"Pure mathematics is in its way, the poetry of logical ideas."
- Albert Einstein.

At Crowton, we believe that all children can, and will, succeed in mathematics. Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. Mathematicians are able to reason, explain, work systematically and apply their mathematical knowledge to a range of situations and problems. It enables children to understand and appreciate relationships and patterns in both number and space in their everyday lives.

We encourage pupils to have a positive attitude to maths and we work hard to ensure they develop strong mathematical skills and knowledge. We develop a culture where children persevere and are resilient when they are faced with challenging mathematical concepts. We foster positive 'can do' attitudes and we promote the fact that 'We can all do maths!' We believe all children can achieve in mathematics and teach for secure and deep understanding of mathematical concepts through manageable steps.

Intent

At Crowton, we enjoy maths! Maths is a skill we use daily and is an essential part of everyday life. Therefore, maths forms an important part of our broad and balanced curriculum where we endeavour to ensure that children develop an enjoyment and enthusiasm for maths that will stay with them and empower them in future life.

We intend to deliver a curriculum which:

- Allows children to be a part of creative and engaging lessons that will give them a range of opportunities to explore maths.
- Gives all children a chance to believe in themselves as mathematicians and develop the power of resilience and perseverance when faced with mathematical challenges.
- Develops all children's fluency, providing opportunities to reason mathematically and develop using and applying skills when solving increasingly more complex problems involving a range of mathematical knowledge.
- Enables all children to be challenged and encouraged to excel in maths.
- Allows opportunities to revisit and practise basic maths skills to ensure key mathematical concepts are embedded and children are able to see the links between the topics in maths and across the wider curriculum.
- Is in line with the expectations in the National Curriculum.

Implementation

The White Rose Maths scheme is followed to create a curriculum designed to meet the needs of our children and to allow for opportunities for revisit and retention, ensuring full coverage of the national curriculum for mathematics and providing a broad and balanced spread of all areas of the curriculum. Teachers are confident to manipulate this planning in the short term in order to meet the needs of all of our children within mixed year group classes.

Children, regardless of their ability, are provided with opportunities to become more fluent in their learning, to reason mathematically and to solve a range of problems. This is done using a range of sources such as White Rose Maths, Twinkl, Master the Curriculum and Primary Stars Education. Mathematics homework is provided on a weekly basis to help embed the week's learning and share the learning with parents/carers. Calculation practice is provided regularly through basic skills starter activities and SODA tasks to ensure children's fluency in calculation methods is embedded.

Learning is differentiated to meet the needs of the children within the class whilst still providing each child with the opportunity to achieve the learning intentions to meet the expectations of their year group. Interventions are put in place to support children where necessary. Opportunities to collaborate in pairs or small groups are given regularly so children can learn from and support each other. Effective teacher modelling and effective assessment for learning make sure children are moved on in their learning or supported when finding it difficult. Where possible, links are made with other subjects across the curriculum.

Impact

The expected impact of our maths scheme of work is that the children will:

- Become fluent in the fundamentals of mathematics
- Have a range of strategies to solve mathematical questions and problems
- Develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- Solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication
- Be able to break down problems into a series of simpler steps and preserve in seeking solutions.
- Make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.
- Meet the end of key stage expectations outlined in the National curriculum for Maths.

Mathematics: National Curriculum Programmes of Study

The national curriculum for mathematics aims to ensure that all pupils:
• Become **fluent** in the fundamentals of mathematics, including the varied and regular practice of increasingly complex problems over time.
• **Reason mathematically** by following a line of enquiry, understanding relationships and generalisations, and developing an argument, justification or proof using mathematical language.
• Can **solve problems** by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.
The National Curriculum describes what must be taught in each key stage. We have a set of key objectives to follow in Mathematics that provide detailed guidance for the implementation of the National Curriculum for Maths. This ensures continuity and progression in the teaching of maths. In Reception, maths learning follows the Early Years Foundation Stages Framework. Children are given opportunities to extend their understanding of language learning through play and investigation, developing their characteristics of learning.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between mathematical ideas. The programmes of study are, by necessity, organised into distinct areas, but pupils will make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They will also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress will always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly will be challenged through being offered rich and sophisticated problems before any acceleration through new content.

Those who are not sufficiently fluent with earlier material will consolidate their understanding, including additional practice through small focus group work or 1:1 interventions, before moving on.

How is maths taught across Key Stages?

As outlined in the National Curriculum, children in primary school develop their understanding of the fundamentals of mathematics and build their knowledge of addition, subtraction, multiplication and division throughout KS1 and KS2.

EYFS
Children have regular daily mathematics inputs, where the focus is on developing mental maths skills, concentrating on numbers between 1 and 20. The initial part of the EYFS is centred around counting and ordering numbers, matching amounts to quantities and ensuring children are accurate in

their counting and are using strategies to help them. Regular small group adult-led sessions are taught in mathematics. In addition to the more formal taught sessions, children are encouraged to explore number and shape and space through continuous provision activities, which are planned to develop children's understanding of key mathematical concepts. By the end of the year, children are expected to be able to count to 20, to be able to say what is one more and one less than a given number, to be able to add or subtract single digit numbers and to solve problems, including doubling, halving and sharing.

Key Stage 1

The principal focus of mathematics teaching in Key Stage 1 is to ensure that children develop confidence and mental fluency with whole numbers, counting and place value. This involves working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools). At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that children become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that children develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

The principal focus of mathematics teaching in upper Key Stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all 4 operations,

including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly

Assessment in Mathematics

At Crowton, we use a variety of assessment in order to ensure the progress of all pupils is at its highest. With regards to our formative assessment methods, we have a system in place which enables us to know exactly where our pupils are in terms of mathematical understanding. This subsequently allows us to address possible misconceptions through different interventions and perhaps most importantly, it is also used to inform our planning for that unit of mathematics.

Ways we ensure the progress of all pupils/assess:

- Teachers review pupils' work on a daily basis to identify any pupils who need same day intervention and to inform planning.
- End of units assessments are used throughout the year to identify any gaps learning.
- Retrieval activities to recap prior learning and to interpret the forgetting curve e.g. White Rose Flashback 4 questions.
- NFER assessment papers – termly. (Y2/Y6 previous SATS assessments).

Growth Mindset

Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics. Lessons are carefully planned and resourced, using a range of concrete, pictorial and abstract resources, to foster deep conceptual and procedural knowledge. We understand the vital role practice and consolidation play in enabling children to gain a deeper understanding of mathematical concepts and children are given the opportunity to develop their fluency, reasoning and problem-solving skills. Developing the language of mathematics is an essential aspect of teaching mathematics, therefore teachers use precise questioning in class to test conceptual and procedural knowledge, and children are expected to use correct mathematical vocabulary within lessons.

SEND

We pride ourselves on providing learning opportunities that are accessible and ambitious for all learners, enabling all children to make progress and have a sense of achievement. We achieve this through sequential planning, allowing skills to be scaffolded and extended as appropriate. We support our SEND children further through pre-teaching subject specific vocabulary and scaffolding work where appropriate. We also create an ethos of not being afraid to make 'mistakes,' (through our growth mindset work) but instead, for children to be risk-takers, problem solvers and to develop resilience.

Early Years Long Term Planning

Crowton Christ Church C.E. Primary School

Mathematics
• Count objects, actions and sounds.
• Subitise.
• Link the number symbol (numeral) with its cardinal number value.
• Count beyond ten.
• Compare numbers.
• Understand the 'one more than/one less than' relationship between consecutive numbers.
• Explore the composition of numbers to 10.
• Automatically recall number bonds for numbers 0-5 and some to 10.
• Select, rotate and manipulate shapes to develop spatial reasoning skills.
• Compose and decompose shapes so that children recognise a shape can have other shapes *within it*, just as numbers can.
• Continue, copy and create repeating patterns.
• Compare length, weight and capacity.

Early Learning Goals:

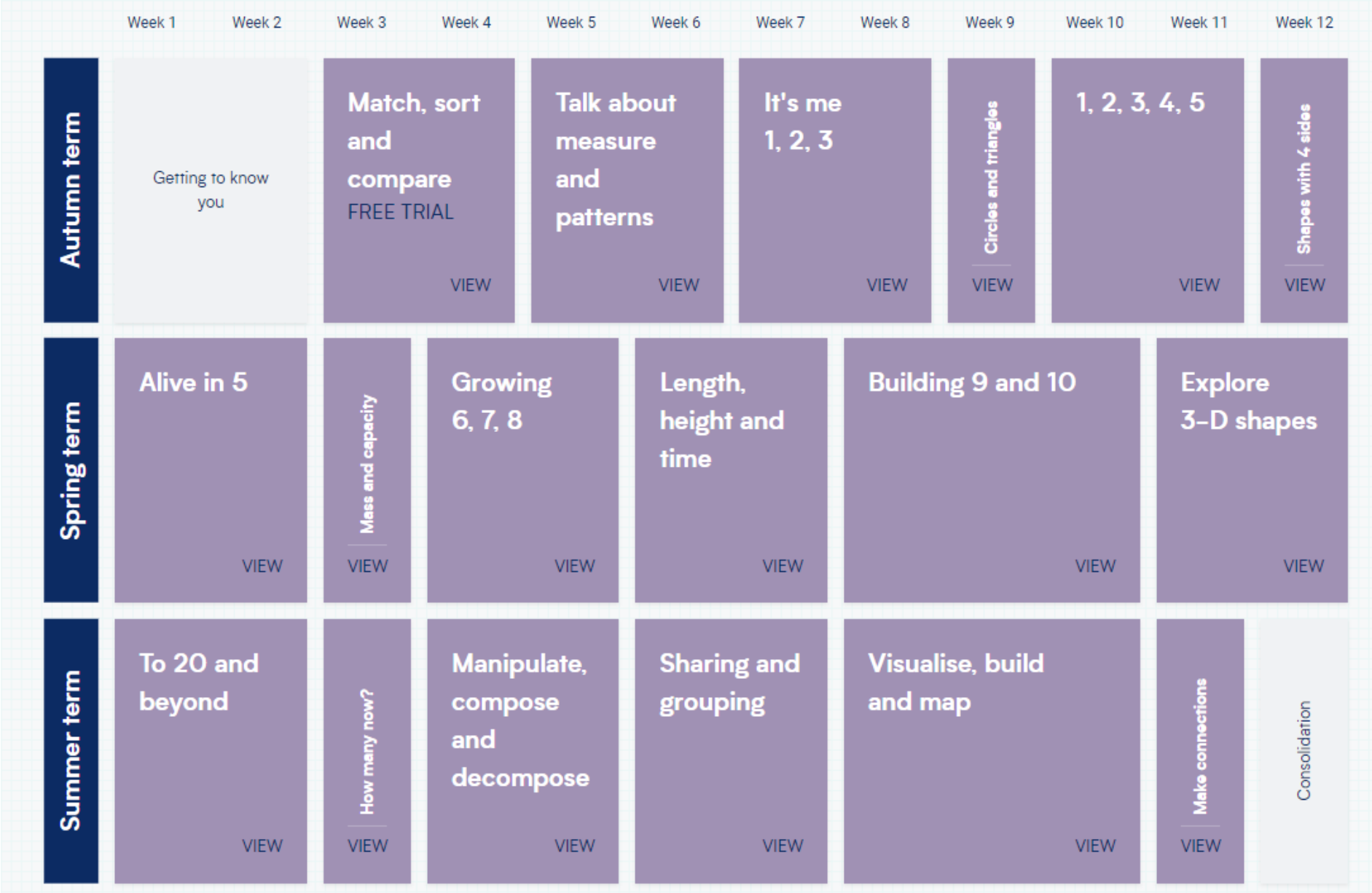
Mathematics
Number
• Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5. • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.
Numerical Patterns
• Verbally count beyond 20, recognising the pattern of the counting system. • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

EYFS Early Learning Goals / Prior Knowledge

Development Matters Non-Statutory Curriculum Guidance for the Early Years Foundation Stage pages 88-92:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1007446/6.7534_DfE_Development_Matters_Report_and_illustrations_web__2_.pdf

Prior Learning/Knowledge:
Children at the expected level (three to four years) of development will:
• Develop fast recognition of up to 3 objects, without having to count them individually ('subitising')
• Recite numbers past 5
• Say one number for each item in order: 1,2,3,4,5
• Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle')
• Show 'finger numbers' up to 5
• Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5
• Experiment with their own symbols and marks as well as numerals
• Solve real world mathematical problems with numbers up to 5
• Compare quantities using language: 'more than', 'fewer than'
• Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'
• Understand position through words alone – for example, "The bag is under the table," – with no pointing
• Describe a familiar route
• Discuss routes and locations, using words like 'in front of' and 'behind'
• Make comparisons between objects relating to size, length, weight and capacity
• Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc.
• Combine shapes to make new ones – an arch, a bigger triangle, etc.
• Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc.
• Extend and create ABAB patterns – stick, leaf, stick, leaf
• Notice and correct an error in a repeating pattern
• Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...

EYFS Curriculum Overview



Autumn Long Term Planning Y1-Y6

Crowton Christ Church C.E. Primary School

Year 1: Small Steps to Mastery and Substantive Knowledge

Year 1 AUTUMN 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
Number: Place Value (within 10) **White Rose Small Steps: 15** 1. Sort objects 2. Count objects 3. Count objects from a larger group 4. Represent objects 5. Recognise numbers as words 6. Count on from any number 7. One more 8. Count backwards within 10 9. One less 10. Compare groups by matching 11. Fewer, more, same 12. Less than, greater than, equal to 13. Compare numbers 14. Order objects and numbers 15. The number line **Substantive Knowledge** • RTP: NPV1 Count within 100, forwards and backwards, starting with any number. • RTP: NPV2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and = • NC: Count to 10 forwards and backwards beginning with 0 or 1 or from any given number • NC: Count, read and write numerals to 10 in numerals and words • NC: Given a number, identify one more or one less • NC: Identify and represent numbers using objects and pictorial representation including a number line and use the language of equal to, more than, less than, (fewer) most, least					**Number: Addition and Subtraction (within 10)** **White Rose Small Steps: 17** 1. Introduce parts and wholes 2. Part-whole model 3. Write number sentences 4. Fact families – addition facts 5. Number bonds to 10 6. Systematic number bonds within 10 7. Number bonds to 10 8. Addition – adding together 9. Addition – adding more 10. Addition problems 11. Find a part 12. Subtraction – find a part 13. Fact families – the 8 facts 14. Subtraction – take away/cross out (How many left?) 15. Takeaway – how many left? 16. Subtraction on a number line 17. Add or subtract 1 or 2 **Substantive Knowledge** • RTP: NF1 Develop fluency in addition and subtraction facts within 10. • RTP: AS1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. • RTP: AS2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts • NC: Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • NC: Represent and use number bonds and related subtraction facts within 10					**Geometry: Shape** **White Rose Small Steps: 5** 1. Recognise and name 3-D shapes 2. Sort 3-D shapes 3. Recognise and name 2-D shapes 4. Sort 2-D shapes 5. Patterns with 3-D and 2-D shapes **Substantive Knowledge** • RTP: G1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. • NC: Recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles] • NC: Recognise and name common3-D shapes [for example,	**CONSOLIDATION**

NCETM PD Materials Spine 1: Addition and Subtraction 1.1 Comparison of quantities/measures 1.3 Composition of numbers 1-5 1.4 1.4 Composition of numbers 6-10	• NC: Add and subtract one-digit numbers to 10 including 0 • NC: Solve one step problems that involve addition and subtraction using concrete objects and pictorial representation and missing number problems **NCETM PD Materials** Spine 1: Addition and Subtraction 1.2 'Whole' and 'Parts': part-part-whole 1.5 Introduction to aggregation and partitioning 1.6 Introduction to augmentation and reduction 1.7 Addition and Subtraction: Strategies within 10	cuboids (including cubes), pyramids and spheres]. **NCETM PD Materials** N/A	

Year 2: Small Steps to Mastery and Substantive Knowledge

Year 2 AUTUMN 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
Number: Place Value **White Rose Small Steps: 16** 1. Numbers to 20 2. Count objects to 100 by making 10s 3. Recognise tens and ones 4. Use a place value chart 5. Partition numbers to 100 6. Write numbers to 100 in words 7. Flexibly partition numbers to 100 8. Write numbers to 100 in expanded form 9. 10s on the number line to 100 10. 10s and 1s on the number line to 100 11. Estimate numbers on a number line 12. Compare objects 13. Compare numbers 14. Order objects and numbers 15. Count in 2s, 5s and 10s 16. Count in 3s **Substantive Knowledge** • RTP: NPV1 Recognise place value of each digit in 2 digit numbers; compose and decompose 2 digit numbers (standard + non- standard partitioning) • RTP: NPV2 Reason about the location of any 2 digit number, including identifying the previous and next multiple of 10. • NC: Read and write numbers to at least 100 in numerals and in words				**Number: Addition and Subtraction** **White Rose Small Steps: 21** 1. Bonds to 10 2. Fact families – addition and subtraction bonds within 20 3. Related facts 4. Bonds to 100 (tens) 5. Add and subtract 1a 6. Add by making 10 7. Add three 1-digit numbers 8. Add to the next 10 9. Add across a 10 10. Subtract across 10 11. Subtract from a 10 12. Subtract a 1-digit number from a 2-digit number (across 10) 13. 10 more, 10 less 14. Add and subtract 10s 15. Add two 2-digit numbers (not across 10) 16. Add two 2-digit numbers (across a 10) 17. Subtract two 2-digit numbers (not across 10) 18. Subtract two 2-digit numbers (across a 10) 19. Mixed addition and subtraction 20. Compare number sentences 21. Missing number problems **Substantive Knowledge** • RTP: NF1 Secure fluency in addition and subtraction facts within 10, through continued practice. • RTP: AS1 Add and subtract across 10. • RTP:AS2 Recognise the subtraction structure of 'difference' (How many more…?)				**Geometry: Properties of Shape** **White Rose Small Steps: 12** 1. Recognise 2D and 3D shapes 2. Count sides on 2D shapes 3. Count vertices on 2D shapes 4. Draw 2D shapes 5. Lines of symmetry on shapes 6. Use lines of symmetry to complete shapes 7. Sort 2-D shapes 8. Count faces on 3d shapes 9. Count edges on 3D shapes 10. Count vertices on 3D shapes 11. Sort 3D shapes 12. Make patterns with 3D shapes **Substantive Knowledge** • RTP: G1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties. • NC: identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line • NC: identify and describe the properties of 3D shapes, including the number of edges, vertices and faces • NC: identify 2D shapes on the surface of 3D shapes		

• NC: Identify, represent and estimate numbers using different representations, including the number line • NC: Compare and order numbers from 0 up to 100; use and = signs • NC: Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward • NC: Use place value and number facts to solve problems. • NC: Recognise the place value of each digit in a 2-digit number (tens & ones) **NCETM PD Materials** Spine 1: Addition and Subtraction 1.9 Composition of numbers: 20-100 *(Revisit Y1 Place Value to 100)* Spine 2: Multiplication and Division 2.1 Counting, unitising and coins (Count in 2s, 5s, 10s)	• RTP: AS3 and AS4 Add and subtract within 100: add and subtract only ones or only tens to/from a two- digit number and add and subtract any 2 two- digit numbers. • NC: Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • NC: Add and subtract numbers using various representations mentally, including: a two-digit and 1s, a two-digit and 10s, 2 two-digit numbers, 3 one-digit numbers • NC: Show that addition of 2 numbers is commutative and subtraction of one number from another is not • NC: Recognise and use the inverse relationship between addition and subtraction (use to check and solve missing number problems) • NC: Solve problems with addition and subtraction using representations, applying their increasing knowledge of mental and written methods **NCETM PD Materials** Spine 1: Addition and Subtraction 1.2 'Whole' and 'Parts': part-part-whole 1.7 Addition and Subtraction: Strategies within 10 1.8 Composition of numbers: multiples of 10 up to 100 1.9 Composition of numbers: 20-100 (TP 6) 1.11 Addition and subtraction: bridging 10 1.13 Addition and subtraction: two-digit and single-digit numbers 1.14 Addition and subtraction: two-digit numbers and multiples of 10 1.16 Subtraction: two-digit and two-digit numbers Spine 2: Multiplication and Division 2.1 Counting, unitising and coins (TP 2)	• NC: compare and sort common 2-D and 3D shapes and everyday objects. **NCETM PD Materials** Spine 3: Fractions 3.0 Guidance on the teaching of fractions in Key Stage 1

Year 3: Small Steps to Mastery and Substantive Knowledge

Year 3 AUTUMN 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
Number: Place Value **White Rose Small Steps: 14** 1. Represent numbers to 100 (R) 2. Partition numbers to 100 3. Number line to 100 4. Hundreds 5. Represent numbers to 1,000 6. Partition numbers to 1000 7. Flexible partitioning of numbers to 1000 8. 100s, 10s and 1s 9. Find 1, 10, 100 more or less than a given number 10. Number line to 1,000 11. Estimate on a number line to 1000 12. Compare numbers to 1,000 13. Order numbers Count in 50s 14. Count in 50s **Substantive Knowledge** • NPV1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10. • NPV2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and nonstandard partitioning. • NPV3 Reason about the location of any three- digit number in the linear number			**Number: Addition and Subtraction** **White Rose Small Steps: 22** 1. Apply number bonds within 10 2. Add and subtract 1s 3. Add and subtract 10s 4. Add and subtract 100s 5. Spot the pattern 6. Add 1s across 10 7. Add 10s across 100 8. Subtract 1s across a 10 9. Subtract 10s across 100 10. Make connections 11. Add two numbers (no exchange) 12. Subtract two numbers (no exchange) 13. Add two numbers (across a 10) 14. Add two numbers (across a 100) 15. Subtract two numbers (across a 10) 16. Subtract two numbers (across a 100) 17. Add 2-digit and 3-digit numbers 18. Subtract a 2-digit number from a 3-digit number 19. Complements to 100 20. Estimate answers 21. Inverse operations 22. Make decisions **Substantive Knowledge** • AS1 Calculate complements to 100, for example: 46 + ? = 100 • AS2 Add and subtract up to three-digit numbers using columnar methods.					**Number: Multiplication and Division** **White Rose Small Steps: 15** 1. Multiplication – equal groups 2. Using arrays 3. Multiplies of 2 4. Multiples of 5 and 10 5. Sharing and grouping 6. Multiply by 3 7. Divide by 3 8. The 3 times table 9. Multiply by 4 10. Divide by 4 11. The 4 times-table 12. Multiply by 8 13. Divide by 8 14. The 8 times-table 15. The 2, 4 and 8 times-tables **Substantive Knowledge** • MD1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division. • NF2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number • NF3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). • NPV1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and			

system, including identifying the previous and next multiple of 100 and 10. • NPV4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. • NC: Regonise the place value of each digit in a three-digit number • NC: Identify, represent and estimate using different representations • NC: Find 10 or 100 more of less than a given number • NC: Compare and order numbers up to 1000 • NC: Solve number problems and practical problems involving these ideas • NC: Count from 0 in multiples of 4, 8, 50 and 100 **NCETM PD Materials** Spine 1: Addition and Subtraction 1.17 Composition and calculation: 100 and bridging 100 (TP 1) 1.18 Composition and calculation: three-digit numbers (TP 2-4)	• AS3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part-part-whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction. • NF1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice. • NF3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). • NC: Add and subtract numbers mentally including: 3 digits and ones, 3 digits and tens, 3 digits and hundreds. • NC: Add and subtract numbers with up to 3 digits using formal written methods of columnar addition and subtraction • NC: Estimate the answer to a calculation and use inverse operations to check answers • NC: Solve problems, including missing numbers, using number facts, place value and more complex addition and subtraction. **NCETM PD Materials** Spine 1: Addition and Subtraction 1.17 Composition and calculation: 100 and bridging 100 1.18 Composition and calculation: three-digit numbers (TP 5) 1.20 Algorithms: column addition 1.21 Algorithms: column subtraction	work out how many 10s there are in other three- digit multiples of 10. • NC: Count from 0 in multiples of 4, 8, 50 and 100 • NC: Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. • NC: Write and calculate multiplication and division statements for the tables known including 2 digits times 1-digit numbers using mental and formal written methods • NC: Solve problems, including missing numbers involving multiplication and division. • NC: Solve problems including positive integer scaling and correspondence problems in which *n* objects are connected to *m* objects **NCETM PD Materials** Spine 2: Multiplication and Division 2.6 Structures and quotitive and partitive division 2.7 Times tables: 2, 4 and 8, and the relationship between them 2.8 Times tables: 3, 6 and 9, and the relationship between them (TP 1)

Year 4: Small Steps to Mastery and Substantive Knowledge

Year 4 AUTUMN 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
Number: Place Value **White Rose Small Steps: 17** 1. Represent numbers to 1000 2. Partition numbers to 1000 3. Number line to 1000 4. Thousands 5. Represent numbers to 10,000 6. Partition numbers to 10,000 7. Flexible partitioning of numbers to 10,000 8. Find 1, 10, 100, 1000 more or less 9. Number line to 10,000 10. Estimate on a number line to 10,000 11. Compare numbers to 10,000 12. Order numbers to 10,000 13. Roman numerals 14. Round to the nearest 10 15. Round to the nearest 100 16. Round to the nearest 1000 17. Round to the nearest 10, 100 or 1000 **Substantive Knowledge** • NPV1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100. • NPV2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non- standard partitioning.				**Number: Addition and Subtraction** **White Rose Small Steps: 10** 1. Add and subtract 1s, 10s, 100s and 1000s 2. Add up to two 4-digit numbers – no exchange 3. Add two 4-digit numbers – one exchange 4. Add two 4-digit numbers – more than one exchange 5. Subtract two 4-digit numbers – no exchange 6. Subtract two 4-digit numbers – one exchange 7. Subtract two 4-digit numbers – more than one exchange 8. Efficient subtraction 9. Estimate answers 10. Checking strategies **Substantive Knowledge** • NF3 Apply place-value knowledge to known additive facts (scaling facts by 100) • NC: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate			**Measurement: Area** **White Rose Small Steps: 4** 1. What is area? 2. Count squares 3. Make shapes 4. Compare area **Substantive Knowledge** • NC: Find the area of rectilinear shapes by counting squares **NCETM PD Materials** N/A	**Number: Multiplication and Division** **White Rose Small Steps: 13** 1. Multiplies of 3 2. Multiply and divide by 6 3. 6 times-table and division facts 4. Multiply and divide by 9 5. 9 times-table and division facts 6. The 3, 6 and 9 times-tables 7. Multiply and divide by 7 8. 7 times-table and division facts 9. 11 times-table and division facts 10. 12 times-table and division facts 11. Multiply and divide by 1 and 0 12. Divide a number by 1 and itself 13. Multiply three numbers **Substantive Knowledge** • NF1 Recall multiplication and division facts up to 12x12 and recognise products in multiplication tables as multiples of the corresponding number. • NF3 Apply place-value knowledge to known multiplicative number facts (scaling facts by 100) • MD1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.		**CONSOLIDATION**

• NPV3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100 (AND 10), and rounding to the nearest of each • NC: Count in multiples of 6, 7, 9, 25 and 1000 • NC: Find 1000 more or less than a given number • NC: Recognise the place value of each digit in a 4-digit number • NC: Order and compare numbers beyond 1000 • NC: Identify, represent and estimate numbers using different representations • NC: Round any number to the nearest 10, 100 and 1000 • NC: Count backwards through zero to negative numbers • NC: Solve number and practical problems will all of the above. **NCETM PD Materials** Spine 1: Addition and Subtraction 1.17 Composition and calculation: 100 and bridging 100 1.22 Composition and calculation: 1000 and four-digit numbers 1.27 Negative numbers: counting, comparing and calculating	• NC: Estimate and use inverse operations to check answers to a calculation • NC: Solve addition and subtraction twostep problems in contexts, deciding which operations and methods to use and why **NCETM PD Materials** Spine 1: Addition and Subtraction 1.20 Algorithms: column addition 1.21 Algorithms: column subtraction 1.22 Composition and calculation: 1000 and four-digit numbers (TP 3)		• MD2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. • NC: Recall m ultiplication and division facts for multiplication tables up to 12 X 12 • NC: Count in multiples of 6, 7, 9, 25 and 1000 • NC: Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1, dividing by 1 • NC: Multiplying together 3 numbers • NC: Solve problems involving multiplying and adding including using the distributive law to multiply 2-digit numbers by 1 digit; integer scaling problems and correspondence problems such as *n* objects are connected to *m* objects **NCETM PD Materials** Spine 2: Multiplication and Division 2.6 Structures and quotitive and partitive division (TP 5) 2.8 Times tables: 3, 6 and 9, and the relationship between them 2.9 Times tables: 7 and patterns within/across times tables 2.13 Calculation: multiplying and dividing by 10 or 100	

Year 5: Small Steps to Mastery and Substantive Knowledge

Year 5 AUTUMN 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
Number: Place Value **White Rose Small Steps: 14** 1. Roman Numerals to 1,000 2. Numbers to 10,000 3. Numbers to 100,000 4. Numbers to 1,000,000 5. Read and write numbers to 1,000,000 6. Powers of 10 7. 10, 100, 1000, 10,000, 100,000 more or less 8. Partition numbers to 1,000,000 9. Number line to 1,000,000 10. Compare and order numbers to 100,000 11. Compare and order numbers to 1,000,000 12. Compare and order numbers to 100,000 13. Round within 100,000 14. Round within 1,000,000 **Substantive Knowledge** • NPV2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning. • NPV3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying			**Number: Addition and Subtraction** **White Rose Small Steps: 8** 1. Mental strategies 2. Add whole numbers with more than four digits 3. Subtract whole numbers with more than four digits 4. Round to check answers 5. Inverse operations (+ and -) 6. Multi-step addition and subtraction problems 7. Compare calculations 8. Find missing numbers **Substantive Knowledge** • NF2 Apply place-value knowledge to known additive facts • NC: Add and subtract whole numbers with		**Number: Multiplication and Division** **White Rose Small Steps: 10** 1. Multiples 2. Commons multiplies 3. Factors 4. Common factors 5. Prime numbers 6. Square numbers 7. Cube numbers 8. Multiply by 10, 100 and 1,000 9. Divide by 10, 100 and 1,000 10. Multiples of 10, 100 and 1,000 **Substantive Knowledge** • MD1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size. • MD2 Find factors and multiples of positive integers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors. • NC: Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers			**Number: Fractions A** **White Rose Small Steps: 17** 1. Find fractions equivalent to a unit fraction 2. Find fractions equivalent to a non-unit fraction 3. Recognise equivalent fractions 4. Convert improper fractions to mixed numbers 5. Convert mixed numbers to improper fractions 6. Compare fractions less than 1 7. Order fractions less than 1 8. Compare and order fractions greater than 1 9. Add and subtract fractions with the same denominator 10. Add fractions within 1 11. Add fractions with a total greater than 1 12. Add to a mixed number 13. Add two mixed numbers 14. Subtract fractions 15. Subtract from a mixed number 16. Subtract from a mixed number- breaking the whole 17. Subtract two mixed numbers **Substantive Knowledge** • 5F2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system. • 5F1 Find non-unit fractions of quantities • NC: Add and subtract fractions with the same denominator and denominators that are multiples of the same number **NCETM PD Materials**		

the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. • NC: Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit • NC: Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • NC: Interpret negative numbers in context • NC: Count forwards and backwards with positive and negative whole numbers, including through 0 • NC: Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 • NC: Solve number problems and practical problems that involve all of the above • NC: Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals **NCETM PD Materials** Spine 1: Addition and Subtraction 1.26 Composition and calculation: Multiples of 1,000 up to 1,000,000 1.27 Negative numbers: counting, comparing and calculating	more than 4 digits, including using formal written methods (columnar) • NC: Add and subtract numbers mentally with increasingly large numbers • NC: Use rounding to check answers and determine, in context, levels of accuracy • NC: Solve + and - multi-step problems in contexts, deciding which operations and methods to use and why. **NCETM PD Materials** Spine 1: Addition and Subtraction 1.20 Algorithms: column addition 1.21 Algorithms: column subtraction 1.22 Composition and calculation: 1000 and four-digit numbers (TP 3 and TP 5) 1.28 Common structures and the part-part-whole relationship (Multi-step problems) 1.29 Using equivalence and the compensation property to calculate (TP 3 and 6)	• NC: Establish whether a number up to 100 is prime; recall prime numbers to 19 • NC: Identify multiples and factors • NC: Multiply and divide numbers mentally drawing upon known facts • NC: Multiply and divide whole numbers by 10, 100 and 1000 • NC: Recognise and use square numbers and cube numbers, and the notation for squared (*e. g* 3^2 and 4^3) • NC: Find all factor pairs of a number and common factors of 2 numbers • NC: Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes **NCETM PD Materials** Spine 2: Multiplication and Division 2.9 Times tables: 7 and patterns within/across times tables (square numbers) 2.13 Calculation: Multiplying and dividing by 10 or 100 2.18 Using equivalence to calculate 2.19 Calculation: x/÷ fractions by whole numbers 2.20 Multiplication with three factors and volume (cube numbers) 2.21 Factors, multiples, prime numbers and composite numbers	Spine 3: Fractions 3.1 Preparing for fractions: the part-whole relationship 3.2 Unit fractions: identifying, representing and comparing 3.3 Non unit fractions: identifying, representing and comparing 3.4 Adding and subtracting within one whole 3.5 Working across one whole: improper fractions and mixed numbers 3.6 Multiplying whole numbers and fractions 3.7 Finding equivalent fractions and simplifying fractions 3.8 Common denomination: more adding and subtracting

Year 6: Small Steps to Mastery and Substantive Knowledge

Year 6 AUTUMN 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
Number: Place Value **White Rose Small Steps: 8** 1. Numbers to 1,000,000 2. Numbers to 10,000,000 3. Read and write numbers to 10,000,000 4, Powers of 10 5. Number line to 10,000,000 6. Compare and order any integers 7. Round any integer 8. Negative numbers **Substantive Knowledge** • NPV2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and nonstandard partitioning. • NPV3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.		**Number: Addition, Subtraction, Multiplication and Division (Four Operations)** **White Rose Small Steps: 17** 1. Add and subtract integers 2. Common factors 3. Common multiples 4. Rules of divisibility 5. Primes to 100 6. Square and cube numbers 7. Multiply up to a 4-digit number by a 2-digit number 8. Solve problems with multiplication 9. Short division 10. Division using factors 11. Introduction to long division 12. Long division with remainders 13. Solve problems with division 14. Solve multi-step problems 15. Order of operations 16. Mental calculations and estimation 17. Reason from known facts **Substantive Knowledge** • AS/MD-1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). • AS/MD2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.					**Number: Fractions A and B** **Fractions A** **White Rose Small Steps: 9** 1. Equivalent fractions and simplifying 2. Equivalent fractions on a number line 3. Compare and order (denominator) 4. Compare and order (numerator) 5. Add and subtract simple fractions 6. Add and subtract any two fractions 7. Add mixed numbers 8. Subtract mixed numbers 9. Muti-step problems **Fractions B** **White Rose Small Steps: 7** 1. Multiply fractions by integers 2. Multiply fractions by fractions 3. Divide a fraction by an integer 4. Divide any fraction by any integer 5. Mixed questions with fractions 6. Fraction of an amount 7. Fraction of an amount - find the whole **Substantive Knowledge** • 6F-1 Recognise when fractions can be simplified, and use common factors to simplify fractions.			**Measurement: Converting Units** **White Rose Small Steps: 5** 1. Metric measures 2. Convert metric measures 3. Calculate with metric measures 4. Miles and kilometres 5. Imperial measures **Substantive Knowledge** • NC: Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 2 decimal places where appropriate • NC: Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of

• NPV4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts. • NC: Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • NC: Round any whole number to a require degree of accuracy • NC: Use negative numbers in context, and calculate intervals across 0 • NC: Solve number and practical problems that involve all of the above **NCETM PD Materials** Spine 1: Addition and Subtraction 1.26 Composition and calculation: Multiples of 1,000 up to 1,000,000 **Revisit place value from Y5* 1.30 Composition and calculation: numbers up to 10,000,000 (TP 2, 3 and 5)	• NC: Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • NC: Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division • NC: Interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • NC: 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 • NC: Perform mental calculations, including with mixed operations and large numbers. • NC: Identify common factors, common multiples and prime numbers • NC: Use their knowledge of the order of operations to carry out calculations involving the 4 operations • NC: Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • NC: Solve problems involving addition, subtraction, multiplication and division • NC: Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. **NCETM PD Materials** Spine 1: Addition and Subtraction 1.20 Algorithms: column addition 1.21 Algorithms: column subtraction **Revisit for column methods* 1.30 Composition and calculation: numbers up to 10,000,000 (TP 2, 3 and 5) Spine 2: Multiplication and Division	• 6F-2 Express fractions in a common denomination and use this to compare fractions that are similar in value. • 6F-3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy. • 6NPV-4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts. • NC: Use common factors to simplify fractions • NC: Use common multiples to express fractions in the same denomination • NC: Compare and order fractions, including fractions >1 • NC: Generate and describe linear number sequences (with fractions) • NC: Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • NC: Multiply simple pairs of proper fractions, writing the answer in its simplest form • NC: Divide proper fractions by whole numbers • NC: Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction. • NC: Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts **NCETM PD Materials** Spine 3: Fractions	measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places • NC: Convert between miles and kilometres **NCETM PD Materials** Spine 2: Multiplication and Division 2.29 Decimal place value knowledge, multiplication and division

	2.9 Times tables: 7 and patterns within/across times tables (square numbers) 2.15 Division: partitioning leading to short division (if necessary) 2.20 Multiplication with three factors and volume (cube numbers) 2.21 Factors, multiples, prime numbers and composite numbers 2.22 Combining multiplication with addition and subtraction 2.23 Multiplication strategies for larger numbers and long multiplication 2.24 Division: dividing by two-digit divisors 2.25 Using compensation to calculate 2.28 Combining division with addition and subtraction	3.5 Working across one whole: improper fractions and mixed numbers 3.7 Finding equivalent fractions and simplifying fractions 3.8 Common denomination: more adding and subtracting (TP 5) 3.9 Multiplying fractions and dividing fractions by a whole number (TP 1 and 3)	

Spring Long Term Planning Y1-Y6

Crowton Christ Church C.E. Primary School

Year 1: Small Steps to Mastery and Substantive Knowledge

Year 1 SPRING 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
Number: Place Value (within 20) **White Rose Small Steps: 12** 1. Count within 20 2. Understand 10 3. Understand 11, 12 and 13 4. Understand 14, 15 and 16 5. Understand 17, 18, 19 6. Understand 20 7. 1 more 1 less 8. The number line to 20 9. Use a number line to 20 10. Estimate on a number line to 20 11. Compare numbers to 20 12. Order numbers to 20 **Substantive Knowledge** • RTP: NPV1 Count within 100, forwards and backwards, starting with any number. • RTP: NPV2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and = • NC: Count to 20 forwards and backwards from any given number • NC: Count, read and write numbers to 20 in numerals and words • NC: Given a number identify one more or one less • NC: Identify and represent numbers using objects and pictorial			**Number: Addition and Subtraction (within 20)** **White Rose Small Steps: 10** 1. Adding by counting on within 20 2. Add ones using number bonds 3. Find and make number bonds to 20 4. Doubles 5. Near doubles 6. Subtract ones using number bonds 7. Subtraction – counting back 8. Subtraction – finding the difference 9. Related facts 10. Missing number problems **Substantive Knowledge** • RTP: NF1 Develop fluency in addition and subtraction facts within 10. • RTP: AS1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. • RTP: AS2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts • NC: Represent and use number bonds and related subtraction facts within 20. • NC: Read, write and interpret mathematical statements involving addition, subtraction and equal signs • NC: Add and subtract one-digit numbers to 20 including 0 Solve one step problems			**Number: Place Value (within 50)** **White Rose Small Steps: 8** 1. Counting from 20 to 50 2. 20, 30, 40 and 50 3. Count by making groups of tens 4. Groups of tens and ones 5. Partition into tens and ones 6. The number line to 50 7. Estimate on a number line to 50 8. 1 more, 1 less **Substantive Knowledge** • RTP: NPV1 Count within 100, forwards and backwards, starting with any number. • RTP: NF2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers. • NC: Count to 50 forwards and backwards beginning with 0 or 1 or from any given number • NC: Count, read and write numerals to 50 in numerals and words		**Measurement: Length and Height** **White Rose Small Steps: 3** 1. Compare lengths and heights 2. Measure length using objects 3. Measure length in centimetres **Substantive Knowledge** • RTP: NPV2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and = • RTP: AS2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts. • NC: Measure and begin to record lengths and heights		**Measurement: Mass and Volume** **White Rose Small Steps: 7** 1. Heavier and lighter 2. Measure mass 3. Compare mass 4. Full and empty 5. Compare volume 6. Measure capacity 7. Compare capacity **Substantive Knowledge** • RTP: AS2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts. • NC: Measure and begin to record mass/weight, capacity and volume • NC: Compare, describe and solve practical problems for mass/weight e.g. heavy/light, heavier than/lighter than, capacity and volume e.g. full/empty, more than/less than, half, half full, quarter	

representation including a number line and use the language of equal to, more than, less than, (fewer) most, least **NCETM PD Materials** Spine 1: Addition and Subtraction 1:10 Composition of numbers 11-19 (TP 1 and 2)	that involve addition and subtraction using concrete objects and pictorial 7=? -9 **NCETM PD Materials** Spine 1: Addition and Subtraction 1.2 'Whole' and 'Parts': part-part-whole 1.5 Introduction to aggregation and partitioning 1.6 Introduction to augmentation and reduction 1.7 Addition and Subtraction: Strategies within 10	• NC: Given a number, identify one more or one less • NC: Identify and represent numbers using objects and pictorial representation including a number line and use the language of equal to, more than, less than, (fewer) most, least • NC: Count in multiples of 2's, 5's and 10's **NCETM PD Materials** Spine 1: Addition and Subtraction 1.9 Composition of numbers: 20-100 Spine 2: Multiplication and Division 2.1 Counting, unitising and coins	• NC: Compare, describe and solve practical problems for lengths and heights e.g. long/short, longer/shorter, tall/short, double/half **NCETM PD Materials** Spine 1: Addition and Subtraction 1.1 Comparison of quantities/measures	**NCETM PD Materials** Spine 1: Addition and Subtraction 1.1 Comparison of quantities/measures

Year 2: Small Steps to Mastery and Substantive Knowledge

Year 2 SPRING 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
Measurement: Money **White Rose Small Steps: 10** 1. Count money – pence 2. Count money – pounds (notes and coins) 3. Count money – pounds and pence 4. Choose notes and coins 5. Make the same amount 6. Compare amounts of money 7. Calculate with money 8. Make a pound 9. Find change 10. Two-step problems **Substantive Knowledge** • Continue to explore RTP: NPV2 and AS1 –AS4 • NC: Recognise and use symbols for pounds (£) and pence (p); • NC: Combine amounts to make a particular value. • NC: Find different combinations of coins that equal the same amounts of money. • NC: Solve simple problems in a practical context involving addition and		**Number: Multiplication and Division** **White Rose Small Steps: 17** 1. Recognise equal groups 2. Make equal groups 3. Add equal groups 4. Introduce the multiplication symbol 5. Multiplication sentences 6. Use arrays 7. Make equal groups – grouping 8. Make equal groups – sharing 9. The 2 times table 10. Divide by 2 11. Doubling and halving 12. Odd and even numbers 13. The 10 times table 14. Divide by 10 15. The 5 times table 16. Divide by 5 17. The 5 and 10 times tables **Substantive Knowledge** • NC: Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including odd and even numbers • NC: Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • NC: Show that multiplication of 2 numbers is commutative and division is not • NC: Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.					**Measurement: Length and Height** **White Rose Small Steps: 5** 1. Measure in centimetres 2. Measure in metres 3. Compare lengths and heights 4. Order lengths and heights 5. Four operations with lengths and heights **Substantive Knowledge** • NC: Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); to the nearest appropriate unit using rulers (tape measure etc) • NC: Compare and order lengths, mass, volume/ capacity and record the results using >, < and = • NC: Use rulers, scales thermometers and measuring vessels to the nearest unit.		**Measurement: Mass, Capacity and Temperature** **White Rose Small Steps: 9** 1. Compare mass 2. Measure in grams 3. Measure in kilograms 4. Four operations with mass 5. Compare volume and capacity 6. Measure in millilitres 7. Measure in litres 8. Four operations with volume and capacity 9. Temperature **Substantive Knowledge** • NC: choose and use appropriate standard units for mass (kg/g); temperature (°C); capacity (litres/ml) use scales, thermometers and measuring vessels • NC: compare and order measures and record the results using >, < and = • NC: Use rulers, scales thermometers and measuring vessels to the nearest unit. **NCETM PD Materials** N/A	

subtraction of money of the same unit, including giving change **NCETM PD Materials** Spine 2: Multiplication and Division 2.1 Counting, unitising and coins (TP 4-6)	• RTP: MD1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables • RTP: MD2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division). **NCETM PD Materials** Spine 1: Addition and Subtraction 1.4 Composition of numbers 6-10 (TP 3) 1.10 Composition of numbers: 11-19 Spine 2: Multiplication and Division 2.2 Structures: multiplication representing equal groups (TP1) 2.3 Times tables (2s) 2.4 Times tables (5s/10s) 2.5 Doubling and halving 2.6 Structures and quotitive and partitive division (TP 1-4)	**NCETM PD Materials** Spine 1: Addition and Subtraction 1.1 Comparison of quantities/measures	

Year 3: Small Steps to Mastery and Substantive Knowledge

Year 3 SPRING 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
Number: Multiplication and Division B **White Rose Small Steps: 11** 1. Multiples of 10 2. Related calculations 3. Reasoning about multiplication 4. Multiply a 2-digit number by a 1-digit number – no exchange 5. Multiply a 2-digit number by a 1-digit number – with exchange 6. Link multiplication and division 7. Divide a 2-digit number by a 1-digit number – no exchange 8. Divide a 2-digit number by a 1-digit number – flexible partitioning 9. Divide a 2-digit number by a 1-digit number – with remainders 10. Scaling 11. How many ways? • MD1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division. • NF2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number • NF3 • NPV1			**Measurement: Length and Perimeter** **White Rose Small Steps: 12** 1. Measure in metres and centimetres 2. Measure in millimetres 3. Measure in centimetres and millimetres 4. Metres, centimetres and millimetres 5. Equivalent lengths (m and cm) 6. Equivalent lengths (cm and mm) 7. Compare lengths 8. Add lengths 9. Subtract lengths 10. What is perimeter? 11. Measure perimeter 12. Calculate perimeter **Substantive Knowledge** • NPV2, AS2 and NPV3 • NC: Measure, compare, add and subtract: lengths (m/cm/mm) • NC: Measure the perimeter of simple 2D shapes **NCETM PD Materials** Spine 2: Multiplication and Division 2.16 Multiplication contexts: area and perimeter (1) (TP 1 to introduce)			**Number: Fractions A** **White Rose Small Steps: 10** 1. Understand the denominators of unit fractions 2. Compare and order unit fractions 3. Understand the numerator of non-unit fractions 4. Understand the whole 5. Compare and order non-unit fractions 6. Fractions and scales 7. Fractions on a number line 8. Count in fractions on a number line 9. Equivalent fractions on a number line 10. Equivalent fractions as bar models **Substantive Knowledge** • F1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts (unit fractions and non-unit fractions with small denominators) • F2 Find unit fractions of quantities using known division facts (multiplication tables fluency). • F3 Reason about the location of any fraction within 1 in the linear number system. • F4 Add and subtract fractions with the same denominator, within 1. • NC: Count up and down in tenths			**Measurement: Mass and Capacity** **White Rose Small Steps: 11** 1. Use scales 2. Measure mass in grams 3. Measure mass in kilograms and grams 4. Equivalent masses (grams and kilograms) 5. Compare mass 6. Add and subtract mass 7. Measure capacity and volume in millilitres 8. Measure capacity and volume in litres and millilitres 9. Equivalent capacities and volumes (litres and millilitres) 10. Compare capacity and volume 11. Add and subtract capacity and volume **Substantive Knowledge** NC: Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) **NCETM PD Materials** N/A		

• NC: Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • NC: 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 • NC: Solve problems, including missing number problems, involving multiplication and division • NC: Solve problems including positive integer scaling and correspondence problems in which *n* objects are connected to *m* object.s **NCETM PD Materials** Spine 2: Multiplication and Division 2.6 Structures and quotitive and partitive division (TP 4) 2.8 Times tables: 3, 6 and 9, and the relationship between them (TP 5) 2.13 Calculation: multiplying and dividing by 10 or 100 (TP 6) 2.14 Multiplication: partitioning leading to short multiplication (TP 1-2) 2.15 Division: partitioning leading to short division (TP 1) 2.17 Structures: using measures and comparison to understand scaling (TP 5) 2.19 Calculation: x/÷ decimal fractions by whole numbers		• NC: Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • NC: Recognise and show, using diagrams, equivalent fractions with small denominators • NC: Compare and order unit fractions, and fractions with the same denominators • NC: Solve problems that involve all of the above **NCETM PD Materials** Spine 3: Fractions 3.3 Non unit fractions: identifying, representing and comparing 3.4 Adding and subtracting within one whole 3.7 Finding equivalent fractions and simplifying fractions (TP 1-2)	

Year 4: Small Steps to Mastery and Substantive Knowledge

Year 4 SPRING 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
Number: Multiplication and Division B **White Rose Small Steps: 15** 1. Factor pairs 2. Use factor pairs 3. Multiply by 10 4. Multiply by 100 5. Divide by 10 6. Divide by 100 7. Related facts – multiplication and division 8. Informal written methods for multiplication 9. Multiply a 2-digit number by a 1-digit number 10. Multiply a 3-digit number by a 1-digit number 11. Divide a 2-digit number by a 1-digit number (1) 12. Divide a 2-digit number by a 1-digit number (2) 13. Divide a 3-digit number by a 1-digit number 14. Correspondence problems 15. Efficient multiplication **Substantive Knowledge** • NF1 Recall multiplication and division facts up to 12x12 and recognise products in multiplication tables as multiples of the corresponding number. • NF3 Apply place-value knowledge to known multiplicative number facts (scaling facts by 100) • MD1 Multiply and divide whole numbers by 10 and 100 (keeping to			**Measurement: Length and Perimeter** **White Rose Small Steps: 9** 1. Measure in kilometres and metres 2. Equivalent lengths (kilometres and metres) 3. Perimeter on a grid 4. Perimeter of a rectangle 5. Perimeter of rectilinear shapes 6. Finding missing lengths in rectilinear shapes 7. Calculate the perimeter of rectilinear shapes 8. Perimeter of regular polygons 9. Perimeter of polygons **Substantive Knowledge** • NPV4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. • G2 Find the perimeter of regular and irregular polygons. • NC: Convert between different units of measure		**Number: Fractions** **White Rose Small Steps: 15** 1. Understand the whole 2. Count beyond 1 3. Partition a mixed number 4. Number lines with mixed numbers 5. Compare and order mixed numbers 6. Understand improper fractions 7. Convert mixed numbers to improper fractions 8. Convert improper fractions to mixed numbers 9. Equivalent fractions on a number line 10. Equivalent fraction families 11. Add two or more fractions 12. Add fractions and mixed numbers 13. Subtract two fractions 14. Subtract from whole amounts 15. Subtract from mixed numbers **Substantive Knowledge** • F1 Reason about the location of mixed numbers in the linear number system. • F2 Convert mixed numbers to improper fractions and vice versa. • F3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers. • NC: Recognise and show, using diagrams, families of common equivalent fractions • NC: Count up and down in hundredths • NC: Recognise that hundredths arise when dividing an object by a 100 and			**Number: Decimals A** **White Rose Small Steps: 10** 1. Tenths as fractions 2. Tenths as decimals 3. Tenths on a place value chart 4. Tenths on a number line 5. Divide a 1-digit number by 10 6. Divide a 2-digit number by 10 7. Hundredths as fractions 8. Hundredths as decimals 9. Hundredths on a place value chart 10. Divide a 1- or 2-digit number by 100 **Substantive Knowledge** • NC: Recognise and write decimal equivalents of any number of tenths or hundredths. • NC: Find the effect of dividing a one- or two-digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths • NC: Solve simple measure and money problems involving fractions and decimals to two decimal places. • NC: Convert between different units of measure [for example, kilometre to metre		

whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. • MD2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. • NC: Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers • NC: Recognise and use factor pairs and commutativity in mental calculations • NC: Multiply two-digit and three-digit numbers by a one-digit number using formal written layout • NC: Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. **NCETM PD Materials** Spine 2: Multiplication and Division 2.6 Structures and quotitive and partitive division (TP 5) 2.8 Times tables: 3, 6 and 9, and the relationship between them 2.9 Times tables: 7 and patterns within/across times tables 2.13 Calculation: multiplying and dividing by 10 or 100 2.10 Connective multiplication and division, and the distributive law 2.14 Multiplication: partitioning leading to short multiplication 2.15 Division: partitioning leading to short division	• NC: Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres **NCETM PD Materials** Spine 2: Multiplication and Division 2.16 Multiplication contexts: area and perimeter (1)	dividing tenths by 10. • NC: 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 • NC: Add and subtract fractions with the same denominator **NCETM PD Materials** Spine 3: Fractions 3.0 Guidance on the teaching of fractions in Key Stage 1 3.4 Adding and subtracting within one whole (TP 1-2) 3.5 Working across one whole: improper fractions and mixed numbers 3.7 Finding equivalent fractions and simplifying fractions	**NCETM PD Materials** Spine 1: Addition and Subtraction 1.23 Compositing and calculation: tenths 1.24 Composition and calculation: hundredths and thousandths **Mainly TP 1 and some of TP 2.* Spine 2: Multiplication and Division 2.13 Calculation: multiplying and dividing by 10 or 100

Year 5: Small Steps to Mastery and Substantive Knowledge

Year 5 SPRING 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
Number: Multiplication and Division B **White Rose Small Steps: 11** 1. Multiply up to a 4-digit number by a 1-digit number 2. Multiply a 2-digit number by a 2-digit numbers (area model) 3. Multiply a 2-digit number by a 2-digit number 4. Multiply a 3-digit number by a 2-digit number 5. Multiply a 4-digit number by a 2-digit number 6. Solve problems with multiplication 7. Short division 8. Divide a 4-digit number by a 1-digit number 9. Divide with remainders 10. Efficient division 11. Solve problems with multiplication and division **Substantive Knowledge** • MD1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size. • MD2 Find factors and multiples of positive integers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.			**Number: Fractions B** **White Rose Small Steps: 7** 1. Multiply a unit fraction by an integer 2. Multiply a non-unit fraction by an integer 3. Multiply a mixed number by an integer 4. Calculate a fraction of a quantity 5. Fraction of an amount 6. Find the whole 7. Use fractions as operators **Substantive Knowledge** • 5F2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system. • 5F1 Find non-unit fractions of quantities • NC: Compare and order fractions whose denominators are all multiples of the same number • NC: Identify, name and write equivalent fractions of		**Number: Decimals and Percentages** **White Rose Small Steps: 15** 1. Decimals up to 2 decimal places 2. Equivalent fractions and decimals (tenths) 3. Equivalent fractions and decimals (hundredths) 4. Equivalent fractions and decimals 5. Thousandths as fractions 6. Thousandths as decimals 7. Thousandths on a place value chart 8. Order and compare decimals (same number of decimal places) 9. Order and compare any decimals with up to 3 decimal places 10. Round to the nearest whole number 11. Round to 1 decimal place 12. Understand percentages 13. Percentages as fractions 14. Percentages as decimals 15. Equivalent fractions, decimals and percentages **Substantive Knowledge** • NPV-1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of			**Measurement: Perimeter and Area** **White Rose Small Steps: 6** 1. Perimeter of rectangles 2. Perimeter of rectilinear shapes 3. Perimeter of polygons 4. Area of rectangles 5. Area of compound shapes 6. Estimate area **Substantive Knowledge** • G2 Compare areas and calculate the area of rectangles (including squares) using standard units. • NC: Calculate and compare the are of rectangles (including squares) using standard units cm2/m2 • NC: Measure and calculate the perimeter of composite rectilinear shapes in cm and m **NCETM PD Materials**		**Statistics** **White Rose Small Steps: 5** 1. Draw line graphs 2. Read and interpret line graphs 3. Read and interpret tables 4. Two-way tables 5. Read and interpret timetables **Substantive Knowledge** • NPV4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. • NC: Solve comparison, sum and difference problems using information presented in a line graph • NC: Complete, read and interpret information in tables, including timetables	

• NC: Multiply and divide numbers mentally drawing upon known facts • NC: Multiply numbers up to 4 digits by a one/two-digit number using a formal written method, including long multiplication for 2-digit numbers • NC: Divide numbers up to 4 digits by a 1-digit number using the formal written methos of short division and interpret remainders appropriately for the context. • NC: solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the = sign **NCETM PD Materials** Spine 2: Multiplication and Division 2.9 Times tables: 7 and patterns within/across times tables (square numbers) 2.13 Calculation: Multiplying and dividing by 10 or 100 2.18 Using equivalence to calculate 2.19 Calculation: x/÷ fractions by whole numbers 2.20 Multiplication with three factors and volume (cube numbers) 2.21 Factors, multiples, prime numbers and composite numbers	a given fraction, represented visually, including tenths and hundredths • NC: Eecognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number **NCETM PD Materials** Spine 3: Fractions 3.1 Preparing for fractions: the part-whole relationship 3.2 Unit fractions: identifying, representing and comparing 3.3 Non unit fractions: identifying, representing and comparing 3.4 Adding and subtracting within one whole 3.5 Working across one whole: improper fractions and mixed numbers 3.6 Multiplying whole numbers and fractions 3.7 Finding equivalent fractions and simplifying fractions 3.8 Common denomination: more adding and subtracting	0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01. • NPV−2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning. • NPV−3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. • NPV4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. • F−3 Recall decimal fraction equivalents for half, quarter, fifth, tenth and for multiples of these proper fractions • NC: Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • NC: Read, write, order and compare numbers with up to 3 decimal places • NC: Round decimals with two decimal places to the nearest whole number and to one decimal place • NC: Solve problems involving numbers up to 3 decimal places	2.16 Multiplicative contexts: are and perimeter (1) *Revisit	**NCETM PD Materials** Spine 1: Addition and Subtraction 1.28 Common structures and the part-part-whole relationship 1.29 Using equivalence and the compensation property to calculate

		• NC: Recognise the per cent symbol (%) and understand that per cent relates to "number of parts per 100" • NC: Write percentages as a fraction with denominator 100, and as a decimal fraction • NC: Solve problems which require knowing decimal equivalents and those fractions with a denominator of a multiple of 10 or 25 **NCETM PD Materials** Spine 1: Addition and Subtraction 1.23 Compositing and calculation: tenths 1.24 Composition and calculation: hundredths and thousandths Spine 3: Fractions 3.10 Linking fractions, decimals and percentages		

Year 6: Small Steps to Mastery and Substantive Knowledge

Year 6 SPRING 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
Number: Ratio **White Rose Small Steps: 10** 1. Add or multiply 2. Use ratio language 3. Introduction to the ratio symbol 4. Ratio and fractions 5. Scale drawing 6. Use scale factors 7. Similar shapes 8. Ratio problems 9. Proportion problems 10. Recipes **Substantive Knowledge** • AS/MD3 Solve problems involving ratio relationships. • NC: Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • NC: Solve problems involving similar shapes where the scale factor is known or can be found • NC: Solve problems involving unequal sharing and grouping using		**Number: Algebra** **White Rose Small Steps: 10** 1. 1-step function machines 2. 2-step function machines 3. Form expressions 4. Substitution 5. Formulae 6. Form equations 7. Solve simple one-step equations 8. Solve two-step equations 9. Find pairs of values 10. Solve problems with two unknowns **Substantive Knowledge** • 6AS/MD-4 Solve problems with 2 unknowns. • NC: Use simple formulae • NC: Generate and describe linear number sequences • NC: Express missing number problems algebraically • NC: Find pairs of numbers that satisfy an equation with two unknowns • NC: Enumerate possibilities of combinations of 2 variables.		**Number: Decimals** **White Rose Small Steps: 9** 1. Place value within 1 2. Place value – integers and decimals 3. Round decimals 4. Add and subtract decimals 5. Multiply by 10, 100 and 1,000 6. Divide by 10, 100 and 1,000 7. Multiply decimals by integers 8. Divide decimals by integers 9. Multiply and divide decimals in context **Substantive Knowledge** • NPV2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.		**Number: Fractions, Decimals and Percentages** **White Rose Small Steps: 9** 1. Decimal and fraction equivalents 2. Fractions as division 3. Understand percentages 4. Fractions to percentages 5. Equivalent fractions, decimals and percentages 6. Order fractions, decimals and percentages 7. Percentage of an amount – one step 8. Percentage of an amount – multi-step 9. Percentages – missing values **Substantive Knowledge** • NC: Solve problems involving the calculation of percentages		**Measurement: Area, Perimeter and Volume** **White Rose Small Steps: 8** 1. Shapes – same area 2. Area and perimeter 3. Area of a triangle – counting squares 4. Area of a right-angled triangle 5. Area of any triangle 6. Area of parallelogram 7. Volume – counting cubes 8. Volume of a cuboid **Substantive Knowledge** • G1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. • NC: Recognise that shapes with the same areas can have different perimeters and vice versa • NC: Recognise when it is possible to use formulae for area and volume of shapes		**Statistics** **White Rose Small Steps: 6** 1. Line graphs 2. Dual bar charts 3. Read and interpret pie charts 4. Pie charts with percentages 5. Draw pie charts 6. The mean **Substantive Knowledge** • NC: Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • NC: Interpret and construct pie charts and line graphs and use these to solve problems • NC: Calculate and interpret the mean as an average **NCETM PD Materials** Spine 1: Addition and Subtraction	

knowledge of fractions and multiples **NCETM PD Materials** Spine 2: Multiplication and Division 2.27 Scale factors, ratio and proportional reasoning	**NCETM PD Materials** Spine 1: Addition and Subtraction 1.28 Common structures and the part-part-whole relationship 1.31 Problems with two unknowns	• NPV1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000 (NC) giving answers are up to three decimal places • NC: Multiply one-digit numbers with up to 2 decimal places by whole numbers • NC: Use written division methods in cases where the answer has up to 2 decimal places • NC: Solve problems which require answers to be rounded to specified degrees of accuracy • NC: Identify the value of each digit in numbers given to three decimal places and multiply numbers by 10, 100 and 1000 giving answers up to 3 decimal places **NCETM PD Materials**	• NC: Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts • NC: recall and use equivalences between simple fractions, decimals and percentages, including in different contexts **NCETM PD Materials** Spine 3: Fractions 3.10 Linking fractions, decimals and percentages	• NC: Calculate the area of parallelograms and triangles • NC: Calculate, estimate and compare volume of cubes and cuboids using standard units (cm3 and m3) and extending to other units (mm3 and km3) **NCETM PD Materials** Spine 2: Multiplication and Division 2.16 Multiplication contexts: area and perimeter (1) 2.20 Multiplication with three factors and volume 2.30 Multiplicative contexts: area and perimeter (2)	1.28 Common structures and the part-part-whole relationship Spine 2: Multiplication and Division 2.26 Mean average and equal shares Spine 3: Fractions 3.10 Linking fractions, decimals and percentages

		Spine 1: Addition and Subtraction 1.24 Composition and calculation: hundredths and thousandths (for 3 d.p.) Spine 2: Multiplication and Division 2.19 Calculation: x/÷ decimal fractions by whole numbers 2.28 Combining division with addition and subtraction 2.29 Decimal place value knowledge, multiplication and division Spine 3: Fractions 3.10 Linking fractions, decimals and percentages			

Summer Long Term Planning Y1-Y6

Crowton Christ Church C.E. Primary School

Year 1: Small Steps to Mastery and Substantive Knowledge

Year 1 Summer Term

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11
Number: Multiplication and Division **White Rose Small Steps: 9** 1. Count in 2s 2. Count in 10s 3. Count in 5s 4. Recognise equal groups 5. Add equal groups 6. Make arrays 7. Make doubles 8. Make equal groups – grouping 9. Make equal groups – sharing **Substantive Knowledge** • RTP: NF2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning • NC: Count in multiples of 2's, 5's and 10's • NC: Solve one step problems involving multiplication and division by calculating the answer using concrete objects, pictorial representations and arrays **NCETM PD Materials** Spine 1: Addition and Subtraction 1.8 Composition of numbers: multiples of 10 up to 100 (TP 2) Spine 2: Multiplication and Division 2.1 Counting, unitising and coins (TP1-3)			**Number: Fractions** **White Rose Small Steps: 8** 1. Recognise a half of an object or a shape 2. Find a half of an object or a shape 3. Recognise half of a quantity 4. Find half of a quantity 5. Recognise a quarter of an object or a shape 6. Find a half of an object or a shape 7. Recognise a quarter of a quantity 8. Find a quarter of a quantity **Substantive Knowledge** • NC: Recognise, find and name a half as one of two equal parts of an object, shape or quantity • NC: Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity • NC: Compare, describe and solve practical problems for lengths and heights, e.g. long/short, longer/shorter, tall/short, double/half		**Geometry: Position and Direction** **White Rose Small Steps: 5** 1. Describe turns 2. Describe position – left and right 3. Describe position – forwards and backwards 4. Describe position – above and below 5. Ordinal numbers **Substantive Knowledge** • RTP: G2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations • NC: Describe position, directions and movement, including whole, half, quarter and three-quarter turns	**Measurement: Place Value (within 100)** **White Rose Small Steps: 7** 1. Count from 50 to 100 2. Tens to 100 3. Partition into tens and ones 4. The number line to 100 5. One more, one less 6. Compare numbers with the same number of tens 7. Compare any two numbers **Substantive Knowledge** • RTP: NPV1 Count within 100, forwards and backwards, starting with any number. • NC: Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • NC: Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s • NC: Given a number, identify 1 more and 1 less • NC: Identify and represent numbers using objects and pictorial representations including the number line and use the language of equal to, more than, less than, (fewer) most, least		**Measurement : Money** **White Rose Small Steps: 4** 1. Unitising 2. Recognise coins 3. Recognise notes 4. Count in coins **Substantive Knowledge** • NC: Recognise and know the value of different denominations of coins and notes **NCETM PD Materials** Spine 2: Multiplication and Division 2.1 Counting, unitising and coins (TP 4-6)	**Measurement: Time** **White Rose Small Steps: 6** 1. Before and after 2. Days of the week 3. Months of the year 4. Hours, minutes and seconds 5. Tell the time to the hour 6. Tell the time to the half hour **Substantive Knowledge** • NC: Compare, describe and solve practical problems for time e.g. quicker, slower, earlier, later • NC: Measure and begin to record time (hours, minutes, seconds) • NC: Sequence events in chronological order using language e.g. before, after, next, first, today, yesterday, tomorrow, morning, afternoon and evening • NC: recognise and use language relating to dates, including days of the week, weeks, months and years	

	• NC: Compare, describe and solve practical problems for mass and weights, e.g. heavy/light, heavier than/lighter than, Capacity and volume e.g. full/empty, more than, less than, half, half full, quarter **NCETM PD Materials** Spine 3: Fractions 3.0 Guidance on the teaching of fractions in Key Stage 1				• NC: Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times

Year 2: Small Steps to Mastery and Substantive Knowledge

Year 2 SUMMER 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
Number: Fractions **White Rose Small Steps: 15** 1. Introduction to parts and whole 2. Equal and unequal parts 3. Recognise a half 4. Find a half 5. Recognise a quarter 6. Find a quarter 7. Recognise a third 8. Find a third 9. Find the whole 10. Unit fractions 11. Non-unit fractions 12. Recognise the equivalence of a half and two quarters 13. Recognise three-quarters 14. Find three-quarters 15. Count in fractions up to a whole **Substantive Knowledge** • NC: Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity • NC: Write simple fractions, for example 1/2 of 6 = 3 • NC: Recognise the equivalence of 2/4 and 1/2. **NCETM PD Materials** N/A			**Measurement: Time** **White Rose Small Steps: 7** 1. O'clock and half past 2. Quarter past and quarter to 3. Tell time past the hour 4. Tell the time to 5 minutes 6. Minutes in an hour 7. Hours in a day **Substantive Knowledge** • NC: Compare and sequence intervals of time • NC: 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. • NC: Know the number of minutes in an hour and the number of hours in a day • NC: Draw hands on a clock to show these times **NCETM PD Materials** N/A			**Statistics** **White Rose Small Steps: 7** 1. Make tally charts 2. Tables 3. Block diagrams 4. Draw pictograms (1-1) 5. Interpret pictograms (1-1) 6. Draw pictograms (2, 5 and 10) 7. Interpret pictograms (2, 5 and 10) **Substantive Knowledge** • RTP: MD1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. • RTP: NPV2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non- standard partitioning. • NC: Interpret and construct simple pictograms, tally charts, block diagrams and tables • NC: Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • NC: Ask and answer questions about totalling and comparing categorical data **NCETM PD Materials** Spine 1: Addition and Subtraction 1.12 Subtraction as difference		**Geometry: Position and Direction** **White Rose Small Steps: 5** 1. Language of position 2. Describe movement 3. Describe turns 4. Describe movement and turns 5. Shape patterns with turns **Substantive Knowledge** • NC: Order and arrange combinations of mathematical objects in patterns and sequences • NC: Use mathematical vocabulary to describe position, direction and movement including movement in a straight line • NC: Distinguish between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise). **NCETM PD Materials** N/A		**CONSOLIDATION**	

Year 3: Small Steps to Mastery and Substantive Knowledge

Year 3 SUMMER 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
Number: Fractions B **White Rose Small Steps: 6** 1. Add fractions 2. Subtract fractions 3. Partition the whole 4. Unit fractions of a set of objects 5. Non-unit fractions of a set of objects 6. Reasoning with fractions of an amount **Substantive Knowledge** • F1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts (unit fractions and non-unit fractions with small denominators) • F2 Find unit fractions of quantities using known division facts (multiplication tables fluency). • F3 Reason about the location of any fraction within 1 in the linear number system. • F4 Add and subtract fractions with the same denominator, within 1. • NC: Compare and order unit fractions and fractions with the same denominators		**Measurement: Money** **White Rose Small Steps: 5** 1. Pounds and pence 2. Convert pounds and pence 3. Add money 4. Subtract money 5. Find change **Substantive Knowledge** • NPV2 and AS2 • NPV4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. • NC: Add and subtract amounts of money to give change, using both £ and p in practical contexts **NCETM PD Materials** Spine 1: Addition and Subtraction 1.25 Addition and subtraction: money Spine 2: Multiplication and Division 2.1 Counting, unitising and coins		**Measurement: Time** **White Rose Small Steps: 12** 1. Roman numerals to 12 2. Tell the time to 5 minutes 3. Tell the time to the minute 4. Read time on a digital clock 5. Use a.m. and p.m. 6. Years, months and days 7. Days and hours 8. Hours and minutes – use start and end times 9. Hour and minutes – use durations 10. Minutes and seconds 11. Units od time 12. Solve problems with time **Substantive Knowledge** • NC: Tell and write the time from an analogue clock, including using Roman numerals from I to XII • NC: Tell the 12-hour and 24-hour clocks • NC: 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, am/pm, morning, afternoon, noon and midnight • NC: Know the number of seconds in a minute • NC: Know the number of days in each month, year and leap year • NC: Compare durations of events		**Geometry: Shape** **White Rose Small Steps: 10** 1. Turns and angles 2. Right angles 3. Compare angles 4. Measure and draw accurately 5. Horizontal and vertical 6. Parallel and perpendicular 7. Recognise and describe 2D shapes 8. Draw polygons 9. Recognise and describe 3D shapes 10. Make 3D shapes **Substantive Knowledge** • G1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations. NC: recognise that 2 right angles make a half-turn, 3 make three quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle. • G2 Draw polygons by joining marked points,		**Statistics** **White Rose Small Steps: 6** 1. Interpret pictograms 2. Draw pictograms 3. Interpret bar charts 4. Draw bar charts 5. Collect and represent data 6. Two-way tables **Substantive Knowledge** • NC: Interpret and present data - bar charts, pictograms and tables • NC: Using information presented in scaled bar charts, pictograms and tables, solve one-step and two-step questions e.g. How many more? How many fewer? **NCETM PD Materials** N/A		**CONSOLIDATION**

• NC: Recognise and show, using diagrams, equivalent fractions with small denominators • NC: Compare and order unit fractions, and fractions with the same denominators • NC: Solve problems that involve all of the above **NCETM PD Materials** Spine 3: Fractions 3.3 Non unit fractions: identifying, representing and comparing 3.4 Adding and subtracting within one whole 3.7 Finding equivalent fractions and simplifying fractions (TP 1-2)		**NCETM PD Materials** N/A	and identify parallel and perpendicular sides. NC: identify horizontal and vertical lines • NC: Recognise angles as a property of shape or a description of a turn • NC: Identify right angles • NC: Recognise that 2 right angles make a half turn, 3 make three quarters of a turn and 4 make a complete turn. • NC: Identify whether angles are greater than or less than a right angle • NC: Identify horizontal and vertical lines • NC: Identify pairs of perpendicular and parallel lines • NC: Draw 2D shapes and make 3D shapes using modelling materials • NC: Recognise 3D shapes in different orientations and describe them **NCETM PD Materials** N/A		

Year 4: Small Steps to Mastery and Substantive Knowledge

Year 4 SUMMER 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
Number: Decimals B **White Rose Small Steps: 8** 1. Make a whole with tenths 2. Make a whole with hundredths 3. Partition decimals 4. Flexibly partition decimals 5. Compare decimals 6. Order decimals 7. Round to the nearest whole number 8. Halve and quarters as decimals **Substantive Knowledge** • MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. • NC: Understand the effect of dividing a one or two digit number by 10 or 100 • NC: Recognise and write decimal equivalents to 1/4, 1/2 and 3/4 • NC: Identifying the value of the digits in the answer as ones, tenths and hundredths. • NC: Round decimals with one decimal place to the		**Measurement: Money** **White Rose Small Steps: 6** 1. Write money using decimals 2. Convert between pounds and pence 3. Compare amounts of money 4. Estimate with money 5. Calculate with money 6. Solve problems with money **Substantive Knowledge** • NC: Estimate, compare and calculate different measures, including money in pounds and pence • NC: Solve simple measure and money problems involving fractions and decimals to two decimal places **NCETM PD Materials** Spine 1: Addition and Subtraction 1.22 Composition and calculation: 1000 and four-digit numbers		**Measurement: Time** **White Rose Small Steps: 5** 1. Years, months, weeks and days 2. Hours, minutes and seconds 3. Convert between analogue and digital times 4. Convert to the 24 hours clock 5. Convert from the 24 hours clock **Substantive Knowledge** • NC: Read, write and convert time between analogue and digital 12- and 24-hour clocks • NC: Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days **NCETM PD Materials** N/A		**CONSOLIDATION**	**Geometry: Shape** **White Rose Small Steps: 8** 1. Understand angles as turns 2. Identify angles 3. Compare and order angles 4. Triangles 5. Quadrilaterals 6. Polygons 7. Lines of symmetry 8. Complete a symmetric figure **Substantive Knowledge** • G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. • G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry. • G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant		**Statistics** **White Rose Small Steps: 4** 1. Interpret charts 2. Comparison, sum and difference 3. Interpret line graphs 4. Draw line graphs **Substantive Knowledge** • 4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. • NC: Interpret and present discrete and continuous data using appropriate graphical	**Geometry: Position and direction** **White Rose Small Steps: 4** 1. Describe position using coordinates 2. Plot coordinates 3. Draw 2D shapes on a grid 4. Translate on a grid 5. Describe translation on a grid **Substantive Knowledge** • G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. • NC: Describe positions on a 2-D grid as coordinates in the first quadrant • NC: Describe movements between positions as translations of a given unit to the left/right and up/down • NC: Plot specified points and draw sides to complete a given polygon	

nearest whole number • NC: Compare numbers with the same number of decimal places up to two decimal places **NCETM PD Materials** Spine 1: Addition and Subtraction 1.24 Composition and calculation: hundredths and thousandths (TP 2 and 7)	1.25 Addition and subtraction: money			• NC: Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • NC: Identify acute and obtuse angles • NC: Compare and order angles up to two right angles by size • NC: Identify lines of symmetry in 2-D shapes presented in different orientations **NCETM PD Materials** N/A	methods, including bar charts and time graphs. • NC: Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	**NCETM PD Materials** Spine 1: Addition and Subtraction 1.27 Negative numbers: counting, comparing and calculating (TP 6)

Year 5: Small Steps to Mastery and Substantive Knowledge

Year 5 SUMMER 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
Geometry: Properties of Shape **White Rose Small Steps: 10** 1. Understand and use degrees 2. Classify angles 3. Estimate angles 4. Measure angles up to 180 5. Draw lines and angles accurately 6. Calculate angles around a point 7. Calculate angles on a straight line 8. Lengths and angles in shapes 9. Regular and irregular polygons 10. 3D shapes **Substantive Knowledge** • G-1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size • NC: Identify 3-D shapes, including cubes and other cuboids, from 2- D representations • NC: Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • NC: Draw given angles, and measure them in degrees (°) • NC: Identify angles at a point and one whole turn (total 360°) • NC: Identify angles at a point on a straight line and ½ a turn (total 180°) • NC: Identify other multiples of 90°			**Geometry: Position and direction** **White Rose Small Steps: 6** 1. Read and plot coordinates 2. Problem solving with coordinates 3. Translation 4. Translation with coordinates 5. Lines of symmetry 6. Reflection in horizontal and vertical lines **Substantive Knowledge** • NC: 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. **NCETM PD Materials** Spine 1: Addition and Subtraction 1.27 Negative numbers: counting, comparing and calculating (TP 6)		**Number: Decimals** **White Rose Small Steps: 12** 1. Use known facts to add and subtract decimals within 1 2. Complements to 1 3. Add and subtract decimals across 1 4. Add decimals with the same number of decimal places 5. Subtract decimals with the same number of decimal places 6. Add decimals with different numbers of decimal places 7. Subtract decimals with different number of decimal places 8. Efficient strategies for adding and subtracting decimals 9. Decimal sequences 10. Multiply by 10, 100 and 1000 11. Divide by 10, 100 and 1000 12. Multiply and divide decimals - missing values **Substantive Knowledge** • NPV-1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01			**Number: Negative Numbers** **White Rose Small Steps: 5** 1. Understand negative numbers 2. Count through zero in 1s 3. Count through zero in multiples 4. Compare and order negative numbers 5. Find the difference **Substantive Knowledge** • NC: Interpret number greater than and less than zero in different contexts • NC: Identify and place negative numbers on a number line • NC: Interpret sets of negative and positive number in a range of contexts	**Measurement: Converting Units** **White Rose Small Steps: 6** 1. Kilograms and kilometres 2. Millimetres and millilitres 3. Convert units of length 4. Convert between metric and imperial units 5. Convert units of time 6. Calculate with timetables **Substantive Knowledge** • NPV-5 Convert between units of measure, including using common decimals and fractions. • NC: Convert between different units of metric measure (e.g. km and m, cm and m, cm and mm, g and kg, ml and l)		**Measurement: Volume** **White Rose Small Steps: 8** 1. Cubic centimetres 2. Compare volume 3. Estimate volume 4. Estimate capacity **Substantive Knowledge** • NC: Estimate volume (e.g. using 1cm^3 blocks to build cuboids, including cubes) and capacity (e.g. using water) • NC: Use all 4 operations to solve problems involving measure

• NC: Use the properties of rectangles to deduce related facts and find missing lengths and angles		• 5MD-1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or	• NC: Use their knowledge of positive and	• NC: Understand and use approximate	
• NC: Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.		100 times the size, or 1 tenth or 1 hundredth times the size. • NPV-3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. • NPV-4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts • NC: Recognise and write decimal equivalents of any number of tenths, hundredths • NC: Find the effect of dividing a 1 or 2 digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths • NC: Solve simple measure and money problems involving fractions and decimals to 2 decimal places • NC: Convert between different units of measure e.g. kilometre to metre **NCETM PD Materials** Spine 1: Addition and Subtraction 1.23 Compositing and calculation: tenths 1.24 Composition and calculation: hundredths and thousandths Spine 2: Multiplication and Division	negative numbers to calculate intervals	equivalences between metric units and common imperial units such as inches, pounds an pints • NC: Solve problems involving converting between units of time **NCETM PD Materials** Spine 1: Addition and Subtraction 1.24 Composition and calculation: hundredths and thousandths (TP 5)	**NCETM PD Materials** Spine 2: Multiplication and Division 2.20 Multiplication with three factors and volume

		2.19 Calculation: x/÷ fractions by whole numbers 2.29 Decimal place value knowledge, multiplication and division			

Year 6: Small Steps to Mastery and Substantive Knowledge

Year 6 SUMMER 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
Geometry: Properties of Shape **White Rose Small Steps: 11** 1. Measure and classify angles 2. Calculate angles 3. Vertically opposite angles 4. Angles in a triangle 5. Angles in a triangle – special cases 6. Angles in a triangle – missing angles 7. Angles in quadrilaterals 8. Angles in polygons 9. Circles 10. Draw shapes accurately 11. Nets of 3D shapes **Substantive Knowledge** • 6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems. • NC: Draw 2-D shapes using given dimensions and angles • NC: Recognise, describe and build simple 3-D shapes, including making nets • NC: Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • NC: Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • NC: Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. **NCETM PD Materials** Spine 1: Addition and Subtraction 1.28 Common structures and the part-part-whole relationship (TP 4 – missing angles only)			**Geometry: Position and Direction** **White Rose Small Steps: 5** 1. The first quadrant 2. Read and plot points in four quadrants 3. Solve problems with coordinates 4. Translations 5. Reflections **Substantive Knowledge** • NC: Describe positions on the full coordinate grid (all four quadrants • NC: Draw and translate simple shapes on the coordinate plane, and reflect them in the axes	**Number, Geometry and Substantial Problem Solving** Following on from National Assessments in May, teachers will assess children's understanding against all Ready to Progress statements and plan to cover any areas that need further consolidation. Additional projects will be explored to allow the children to explore the purpose of mathematics through open-ended investigations. Children will tackle open-ended problem solving and further develop their understanding at Greater Depth as appropriate.						

Mathematics End Points

Year 1 – Year 6

Crowton Christ Church C.E. Primary School

Year 1 Curriculum End Points

Autumn	Spring	Summer
Place Value - Week 1-5 • Count to 10 forwards and backwards beginning with 0 or 1 or from any given number • Count, read and write numerals to 10 in numerals and words • Given a number, identify one more or one less • Identify and represent numbers using objects and pictorial representation including a number line and use the language of equal to, more than, less than, (fewer) most, least	**Place Value (within 20) - Week 1-3** • Count to 20 forwards and backwards from any given number • Count, read and write numbers to 20 in numerals and words • Given a number identify one more or one less • Identify and represent numbers using objects and pictorial representation including a number line and use the language of equal to, more than, less than, (fewer) most, least	**Multiplication and Division - Week 1-3** • Count in multiples of 2's, 5's and 10's • Solve one step problems involving multiplication and division by calculating the answer using concrete objects, pictorial representations and arrays
Addition and Subtraction - Week 6-10 • Represent and use number bonds and related subtraction facts within 10 • Read, write and interpret mathematical statements involving addition, subtraction and equal signs • Add and subtract one-digit numbers to 10 including 0 • Solve one step problems that involve addition and subtraction using concrete objects and pictorial representation and missing number problems	**Addition and Subtraction - Week 4-6** • Represent and use number bonds and related subtraction facts within 20. • Read, write and interpret mathematical statements involving addition, subtraction and equal signs • Add and subtract one-digit numbers to 20 including 0 Solve one step problems that involve addition and subtraction using concrete objects and pictorial 7=? -9	**Fractions - Week 4-5** • Recognise, find and name a half as one of two equal parts of an object, shape or quantity • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity • Compare, describe and solve practical problems for lengths and heights, e.g. long/short, longer/shorter, tall/short, double/half • Compare, describe and solve practical problems for mass and weights, e.g. heavy/light, heavier than/lighter than, Capacity and volume e.g. full/empty, more than, less than, half, half full, quarter
Geometry: Shape – Week 11 • Recognise and name common 2-D shapes e.g. square, circle and triangles • Recognise and name common 3-D shapes e.g. Cuboids, cubes, pyramids and spheres	**Place Value (within 50) - Week 7-8** • Count to 50 forwards and backwards beginning with 0 or 1 or from any given number • Count, read and write numerals to 50 in numerals and words • Given a number, identify one more or one less • Identify and represent numbers using objects and pictorial representation including a number	**Geometry: Position and Direction- Week 6** • Describe position, direction and movement including whole, half, quarter and three-quarter turns

	line and use the language of equal to, more than, less than, (fewer) most, least • Count in multiples of 2's, 5's and 10's	
Consolidation – Week 12	**Measurement: Length and Height - Week 9-10** • Measure and begin to record lengths and heights • Compare, describe and solve practical problems for lengths and heights e.g. long/short, longer/shorter, tall/short, double/half	**Place Value to 100 – Week 7-8** • Count to 100 forwards and backwards beginning with 0 or 1 or from any given number • Count, read and write numerals to 100 in numerals and words • Given a number, identify one more or one less • Identify and represent numbers using objects and pictorial representation including a number line and use the language of equal to, more than, less than, (fewer) most, least
	Measurement: Weight and Volume- Week 11-12 • Measure and begin to record mass/weight, capacity and volume • Compare, describe and solve practical problems for mass/weight e.g. heavy/light, heavier than/lighter than, capacity and volume e.g. full/empty, more than/less than, half, half full, quarter	**Measurement: Money - Week 9** • Recognise and know the value of different denominations of coins and notes
		Measurement: Time - Week 10-12 • Sequence events in chronological order using language eg before, after, next, first, today, yesterday, tomorrow, morning, afternoon and evening • Recognise and use language relating to dates including days of the week, weeks, months and years • Tell the time to the hour and half past the hour and draw hands on a clock face to show these times

		• Compare, describe and solve practical problems for time e.g. quicker, slower, earlier, later • Measure and begin to record time e.g. hours, minutes seconds

Year 2 Curriculum End Points

Autumn	Spring	Summer
Place Value – Week 1-4 • Read and write numbers to at least 100 in numerals and words. • Recognise the place value of each digit in a 2-digit number (tens & ones) • Identify, represent and estimate numbers using different representations including the number line. • Compare and order numbers from 0 –100; use < > and = signs. • Use place value and number facts to solve problems • Count in steps of 2,3, 5 and tens from any number forwards and backwards	**Measurement: Money – Week 1-2** • Recognise and use symbols for pounds and pence (£/p) • Combine amounts to make a particular value • Find different combinations of coins that make the same amount of money • Solve simple problems practically, including addition and subtraction and giving change.	**Fractions – Week 1-3** • Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity • Write simple fractions, for example 1/2 of 6 = 3 • Recognise the equivalence of 2/4 and 1/2.
Addition and Subtraction – Week 5-9 • Recall and use addition & subtraction facts to 20 fluently. Derive and use related facts up to 100. • Add & subtract numbers using concrete objects, pictorial representations and mentally, including two digit numbers and ones, two digit numbers and tens, two digit number and two digit number and adding 3 one digit numbers. • Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. • Solve problems with addition and subtraction:	**Multiplication and Division - Week 3-7** • Recall and use multiplication facts for 2, 5 and 10 times tables including recognising odd and even numbers • Calculate mathematical statements for 2, 5 and 10's using multiplication and division using x, ÷ and = • Solve problems using multiplication and division using, materials, arrays, repeated addition and mental methods. • Show that multiplication of two numbers can be done in any order (commutative) but division cannot.	**Measurement: Time – Week 4-6** • Tell and write the time to five minutes, including quarter past/to the hour. • Draw hands on a clock to show these times • Know the number of minutes in an hour and the number of hours in a day • Compare and sequence intervals of time

using concrete objects and pictorial representations. Include problems involving numbers, quantities and measures. • Recognise and use the inverse relationship between addition and subtraction. Use this to check calculations and solve missing number problems		
Geometry: Properties of Shape – Week 10-12 • Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line • Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces. • Identify 2D shapes on the surface of 3D shapes e.g a circle on a cylinder and a triangle on a pyramid. • Compare and sort common 2D and 3D shapes and everyday objects.	**Measurement: Length and Height – Week 8-9** • Choose and use appropriate standards of units to estimate and measure length/height (m/cm) in any direction; mass (kg/g), temperature (®C), capacity (l/ml). • Use rulers, scales thermometers and measuring vessels to the nearest unit. • Compare and order lengths, mass, volume/capacity and record the results using < > and =	**Statistics – Week 7-8** • Interpret and construct simple pictograms, tally charts, block diagrams and simple tables • Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • Ask and answer questions about totaling and comparing categorical data.
	Measurement: Mass, Capacity and Temperature – Week 10- 12 • Choose and use appropriate standards of units to estimate and measure length/height (m/cm) in any direction; mass (kg/g), temperature (®C), capacity (l/ml). • Use rulers, scales thermometers and measuring vessels to the nearest unit. • Compare and order lengths, mass, volume/capacity and record the results using < > and =	**Geometry: Position and Direction – Week 9-10** • Use mathematical vocabulary to describe position, direction and movement including in a straight line. • Distinguish between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise) • Order and arrange combinations of mathematical objects in patterns and sequences.

Year 3 Curriculum End Points

Autumn	Spring	Summer
Place Value – Week 1-3 • Recognise the place value of each digit in a three-digit number • Identify, represent and estimate using different representations • Find 10 or 100 more or less than a given number • Compare and order numbers up to 1000 • Read and write numbers in numerals and words up to 1000 • Solve number problems and practical problems involving these ideas. • Count from 0 in multiples of 4, 8, 50 and 100.	**Multiplication and Division – Week 1-3** • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. • Write and calculate multiplication and division statements for the tables known including 2 digits times 1-digit numbers using mental and formal written methods • Solve problems, including missing numbers involving multiplication and division. • Solve problems including positive integer scaling and correspondence problems in which *n* objects are connected to *m* objects	**Fractions – Week 1-2** • Recognise and show, using diagrams, equivalent fractions with small denominators • Compare and order unit fractions, and fractions with the same denominators • Add and subtract fractions with the same denominator within one whole. • Solve problems that involve all the above
Addition and Subtraction – Week 4-8 • Add and subtract numbers mentally including: 3 digits and ones, 3 digits and tens, 3 digits and hundreds. • Add and subtract numbers with up to 3 digits using formal written methods of columnar addition and subtraction • Estimate the answer to a calculation and use inverse operations to check answers • Solve problems, including missing numbers, using number facts, place value and more complex addition and subtraction.	**Measurement: Length and Perimeter – Week 4-6** • Measure, compare, add and subtract lengths (m/cm/mm), mass (kg/g) and volume/capacity (l/ml) • Measure the perimeter of simple 2D shapes.	**Measurement: Money – Week 3-4** • Add and subtract amounts of money to give change using £ and p in practical contexts.
Multiplication and Division – Week 9-11 • Count from 0 in multiples of 4, 8, 50 and 100 • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. • Write and calculate multiplication and division statements for the tables known including 2 digits times 1-digit numbers using mental and formal written methods	**Fractions – Week 7-9** • 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. • Recognise and use fractions as numbers, unit and non-unit fractions with small denominators. • Recognise, find and write fractions of a	**Measurement: Time – Week 5-7** • Tell and write the time from an analogue clock • Tell and write the time from an analogue clock with Roman Numerals I to XII • Tell the 12 hour and 24-hour time • Estimate and read time with increasing accuracy to the nearest minute • Record and compare time in terms of seconds,

• Solve problems, including missing numbers involving multiplication and division. • Solve problems including positive integer scaling and correspondence problems in which *n* objects are connected to *m* objects	discrete set of objects, unit and non-unit fractions with small denominators. • Solve problems that involve all the above.	minutes and hours • Use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight • Know the number of seconds in a minute • Know the number of days in each month • Know the number of days in a year and leap year • Compare durations of events (time taken by particular events or tasks)
Consolidation – Week 12	**Measurement: Mass and Capacity – Week 10-12** • Measure, compare, add and subtract lengths (m/cm/mm), mass (kg/g) and volume/capacity (l/ml)	**Geometry: Properties of Shape – Week 8-9** • Recognise angles as a property of shape or a description of a turn • Identify right angles • Recognise that 2 right angles make a half turn, 3 make three quarters of a turn, and 4 make a complete turn • Identify whether angles are greater than or less than a right angle • Identify horizontal and vertical lines. • Identify pairs of perpendicular and parallel lines • Draw 2D shapes and make 3D shapes using modelling material • Recognise 3D shapes in different orientations and describe them
		Statistics – Week 10-11 • Interpret and present data using bar charts, pictograms and tables • Using information presented in scaled bar charts, pictograms and tables, solve one step and two step questions e.g How many more? How many fewer?

Year 4 Curriculum End Points

Autumn	Spring	Summer
Place Value -Week 1-4 • Count in multiples of 6, 7, 9, 25 and 1000 • Find 1000 more or less than a given number • Recognise the place value of each digit in a 4-digit number • Order and compare numbers beyond 1000 • Identify, represent and estimate numbers using different representations • Round any number to the nearest 10, 100 and 1000 • Count backwards through zero to negative numbers • Solve number and practical problems will all of the above.	**Multiplication and Division – Week 1-3** • Recognise and use factor pairs and commutativity in mental calculations • Multiply 2 digit and 3-digit numbers by a one-digit number using formal written layout • Solve problems involving multiplying and adding including using the distributive law to multiply 2-digit numbers by 1 digit; integer scaling problems and correspondence problems such as *n* objects are connected to *m* objects	**Decimals -Week 1-2** • Compare numbers with the same number of decimal places up to two decimal places. • Round decimals with one decimal place to the nearest whole number. • Recognise and write decimal equivalents to ¼ ½ and ¾ • Understand the effect of dividing a one- or two-digit number by 10 or 100. • Identifying the value of the digits in the answer as ones, tenths and hundredths.
Addition and Subtraction – Week 5-7 •Add and subtract numbers with up to 4 digits using the formal written method of columnar addition and subtraction where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve addition and subtraction two step problems in context, deciding which operations and methods to use and why.	**Measurement: Length and Perimeter – Week 4-5** • Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m • Convert between different units of measure e.g. km to m	**Measurement: Money - Week 3-4** • Estimate, compare and calculate different measures, including money in pounds and pence. • Solve simple measure and money problems involving fractions and decimals to two decimal places.
Measurement: Area – Week 8 • Find the area of rectilinear shapes by counting squares	**Fractions – Week 6-9** • Recognise and show, using diagrams, families of common equivalent fractions • Count up and down in hundredths • Recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10 • Add and subtract fractions with the same denominator • 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	**Measurement: Time – Week 5-7** • Read, write and convert time between analogue and digital 12- and 24-hour clocks. • Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

Multiplication and Division – Week 9-11 • Recall and use multiplication and division facts for multiplication tables up to 12 X 12 • Count in multiples of 6, 7, 9, 25 and 1000 • Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1, dividing by 1 • Multiplying together 3 numbers • Solve problems involving multiplying and adding including using the distributive law to multiply 2-digit numbers by 1 digit; integer scaling problems and correspondence problems such as *n* objects are connected to *m* objects	**Decimals – Week 10-12** • Recognise and write decimal equivalents of any number of tenths or hundredths. • Find the effect of dividing a one- or two-digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths • Solve simple measure and money problems involving fractions and decimals to two decimal places. • Convert between different units of measure [for example, kilometre to metre]	**Geometry: Properties of Shape – Week 8-9** • Identify acute and obtuse angles • Compare and order angles up to 2 right angles by size • Compare and classify geometric shapes including quadrilaterals and triangles, based on their properties and size. • Identify lines of symmetry in 2D shapes presented in different orientations
Consolidation – Week 12		**Statistics – Week 10** • Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.
		Geometry: Position and Direction – Week 11-12 • Describe on a 2D grid as coordinates in the first quadrant • Plot specified points and draw sides to complete a given polygon • Describe movements between positions as translations of a given unit to the left/right and up/down.

Year 5 Curriculum End Points

Autumn	Spring	Summer
Place Value – Week 1-3 • Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit • Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • Interpret negative numbers in context • Count forwards and backwards with positive and negative whole numbers including through zero • Round any number up to 1,000,000 to the nearest 10, 100,1000, 10,000 and 100,000 • Solve number and practical problems that involve all the above • Read Roman numerals up to 1,000 (M) and recognise years written in Roman numerals	**Multiplication and Division – Week 1-3** • Multiply and divide numbers mentally drawing upon known facts. • Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for 2-digit numbers. • Divide numbers up to 4 digits by a 1- digit number using the formal written method of short division and interpret remainders appropriately for the context. • Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign.	**Geometry: Properties of Shapes – Week 1-3** • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. • Use the properties of rectangles to deduce related facts and find missing lengths and angles. • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. • Draw given angles and measure them in degrees. Identify: angles at a point and one whole turn (total 360°), angles at a point on a straight line and ½ a turn (total 180°) other multiples of 90°
Addition and Subtraction – Week 4-5 • Add and subtract numbers mentally with increasingly large numbers • Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar) • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • Solve addition and subtraction multi-step problems in contexts, deciding with operations and methods to use and why.	**Fractions – Week 4-5** • Compare and order fractions whose denominators are multiples of the same number. • Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths. • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number	**Geometry: Position and Direction – Week 4-5** • 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.
Multiplication and Division – Week 6-8 • Multiply and divide numbers mentally drawing upon known facts	**Decimals and Percentages – Week 6-8** • Read, write, order and compare numbers with up to three decimal places.	**Decimals – Week 6-8** • Recognise and write decimal equivalents of any number of tenths or hundredths.

• Multiply and divide whole numbers by 10, 100 and 1000 • Identify multiples and factors • Find all factor pairs of a number and common factors of 2 numbers • Recognise and use square numbers and cube numbers using the notations (*e. g* 3^2 and 4^3) • Solve problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes • Know and use vocabulary of prime numbers, prime factors and composite (non-prime) numbers • Establish whether a number up to 100 is a prime and recall prime numbers up to 19	• Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. • Round decimals with two decimal places to the nearest whole number and to one decimal place. • Solve problems involving number up to three decimal places. • Recognise the percent symbol (%) and understand that percent relates to 'number of parts per hundred', • Write percentages as a fraction with denominator 100, and as a decimal. • Solve problems which require knowing percentage and decimal equivalents of and those fractions with a denominator of a multiple of 10 or 25	• Find the effect of dividing a one- or two-digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths • Solve simple measure and money problems involving fractions and decimals to two decimal places. • Convert between different units of measure [for example, kilometre to metre]
Fractions – Week 9-12 • Add and subtract fractions with the same denominator and denominators that are multiples of the same number.	**Measurement: Perimeter and Area – Week 9-10** • Measure and calculate the perimeter of composite rectilinear shapes in cm and m • Calculate and compare the area of rectangles (including squares) using standard units cm2/m2 • Estimate the area of irregular shapes	**Negative Numbers – Week 9** • Interpret numbers greater than and less than zero in different contexts. • Identify and place negative numbers on a number line • Interpret sets of negative and positive numbers in a range of contexts • Use their knowledge of positive and negative numbers to calculate intervals
	Statistics – Week 11-12 • Solve comparison, sum and difference problems using information presented in a line graph. • Complete, read and interpret information in tables including timetables.	**Measuring: Converting Units – Week 10-11** • Convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml] • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. • Solve problems involving converting between units of time.

		Measurement: Volume – Week 12 • Estimate volume (e.g. using 1cm^3 blocks to build cuboids, including cubes) and capacity (e.g. using water) • Use all 4 operations to solve problems involving measure

Year 6 Curriculum End Points

Autumn	Spring	Summer
Place Value – Week 1-2 • 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 the above	**Ratio – Week 1-2** • 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.	**Geometry: Properties of Shapes – Week 1-2** • 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. • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • Recognise, describe and build simple 3-D shapes, including making nets
Four Operations – Week 3-7 • Solve addition and subtraction multi-step problems in contexts deciding which operations and methods to use and why • Multiply multi-digit numbers 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. • Divide numbers up to 4 digits by a 2-digit number using the formal written method of	**Algebra - Week 3-4** • 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.	**Geometry: Position and Direction – Week 4** • Describe positions on the full co-ordinate grid (all 4 quadrants) • Draw and translate simple shapes on the co-ordinate plane and reflect them in the axes

short division • Interpret remainders as whole number remainders, fractions or by rounding as appropriate for 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 context of a problem, an appropriate degree of accuracy		
Fractions – Week 8-11 • 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. • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts	**Decimals – Week 5-6** • 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. • Multiply 1-digit numbers with up to 2 decimal places by whole numbers. • Use written division methods in cases where the answer has up to 2 decimal places. • Solve problems which require answers to be rounded to specified degrees of accuracy.	**SATS Week** **Problem Solving and Investigations – Week 5 – 11** Reasoning and problem solving in all aspects of previous learning
Measurement: Converting Units – Week 12 • Solve problems involving the calculation and	**Fractions, Decimals and Percentages – Week 7-8** • Solve problems involving the calculation of	

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 3 decimal places. • Convert between miles and kilometres.	percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison. • Recall and use equivalences between simple fractions, decimals and percentages including in different contexts.	
	Measurement: Perimeter, Area and Volume – Week 9-10 • 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)	
	Statistics – Week 11-12 • 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.	