Year 6 Long Term Overview

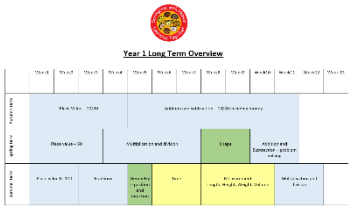
<table>
<tr><th></th><th>Week1</th><th>Week2</th><th>Week3</th><th>Week4</th><th>Week5</th><th>Week6</th><th>Week7</th><th>Week8</th><th>Week9</th><th>Week10</th><th>Week11</th><th>Week12</th><th>Week 13</th></tr>
<tr><td>Autumn term</td><td colspan="6"><u>Place value including decimals</u>
- Numbers to 10 million incl place value charts and counters
- Numbers lines incl finding half etc and placing numbers on number lines also decimals
- Ordering and comparing incl decimals
- Rounding using number lines
- Negative numbers</td><td><u>Multiplying and dividing by 10, 100 and 1000</u>
100 squares link to curriculum incl measures and money</td><td colspan="5"><u>Addition, Subtraction, Multiplication and division incl decimals</u>
- Factors, primes, multiples etc using 100 squares
- M (Column method) D (Short division and long division)
- Bar models and part part whole models
- Missing numbers – column and pyramids incl decimals
- Worded problems
- Misconceptions
- Money and measurement problems</td><td></td></tr>
<tr><td>Spring term</td><td colspan="6"><u>Fractions, decimals and percentages</u>
- Simplify fractions
- Add and subtract fractions with different denominators
- Multiply simples proper and divide simple proper
- Equivalent fractions

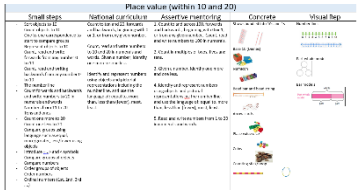
AM Maths – BODMAS, Ratio, Algebra, Geometry
6 a day – place value, addition, subtraction, multiplication and division
Boosters will include all of the above</td><td><u>Ratio</u>
-Language
-Introduce the symbol
-Calculating
-Scale factors
-Calculating scale factors</td><td colspan="2"><u>Converting units of measure</u>
-mm, cm, m Km, M
-mg, g and KG
-L and ml</td><td><u>Perimeter, area and volume</u>
-area of parallelograms and triangles
-shapes can have the same area but different perimeter</td><td><u>Geometry Angles</u>
-Protractor
-Angles
-Calculate angles
-Angles in triangles
-Angles in quadrilaterals
-Angles regular polygons</td><td><u>Geometry Shape</u>
-Draw shapes
-Draw nets
-2D shapes
-3D shapes</td><td></td></tr>
<tr><td>Summer term</td><td><u>Geometry Position and direction</u>
-first quadrant
-Plotting coordinates
-translations
-reflections</td><td><u>Statistics</u>
-Pie charts
-line graphs
-mean as the average</td><td colspan="2">Consolidation Place value, calculation, FDP</td><td>SATS week and writing week</td><td colspan="7">Problem solving and investigations</td><td></td></tr>
</table>

Daily Maths lessons at Hamer

Structure of a lesson

- Counting forwards and backwards (2 minutes)
- 6 a day arithmetic and revision question alternate days (5mins answer – recorded in books) 6 a day – give them the answers/ go over one question, revision question discuss with the children – during the revision question any misconceptions from children on the 6 a day can be targeted
- Vocabulary – including the my turn your turn approach or synonyms for other words eg add. This may be a retrieval based on the previous day.
- Main body of the lesson
- Independent work



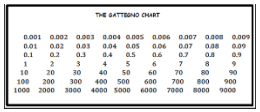
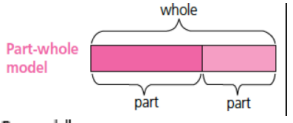
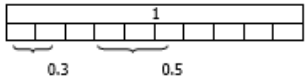


When planning for learning:

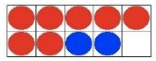
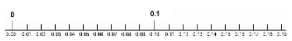
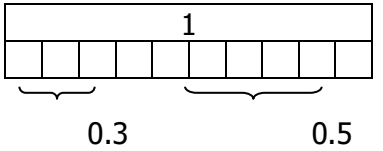
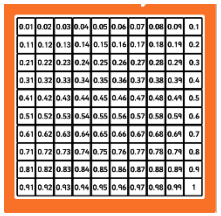
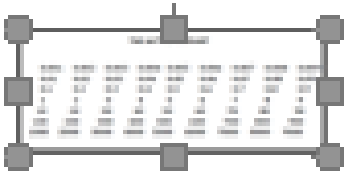
- Start with the new long term overview
- Use the same document that breaks this down into a medium term plan
- Use the small steps on the medium term plan to support planning
- Go to the White Rose documents on the O drive under – Updated Maths – 00 Maths – Deeping Materials – White Rose Hub – New White Rose – find your year group
- When designing the lesson, consider the following: What is the start point? What existing skills and knowledge may they have or need to revisit? What Concrete resources may you need? What Visual representations may you want use? What is the key learning in the lesson? What language do you need to model? Are there any sentence stems? Are there any key words the children need to know the definitions of? What is the end point?
- For support with designing questions for appropriate activities for independent learning please use the following
    - White Rose (On the O Drive follow above)
    - I See reasoning and problem solving (On the O Drive follow above)
    - Maths Hub – teaching for mastery (On the O Drive follow above)
    - NCTEM (On the O Drive follow above)
    - Classroom secrets
    - Nrich
- Remember the three key elements of Maths – Fluency, Reasoning and Problem Solving (There needs to be a balance between all three of them for children to develop a deep secure understanding and mastery of the curriculum)

	Counting (Forwards and Backwards)	Times tables (Forwards and Backwards)	Resources to support
Nursery	Number rhymes Movement counting Environmental counting Touch counting Counting up to 10		Counting sticks Counting hoops Number lines Hundred squares Multiplication squares Numicon Meter ruler Bead strings Straws Competitions/races/games around tables etc Count me in Clap and count Sensory equipment (eg, use of a bouncing ball, dropping marbles in a jar) Killer 15 21 Fizz Buzz Around the world Clapping and chanting BBC super movers (Goes forwards and backwards) Number fun songs
Reception	Counting to 10 and 20 Counting in 1's from different starting points up to 20 Counting in 2's from different starting points up to 20 Counting in 10s from different starting points up to 100 How many? Subitising – looking at patterns and pictures up to 10 Counting rhymes eg, five little speckled frogs	Counting in 2s, 5s and 10s	
Year 1	Counting to 10 and 20 Counting in 1's from different starting points crossing over 50 Counting in 2's from different starting points crossing over 50 Counting in odd and even numbers Counting in coins (1p, 2p, 5p, 10p, £1, £2, £5, £10) Counting in units of measures (cm)	2, 5 and 10	
Year 2	Revision from Year 1 Counting in 10s from different starting points up to 100 Counting in 2's from different starting points up to 100 Counting in odd and even numbers Counting in coins (1p, 2p, 5p, 10p, 20p, £1, £2, £5, £10) Counting in fractions (halves, quarters and thirds from any number to 10) – using pictures/resources to support Counting in different unit of measures (mm, cm, m) Counting in different times intervals	2, 3, 4, 5 and 10	
Year 3	Revision from Year 2 Counting in 50s/100s from different starting points Counting in 1000s from different starting points Counting in fractions (halves, thirds, quarters, fifths, eighths and tens) – using pictures/resources to support Counting in coins (1p, 2p, 5p, 10p, 20p. 50p, £1, £2, £5, £10) Counting in different unit of measures (mm, cm, m) Counting in different time intervals	2, 3, 4, 5, 6, 8 and 10	
Year 4	Revision from Year 3 Counting in 10's, 25s, 50's, 100s, 1000s from different starting points to 10,000 Counting in 10,000's from any start point Counting in square numbers Counting in coins in any amount (eg, 20p, 30p, 50p) Counting in unit fractions simplifying along the way (Eg ¼. ½. 3/4 , 1) Counting in decimals (tenths and hundredths) Counting in degrees (90, 180, 270 etc) Counting in different unit of measures (mm, cm, m, km) Counting in different time intervals	2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12	
Year 5	Revision from Year 4 Count in 10s, 25s, 50s, 100s, 1000s, 10000s, 100000s from different starting points to a million Counting in different units of measures Counting in prime numbers and cube numbers Counting below zero Counting in non-unit fractions (eg, 3/4)	2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12	
Year 6	Revision from Year 5 Counting in 10s, 25s, 50s, 100s, 1000s, 10000s, 100000s, 1000000s, from different starting points to ten million Counting in squared numbers to 20 Counting in decimals to 2 decimal places (including going below zero)	Times tables up to 15	

Place value including decimals

Small steps	National Curriculum	Assertive mentoring	Concrete	Visual Rep
- Numbers to ten million - Crossing PV boundaries - Compare any number - Order any number - Finding half way - Number lines - Round any number - Negative numbers - Negative numbers incl temperature - Value of 3 dp - Decimals on a number line - Compare decimals - Order decimals - Rounding decimals -	Read, write order and compare numbers up to 10,000,000 and determine the value of each digit Round any whole number to a required degree of accuracy Use negative numbers in context, and calculate intervals across zero Solve number and practical problems that involve all of the above Identify the value of each digit in numbers given to 3 decimal places and	1. Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. Round any whole number to a required degree of accuracy. 2. Use negative numbers in context, and calculate intervals across zero. Solve number and practical problems that involve all of the above. 10. Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places.	Base 10 (Dienes)  Numicon  Place value counters  Bead bar and bead string   Arrow cards  Place value dice  Coins  Counting stick/hoop  Metre stick  Arrow cards 	Place value charts 100s | 10s | 1s 100 square  Number lines   Gattegno chart  Part whole model  Bar models  Bar model  0.3 + 0.5 = 0.8

Multiplying by 10, 100 and 1000

Small steps	National curriculum	Assertive mentoring	Concrete	Visual Rep
- Multiply by 10, 100 and 1,000 - Divide by 10, 100 and 1,000 - Link to real life, measurement, money and percentages	Identify the value of each digit in numbers given to 3 decimal places and multiply numbers by 10, 100 and 1,000 giving answers up to 3 decimal places.	10. Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places.	Cuisenaire number rods  Numicon  Numicon baseboard  Bead bar and bead string   Tens frames  Base 10 (Dienes)  Metre stick  Arrow cards 	Number lines  Bar model  0.3 + 0.5 = 0.8 Decimal number square  Gattegno chart 

- Column method and short division / long division methods

Addition/Subtraction – Multiplication/Division

Small steps

- Add and subtract whole numbers
- Multiply up to a 4-digit by 1-digit number
- Multiply up to a 4 digit number by a 2 digit number
- Multiply decimals by integers
- Factors
- Common factors
- Common multiples
- Primes
- Short division
- Division using factors
- Divide decimals by integers
- Long division (1)
- Long division (2)
- Long division (3)
- Long division (4)
- Division to solve problems
- Squares (AM)
- Cubes (AM)
- BODMAS (AM)

National curriculum

Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.

Multiply multi-digit number up to 4 digits by a 2-digit number using the formal written method of long multiplication.

Divide numbers up to 4 digits by a 2-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.

Divide numbers up to 4 digits by a 2-digit number using the formal written method of short division, interpreting remainders according to the context.
Perform mental calculations, including with mixed operations and large numbers.

Identify common factors, common multiples and prime numbers.

Use their knowledge of the order of operations to carry out calculations involving the four operations.

Solve problems involving addition, subtraction, multiplication and division.

Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy.

Multiply one-digit numbers with up to 2 decimal places by whole numbers.

Use written division methods in cases where the answer has up to 2decimal places.

Assertive mentoring

3. Multiply and divide numbers up to 4 digits by a 2-digit whole number using the formal written methods and interpret remainders as whole number remainders, fractions, or by rounding.

4. Identify common factors, common multiples and prime numbers.

5. Use their knowledge of the order of operations to carry out calculations involving the four operations.

6. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

11. Multiply one-digit numbers with up to two decimal places by whole numbers. Use written division methods in cases where the answer has up to two decimal places.

Concrete

Base 10 (Dienes)



Numicon



Place value counters

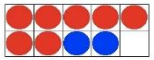


Bead bar and bead string





Tens frames



Discreet sets of objects e.g. counters, multilink





Money



Cuisenaire number rods



Visual Rep

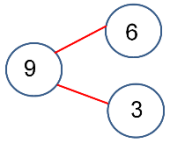
Calculation mat

100s	10s	1s

100 square



Part whole models



Num

Bar r...



16	25
41	

16 + 25 = 41

28	
10	18

28 – 10 = 18

7	7	7
21		

7 x 3 = 21

24		
8	8	8

24 ÷ 8 = 3

Fractions including decimals and percentages

Small steps

- Simplify fractions
- Fractions on a number line
- Compare and order fractions by the denominator
- Compare and order fractions by the numerator
- Add and subtract fractions
- Mixed addition and subtraction problems
- Multiply fractions by whole number
- Multiply fractions by fraction
- Divide a fraction by a whole number (1)
- Divide a fraction by a whole number (2)
- Four rules with fractions
- Fraction of an amount
- Fraction of an amount - finding the whole
- Decimals as fractions
- Fractions to decimals (1)
- Fractions to decimals (2)
- Fractions to percentages
- Equivalent FDP
- Percentage of an amount (1)
- Percentage of an amount (2)
- Percentages – missing values
- Percentage increase and decrease
- Order FDP

National curriculum

Use common factors to simplify fractions;
use common multiples to express fractions
in the same denomination.

Compare and order fractions, including fractions > 1

Generate and describe linear number sequences (with fractions)

Add and subtract fractions with different denominations and mixed numbers, using
the concept of equivalent fractions.

Multiply simple pairs of proper fractions, writing the answer in its simplest form

Divide proper fractions by whole numbers

Associate a fraction with division and calculate decimal fraction equivalents [for
example, 0.375] for a simple fraction

Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of
percentages for comparison.

Assertive mentoring

7. Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.

8. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.

9. Multiply simple proper fractions and simplify the answer (e.g. ¼ x ½ = ⅛). Divide proper fractions by whole numbers (e.g. ⅓ ÷ 2 = ⅙).

12. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

13. Solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison.

Concrete

Cuisenaire number rods



Numicon



Discreet sets of objects e.g. counters, multilink





Paper strips

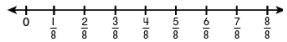


Fraction tiles

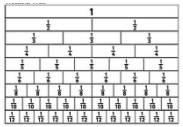


Visual Rep

Fraction number lines



Fraction wall



Bar models

12			
3	3	3	3

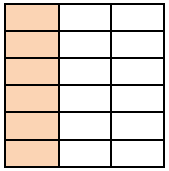
?

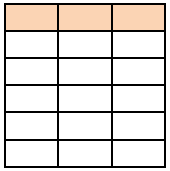
¼ of 12 = 3

1					
1/6	1/6	1/6	1/6	1/6	1/6

3/6 + 2/6 = 5/6

Arrays/area model





1/3 + 1/6

6/18 + | 3/18 = 9/18 = 1/2

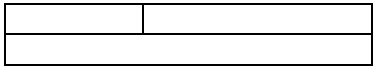
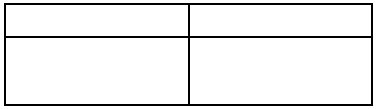
Measurement (Converting units)

Small steps	National curriculum	Assertive mentoring	Concrete	Visual Rep
- Length - Miles and kilometres - Capacity - Mass - Calculate with metric measures (Worded problems) - Imperial measures	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. 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 3dp. Convert between miles and kilometres.	18. Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. Convert between miles and km. 19. Use, read, write & convert between standard units of measure, converting length, mass, volume & time from smaller to larger units, and vice versa, using decimal notation to up to 3 dec places.	Reading different scales 	Number lines 

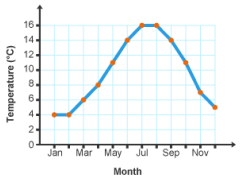
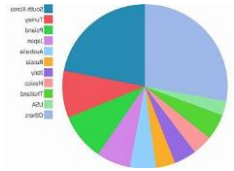
Measurement (Perimeter, Area and Volume)

Small steps	National curriculum	Assertive mentoring	Concrete	Visual Rep
- Shapes – same area - Area and perimeter - Area of a triangle (1) - Area of a triangle (2) - Area of a triangle (3) - Area of a parallelogram - Volume – counting cubes - Volume of a cuboid	Recognise that shapes with the same areas can have different perimeters and vice versa. Recognise when it is possible to use formulae for area and volume of shapes. Calculate the area of parallelograms and triangles. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm3, m3 and extending to other units (mm3, km3)	20. Recognise that shapes with the same areas can have different perimeters and vice versa. 21. Calculate the area of parallelograms and triangles. Recognise when it is possible to use formulae for area and volume of shapes. 22. Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^2) and cubic metres (m^3), and extending to other units.	Ruler  Meter stick  Link to real life objects eg, pencils, books, tables Multi link strips with a split pin	2d shapes 

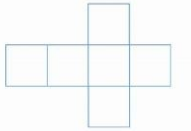
Ratio

Small steps	National curriculum	Assertive mentoring	Concrete	Visual Rep
- Using ratio language - Ratio and fractions - Introducing the ratio symbol - Simplify ratio - Calculating ratio - Simple scaling recipes - Using scale factors - Calculating scale factors - Ratio ,proportion and fractions problems	Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	14. Solve problems involving similar shapes where the scale factor is known or can be found. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.	Multi-link  Counters 	Bar models  Tables 

Statistics

Small steps	National curriculum	Assertive mentoring	Concrete	Visual Rep
- Read and interpret line graphs - Draw line graphs - Use line graphs to solve problems - Circles - Read and interpret pie charts - Pie charts with percentages - Draw pie charts - The mean	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. Interpret and construct pie charts and line graphs and use these to solve problems. Calculate the mean as an average.	29. Interpret and construct pie charts and line graphs and use these to solve problems. 30. Calculate and interpret the mean as an average		Line graphs  Pie Chart 

Geometry (Properties of shapes)

Small steps	National curriculum	Assertive mentoring	Concrete	Visual Rep
- Measure with a protractor - Introduce angles - Calculate angles - Vertically opposite angles - Angles – triangles - Angles – special cases - Find missing angles - Angles – quadrilaterals - Angles – regular polygons - Draw shapes - Draw nets	Draw 2-D shapes using given dimensions and angles. Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	23. Draw 2-D shapes using given dimensions and angles. Recognise, describe and build simple 3-D shapes, including making nets. 24. Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. 25. Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. 26. Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.	Protractor  3d nets – cuboids, prisms and cones  Making shapes 2D and 3D including drawing	Nets 

Algebra

Small steps	National curriculum	Assertive mentoring	Concrete	Visual Rep
- Find a rule – one step - Find a rule – two step - Use an algebraic rule - Substitution - Formulae - Word Problems - Solve simple one step equations - Solve two step equations - Find pairs of values - Enumerate possibilities	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. Enumerate possibilities of combinations of two variables.	15. Express missing number problems algebraically. Use simple formulae expressed in words. 16. Generate and describe linear number sequences. 17. Find pairs of numbers that satisfy number sentences involving two unknowns. Enumerate all possibilities of combinations of two variables.	Cuisenaire number rods 	

Geometry (Position and direction)				
Small steps	National curriculum	Assertive mentoring	Concrete	Visual Rep
- Coordinates in the first quadrant - Plotting coordinate - Translations - Reflections - Reasoning about shapes with coordinates	Describe positions on the full coordinate grid (all four quadrants). Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	27. Describe positions on the full coordinate grid (all four quadrants). 28. Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.		Four quadrants 