Mathematics

St Thomas and St Anne's CE Primary school

Intent

We believe that in order for pupils to be confident mathematicians, they need a firm foundation and concrete understanding of number and the number system and so, across the school, we use the Concrete Pictorial Abstract (CPA) approach to teaching mathematics. This allows children to explore mathematical concepts in lots of different ways, using a range of visual representations and it helps children to see the links between different concepts in this subject. This approach is utilised from foundation stage right through to Year 6. We use a mastery approach to teaching maths and aim for all children to achieve this.

Implementation

To support children to develop their mathematical knowledge, skills and understanding, a lesson structure is in place for maths lessons. This structure includes: a daily starter which recaps and feedbacks from previous learning; introduction of new learning and expert modelling which is developed further by significant opportunities to talk. This provides children with the opportunity to practise the new skill collaboratively and then in independent application. The independent aspect includes challenges, activities and questions designed to develop fluency, varied fluency, reasoning and problem solving. Daily assessment in the form of questioning, learning conversations with children and marking of books, identifies any children who may need additional support to achieve mastery of concepts and timely interventions ensure that children catch up. Maths lessons are taught daily and in addition to this, children are taught rapid recall of key mathematical facts and 'Flashback 4' activities, which utilise interleaving and distribution to aid memory.

Children have opportunities across the curriculum to use and apply their mathematical skills, knowledge and understanding in real life contexts.

Please see long term planning sequences below.

Early Number – EYFS

We have adopted a systematic approach to teaching children early number concepts as we believe like phonics for reading, a solid conceptual understanding of number are the building blocks for successful mathematicians.

Children in Reception follow the Number Blocks series as well as having opportunities to explore other aspects of the EY mathematics curriculum.

Number Blocks Support materials

EYFS Curriculum Companion

Year 1

Term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	**Number: Place Value (within 10)** **Small Steps: 15** NCETM Spine: 1.1 (comparison context) 1.3, (numbers 0-5) and 1.4 (numbers 6-10) *Note: part-whole shows up in 1.2 which could be used before 1.3*				**Number: Addition and Subtraction (within 10)** **Small Steps: 18** NCETM Spine: 1.2 (part whole model) 1.5, 1.6, 1.7				**Geometry: Shape** **Small Steps: 5** NCETM Spine: N/A	**Number: Place Value (within 20)** **Small Steps: 8** NCETM Spine: 1.10 (TP 1 and 2)		**Consolidation**
Spring	**Number: Addition and Subtraction (within 20)** **Small Steps: 8** NCETM Spine: 1.10 (TP 5), 1.11 (TP 5 and 6)				**Number: Place Value (within 50)** *includes counting in 2s and 5s* **Small Steps: 9** NCETM Spine: 1.9, 2.1				**Measurement: Length and Height** **Small Steps: 3** NCETM Spine: 1.1	**Measurement: Weight and Volume** **Small Steps: 6** NCETM Spine: 1.1		**Consolidation**
Summer	**Number: Multiplication and Division** **Small Steps: 7** NCETM Spine: 2.1 (TP 1-3) could also ref back to 1.8 TP 2			**Number: Fractions** **Small Steps: 4** NCETM: Key Stage 1 Year 1: Halving shapes or objects Year 1: Find a quarter of a shape or object	**Geometry: Position & Direction** **Small Steps: 3** NCETM Spine: N/A	**Number: Place Value (within 100)** **Small Steps: 6** NCETM Spine: 1.9			**Measures: Money** **Small Steps: 3** NCETM Spine: 2.1 (TP 4 – 6)	**Measurement: Time** **Small Steps: 6** NCETM Spine: N/A		**Consolidation**

NCETM Progression Grids can be found here

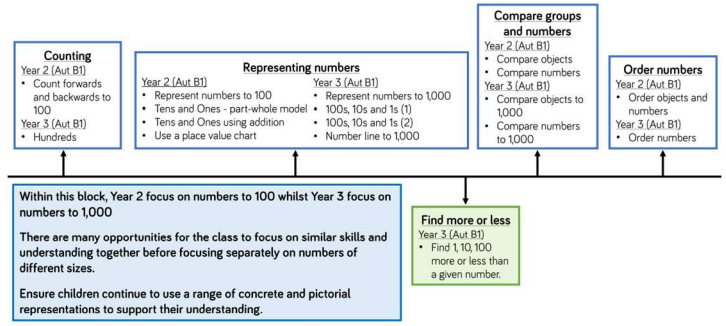
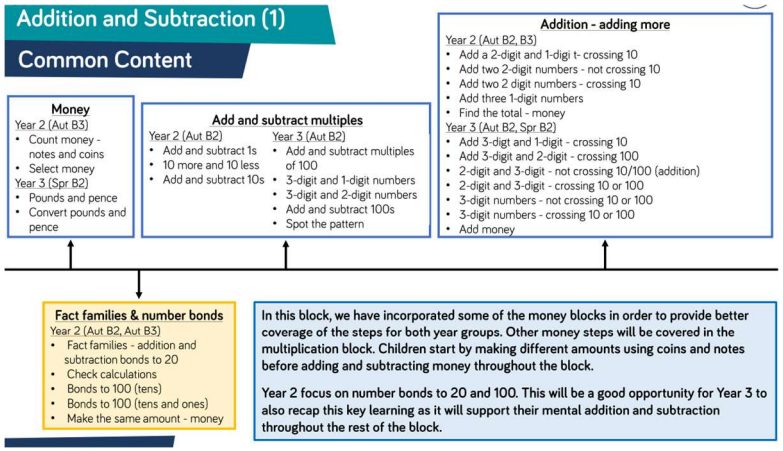
Year 2 and Year 3 (Elm Class)

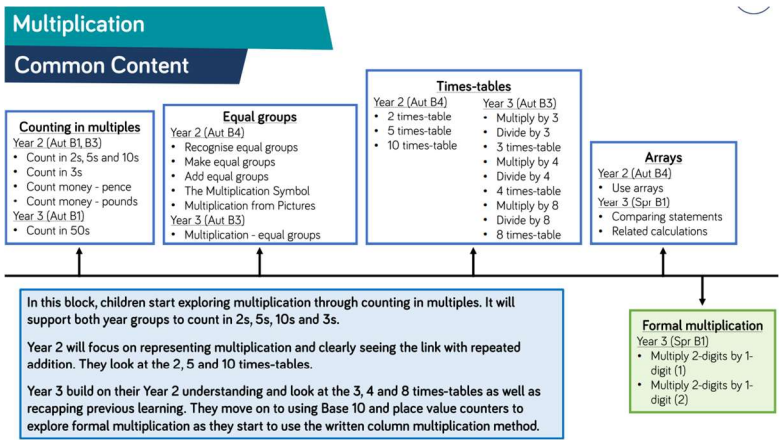
This NCETM Spine Link directs you to the page including all three spines (Add and Subtract, Multiplication and Division, Fractions) and the hyperlinks on the document takes you to the relevant segment which offer: teacher guidance, PowerPoint representations, and video guidance.

White Rose Overview: https://whiterosemaths.com/resources/schemes-of-learning/primary-sols/

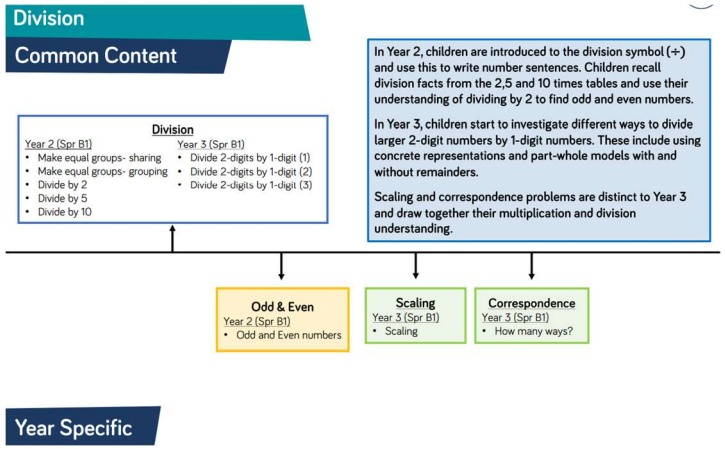
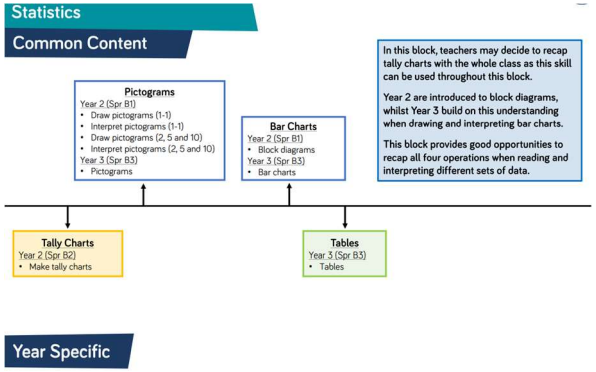
NCETM Teaching for Mastery home page: https://www.ncetm.org.uk/teaching-for-mastery/

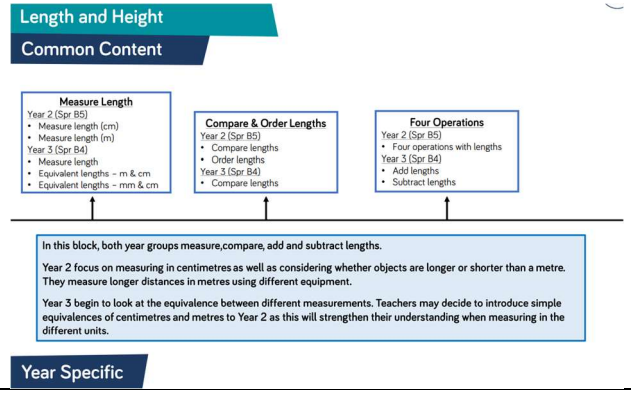
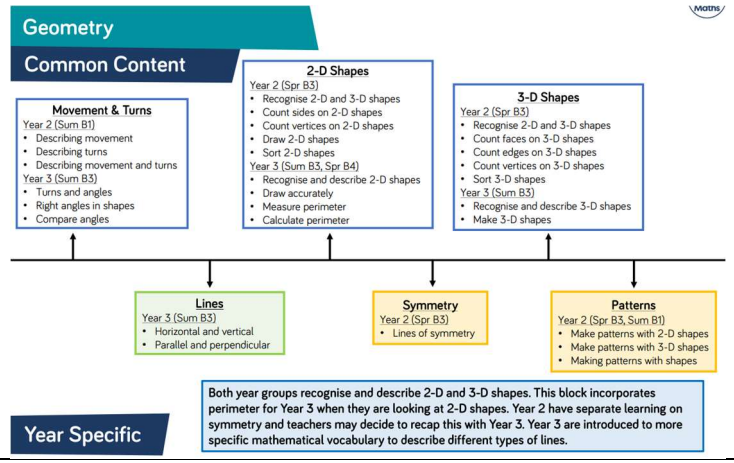
Autumn Term (Y2/3)

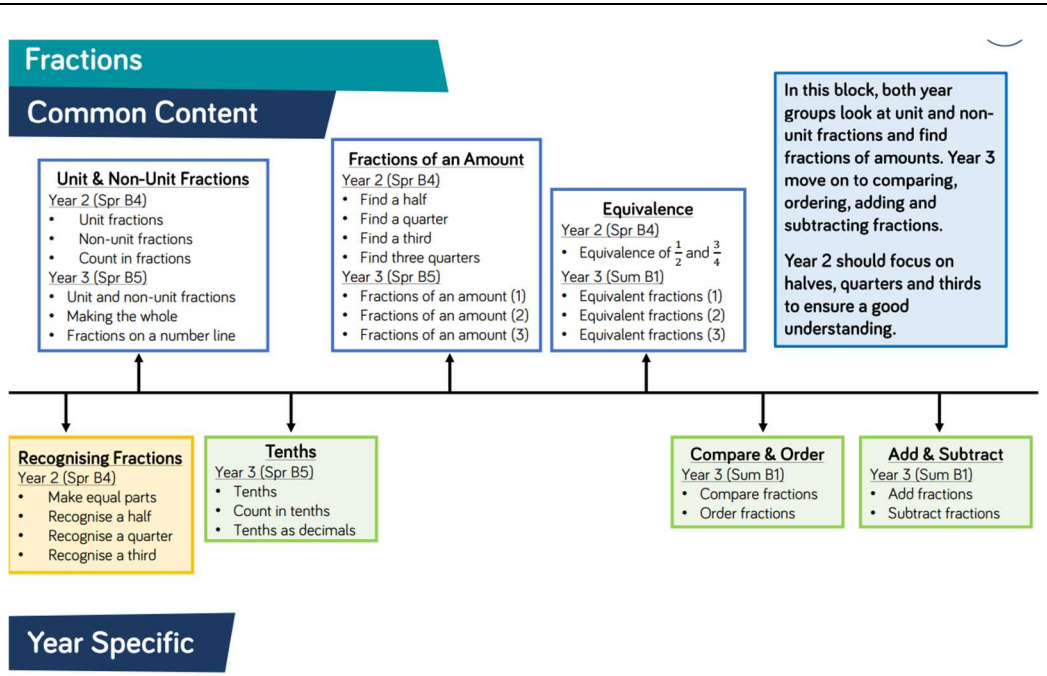
Weeks	Block	Similar Content	NCETM PD Material links		NCETM Mapping document
			Year 2	Year 3	
Autumn 1 -3	Number: Place value Y2: Numbers to 100 Y3 Numbers to 1000		1.9 (revisit Year 1 PV to 100) 2.1 (count in 2s, 5s, 10s)	1.17 (TP1 hundreds, 1000, 50s, 25s) 1.18 (TP1 100s,10s,1s) (TP2 number line to 1000) (TP3 1,10,100 more or less) (TP4 compare order)	Number and Place Value
Autumn 4 -9	Number: Addition and Subtraction Year 2: Within 100 Year 3: Within 1000		Could refer back to 1.2 (for part-whole), 1.8 (support with tens and bonds to 100), 1.9 (TP 6 using PV for fact families) 1.7 (fact families inverse etc.) 1.14 (add and sub tens, 10 more less) 1.13 - (covers most small steps) 1.14, 1.15 1.16 (subtraction 2 digit 2 digit, bonds 10s and 1s) 1.11 (three addends) 2.1 (TP 2 bonds to 100 from Y3)	1.18 (TP 5 add and sub multiples of 100) 1.19 1.17 (TP 3 + 4 crossing 10s and 100s) 1.20 (written addition) 1.21 (written subtraction)	Addition and Subtraction

Autumn 10 -11	Multiplication		2.2, 2.3 (TP1) 2.5 (arrays) 2.3 (2x table), 2.4 (10 and 5 x table)	2.6 (revisit for equal groups)	Multiplication and Division

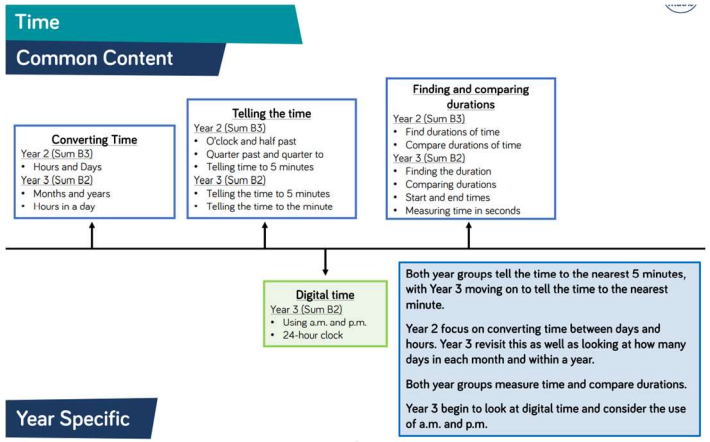
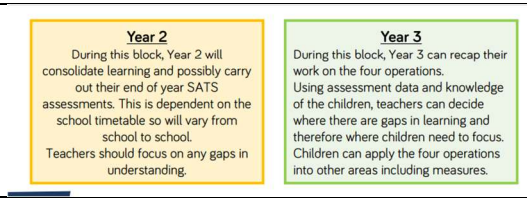
Spring Term (Year 2/3)

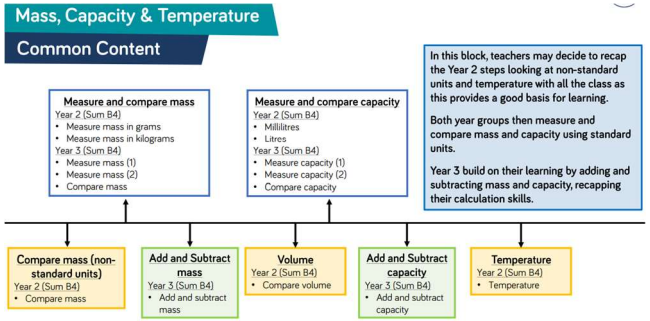
Weeks	Block	Similar Content	NCETM PD Material links		NCETM Mapping document
			Year 2	Year 3	
Spring 1-2	Division		1.4 and 1.10 TP 3 if needed to refer back to y1 odd/even numbers) 2.6 - (TP 1-3 sharing and grouping) (TP 4 divide by 2, 5, 10)	2.6 TP4 related 2.13 (TP 6 related facts taken from y4) 2.19 (related facts taken from y5) 2.17 and 2.8 (TP 5 scaling) 2.14 (select from TP 1 & 2) 2.15 (TP 1)	Multiplication and Division
Spring 3 -4	Statistics		NA	NA	Statistics

Spring 5	Measurement Length and Height		Could ref back to 1.1	2.16 (TP 1 to introduce)	Measurement
Spring 6 -8	Geometry: Y2 Shape, position and direction Y3 Shape and perimeter		NA	NA	Geometry Properties of Shape

Spring 9-12	Fractions		Key Stage 1 Fractions	revisit Key Stage 1 3.1, 3.2 3.6 (TP 3 Fractions of amounts)	Fractions

Summer Term (Y2/3)

Weeks	Block	Similar Content	NCETM PD Material links		NCETM Mapping document
			Year 2	Year 3	
Summer 1-2	Time		NA	NA	Measurement
Summer 3-5	Problem Solving and Consolation				

	Measurement Year 2: Mass. Capacity and Temperature Year 3: Mass and Capacity		NA	NA	Measurement
Summer 9-12	Consolidation and investigations	**Year 2** During this block, Year 2 will consolidate learning from the year. Teachers can decide where to focus with the children depending on assessment data and knowledge of the children's gaps in understanding.	**Year 3** During this block, Year 3 can recap their fractions learning, followed by their learning on shape, space and measure. Teachers can decide where to focus with the children depending on assessment data and knowledge of the children's gaps in understanding.		

Year 4/5 (Ash Class)

This NCETM Spine Link directs you to the page including all three spines (Add and Subtract, Multiplication and Division, Fractions) and the hyperlinks on the document takes you to the relevant segment which offer: teacher guidance, PowerPoint representations, and video guidance. TP stands for 'Teaching Point' as referenced.

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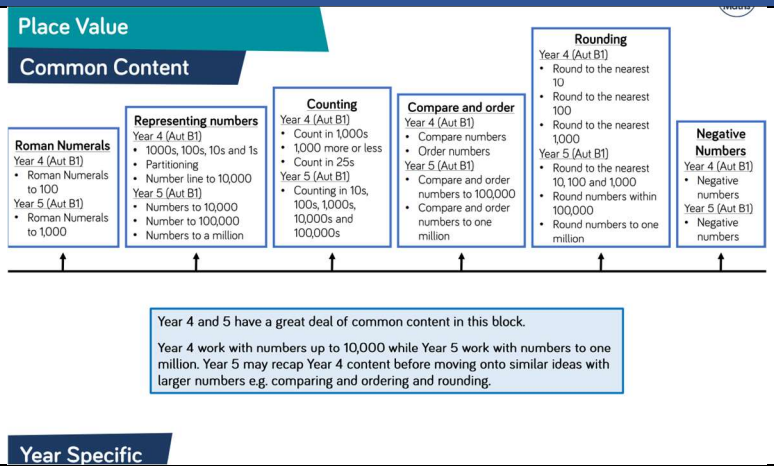
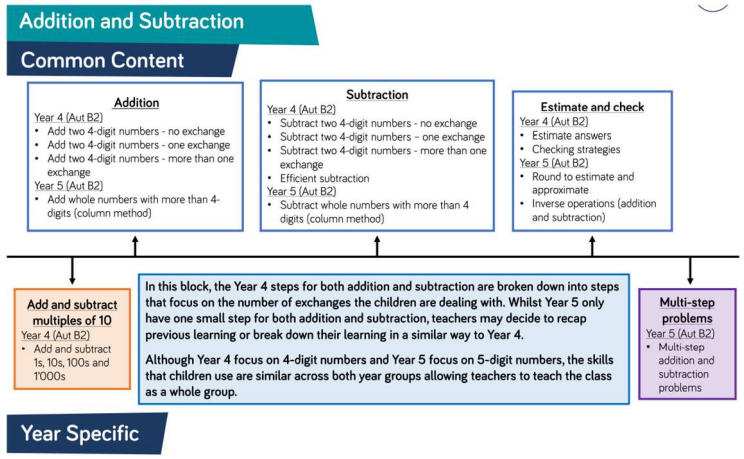
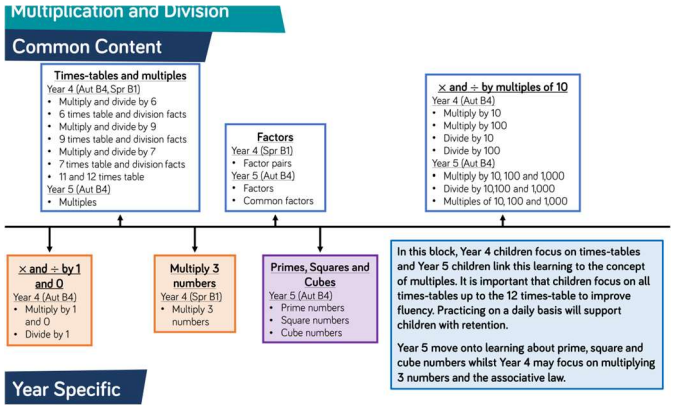
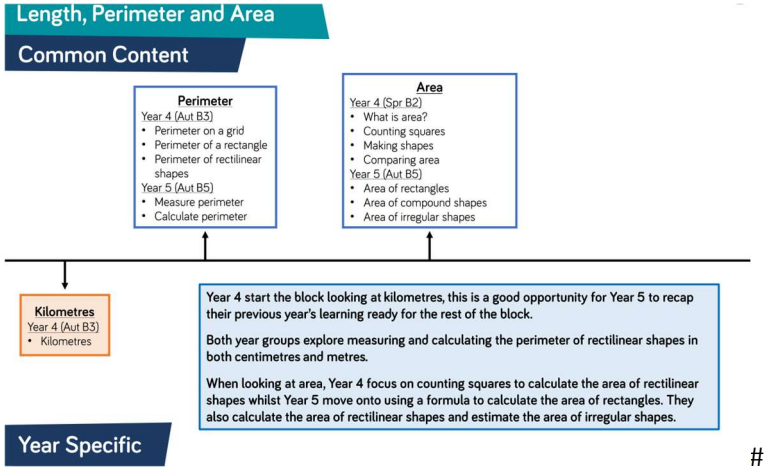
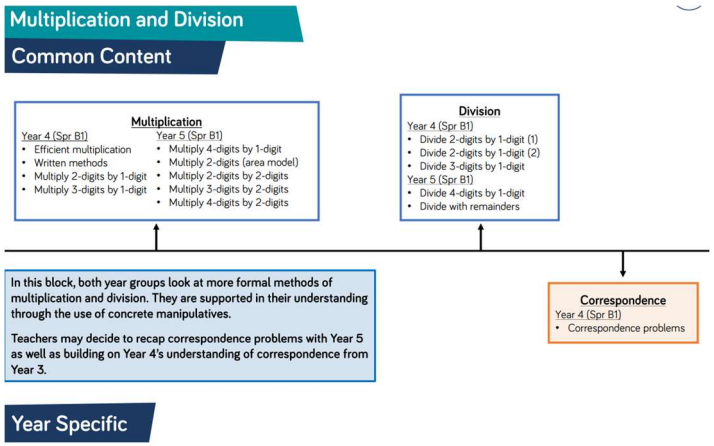
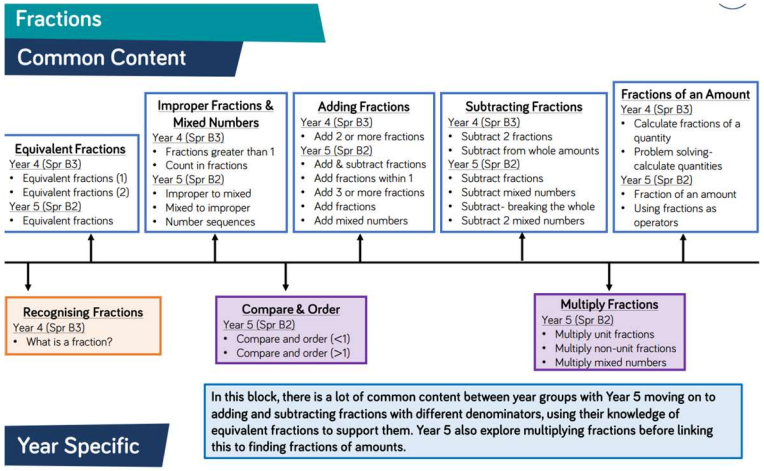
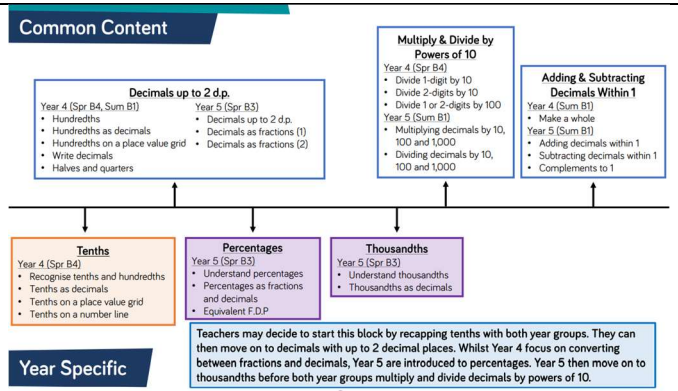
Autumn Term Overview (Y4/5)

Weeks	Block	Similar Content	NCETM PD Material links		NCETM Mapping document
			Year 4	Year 5	
Autumn 1-4	Number: Place value		**1.17 (count in 25s), 1.22 1.27 (negative numbers)**	**1.26 1.27 (negative numbers)**	Number and Place Value
Autumn 5-7	Addition and Subtraction		**1.22 (TP 3 add sub 1s,10s,100s,1000s and TP5). Refer back to 1.20 and 1.21 for introducing written methods.**	**1.26 1.27 (negative numbers)**	Addition and Subtraction

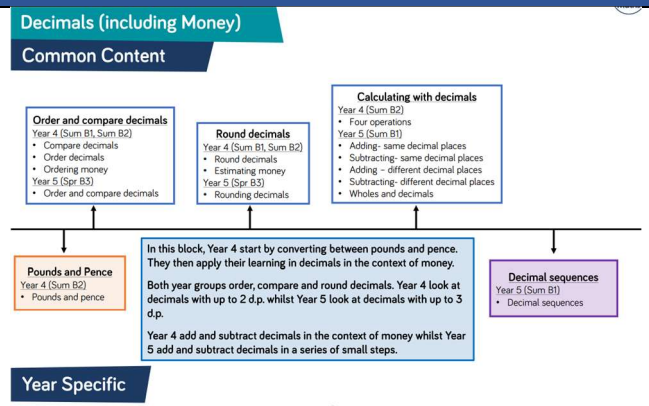
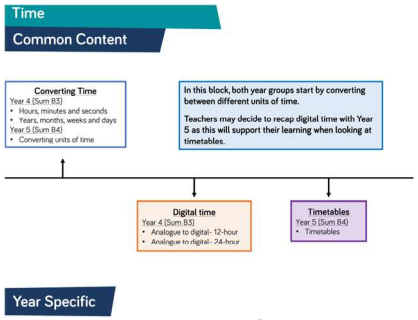
Autumn 8-10	Multiplication and Division		**2.6 (TP5 for x ÷ 0 and 1), 2.8 (6x and 9x), 2.9 (7x), 2.13 (x ÷ 10,100)**	**2.21 (factors multiples prime) 2.9 (square numbers) 2.13 (multiply divide 10,100,100) 2.19 (10,100,1000) 2.20 (cube numbers) 2.18 (maybe stand alone as equivalence)**	Multiplication and Division
Autumn 11-12	Length, area and perimeter	 #	**2.16**	**2.16**	Measurement

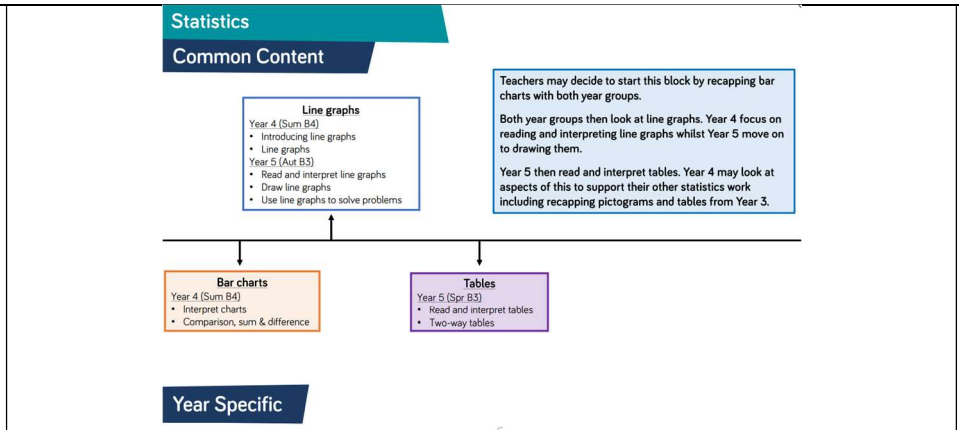
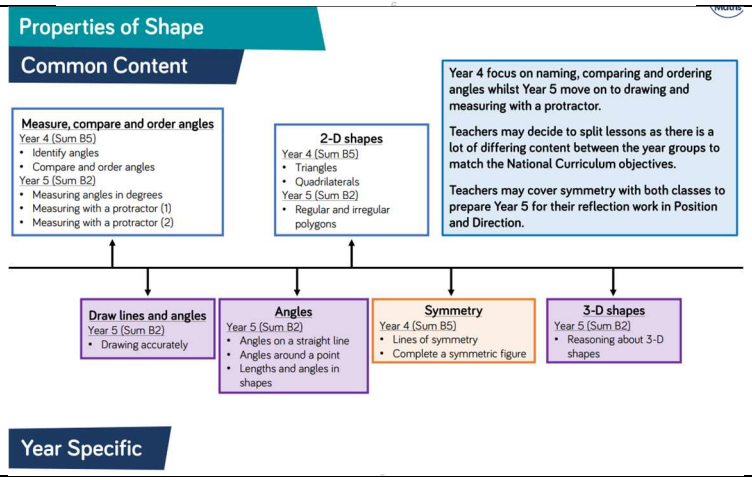
Spring Term (Y4/5)

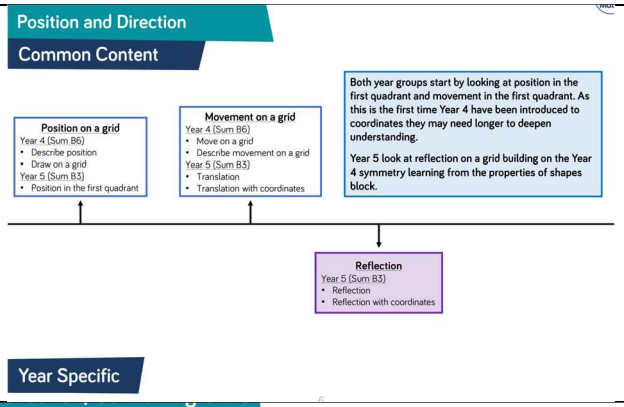
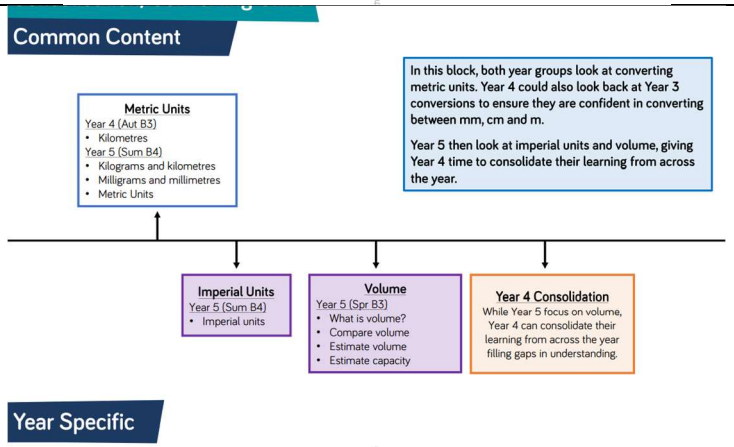
Weeks	Block	Similar Content	NCETM PD Material links		NCETM Mapping document
			Year 4	Year 5	
Spring 1-3	Multiplication and division		**2.10 (factor pairs), 2.11 (11x, 12x & efficient mult), 2.14 (multiplication) 2.15 (division) 2.12 (remainders)**	**2.23 (area model) 2.15 (division) 2.14 (written multiplication)**	Multiplication and Division

Spring 4-8	Number: Fractions		**May need to visit 3.0 (KS1 fractions) & Year 3 for intro. 3.4 (add and sub fractions) 3.7 (equiv - TP1 & TP2), 3.5 (be selective - show more than one whole in fractions, count on & back past 1, add & sub)**	**revisit parts of earlier fractions to prepare for topic (3.1, 3.2, 3.3, 3.4) 3.7 (equivalents and simplifying, compare order), 3.8 (add and subtract), 3.5 improper and mixed, 3.6 multiplying**	Fractions
Spring 9-12	Number: Decimals and Percentages		**Revisit 2.13 for ÷ 10 and 100), 1.23 (tenths, hundredths), 1.24 (mainly TP 1 and some of TP2)**	**continue from y4 1.23 and 1.24 (1/10, 1/100, 1/000ths) 1.24 (TP 3 compare and order) 3.10 FDP (TP1,TP2,TP4, TP5)**	Fractions

Summer Term Overview (Y4/5)

Weeks	Block	Similar Content	NCETM PD Material links		NCETM Mapping document
			Year 4	Year 5	
Summer 1-2	Number: Y4 Decimals Y5 Money		**1.24 (TP2, TP7)**	**ref back to 1.23 TP 4 -6 1.24 (TP 4 & 6) 2.19 TP 2 and 2.29 (decimals by 10,100,1000)**	Fractions
Summer 3	Measurement: time		NA	NA	Measurement

Summer 4-5	Statistics		NA	NA	Statistics
Summer 6-8	Geometry – Properties of Shape			**N/A** **1.28 (some ideas in TP4)**	Geometry Properties of Shape

Summer 9	Geometry – Position and Direction		NA	NA	Position and Direction
Summer 10-12	Y4 Consolidation Y5 Converting units and volume		NA	**Measurement: Converting Units 1.24 TP5 Measures: Volume 2.20**	Measurement

Year 5/6 (Oak Class)

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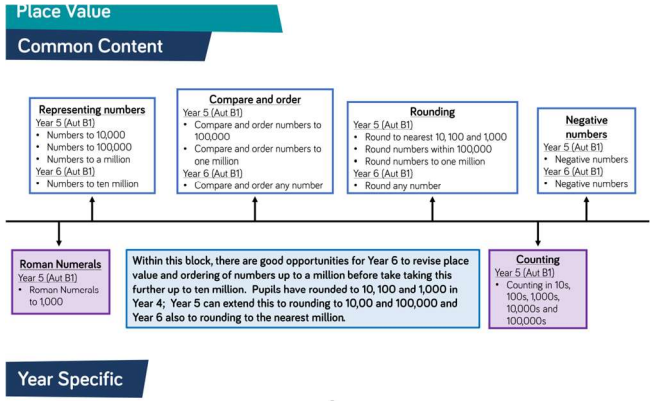
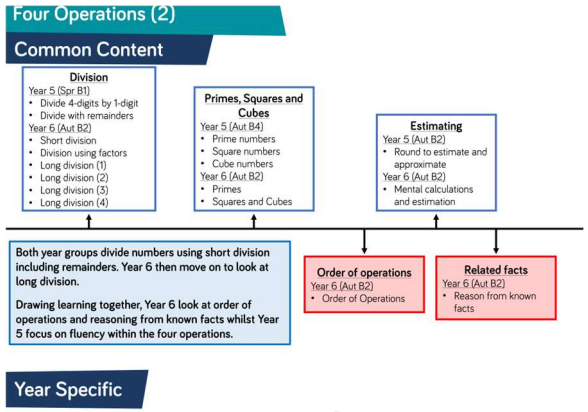
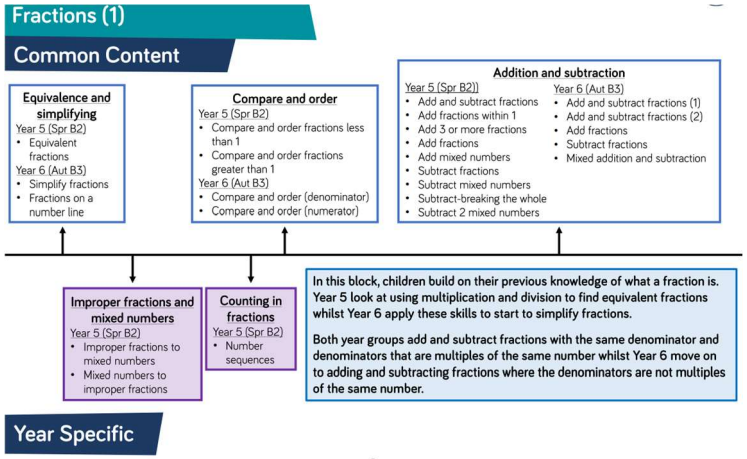
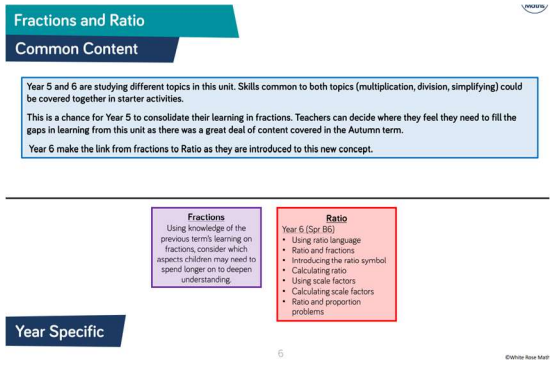
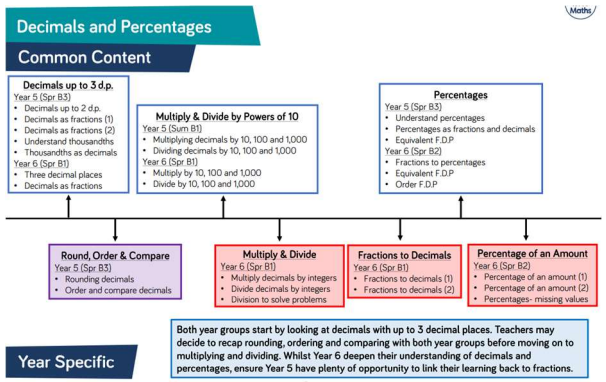
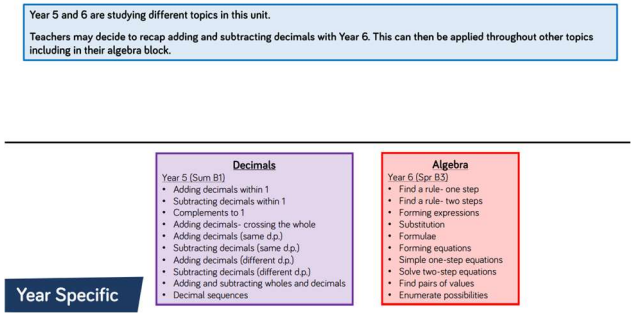
Autumn Term Overview (Y5/6)

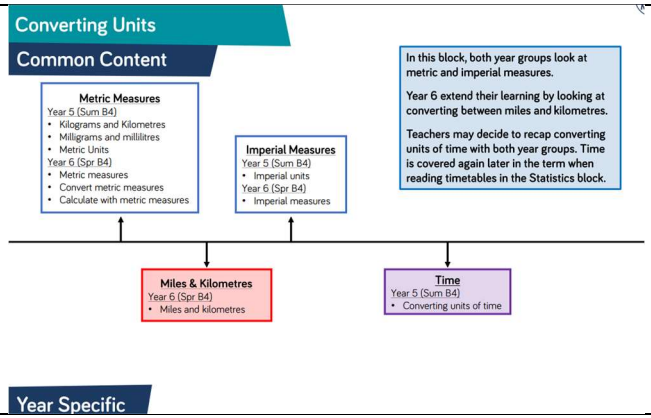
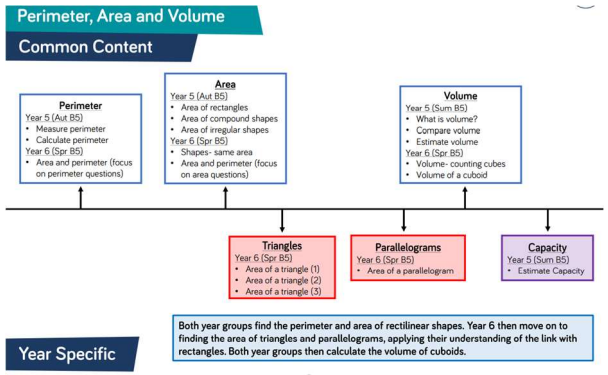
Weeks	Block	Similar Content	NCETM PD Material links		NCETM Mapping document
			Year 5	Year 6	
Autumn 1-2	Number – Place Value		**1.26** **1.27 (negative numbers)**	**1.26PV** **1.30 (mainly TP2 and TP3)** **1.30 (TP 5 rounding)**	Number and Place Value
Autumn 3-7	Number – Four Operations		**1.30 TP 4** **(revisit 1.20 and 1.21 for column)** **1.30 (maybe use to secure PV and counting through boundaries using mental methods TP4 and fluency including RPS in TP6)** **2.24 (division - ref back to 2.15 if necessary)** **2.23 long multiplication** **2.21 common factors, common multiples, primes** **2.20 cubes and ref back to 2.9 for square numbers** **2.22 and 2.28 (order operations)** **2.25 (reason known facts)**		Addition and Subtraction Multiplication and Division

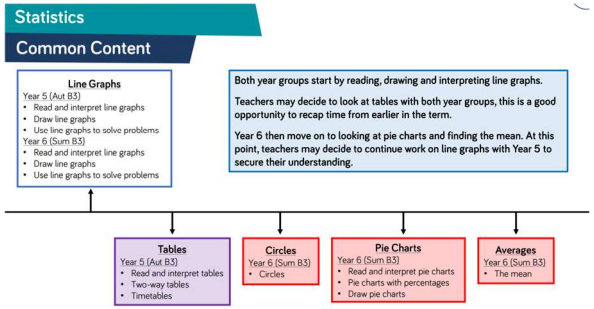
Autumn 8-12	Number – Fractions		**revisit parts of earlier fractions to prepare for topic (3.1 3.2 3.3 3.4 3.7 (equivalents and simplifying, compare order), 3.8 (add and subtract), 3.5 improper and mixed, 3.6 multiplying**	**3.7 simplify equivalent incl. number line revisit 3.5 mixed number improper fraction add, sub, number line 3.8 add and sub fractions 3.8 TP 5 (compare denom. and numerator) 3.9 Multiply, divide 3.9 fractions of amounts TP1 - revisit 3.6 TP 3**	Fractions

Spring Term Overview (Y5/6)

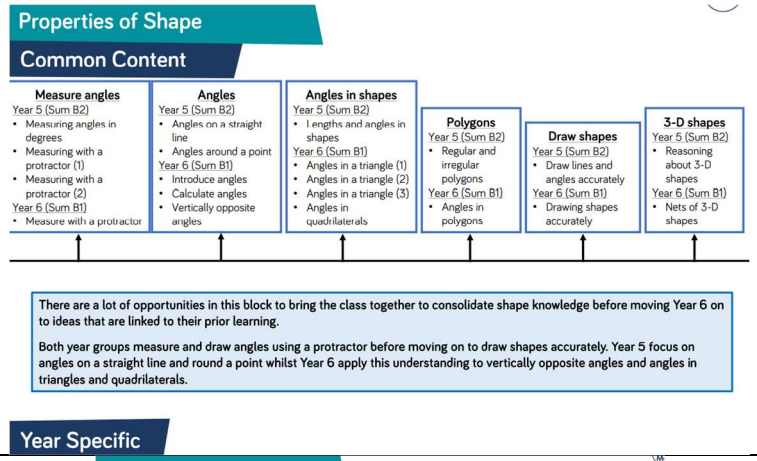
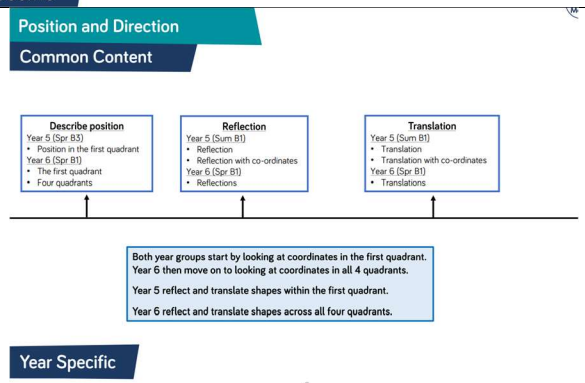
Weeks	Block	Similar Content	NCETM PD Material links		NCETM Mapping document
			Year 5	Year 6	
Spring 1-2	Number Y5 Fractions Y6 Ratio		**revisit parts of earlier fractions to prepare for topic 3.1 3.2 3.3 3.4 3.7 (equivalents and simplifying, compare order), 3.8 (add and subtract), 3.5 improper and mixed, 3.6 multiplying**	**2.27**	Fractions Ratio

Spring 3-5	Number Decimals and Percentages		**Continue from y4 1.23 and 1.24 (1/10, 1/100, 1/000ths) 1.24 (TP 3 compare and order) 3.10 FDP (TP1,TP2,TP4, TP5**	**revisit TP 1.24 for 3 D.P, revisit 2.29 - multi div 10,100,1000 2.19 mult div decimals by integers 2.28 (some support with division problems but no decimals) 3.10 fraction decimal**	Fractions
Spring 6-7	Number Year 5 Decimals Year 6 Algebra		**Continue from y4 1.23 and 1.24 (1/10, 1/100, 1/000ths) 1.24 (TP 3 compare and order) 3.10 FDP (TP1,TP2,TP4, TP5)**	**1.28, 1.31**	Fractions Algebra

Spring 8	Measurement Converting Units		1.24 TP5	2.29 TP2 (metric only)	Measurement
Spring 9-10	Measurement Area, perimeter and volume		revisit 2.16	2.30 area perimeter (revisit 2.16) 2.20 volume	Measurement

Spring 11-12	Statistics		**some examples in 1.28 and 1.29**	**1.28 TP3 (pie chart, bar chart - missing values focus) 3.10 TP6 - percentage context, 2.26 mean average**	Statistics

Summer Term Overview (Y5/6)

Weeks	Block	Similar Content	NCETM PD Material links		NCETM Mapping document
			Year 5	Year 6	
Summer 1-2	Geometry Properties of Shape		NA	NA	Geometry Properties of Shape
Summer 3	Geometry Position and Direction		NA	NA	Position and Direction

Summer 4-12	Consolidation and Transition projects				