect conversion from kilometres to miles in measure to its graphical representation.****I can calculate and interpret the mean as an average and use it to solve a problem, e.g: Five fish have an mean weight of 1.78kg. Suggest what weight the fish could be.**I can encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects**.**  |