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Exceed Learning Partnership
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Mathematics Curriculum Intent

January 2026

Contents

Introduction

Vision

Our overarching objective is to foster unwavering self-assurance among all students regarding their mathematical competence and comprehension. We aspire for them to possess the capacity to: engage in logical reasoning within mathematics; enhance their conceptual understanding, problem-solving and fluency; cultivate a propensity for 'deep thinkers', wherein they acquire mathematical proficiencies that can be promptly recollected and adeptly employed across diverse scenarios; and nurture their inquisitiveness towards mathematics, enabling them to embrace the elegance and power inherent in this discipline.

Rationale

- We believe that every child can achieve.
- Small steps build a solid foundation of deep mathematical understanding.
- Pupils' mathematical fluency should be built without the need for rote learning.
- New concepts will be introduced using the Concrete-Pictorial- Abstract (CPA) approach
- Pupils learn to think mathematically to find patterns, connections and relationships between different concepts.

Intent

This document outlines the knowledge, language and concepts that should be taught across all areas of maths: place value, addition and subtraction, multiplication and division, measurement, properties of shape and statistics. It is aligned to the National Curriculum and White Rose Maths Small Steps. The document is outlined by Year Group. Within each year group it provides:

- A curriculum map of units of learning
- ELP Key Performance Indicators and Small Steps (White Rose Maths)for each unit of learning
- Calculation Policy section for each year group

Calculation Policy

The progression in calculation (addition, subtraction, multiplication and division) sections work are aligned to the National Curriculum. The consistent use of the C-P-A (concrete, pictorial, abstract) approach across the teaching of calculation will help children develop mastery across all the operations in an efficient and reliable way. The policy shows how these methods develop children's confidence in their understanding of both written and mental methods.

Implementation

We implement our intent using the White Rose Maths scheme, which is a whole-class mastery resource.

- Teaching for mastery - the research-based schemes of learning are designed to support a mastery approach to teaching and learning and are consistent with the aims and objectives of the National Curriculum.
- Putting number first - the schemes have number at their heart. A significant amount of time is spent reinforcing number in order to build competency and ensure children can confidently access the rest of the curriculum.
- Depth before breadth - easy-to-follow schemes support teachers to stay within the required key stage so that children acquire depth of knowledge in each topic. Opportunities to revisit previously learned skills are built into later blocks.
- Working together - Children can progress through the schemes as a whole group, encouraging students of all abilities to support each other in their learning.
- Fluency, reasoning and problem solving – the schemes develop all three key areas of the National Curriculum, giving children the knowledge and skills they need to become confident mathematicians.

Concrete, Pictorial and Abstract (C-P-A)

Research shows that all children, when introduced to a new concept, should have the opportunity to build competency by following the CPA approach. This features throughout our schemes of learning.

- Concrete - Children should have the opportunity to work with physical objects/concrete resources, in order to bring the maths to life and to build understanding of what they are doing.
- Pictorial - Alongside concrete resources, children should work with pictorial representations, making links to the concrete. Visualising a problem in this way can help children to reason and to solve problems.
- Abstract - With the support of both the concrete and pictorial representations, children can develop their understanding of abstract methods.

Curriculum Impact

Throughout each lesson, formative assessment takes place and feedback is given to the children through addressing the error/misconception at the time it occurs and through marking. Teachers then use this assessment to influence their planning and ensure they are providing a mathematics curriculum that will allow each child to progress. The teaching of maths is also monitored on a half-termly basis through book scrutinies, learning walks and lesson observations. Each term children from Year 2 and above complete a summative assessment to help them to develop their testing approach and demonstrate their understanding of the topics covered. Key Stage 1 use a combination of observations, informal questioning and SATs papers (Year 2) whilst Key Stage 2 use NFER tests and SATs papers (Year 6.) The results from both the formative assessment and summative assessment are then used to determine children's progress and attainment.

Learning Sequence

Every block in our schemes of learning is broken down into manageable small steps, and has provide comprehensive teacher guidance for each one. Here are the features included in each step:

- Notes and guidance provide an overview of the content of the step and ideas for teaching, along with advice on progression and where a topic fits within the curriculum.
- Things to look out for, which highlights common mistakes, misconceptions and areas that may require additional support.
- Key questions that can be posed to children to develop their mathematical vocabulary and reasoning skills, digging deeper into the content.
- Possible sentence stems to further support children's mathematical language and to develop their reasoning skills.
- National Curriculum links to indicate the objective(s) being addressed by the step.
- A Key learning section, which provides plenty of exemplar questions that can be used when teaching the topic.
- Reasoning and problem-solving activities and questions that can be used in class to provide further challenge and to encourage deeper understanding of each topic.

Flexibility is built into White Rose Maths so additional time can be spent on 'lessons' and concepts meaning teachers can pace their teaching according to their class. This may include pre-teach and consolidation of concepts. While some children will need to spend longer on a particular concept (through interventions or additional lessons), others will reach deeper levels of understanding. 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 should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems (using NCETM and Reasoning and Problem Solving materials) before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, through additional practice, including securing through C-P-A approaches, before moving on.

To further fluency and arithmetic skills from year 1 to year 6 once a week pupils complete a timed arithmetic test. These tests are aligned within the year group skills and knowledge and build progressively throughout the year to ensure that knowledge and fluency is retained.

Lesson Structure

We plan lessons that include the following 7 teaching phases:

RETRIEVAL - This provides an opportunity to connect the lesson to prior learning from a previous module or lesson..

VOCABULARY - We provide children with and discuss the mathematical vocabulary needed for that lesson.

EXPLAIN - This is the explicit teaching that needs to take place.

EXAMPLE - We provide pupils with high-quality examples, including worked examples. We use my turn, our turn, your turn to explicitly teach vocabulary and new concepts.

ATTEMPT - Teachers guide pupil practice allowing pupils to rehearse, rephrase and elaborate their learning. Children attempt and verbalise their understanding. This is not necessarily something that is recorded in books, often carried out on whiteboards. This phase provides opportunities for teachers to check in with pupils to see who may need more challenge/support/scaffolds and if any misconceptions have arisen that need to be addressed.

APPLY - This is where pupils would typically begin to record in books. The number of scaffolds may vary.

CHALLENGE - Teachers should get the children to interrogate their learning - summarise, explain, compare and contrast. Tools should be built into routines to reduce overload and allow for hard thinking. These can be adapted for children's individual needs.

Teaching tasks is planned cumulatively throughout the lesson using a TEACH, TASK, TEACH, TASK… approach. This is to provide pace, ambition, and build knowledge and to develop conceptual understanding.

Impact

To assess the influence of our curriculum on our students, we systematically assess the degree to which knowledge has been permanently into children's long-term memory, while also scrutinizing their attainment in terms of looking for excellence in outcomes. We use four main tools to quality assure the implementation and impact of our curriculum:

- Learning observations help to evaluate subject knowledge, explanations, expectations, opportunities to learn, pupil responses, participation and relationships.
- Professional growth models help to improve staff subject knowledge and evidence informed practice such as retrieval and spaced practice, interleaving and explicit instruction techniques.

- Assessment and achievement articulate the outcomes from tasks and tests, how well the content is understood and what the strengths and limitations are; it informs what to do next.
- Pupil Book Studies help to evaluate curriculum structures, teaching methods, pupil participation and response through a dialogic model.

When undertaking these we ask the following key questions:

- How well do pupils remember the content that they have been taught?
- Do books and pupil discussions radiate excellence?
- Does learning 'travel' with pupils and can they deliberately reuse it in more sophisticated contexts?

Teachers employ a range of strategies both at and after the point of teaching to check the impact of their teaching on the permanence of pupils' learning. These include: retrieval practice, vocabulary use and application, deliberate practice and rephrasing of taught content, cumulative quizzing within the learning sequence, summarising and explaining the learning question from the sequence, tests and quizzes. Teachers use information from tasks, tests, pupil book studies and other monitoring to support learning by responding to the gap between where pupils are and where they need to be. In lessons, they adapt explanations and examples to address misconceptions and provide additional practice or challenge where required. After lessons or tests, they analyse pupils' responses to identify shared and individual gaps in learning and misconceptions. Teachers then adjust subsequent planned teaching in response.

We use summative assessment 'to provide an accurate shared meaning without becoming the model for every classroom activity' (Christodolou, 2017). If our curriculum is effective, it will lead to improvements in summative assessments over time. We administer standardised tests up to three times a year. Teachers record test scores on OTrack. Teacher assessment judgements are against an agreed assessment model (the curriculum) and take account of test scores. We make summative judgements termly. Teachers record summative judgements on OTrack.

Pupil book study is used as a method to quality assure our curriculum by talking to the children and looking in pupils' books. We do this after content has been taught to see the extent to which pupils are knowing more, remembering more and able to do more. In preparation, we review the planned content, knowledge and vocabulary, so that conversations with pupils are meaningful and focused on what has been taught. When looking at books, we look at the content and knowledge, teaching sequence and vocabulary. We also consider pupils' participation and consider the explanations and models used, the tasks the pupils are asked to do, the ability to answer carefully selected questions and retrieve information and the impact of written feedback. We ask careful questions that probe their knowledge, understanding and skills.

The Subject Leader undertakes a range of activities to understand what the curriculum looks like across the school and how well pupils know more, remember more and can do more as a result. In addition to the above tools, they use learning walks, planning reviews and book looks. They use their findings to support teachers to improve how they implement subjects and to make recommendations about the suitability of the intent for their subject. The Subject Leader formally reports on impact of the curriculum annually to the Curriculum Leader, Principal and Governors.

Progression Overview

Early Years

The first few years of a child's life are especially important for mathematics development. Research shows that early mathematical knowledge predicts later reading ability and general education and social progress. Conversely, children who start behind in mathematics tend to stay behind throughout their whole educational journey. In Early Years, our objective is to ensure that all children develop firm mathematical foundations in a way that is engaging, and appropriate for their age. We organise our curriculum into key concepts, which underpin our early mathematics curriculum. The typical progression highlights the range of experiences (some of which may be appropriate for younger children) but the activities and opportunities can be developed across our Reception provision. There are six key areas of early mathematics learning, which collectively provide a platform for everything children will encounter as they progress through their maths learning at primary school, and beyond:

Cardinality and counting - Understanding that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents

Comparison - Understanding that comparing numbers involves knowing which numbers are worth more or less than each other

Composition - Understanding that one number can be made up from (composed from) two or more smaller numbers

Pattern- Looking for and finding patterns helps children notice and understand mathematical relationships

Shape and Space- Understanding what happens when shapes move, or combine with other shapes, helps develop wider mathematical thinking

Measures- Comparing different aspects such as length, weight and volume, as a preliminary to using units to compare later Additionally,

our curriculum in the early years provides the foundations for understanding calculations.

Addition:	**Subtraction:**	**Multiplication and Division:**
Children start to explore addition by sorting groups. They then use sorting to develop their understanding of parts and wholes. Children combine groups to find the whole, using a part-whole model to support their thinking. They also use the part-whole model to find number bonds within and to 10. Using a five frame and ten frame, children add by counting on. They start by finding one more before adding larger numbers using counters or cubes on the frames. Children use a number track to add by counting on. Linking this learning to playing board games is an effective way to support children's addition.	Children start to explore subtraction by sorting groups. They use sorting to develop their understanding of parts and wholes. When comparing groups, children use the language more than and fewer than. This will lead to finding the difference when they move into KS1. Children then connect subtraction with the idea of counting back and finding one less using a five frame to support their thinking. They explore subtraction by breaking apart a whole to find a missing part. This links to their developing recall of number bonds. Children count back within 20 using number tracks and ten frames to see the effect of taking away.	Children first start to look at the idea of equal groups through their exploration of doubles. They use five frames and objects to check that groups are equal. Children then explore halving numbers by making two equal groups. They highlight patterns between doubling and halving seeing that double 2 is 4 and half of 4 is 2. As well as halving, children also explore sharing into more than two equal groups. They share objects one by one, ensuring that each group has an equal share.

Key Stage 1

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils 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 [for example, concrete objects and measuring tools]. At this stage, pupils develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching also involves 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 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 read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Children develop the core ideas that underpin all calculation. They begin by connecting calculation with counting on and counting back, but they should learn that understanding wholes and parts will enable them to calculate efficiently and accurately, and with greater flexibility. They learn how to use an understanding of 10s and 1s to develop their calculation strategies, especially in addition and subtraction.

Addition and subtraction:
Children first learn to connect addition and subtraction with counting, but they soon develop two very important skills: an understanding of parts and wholes, and an understanding of unitising 10s, to develop efficient and effective calculation strategies based on known number bonds and an increasing awareness of place value.
Addition and subtraction are taught in a way that is interlinked to highlight the link between the two operations. A key idea is that children will select methods and approaches based on their number sense. For example, in Year 1, when faced with 15 − 3 and 15 − 13, they will adapt their ways of approaching the calculation appropriately.
The teaching should always emphasise the importance of mathematical thinking to ensure accuracy and flexibility of approach, and the importance of using known number facts to harness their recall of bonds within 20 to support both addition and subtraction methods. In Year 2, they will start to see calculations presented in a column format, although this is not expected to be formalised until KS2. We show the column method in Year 2 as an option; teachers may not wish to include it until Year 3.

Multiplication and division:
Children develop an awareness of equal groups and link this with counting in equal steps, starting with 2s, 5s and 10s. In Year 2, they learn to connect the language of equal groups with the mathematical symbols for multiplication and division.
They learn how multiplication and division can be related to repeated addition and repeated subtraction to find the answer to the calculation. In this key stage, it is vital that children explore and experience a variety of strong images and manipulative representations of equal groups, including concrete experiences as well as abstract calculations.
Children begin to recall some key multiplication facts, including doubles, and an understanding of the 2, 5 and 10 times-tables and how they are related to counting.

Fractions:
In Year 1, children encounter halves and quarters, and link this with their understanding of sharing. They experience key spatial representations of these fractions, and learn to recognise examples and non-examples, based on their awareness of equal parts of a whole. In Year 2, they develop an awareness of unit fractions and experience non-unit fractions, and they learn to write them and read them in the common format of numerator and denominator.

Lower Key Stage 2

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils 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 with 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. In Years 3 and 4, children develop the basis of written methods by building their skills alongside a deep understanding of place value. They should use known addition/subtraction and multiplication/division facts to calculate efficiently and accurately, rather than relying on counting. Children use place value equipment to support their understanding, but not as a substitute for thinking.

Addition and subtraction:

In Year 3 especially, the column methods are built up gradually. Children will develop their understanding of how each stage of the calculation, including any exchanges, relates to place value. The example calculations chosen to introduce the stages of each method may often be more suited to a mental method. However, the examples and the progression of the steps have been chosen to help children develop their fluency in the process, alongside a deep understanding of the concepts and the numbers involved, so that they can apply these skills accurately and efficiently to later calculations. The class should be encouraged to compare mental and written methods for specific calculations, and children should be encouraged at every stage to make choices about which methods to apply.

In Year 4, the steps are shown without such fine detail, although children should continue to build their understanding with a secure basis in place value. In subtraction, children will need to develop their understanding of exchange as they may need to exchange across one or two columns. By the end of Year 4, children should have developed fluency in column methods alongside a deep understanding, which will allow them to progress confidently in upper Key Stage 2.

Multiplication and division:

Children build a solid grounding in times-tables, understanding the multiplication and division facts in tandem. As such, they should be as confident knowing that 35 divided by 7 is 5 as knowing that 5 times 7 is 35. Children develop key skills to support multiplication methods: unitising, commutativity, and how to use partitioning effectively. Unitising allows children to use known facts to multiply and divide multiples of 10 and 100 efficiently.

Commutativity gives children flexibility in applying known facts to calculations and problem solving. An understanding of partitioning allows children to extend their skills to multiplying and dividing 2- and 3-digit numbers by a single digit.

Children develop column methods to support multiplications in these cases.

For successful division, children will need to make choices about how to partition. For example, to divide 423 by 3, it is effective to partition 423 into 300, 120 and 3, as these can be divided by 3 using known facts.

Children will also need to understand the concept of remainder, in terms of a given calculation and in terms of the context of the problem.

Fractions:

Children develop the key concept of equivalent fractions, and link this with multiplying and dividing the numerators and denominators, as well as exploring the visual concept through fractions of shapes. Children learn how to find a fraction of an amount, and develop this with the aid of a bar model and other representations alongside. in Year 3, children develop an understanding of how to add and subtract fractions with the same denominator and find complements to the whole. This is developed alongside an understanding of fractions as numbers, including fractions greater than 1. In Year 4, children begin to work with fractions greater than 1.

Decimals are introduced, as tenths in Year 3 and then as hundredths in Year 4. Children develop an understanding of decimals in terms of the relationship with fractions, with dividing by 10 and 100, and also with place value.

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 four operations, including long multiplication and division, and in working with fractions, decimals and percentages

In upper Key Stage 2, children build on secure foundations in calculation, and develop fluency, accuracy and flexibility in their approach to the four operations. They work with whole numbers and adapt their skills to work with decimals, and they continue to develop their ability to select appropriate, accurate and efficient operations.

Addition and subtraction: Children build on their column methods to add and subtract numbers with up to seven digits, and they adapt the methods to calculate efficiently and effectively with decimals, ensuring understanding of place value at every stage. Children compare and contrast methods, and they select mental methods or jottings where appropriate and where these are more likely to be efficient or accurate when compared with formal column methods. Bar models are used to represent the calculations required to solve problems and may indicate where efficient methods can be chosen.	**Multiplication and division:** Building on their understanding, children develop methods to multiply up to 4-digit numbers by single-digit and 2-digit numbers. Children develop column methods with an understanding of place value, and they continue to use the key skill of unitising to multiply and divide by 10, 100 and 1,000. Written division methods are introduced and adapted for division by single-digit and 2-digit numbers and are understood alongside the area model and place value. In Year 6, children develop a secure understanding of how division is related to fractions. Multiplication and division of decimals are also introduced and refined in Year 6.	**Fractions:** Children find fractions of amounts, multiply a fraction by a whole number and by another fraction, divide a fraction by a whole number, and add and subtract fractions with different denominators. Children become more confident working with improper fractions and mixed numbers and can calculate with them. Understanding of decimals with up to 3 decimal places is built through place value and as fractions, and children calculate with decimals in the context of measure as well as in pure arithmetic. Children develop an understanding of percentages in relation to hundredths, and they understand how to work with common percentages: 50%, 25%, 10% and 1%.

Long term sequence of learning

Year	Autumn Term	Spring Term	Summer Term
Year 1	Place value (within 10) – **Number** Addition and subtraction (within 10) - **Number** Geometry - **Shape**	Place value (within 20) - **Number** Addition and subtraction (within 20) - **Number** Place value (within 50) - **Number** Length and height - **Measurement** Mass and volume - **Measurement**	Place value (within 100) - **Number** Multiplication and division - **Number** Fractions - **Number** Position and direction - **Geometry** Money - **Measurement** Time - **Measurement**
Year 2	Place Value – **Number** Addition and subtraction - **Number** Shape - **Geometry**	Money - **Measurement** Multiplication and division - **Number** Length and height - **Measurement** Mass, capacity and temperature - **Measurement**	**Statistics** Fractions - **Number** Position and direction - **Geometry** Time - **Measurement**
Year 3	Place value – **Number** Addition and subtraction - **Number** Multiplication and division A - **Number**	Multiplication and division B – **Number** Length and perimeter - **Measurement** Fractions A - **Number** Mass and capacity - **Measurement**	Fractions B - **Number** Money - **Measurement** Time - **Measurement** Shape - **Geometry** **Statistics**
Year 4	Place value – **Number** Addition and subtraction - **Number** Area - **Measurement** Multiplication and division A - **Number**	Multiplication and division B - **Number** Length and perimeter - **Measurement** Fractions - **Number** Decimals A - **Number**	Decimals B - **Number** Money - **Measurement** Time - **Measurement** Shape - **Geometry** **Statistics** Position and direction - **Geometry**
Year 5	Place value – **Number** Addition and subtraction – **Number** Multiplication and division A – **Number** Fractions A - **Number**	Multiplication and division B – **Number** Fractions B – **Number** Decimals and percentages – **Number** Perimeter and area – **Measurement** **Statistics**	Shape – **Geometry** Position and direction – **Geometry** Decimals – **Number** Negative numbers – **Number** Converting units – **Measurement** Volume - **Measurement**

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Year 6	Place value – **Number** Addition, subtraction, multiplication and division - **Number** Fractions A – **Number** Fractions B – **Number** Converting units - **Measurement**	**Ratio** **Algebra** Decimals – **Number** Fractions, decimals and percentages – **Number** Area, perimeter and volume – **Measurement** **Statistics**	Shape – **Geometry** Position and direction – **Geometry** Projects, consolidation and problem solving

Early Years

	Autumn Term	Spring Term	Summer Term
Week 1	Getting to know children	Number bonds within 5 - **Number**	Exploring Patterns
Week 2		Numbers to 10 **Number**	
Week 3			Counting on and back **Number**
Week 4	Numbers to 5 **Number**		
Week 5		Comparing groups up to 10 - **Number**	Numbers to 20 **Number**
Week 6		Addition to 10 - **Number**	
Week 7	Sorting - **Number**	Number bonds to 10 **Number**	Numerical Patterns **Number**
Week 8	Comparing groups within 5 **Number**		
Week 9		Spatial awareness, 2D & 3D shapes - **Shape and Space**	
Week 10	Within 5 – one more and one less **Number**		Length, height and distance - **Measurement**
Week 11			Weight - **Measurement**

Week 12	My day: Time - **Measurement**	Consolidation	Volume and capacity - **Measurement**

Early Years

Concepts	Core Content & Expectations	How this is achieved in the EYFS	Vocabulary

Number	**ELG: 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.	**White Rose Small Steps** - Represent 1, 2 & 3 - Compare 1, 2 & 3 - Composition of 1, 2 & 3 - Representing numbers to 5 - Introducing 0 - Comparing numbers to 5 - Composition of 4 & 5 - 6, 7, 8 - Counting to 9 & 10 - Comparing numbers to 10 - Combining 2 amounts - Compare amounts - Building numbers beyond 10 - Counting patterns beyond 10 - Doubling - Sharing and grouping - Even and odd	**count** **subitise** **order/ ordinal** **compare** **forwards** **backwards** **numerals** **digit** **one more** **one less** **equal to** **more than** **less than (fewer)**	**add** **plus** **altogether** **total** **take away /minus** **number bonds** **part** **whole** **digit** **double** **half** **twice as many** **equal** **unequal** **share** **group** **odd** **even**

Early Years

Concepts	Core Content & Expectations	How this is achieved in the EYFS	Vocabulary

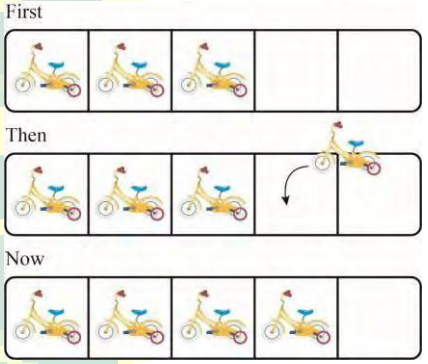
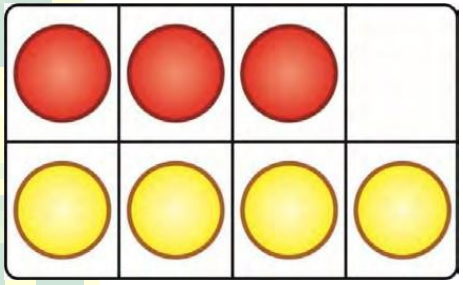
Numerical Patterns	**ELG: Numerical Patterns** Verbally count beyond 20, recognising the pattern of the counting system; Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	**White Rose Small Steps** - Match and sort - One more and less - Making pairs - Bonds to 10 - Adding more - Taking away	**order** **repeat** **patterns**

Early Years

Concepts	Core Content & Expectations	How this is achieved in the EYFS	Vocabulary

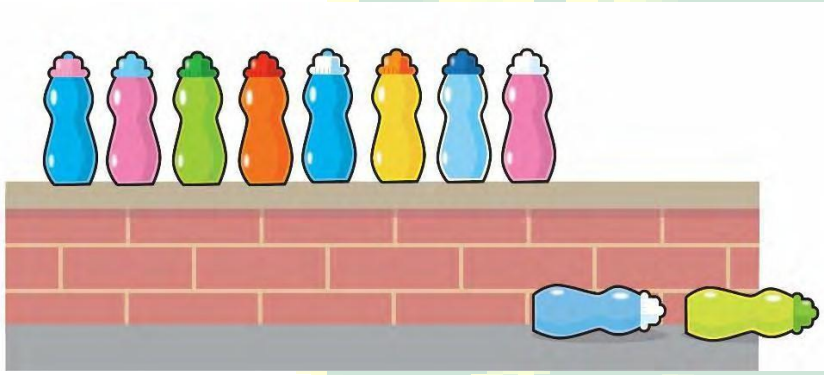
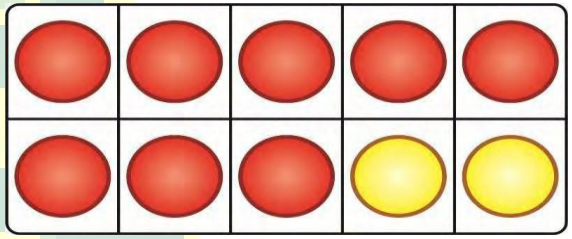
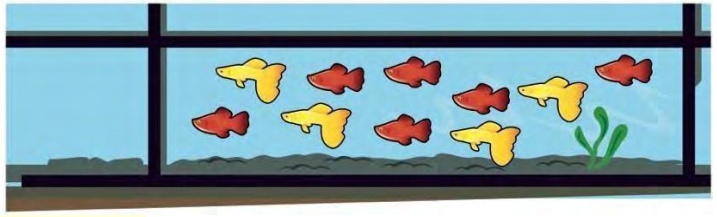
Measurement and Shape		**White Rose Small Steps** - Compare size, mass and capacity - Length and height - Time - Circles and triangles - Shapes with 4 sides - 3D shapes - Patterns - Positional language - Spacial reasoning	**measure** **wide(er)** **narrow(er)** **compare** **long(er)(est)** **short(er)(est)** **length** **time** **quicker** **slower** **earlier** **later** **before** **after** **first** **next** **today** **yesterday** **tomorrow** **morning** **afternoon** **evening** **day** **week** **hour** **minutes**	**height** **long(er)/short(er)** **tall(er)/short(er)** **weight** **capacity** **heavy/light** **heavier than** **lighter than** **big/bigger/biggest** **full/empty** **more than** **less than** **half/half full** **2-d shapes** **rectangle** **square** **circle** **triangle** **characteristics** **3-d shapes** **cuboids** **cubes** **cone** **spheres** **curved** **straight** **flat**

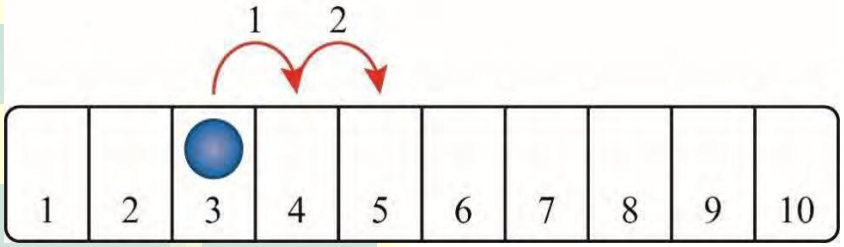
Reception Calculation Policy

	Concrete	Pictorial (and Abstract)
Addition Counting and adding more (within 5)	Children add one more person or object to a group to find one more.  One more then 3 is 4	Children represent first, then, now stories on a five frame. They make the first number and then add one more.  First, there are 3 bikes. Then 1 more bike came. Now, there are 4 bikes
Addition Combining groups to find the whole	Children sort people and objects into parts and combine them to find the whole. 	Children use counters or cubes in a part-whole model to find the whole. 

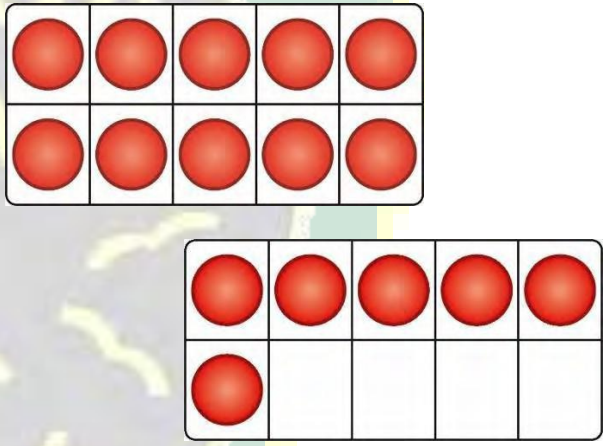
	The parts are 3 and 4. The whole is 7.	*The parts are 3 and 4. The whole is 7.*

Reception Calculation Policy

	Concrete	Pictorial (and Abstract)
Addition Finding number bonds to 10	Children combine two groups to find a number bond to 10.  *There are 8 bottles on the wall.* *There are 2 bottles on the floor. There are 10 bottles altogether.*	Use ten frames and part-whole models to represent key number bonds.  *8 and 2 is 10.* *There are 10 altogether.*  *6 and 4 is 10.* *There are 10 altogether.*
	Children jump along a physical number track. They start at the larger number and count on the smaller number to find the total.	Children use a number track and a counter. They start at the larger number and count on the smaller number to find the total.

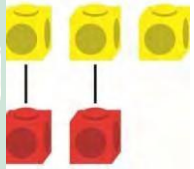
Addition Adding by counting on (number track)		

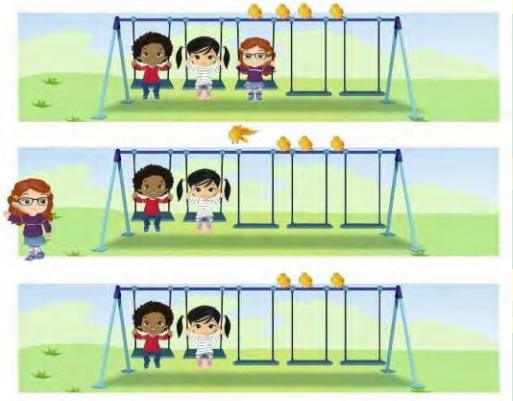
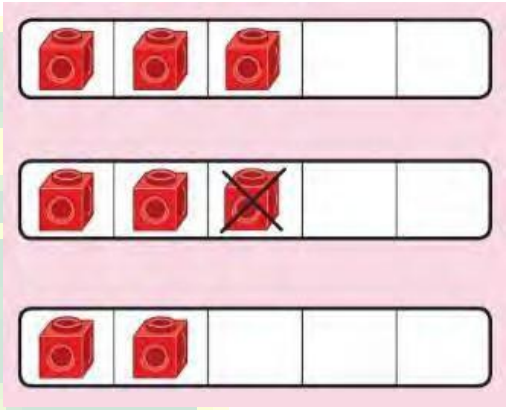
Reception Calculation Policy

	Concrete	Pictorial (and Abstract)
Addition Adding by counting on (ten frames)	Children find the total number by counting on from the larger number. 	Children make the larger number on the ten frames and then make the smaller number, counting on to find the total. They can use counters, cubes or other objects on the ten frames. 

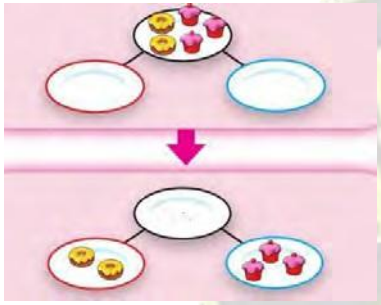
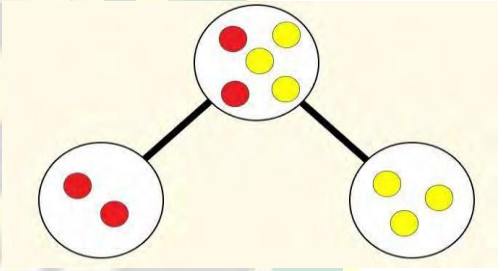
Addition Sorting groups (optional)	Children sort everyday objects into groups. 	

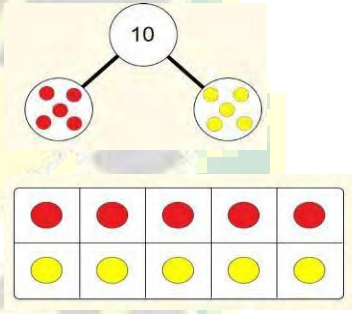
Reception Calculation Policy

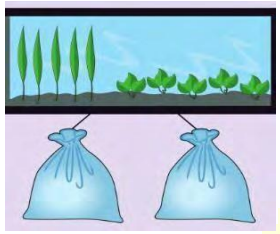
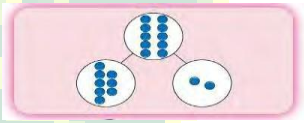
	Concrete	Pictorial (and Abstract)
Subtraction Comparing groups	Children line up objects to compare the amount. They line the objects up either horizontally or vertically.  *Ella has more conkers.* *Tom has fewer conkers.*	Children line up cubes or counters to compare the amount in each group. Lines can either be horizontal or vertical. A starting line helps to line the objects accurately.  *There are more yellow cubes.* *There are fewer red cubes.*

Subtraction Counting back and taking away (within 5)	Children remove one more person or object from a group to find one less.  *First, there were 3 children.* *Then, 1 child left.* *Now, there are 2 children.*	Children use five frames and objects to make a number. They then remove or cross out one object to find one less.  *One less than 3 is 2.*

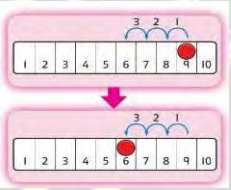
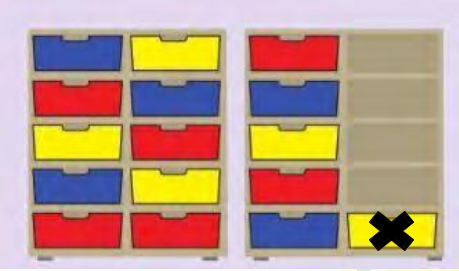
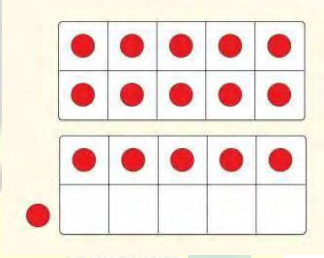
Reception Calculation Policy

	Concrete	Pictorial (and Abstract)
Subtraction Introducing the part-whole model	Children sort everyday objects into parts.  *One part is the*  *The other part is the* 	Children use counters or cubes to represent objects in a partwhole model.  *The whole is 5.* *2 is a part.* *3 is a part.*



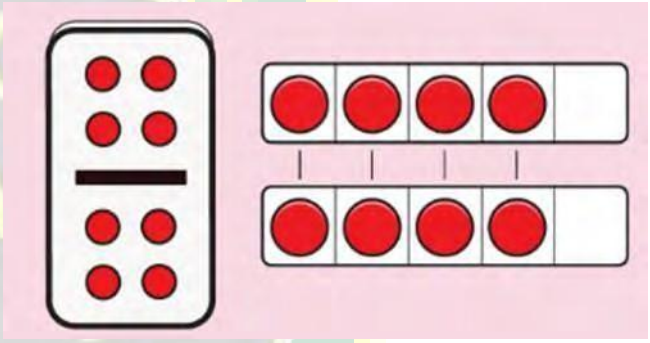
Subtraction Finding number bonds to 10	Children partition 10 into different groups to find the number bonds to 10.  Children begin to work with subtraction number bonds. They break apart 10 to identify different number bonds to 10.  *10 are bouncing.* *2 get off.* *8 are left.* *10 – 2 = 8*	Children use part-whole models, ten frames and counters to find the number bonds to 10. *10 is the whole.* *5 is a part and 5 is a part.* *10 is the whole.* *5 is a part and 5 is a part.* Children use part-whole models, and counters to find missing parts and the subtraction number bonds to 10.  *The parts are 8 and 2.* *10 is the whole.*

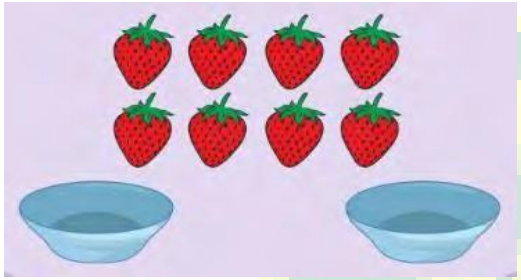
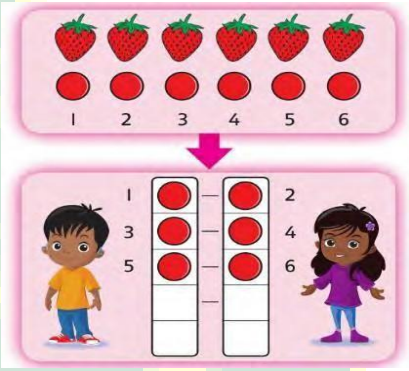
Reception Calculation Policy

	Concrete	Pictorial (and Abstract)
Subtraction Counting back and taking away (number track)	Children use game boards and human number tracks to subtract by counting back.  *9 take away 3 equals 6* *9…8…7…6*	Children use a number track and a counter. They start at the larger number and count back the smaller number to find the answer.  *9 take away 3 equals 6* *9…8…7…6*
Subtraction Counting back and taking away (ten frames)	Children count backwards to find one less with numbers up to 20.  *One less than 16 is 15.*	Children remove counters from ten frames to support in counting back with numbers up to 20.  *One less than 16 is 15.*

Subtraction Sorting groups (optional)	Children sort everyday objects into groups. 	

Reception Calculation Policy

	Concrete	Pictorial (and Abstract)
Multiplication Making doubles	Children explore doubles in their environment including in games such as on dominoes or dice. They focus on the understanding of doubles being 2 equal groups.  *Double 4 is 8.* *Double 2 is 4.* *Double 3 is 6.*	Children use five frames to find doubles by lining up counters or cubes.  *Double 4 is 8.*

Division Halving and sharing	Children explore halving and sharing through practical sharing using real life scenarios including sharing fruit or classroom equipment.  *Half of 8 is 4.*	Children use five frames to share amounts fairly and to check that the groups are equal. They share the counters/cubes one by one.  *Half of 6 is 3.*

A Member of Exceed Learning Partnership
• EVERY CHILD • EVERY CHANCE • EVERY DAY •

Reception **Knowledge Organiser**

Numbers To 20
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Number Bonds Within 5

1	2	3	4	5
0 + 1	0 + 2	0 + 3	0 + 4	0 + 5
	1 + 1	1 + 2	1 + 3	1 + 4

Doubles

0	0
1	2
2	4
3	6
4	8
5	10

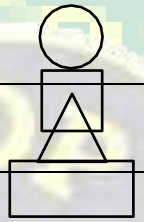
Halves

0	0
2	1
4	2
6	3
8	4
10	5

Language

5 + 3	Addition
8 - 3	Subtraction
+	Plus
-	Subtract
=	Is Equal To

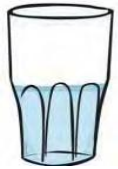
Shapes

circle	
triangle	
square	

Pattern

Colour		blue, green, blue, green
Size		big, small, big, small
Length		tall, short, tall, short

Capacity

		
Empty	Half Full	Full

Time

O'Clock		The minute hand points to twelve and the hour hand points to the hour.

Quantity To 10

1		6	
2		7	
3		8	
4		9	
5		10	

Months Of The Year

January	February	March
April	May	June
July	August	September
October	November	December

Weight

Heavy / Heavier / Heaviest	
Light / Lighter / Lightest	
Balanced / Equal	

January 2026

Year 1

	Autumn Term	Spring Term	Summer Term
Week 1	Place Value within 10 **Number**	Place value (within 20) **Number**	Multiplication and division **Number**
Week 2			
Week 3			
Week 4		Addition and subtraction (within 20) **Number**	Fractions **Number**
Week 5			
Week 6	Addition and subtraction (within 10) **Number**		Position and direction - **Geometry**
Week 7		Place value (within 50) **Number**	Place value (within 100) **Number**
Week 8			
Week 9		Length and height **Measurement**	Money - **Measurement**
Week 10			Time

Week 11	Shape - **Geometry**	Mass and volume **Measurement**	**Measurement**
Week 12	Consolidation		Consolidation

Year 1

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Place value (within 10) **Number**	**ELP KPIs** 1.1.1 I count to and across 100, forward and backward, beginning with 0 or 1, or from any given number 1.1.2 I count in multiples of 2 1.1.3 I count in multiples of 5 1.1.4 I count in multiples of 10 1.1.5 I read and write numbers to 100 in numerals 1.1.6 I read and write numbers from 1 – 20 in numerals and words 1.1.7 Given a number, I can identify 1 more or 1 less.	- Step 1 Sort objects - Step 2 Count objects - Step 3 Count objects from a larger group - Step 4 Represent objects - Step 5 Recognise numbers as words - Step 6 Count on from any number - Step 7 1 more - Step 8 Count backwards within 10 - Step 9 1 less - Step 10 Compare groups by matching - Step 11 Fewer, more, same - Step 12 Less than, greater than, equal to - Step 13 Compare numbers - Step 14 Order objects and numbers - Step 15 The number line	**sort** **represent** **multiples** **partitioning** **ones** **tens**

Place value (within 20) **Number**		- Count forwards and backwards and write numbers to 20 in numerals and words. - Numbers from 11 to 20. - Tens and ones. - Count one more and one less. - Compare groups of objects. - Compare numbers. - Order groups of objects. - Order numbers.	

Year 1

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Place value (within 50) **Number**	**ELP KPIs** 1.1.1 I count to and across 100, forward and backward, beginning with 0 or 1, or from any given number 1.1.2 I count in multiples of 2 1.1.3 I count in multiples of 5 1.1.4 I count in multiples of 10 1.1.5 I read and write numbers to 100 in numerals 1.1.6 I read and write numbers from 1 – 20 in numerals and words 1.1.7 Given a number, I can identify 1 more or 1 less.	- Numbers to 50. - Tens and ones. - Represent numbers to 50. - One more one less. - Compare objects within 50. - Compare numbers within 50. - Order numbers within 50. - Count in 2s. - Count in 5s.	**sort** **represent** **multiples** **partitioning** **ones** **tens**
Place value (within 100) **Number**		- Counting to 100. - Partitioning numbers. - Comparing numbers (1). - Comparing numbers (2). - Ordering numbers. - One more, one less.	

Year 1

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Addition and subtraction (within 10) **Number**	**ELP KPIs** 1.1.9 I read, write and interpret mathematical statements involving + - = signs. 1.1.10 I represent and use number bonds and related subtractions facts within 20 1.1.11 I add a one-digit and two-digit number to any number up to 20 by counting on 1.1.12 I subtract a one-digit and two-digit number from any number up to 20 by counting back 1.1.13 I solve one-step problems that involve addition using concrete objects and pictorial representations, and missing number problems. E.G 6+__ =10	- Step 1 Introduce parts and wholes - Step 2 Part-whole model - Step 3 Write number sentences - Step 4 Fact families – addition facts - Step 5 Number bonds within 10 - Step 6 Systematic number bonds within 10 - Step 7 Number bonds to 10 - Step 8 Addition – add together - Step 9 Addition – add more - Step 10 Addition problems - Step 11 Find a part - Step 12 Subtraction – find a part - Step 13 Fact families – the eight facts - Step 14 Subtraction – take away/cross out (How many left?) - Step 15 Take away (How many left?) - Step 16 Subtraction on a number line - Step 17 Add or subtract 1 or 2	**addition/add** **subtraction** **difference** **equals** **facts** **problems** **missing number problems** **2-digit number** **inverse**

Addition and subtraction (within 20) **Number**	or -------- 4=6 1.1.14 I solve one-step problems that involve subtraction using concrete objects and pictorial representations, and missing number problems.	- Add by counting on. - Find and make number bonds. - Add by making 10. - Subtraction Not crossing 10. - Subtraction Crossing 10 (1). - Subtraction Crossing 10 (2). - Related Facts. - Compare Number Sentences.	

Year 1

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Multiplication and division **Number**	1.1.15 I solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher 1.1.16 I solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	- Count in 10s. - Make equal groups. - Add equal groups. - Make arrays. - Make doubles. - Make equal groups grouping. - Make equal groups sharing.	**multiplication** **division** **arrays**

Fractions **Number**	1.1.17 I recognise, find and name a half as one of two equal parts an object, shape or quantity 1.1.18 I recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	- Halving shapes or objects. - Halving a quantity. - Find a quarter of a shape or object. - Find a quarter of a quantity.	**whole** **half** **quarter** **equal parts**

Year 1

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Length and height **Measurement**	1.2.1 I compare, describe & solve practical problems for: Lengths & heights 1.2.6 I measure & begin to record length in cm and m.	- Compare lengths and heights. - Measure length (1). - Measure length (2).	**measure** **wide(er)** **narrow(er)** **compare** **long(er)(est)** **short(er)(est)** **length**
Mass and volume **Measurement**	1.2.2 I compare, describe & solve practical problems for: -Capacity & volume 1.2.3 I compare, describe & solve practical problems for: -mass & weight 1.2.5 I measure & begin to record Mass/weight 1.2.7 I measure & begin to record capacity in ml/l	- Introduce weight and mass. - Measure mass. - Compare mass. - Introduce capacity. - Measure capacity. - Compare capacity.	**mass** **volume**

Year 1

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Money **Measurement**	1.2.9 I recognise & know the value of different denominations of coins & notes.	- Recognising coins. - Recognising notes. - Counting in coins.	**money** **coins** **notes** **pounds £** **pence p**

Time **Measurement**	1.2.4 I compare, describe & solve practical problems for: -Time 1.2.8 I measure & begin to record time in hours, minutes and seconds 1.2.10 I sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening) 1.2.11 I recognise & use language relating to dates, including days of the week, weeks, months, years. 1.2.12 I can tell the time to the hour and half past the hour and draw the hands on clock face to show these times.	- Before and after. - Dates. - Time to the hour. - Time to the half hour. - Writing time. - Comparing time.	**chronological order** **days of the week** **months of the year** **month** **year** **o'clock** **half past** **second**

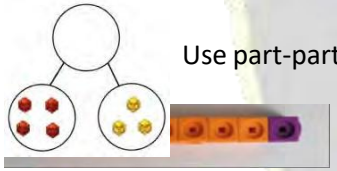
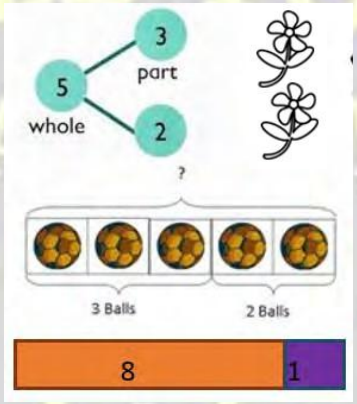
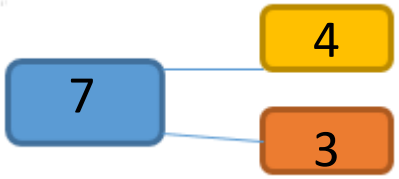
Year 1

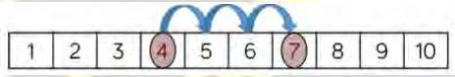
Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

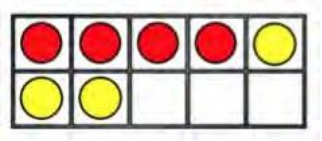
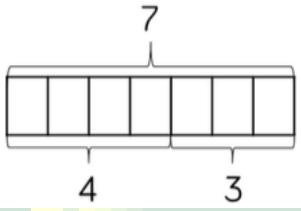
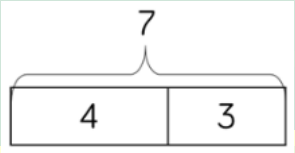
Shape **Geometry**	1.3.1 I recognise and name common 2D shapes, including: 2D, e.g. circles, triangles, squares, rectangle 1.3.2 I identify and describe common 2D shapes, including rectangles (including squares) circles, triangles. 1.3.3 I recognise and name common 3-D shapes (for example, cuboids, cubes, pyramids and spheres)	- Step 1 Recognise and name 3-D shapes - Step 2 Sort 3-D shapes - Step 3 Recognise and name 2-D shapes - Step 4 Sort 2-D shapes - Step 5 Patterns with 2-D and 3-D shapes	**sides** **corners** **properties** **pyramids** **faces**
Position and direction **Geometry**	1.3.4 I describe position, direction and movement, including whole, half, quarter, three-quarter turns	- Describe turns. - Describe Position (1). - Describe Position (2).	**position** **direction** **movement** **whole turn** **quarter turn** **half turn** **three-quarter turn**

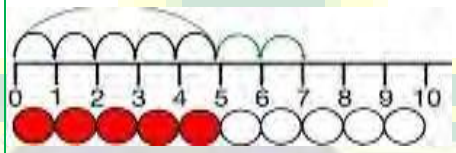
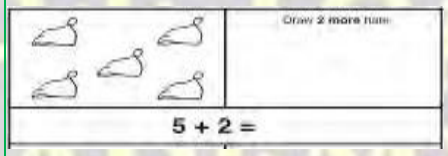
Year 1 calculation policy

Addition

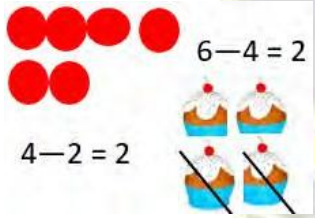
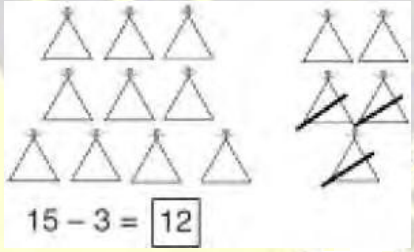
Objective & Strategy	Concrete	Pictorial	Abstract
Combining two parts to make a whole: part-part-whole model	  mo Use part-part-whole  Use cubes to add two numbers together as a group or in a bar.	 Use pictures to add two numbers together as a group or in a bar.	 4 + 3 = 7 Four is a part, 3 is a part and the whole is seven. 10 = 6 + 4 Use the part-part-whole diagram as shown above to move into the abstract.

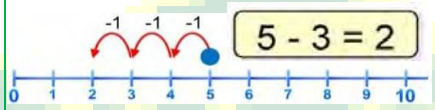
Starting at the bigger number and counting on	 Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.	 Start at the larger number on the number line and count on in ones or in one jump to find the answer.	5 + 12 = 17 Place the larger number in your head and count on the smaller number to find your answer.

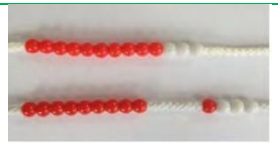
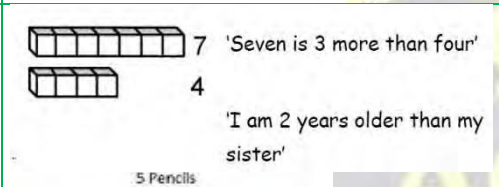
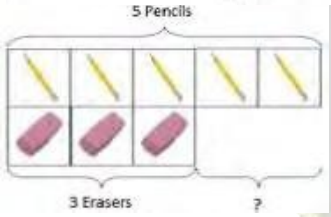
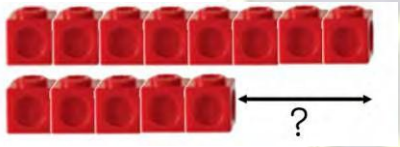
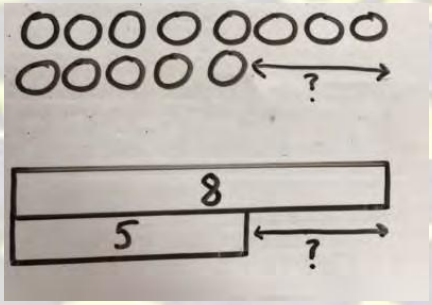
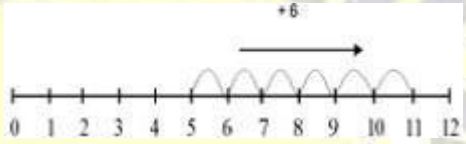
Regrouping to make 10. ***This is an essential skill for column addition later***	 6 + 5 = 11  Start with the bigger number and use the smaller number to make 10. Use ten frames.	  Use pictures of a number line. Regroup or partition the smaller number using the part-part-whole model to make 10.	7 + 4 = 11 If I am seven, how many more do I need to make 10. How many more do I add on now? $6 + \square = 11$ $6 + 5 = 5 + \square$ $6 + 5 = \square + 4$ Children to develop an understanding of equality.

Represent and use number bonds and related subtraction facts within 20.	 2 more than 5.	 	Emphasis should be on language. “1 more than 5 is equal to 6.” “2 more than 5 is 7.” “8 is 3 more than 5.”

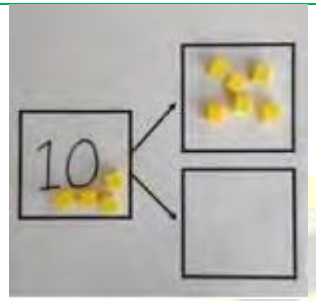
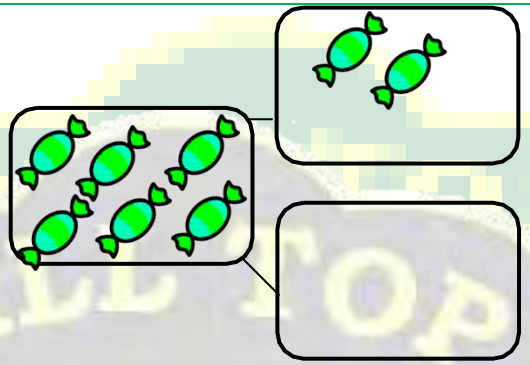
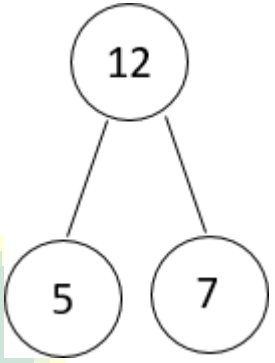
Subtraction

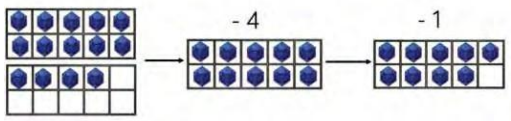
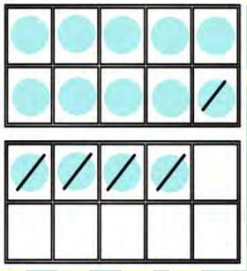
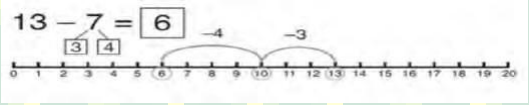
Objective & Strategy	Concrete	Pictorial	Abstract
Taking away ones.	 Use physical objects, counters, cubes etc to show how objects can be taken away.	 Cross out drawn objects to show what has been taken away.	7 – 4 = 3 16 – 9 = 7

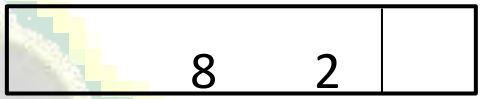
Counting back.	 Move objects away from the group, counting backwards.	 Count back in ones using a number line.	Put 13 in your head, count back 4. What number are you at?

	 Move the beads along the bead string as you count backwards.		
Find the difference.	   Compare objects and amounts. Lay objects to represent bar model.	 Children to draw the cubes/other concrete objects which they have used or use the bar model to illustrate what they need to calculate.  Count on using a number line to find the difference.	*Hannah has 12 sweets and her sister has 5. How many more does Hannah have than her sister?* *Find the difference between 8 and 5.* *8 – 5, the difference is □* *Children to explore why* *9 – 6 = 8 – 5 = 7 – 4 have the same difference.*

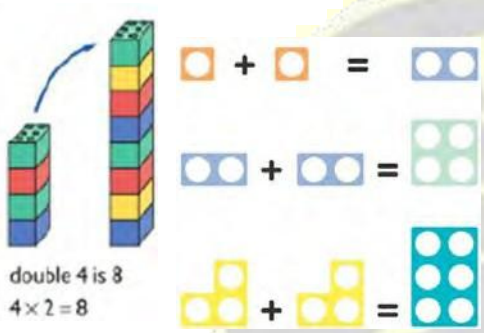
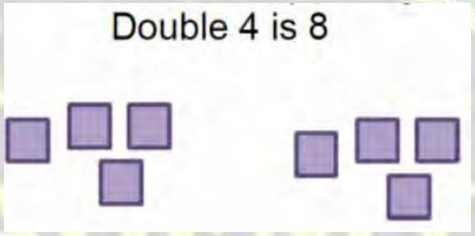
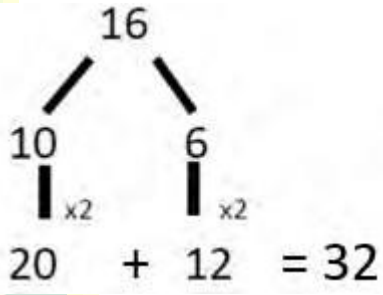
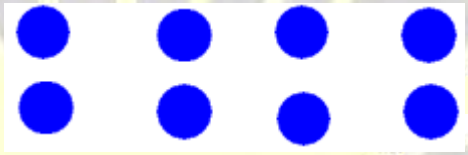
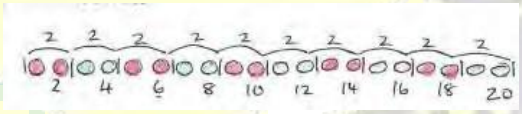
Represent and use number bonds and related subtraction facts within 20.			

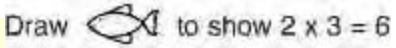
Part-part-whole model.	 Link to addition. Use part-part-whole model to model the inverse. If 10 is the whole and 6 is one of the parts, what is the other part?	 Use pictorial representations to show the part.	 Move to using numbers within the part-part-whole model.

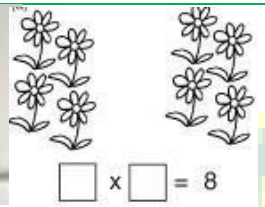
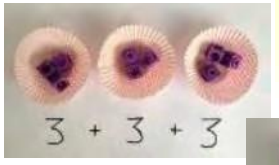
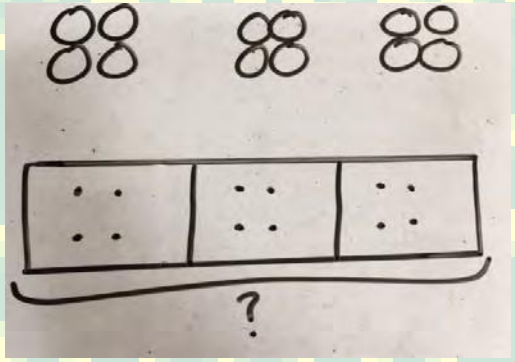
Make 10.	14 - 5  Make 14 of the ten frame. Take 4 away to make ten, then take one more away so that you have taken 5.	 Children to present the ten frame pictorially and discuss what they did to make 10. 13 – 7  Jump back 3 first, then another 4. Use ten as the stopping point.	14 - 5 = 9 4 1 14 – 4 = 10 10 – 1 = 9 Children to show how they can make 10 by partitioning the subtrahend. 16 – 8

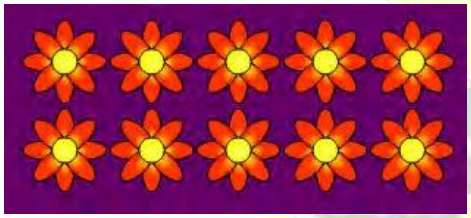
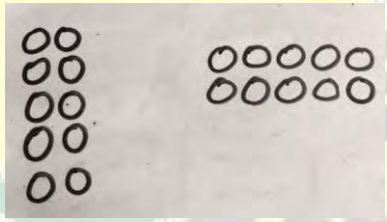
			How many do we take off first to get to 10? How many left to take off?
Bar Model.	 5 – 2 = 3		 10 = 8 + 2 10 = 2 + 8 10 – 2 = 8 10 – 8 = 2

Multiplication

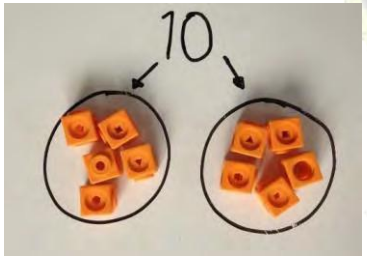
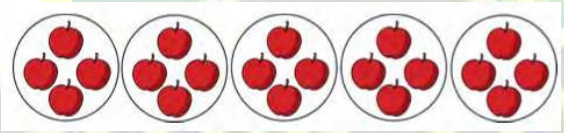
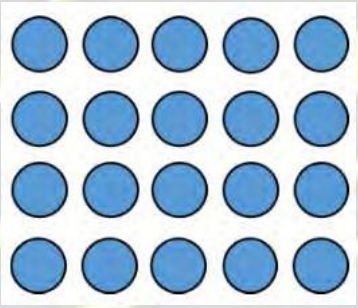
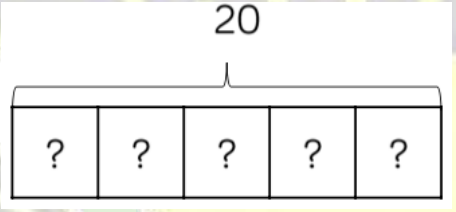
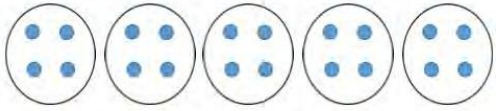
Objective & Strategy	Concrete	Pictorial	Abstract
Doubling.	 Use practical activities using manipulatives including cubes and numicon to demonstrate doubling.	 Draw pictures to show how to double numbers.	 Partition a number and then double each part before recombining it back together.
Counting in multiples.	  Count the groups as children are skip counting, children may use fingers as they are skip counting.	  Children make representations to show counting in multiples.	Count in multiples of a number aloud. Write sequences with multiples of number. 2, 4, 6, 8, 10 5, 10, 15, 20, 25, 30

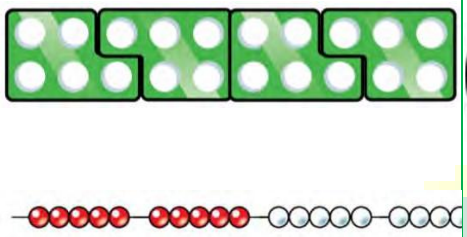
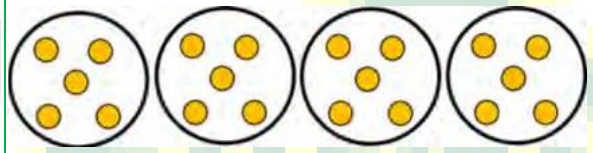
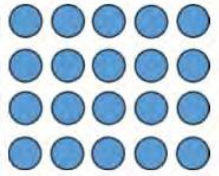
Making equal groups and counting the total			2 x 4 = 8

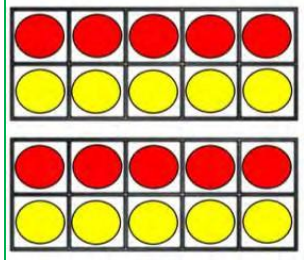
	  Use manipulatives to create equal groups.	Draw and make representations.	
Repeated addition	   Use different objects to add equal group.	 Children to represent the practical resources in a picture and use a bar model.	 Write addition sentences to describe objects and pictures.

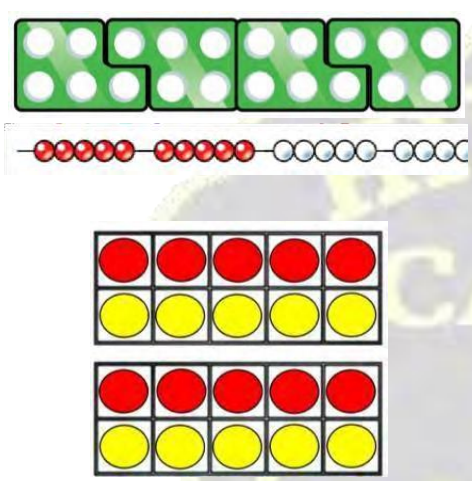
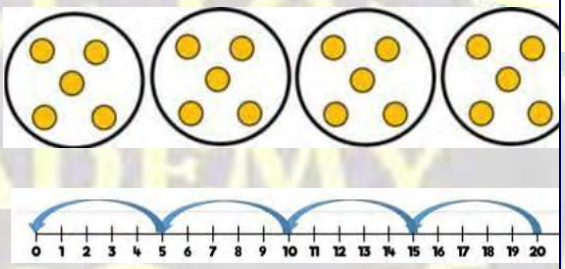
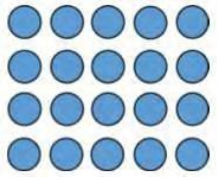
Understanding arrays	 Use objects laid out in arrays to find the answers to 2 lots of 5, 3 lots of 2 etc.	 Draw representation of arrays to show understanding.	10 = 2 x 5 5 x 2 = 10 2 + 2 + 2 + 2 + 2 = 10 10 = 5 + 5 Children to be able to use an array to write a range of calculations.

Division

Objective & Strategy	Concrete	Pictorial	Abstract
Division as sharing	   I have 10 cubes; can you share them equally in 2 groups?	  	 20 ÷ 5 = 4 There are 20 apples altogether. They are shared equally between 5 bags. How many apples are in each bag?

Division as grouping			 $20 \div 5 = 4$

			There are 20 apples altogether. They are put in bags of 5. How many bags are there?

Division Division as grouping			 $20 \div 5 = 4$ There are 20 apples altogether. They are put in bags of 5. How many bags are there?

Year 1 Knowledge Organiser

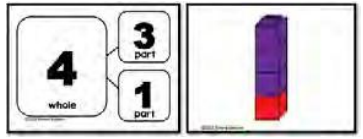
Doubles	
6	12
7	14
8	16
9	18
10	20

Halves	
12	6
14	7
16	8
18	9
20	10

Maths Vocabulary and Language

+	plus add
-	minus subtract
=	is equal to
5 – 3 = 2	difference
odd numbers	numbers ending with 1, 3, 5, 7 or 9
even numbers	numbers ending with 2, 4, 6, 8 or 0

Derived Facts

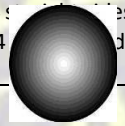
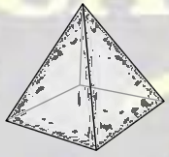
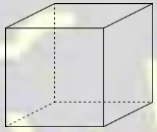
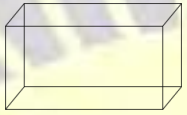
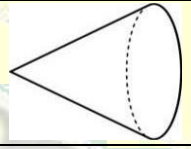


part + part = whole	3 + 1 = 4
part + part = whole	1 + 3 = 4
whole- part = part	4 - 3 = 1
whole - part = part	4 - 1 = 3

2D Shapes

circle	1 curved side 0 vertices

3D Shapes

rectangle	4 s… 4 …
sphere	
pyramid	
cube	
cuboid	
cone	
cylinder	

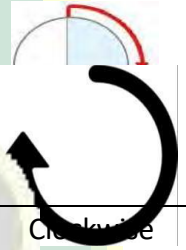
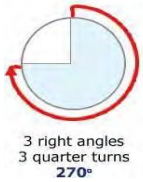
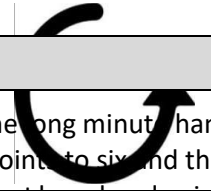
Numerals and Number Names

0	zero	10	ten
1	one	20	twenty
2	two	30	thirty
3	three	40	forty
4	four	50	fifty
5	five	60	sixty
6	six	70	seventy
8	eight	80	ninety
9	nine	100	one hundred

Number Bonds Within 10

6	0 + 6, 1 + 5 2 + 4, 3 + 3
7	0 + 7, 1 + 6 2 + 5, 3 + 4
8	0 + 8, 1 + 7, 2 + 6 3 + 5, 4 + 4
9	0 + 9, 1 + 8, 2 + 7 3 + 6, 4 + 5
10	0 + 10, 1 + 9, 2 + 8 3 + 7, 4 + 6, 5 + 5

Turns

Quarter Turn 	Three-quarter Turn  3 right angles 3 quarter turns 270°
Clockwise	Anti-Clockwise 

Time

Half Past		The long minute hand points to six and the short hour hand points past the hour.
24 hours in a day.		60 minutes in an hour
60 seconds in a minute		
A.M. - Morning		P.M. - Afternoon
Midday – 12:00PM		Midnight – 12:00AM

Place Value Grid

	tens	ones
Numeral	10	1

January 2026

Year 2

<table>
<tr><th></th><th>Autumn Term</th><th>Spring Term</th><th>Summer Term</th></tr>
<tr><td>Week 1</td><td rowspan="2">Place Value within 10
Number</td><td rowspan="2">Money
Measurement</td><td rowspan="2">Statistics</td></tr>
<tr><td>Week 2</td></tr>
<tr><td>Week 3</td><td rowspan="2"></td><td rowspan="4">Multiplication and division
Number</td><td rowspan="2">Fractions
Number</td></tr>
<tr><td>Week 4</td></tr>
<tr><td>Week 5</td><td rowspan="4">Addition and subtraction
Number</td><td rowspan="2">Position and direction
Geometry</td></tr>
<tr><td>Week 6</td></tr>
<tr><td>Week 7</td><td></td></tr>
<tr><td>Week 8</td><td rowspan="2">Length and height
Measurement</td><td rowspan="2">Problem Solving</td></tr>
<tr><td>Week 9</td></tr>
<tr><td>Week 10</td><td></td><td></td><td></td></tr>
</table>

Week 11	Shape **Geometry**	Mass, capacity and temperature **Measurement**	Time **Measurement**
Week 12			

Year 2

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Place value **Number**	2.1.1 I count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward. 2.1.2 I read and write numbers to at least 100 in numerals and in words. 2.1.3 I identify, represent and estimate numbers using different representations including the number line 2.1.4 I recognise the place value of each digit in a 2 digit number (tens and ones) 2.1.5 I compare and order numbers from 0 up to 100; use < > and = signs.	- Step 1 Numbers to 20 - Step 2 Count objects to 100 by making 10s - Step 3 Recognise tens and ones - Step 4 Use a place value chart - Step 5 Partition numbers to 100 - Step 6 Write numbers to 100 in words - Step 7 Flexibly partition numbers to 100 - Step 8 Write numbers to 100 in expanded form - Step 9 10s on the number line to 100 - Step 10 10s and 1s on the number line to 100 - Step 11 Estimate numbers on a number line - Step 12 Compare objects - Step 13 Compare numbers - Step 14 Order objects and numbers - Step 15 Count in 2s, 5s and 10s	**count in steps** **count in multiples** **place value** **estimate** **compare**

	2.1.6 I use place value and number facts to solve problems	- Step 16 Count in 3s	

Year 2

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
	2.1.7 I recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100. 2.1.8 I show that addition of two numbers can be done in any order (commutative) and subtraction of one number by another cannot. 2.1.9 I recognise and use the inverse relationship between addition and subtraction and use this to check calculations and	- Step 1 Bonds to 10 - Step 2 Fact families - addition and subtraction bonds within 20 - Step 3 Related facts - Step 4 Bonds to 100 (tens) - Step 5 Add and subtract 1s - Step 6 Add by making 10 - Step 7 Add three 1-digit numbers - Step 8 Add to the next 10 - Step 9 Add across a 10 - Step 10 Subtract across 10 - Step 11 Subtract from a 10	**sum** **3-digit number** **commutative**

Addition and subtraction **Number**	missing number problems. 2.1.10 I add and subtract numbers using concrete object, pictorial representations, and mentally, including: a) 2-digit numbers & ones E.G 45+7 = or 67-9= b) 2-digit numbers & tens E.G 78+30= or 98-30= c) two 2-digit numbers E.G 45+67= or 76-34= d) adding three 1-digit numbers E.G 6+9+4 = 2.1.11 I solve problems with addition and subtraction: a) using concrete objects and pictoral represeantions, including those involving numbers, quantities and measures; b) applying their increasing knowledge of mental and written methods	- Step 12 Subtract a 1-digit from a 2-digit number (across a 10) - Step 13 10 more, 10 less - Step 14 Add and subtract 10s - Step 15 Add two 2-digit numbers (not across a 10) - Step 16 Add two 2-digit numbers (across a 10) - Step 17 Subtract two 2-digit numbers (not across a 10) - Step 18 Subtract two 2-digit numbers (across a 10) - Step 19 Mixed addition and subtraction - Step 20 Compare number sentences - Step 21 Missing number problems	

Year 2

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
	2.1.12 I recall and use multiplication and division facts for the 2 times tables, including recognising odd and even numbers 2.1.12 I recall and use multiplication and division facts for the 5 times tables, including recognising odd and even numbers	- Recognise equal groups. - Make equal groups. - Add equal groups. - Multiplication sentences using the x symbol. - Multiplication sentences from pictures. - Use arrays. - 2 times table.	**multiplication tables** **commutative** **repeated addition**

Multiplication and division **Number**	2.1.12 I recall and use multiplication and division facts for the 10 times tables, including recognising odd and even numbers 2.1.13 I can show that multiplication of two numbers can be one in any order (commutative) and division of one number by another cannot. 2.1.14 I calculate the mathematical statements for multiplication and division within the multiplication tables and write them using the x ÷ = signs. 2.1.15 I recognise that division is the inverse of multiplication and use to check calculations 2.1.16 I solve problems involving multiplication and division, using material, arrays, repeated addition, mental mthods and multiplication and division facts, including problems in context	- 5 times table. - 10 times table. - Make equal groups sharing. - Make equal groups grouping. - Divide by 2. - Odd and even numbers. - Divide by 5. - Divide by 10.	

Year 2

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Fractions **Number**	2.1.17 I recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity and knows all parts must be equal parts of the whole 2.1.18 I recognise and demonstrate the equivalence of 1/2 and 2/4 2.1.19 I write simple fractions for example 1/2 of 6 = 3	- Make equal parts. - Recognise half. - Find half. - Recognise quarter. - Find a quarter. - Recognise a third. - Find a third. - Unit fractions. - Non-unit fractions. - Equivalence of ½ and $^{2}/_{4}$. - Find three quarters. - Count in fractions.	**three quarters** **third** **equivalent fractions** **unit fractions** **non-unit fractions** **numerator** **denominator** **one whole**

Year 2

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Money **Measurement**	2.2.5 I recognise & use symbols for pounds (£) and pence (p); combine amounts to make a particular value. 2.2.6 I can find different combinations of coins that equal the same amounts of money. 2.2.7 I solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	- Count money pence. - Count money pounds (notes and coins). - Count money notes and coins. - Select money. - Make the same amount. - Compare money. - Find the total. - Find the difference. - Find change. - Two step problems.	**value** **change**

Length and height **Measurement**	2.2.1 I choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit, using, rulers, scales, thermometers and measuring vessels 2.2.2 I compare and order length and record the results using <, > and =	- Measure length (cm). - Measure length (m). - Compare lengths. - Order lengths. - Four operations with lengths.	**standard units** **estimate** **order** **record results** **centimetre cm** **metre m**

Year 2

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Mass, capacity and temperature **Measurement**	2.2.1 I choose and use appropriate standard units to estimate and measure - mass (kg/g) - capacity (l/ml) - temperature (°C) to the nearest appropriate unit, using, rulers, scales, thermometers and measuring vessels 2.2.3 I compare and order mass and record the results using <, > and = 2.2.4 I compare and order volume/ capacity and record the results using <, > and =	- Compare mass. - Measure mass in grams. - Measure mass in kilograms. - Compare capacity. - Millilitres. - Litres. - Temperature.	**kilogram kg** **gram g** **quarter full** **three quarters full** **litres l** **millilitres ml** **temperature** **Celsius**
Time **Measurement**	2.2.8 I compare and sequence intervals of time (1 hour longer, 10 minutes before etc) 2.2.9 I can tell and write the time to five minutes including quarter past/to the hour & draw the hands on a clock face to show these times. 2.2.10 I know the number of minutes in an hour and the number of hours in a day	- O'clock and half past. - Quarter past and quarter to. - Telling time to 5 minutes. - Minutes in an hour, hours in a day. - Find durations of time. - Compare durations of time.	**intervals of time** **quarter past/to** **duration**

Year 2

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Shape **Geometry**	2.3.1 I identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line. 2.3.2 I identify and describe the properties of 3D shapes, including the number of edges, vertices and faces 2.3.3 I identify 2D shapes on the surface of 3D shapes 2.3.4 I compare and sort common 2D shapes and everyday objects. 2.3.5 I recognise and name common 3D shapes. 2.3.6 I compare and sort common 3D shapes and everyday objects. 2.3.7 I order and arrange combinations of mathematical objects in patterns and sequences	- Step 1 Recognise 2-D and 3-D shapes - Step 2 Count sides on 2-D shapes - Step 3 Count vertices on 2-D shapes - Step 4 Draw 2-D shapes - Step 5 Lines of symmetry on shapes - Step 6 Use lines of symmetry to complete shapes - Step 7 Sort 2-D shapes - Step 8 Count faces on 3-D shapes - Step 9 Count edges on 3-D shapes - Step 10 Count vertices on 3-D shapes - Step 11 Sort 3-D shapes - Step 12 Make patterns with 2-D and 3-D shapes	**pentagon** **hexagon** **line of symmetry** **properties** **cylinder** **edges** **vertices** **vertex**

Position and direction **Geometry**	2.3.8 I use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three quarter turns (clockwise and anticlockwise)	- Describing movement. - Describing turns. - Describing movement and turns. - Making patterns with shapes.	**clockwise/anti-clockwise** **straight line** **rotation** **arrange** **sequences**

Year 2

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Statistics	2.4.1 I can interpret and construct: – pictograms – tally charts – block diagrams – simple tables 2.4.2 I ask and answer simple questions by counting the numbers of objects in each category and sorting the categories by quantity. 2.4.3 I ask and answer questions about totalling and comparing categorical data.	- Make tally charts. - Draw pictograms (1 1). - Interpret pictograms (1 1). - Draw pictograms (2, 5 and 10). - Interpret pictograms (2, 5 and 10). - Block diagrams.	**pictograms** **tally chart** **block diagram** **category** **sorting** **totalling** **comparing** **horizontal** **vertical**

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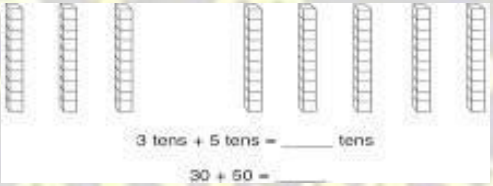
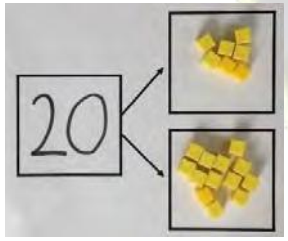
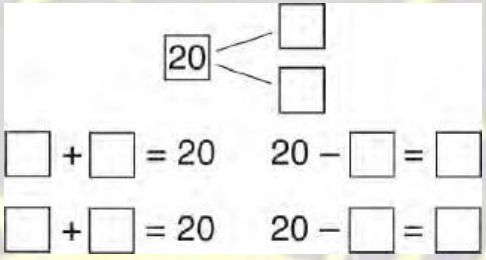
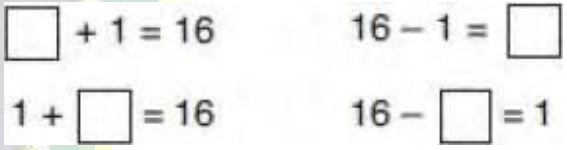
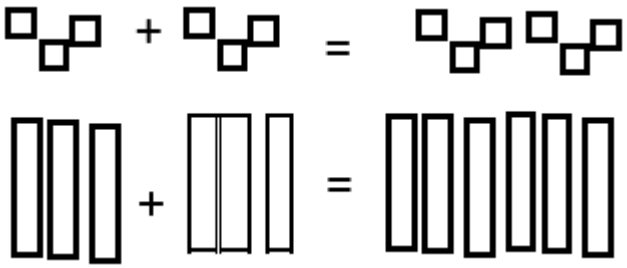
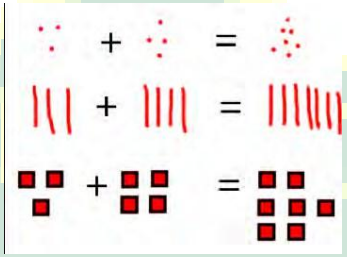
Year 2 Calculation Policy

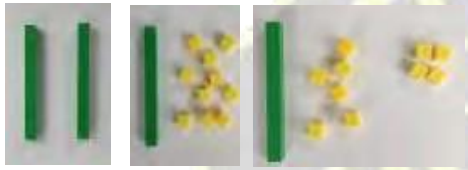
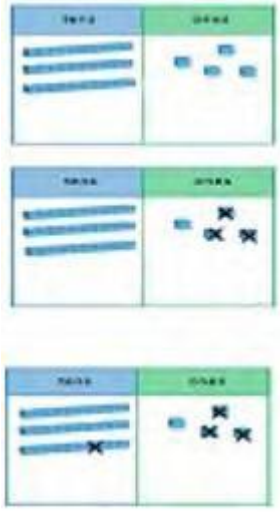
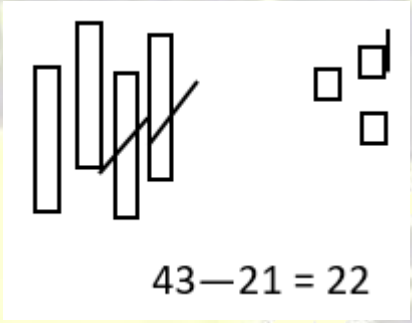
January 2026

Addition

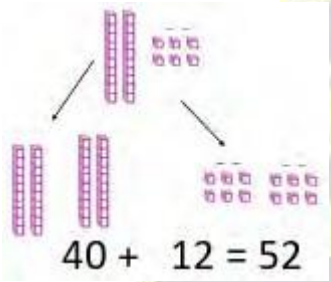
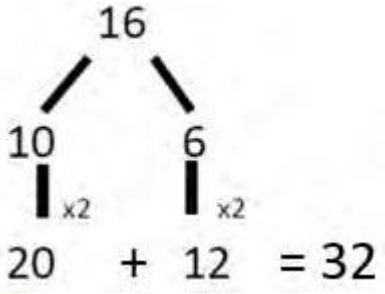
Objective & Strategy	Concrete	Pictorial	Abstract
Adding multiples of ten.	50 = 30 + 20  Model using dienes and bead strings.	 Use representations for base ten.	20 + 30 = 50 70 = 50 + 20 40 + □ = 60
Use known number facts	 Children explore ways of making numbers within 20.		

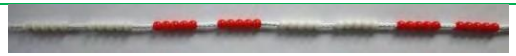
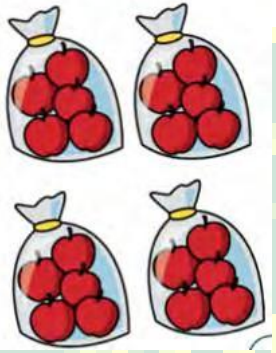
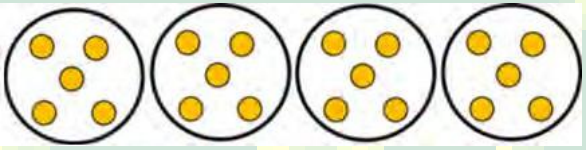
Using known facts		 Children draw representations of H, T and O	3 + 4 = 7 *Leads to* 30 + 40 = 70 *Leads to* 300 + 400 = 700

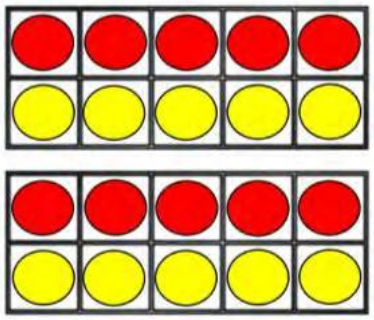
Subtraction

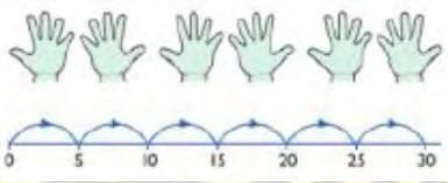
Objective & Strategy	Concrete	Pictorial	Abstract
Regroup a ten into ten ones	 Use a place value chart to show how to change a ten into ten ones, use the term “take and make”.		20 – 4 = 16
Partition to subtract without regrouping (friendly numbers).	34 – 13 = 21  Use dienes to show how to partition the number when subtracting without regrouping.	 Children draw representations of dienes and cross off.	43 – 21 = 22

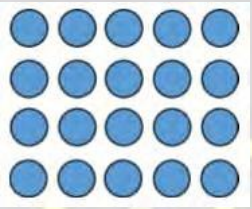
Multiplication

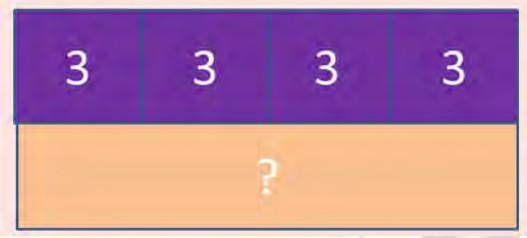
Objective & Strategy	Concrete	Pictorial	Abstract
Doubling	 Model doubling using dienes and place value counters.	Draw pictures and representations to show how to double numbers.	 Partition a number and then double each part before recombining it back together.

Counting in multiples of 2, 3, 4, 5, 10 from 0 **(repeated addition)**	 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40  Count the groups as children are skip counting, children may use their fingers as they are skip counting. Use bar models. 	 	$4 \times 3 = \square$ Count in multiples of a number aloud. Write sequences with multiples of numbers. 0, 2, 4, 6, 8, 10 0, 3, 6, 9, 12, 15 0, 5, 10, 15, 20, 25, 30









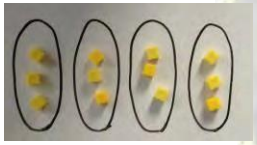
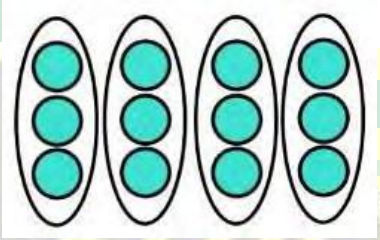
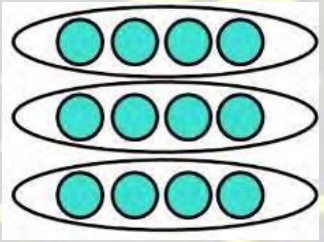
Number lines, counting sticks and bar models should be used to show representation of counting in multiples.

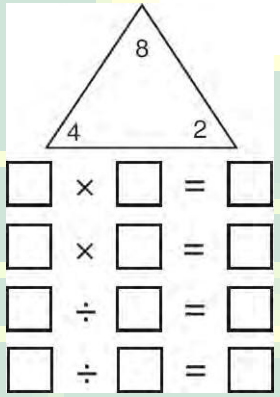
$5 + 5 + 5 + 5 = 20$

$4 \times 5 = 20$

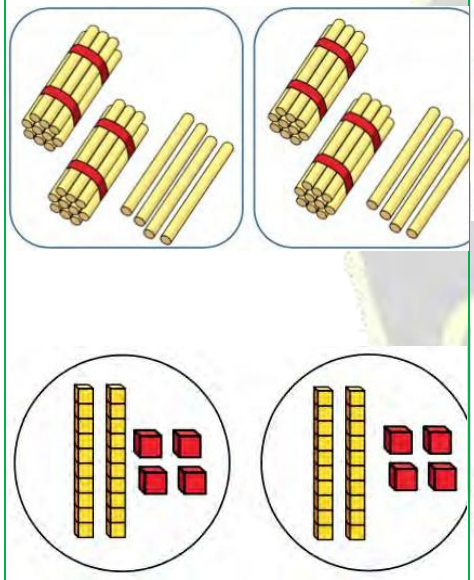
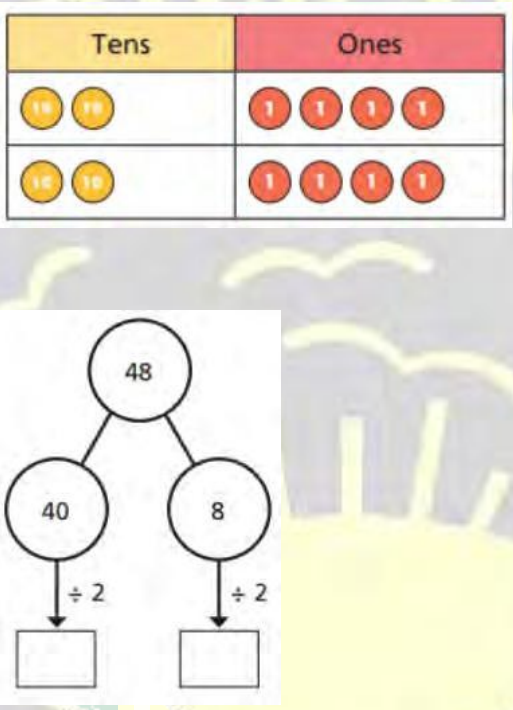
$5 \times 4 = 20$

One bag holds 5 apples.
How many apples do 4 bags hold?

Multiplication is commutative	  Create arrays using counters and cubes and numicon.   Pupils should understand that an array can represent different equations and that as multiplication is commutative, the order of the multiplication does not affect the answer.	  Use representative of arrays to show different calculations and explore commutativity.	12 = 3 x 4 12 = 4 x 3 Use an array to write multiplication sentences and reinforce repeated addition.  5 + 5 + 5 = 15 3 + 3 + 3 + 3 + 3 = 15 5 x 3 = 15 3 x 5 = 15

Using the Inverse **This should be taught alongside division, so pupils learn how they work alongside each other.**			2 x 4 = 8 4 x 2 = 8 8 ÷ 2 = 4 8 ÷ 4 = 2 8 = 2 x 4 8 = 4 x 2 2 = 8 ÷ 4 4 = 8 ÷ 2 Show all 8 relevant fact family sentences.

Division

Objective & Strategy	Concrete	Pictorial	Abstract
Divide two-digit by one-digit (sharing with no exchange)			$48 \div 2 = 24$

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Year 2 Knowledge Organiser

Doubles	
11	22
12	24
13	26
14	28
15	30
16	32
17	34
18	36
19	38
20	40

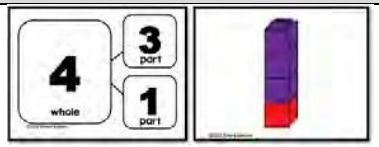
Halves	
22	11
24	12
26	13
28	14
30	15
32	16
34	17
36	18
38	19
40	20

Bonds To 20	
0	20
1	19
2	18
3	17
4	16
5	15
6	14
7	13
8	12
9	11
10	10

Bonds Up To 20

19 = 0 + 19	19 = 5 + 14
19 = 1 + 18	19 = 6 + 13
19 = 2 + 17	19 = 7 + 12
19 = 3 + 16	19 = 8 + 11
19 = 4 + 15	19 = 9 + 10

Derived Facts



part + part = whole	3 + 1 = 4
part + part = whole	1 + 3 = 4
whole = part + part	4 = 3 + 1
whole = part + part	4 = 1 + 3
whole - part = part	4 - 3 = 1
whole - part = part	4 - 1 = 3
part = whole - part	1 = 4 - 3
part = whole - part	3 = 4 - 1

Fractions

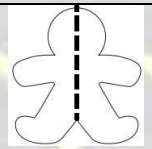
$\frac{1}{2}$	one half
$\frac{1}{3}$	one third
$\frac{2}{3}$	two thirds
$\frac{1}{4}$	one quarter
$\frac{3}{4}$	three quarters
$\frac{1}{5}$	one fifth

½ = 2/4

Numerals and Number Names

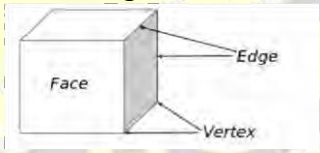
0	zero	10	ten
1	one	20	twenty
2	two	30	thirty
3	three	40	forty
4	four	50	fifty
5	five	60	sixty
6	six	70	seventy
7	seven	80	eighty
8	eight	90	ninety
9	nine	100	one hundred

2D Shapes

Quadrilateral	Four straight sides Four vertices
Pentagon	Five straight sides Five vertices
Hexagon	Six straight sides Six vertices
Polygon	A closed shape with three or more straight sides
Regular Shape	A shape where all sides are equal and all angles are equal
Irregular Shape	A shape with sides or angles of different sizes
Has a line of symmetry	
Does not have a line of symmetry	

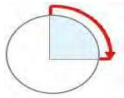
3D Shapes

Faces, Edge and Vertices



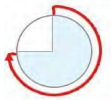
Turns

Quarter Turn



1 right angle
quarter turn
90°

Three-quarter Turn



3 right angles
3 quarter turns
270°

Time

Quarter Past		The minute hand points to three and the hour hand points past the hour.
Quarter To		The minute hand points to nine and the hour hand points past the hour.

Multiplication Tables

X	2	3	5	10
1	2	3	5	10
2	4	6	10	20
3	6	9	15	30
4	8	12	20	40
5	10	15	25	50
6	12	18	30	60
7	14	21	35	70
8	16	24	40	80
9	18	27	45	90
10	20	30	50	100
11	22	33	55	110
12	24	36	60	120

Place Value Grid

	hundreds	tens	ones
Numeral	100	10	1

January 2026

Year 3

	Autumn Term	Spring Term	Summer Term
Week 1	Place Value **Number**	Multiplication and division B **Number**	Fractions B **Number**
Week 2			
Week 3			Money **Measurement**
Week 4	Addition and subtraction **Number**	Length and perimeter **Measurement**	
Week 5			Time **Measurement**
Week 6			
Week 7		Fractions A **Number**	
Week 8			Shape **Geometry**
Week 9	Multiplication and division A **Number**		
Week 10		Mass and capacity	**Statistics**
Week 11			

January 2026

Week 12		Measurement	Consolidation

Year 3

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Place value **Number**	3.1.1. I identify, represent and estimate numbers using different representations 3.1.2 I can find 10 or 100 more or less than a given number. 3.1.3 I recognise the place value of each digit in a 3 digit number 3.1.4 I compare and order numbers up to 1000 3.1.5 I read and write numbers to 1,000 in numerals and words 3.1.6 I solve number problems and practical problems involving the above ideas 3.1.7 I count from 0 in multiples of 4, 8, 50 and 100.	- Step 1 Represent numbers to 100 - Step 2 Partition numbers to 100 - Step 3 Number line to 100 - Step 4 Hundreds - Step 5 Represent numbers to 1,000 - Step 6 Partition numbers to 1,000 - Step 7 Flexible partitioning of numbers to 1,000 - Step 8 Hundreds, tens and ones. - Step 9 Find 1, 10 or 100 more or less - Step 10 Number line to 1,000 - Step 11 Estimate on a number line to 1,000 - Step 12 Compare numbers to 1,000 - Step 13 Order numbers to 1,000 - Step 14 Count in 50s	**ascending** **descending** **10 or 100 more** **10 or 100 less** **hundreds**

Year 3

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Addition and subtraction **Number**	3.1.9 I add and subtract numbers mentally, including: - 3-digit numbers & ones (365+5) - 3-digit numbers & tens (365+10) - 3-digit numbers & hundreds (365 +432) 3.1.13 I add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction. 3.1.14 I estimate the answer to a calculation and use the inverse operations to check answers. 3.1.27 I add and subtract measures (length, weight and volume) with up to 3 digits, using formal written methods of columnar addition and subtraction. 3.1.15 I solve word problems including missing number problems, number facts, place value and more complex addition and subtraction.	- Step 1 Apply number bonds within 10 - Step 2 Add and subtract 1s - Step 3 Add and subtract 10s - Step 4 Add and subtract 100s - Step 5 Spot the pattern - Step 6 Add 1s across a 10 - Step 7 Add 10s across a 100 - Step 8 Subtract 1s across a10 - Step 9 Subtract 10s across a 100 - Step 10 Make connections - Step 11 Add two numbers (no exchange) - Step 12 Subtract two numbers (no exchange) - Step 13 Add two numbers (across a 10) - Step 14 Add two numbers (across a 100) - Step 15 Subtract two numbers (across a 10) - Step 16 Subtract two numbers (across a 100) - Step 17 Add 2-digit and 3-digit numbers - Step 18 Subtract a 2-digit number from a 3-digit number - Step 19 Complements to 100 - Step 20 Estimate answers - Step 21 Inverse operations - Step 22 Make decisions	**column addition** **column subtraction** **exchange** **estimate**

Year 3

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Multiplication and division A **Number**	3.1.16 I recall and use the multiplication and division facts for the 3, 4 and 8 tables. 3.1.17 I write and calculate mathematical statements for multiplication using known multiplication tables, including 2- digit x 1-digit, using mental and progressing to formal written methods. 3.1.18 I write and calculate mathematical statements for division using known multiplication tables, including 2-digit x 1-digit, using mental and progressing to formal written methods. 3.1.19 I write and calculate mathematical statements for multiplication and division using known multiplication tables, including use of money and length 3.1.20 I solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	- Step 1 Multiplication – equal groups - Step 2 Use arrays - Step 3 Multiples of 2 - Step 4 Multiples of 5 and 10 - Step 5 Sharing and grouping - Step 6 Multiply by 3 - Step 7 Divide by 3 - Step 8 The 3 times-table - Step 9 Multiply by 4 - Step 10 Divide by 4 - Step 11 The 4 times-table - Step 12 Multiply by 8 - Step 13 Divide by 8 - Step 14 The 8 times-table - Step 15 The 2, 4 and 8 times-tables	**exchange** **mathematical statements** **missing number problems** **integer scaling problems** **correspondence problems** **derived facts**
Multiplication and division B **Number**		- Comparing statements. - Related calculations. - Multiply 2 digits by 1 digit (1). - Multiply 2 digits by 1 digit (2). - Divide 2 digits by 1 digit (1). - Divide 2 digits by 1 digit (2). - Divide 2 digits by 1 digit (3). - Scaling. - How many ways?	

Year 3

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Fractions **Number**	3.1.20 I count up and down in tenths; recognise that tenths arise from dividing an object into ten equal parts and in dividing numbers or quantities by 10. 3.1.22 I recognise, find and write fractions of a discrete set of objects: unit fractions & non-unit fractions with small denominators. 3.1.21 I recognise and use fractions as numbers: unit fractions and non unit fractions with small denominators. 3.1.23 I recognise and show, using diagrams, equivalent fractions with small denominators. 3.1.24 I compare and order unit fractions, and fractions with the same denominators. 3.1.25 I add and subtract fractions with the same denominator within one whole. 3.1.26 I solve problems that involve all of the fraction objectives above	- Unit and non unit fractions. - Making the whole. - Tenths. - Count in tenths. - Tenths as decimals. - Fractions of a number line. - Fractions of a set of objects (1). - Fractions of a set of objects (2). - Fractions of a set of objects (3). - Equivalent fractions (1), - Equivalent fractions (2). - Equivalent fractions (3).	**tenths**
Fractions **Number**		- Compare fractions. - Order fractions. - Add fractions. - Subtract fractions.	

Year 3

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Money **Measurement**	3.2.1 Add and subtract amounts of money to give change using both £ and p in practical contexts.	- Pounds and pence. - Converting pounds and pence. - Adding money. - Subtracting money. - Giving change.	
Length and perimeter **Measurement**	3.2.2 I measure, compare, add & subtract lengths (m/cm/mm)	- Measure length. - Equivalent lengths m & cm. - Equivalent lengths mm & cm. - Compare lengths. - Add lengths. - Subtraction lengths. - Measure perimeter. - Calculate perimeter.	**millimetre mm** **perimeter**

Year 3

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Mass and capacity **Measurement**	3.2.2 I measure, compare, add & subtract: - mass (kg/g). - subtract volume/ capacity (l/ml).	- Measure mass (1). - Measure mass (2). - Compare mass. - Add and subtract mass. - Measure capacity (1). - Measure capacity (2). - Compare capacity. - Add and subtract capacity.	
Time **Measurement**	3.2.7 I can tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12 and 24 hour clocks 3.2.8 I estimate and read time with increasing accuracy to the nearest minute; 3.2.9 I record and compare time in terms of seconds, minutes, hours. 3.2.10 I use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight. 3.2.11 I know the numbers of seconds in a minute and the number of days in each month, year and leap year.	- Months and years. - Hours in a day. - Telling the time to 5 minutes. - Telling the time to the minute. - AM and PM. - 24 hour clock. - Finding the duration. - Comparing the duration. - Start and end times. - Measuring time in seconds.	**analogue clock** **roman numerals** **12-hour clock** **24-hour clock** **a.m./p.m.** **noon** **midnight** **leap year** **digital**

	3.2.12 I compare durations of events, for example to calculate time taken by particular events or tasks.		

Year 3

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Angles and properties of shapes **Geometry**	3.3.1 I recognise angles are a property of shape or a description of a turn. 3.3.2 I identify right angles; recognise that two right angles make a half-turn, three make three quarters & four a complete turn 3.3.3 I identify whether angles are greater than or less than a right angle 3.3.4 I identify horizontal and vertical lines and pairs of perpendicular & parallel lines. 3.3.5 I draw 2D shapes 3.3.6 I make 3D shapes using modelling materials 3.3.7 I recognise 3D shapes in different orientations; & describe them	- Turns and angles. - Right angles in shapes. - Compare angles. - Draw accurately. - Horizontal and vertical. - Parallel and perpendicular. - Recognise and describe 2D shapes. - Recognise and describe 3D shapes. - Make 3D shapes.	**right-angle triangle** **heptagon** **octagon** **polygon** **properties** **prism** **orientations** **angles acute** **angle** **obtuse angle** **turn** **right angles** **half turn** **three quarters of a turn** **greater than right angle** **less than right angle** **horizontal lines** **vertical lines** **perpendicular lines** **parallel lines**

Year 3

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Statistics	3.4.1 I interpret and present data using: bar charts; pictograms; tables 3.4.6 I solve 1-step and 2-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts pictograms and other graphs	- Pictograms. - Bar charts. - Tables.	**table** **bar chart** **one-step problem** **two-step problem**

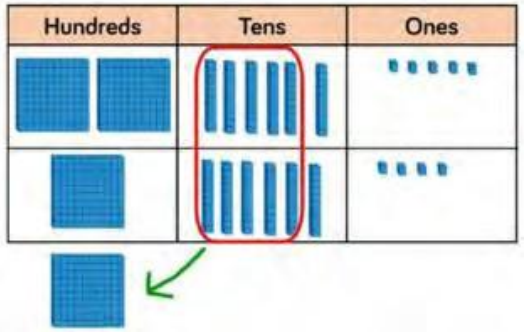
Year 3 Calculation Policy

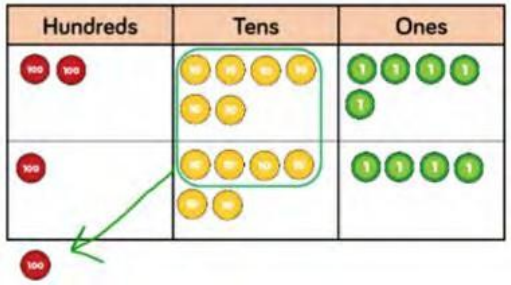
Addition

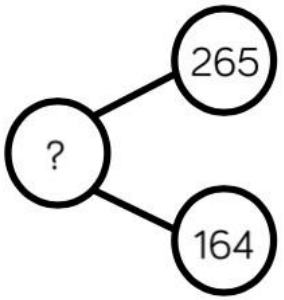
Objective & Strategy	Concrete	Pictorial	Abstract

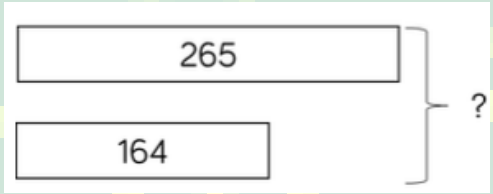
Year 3

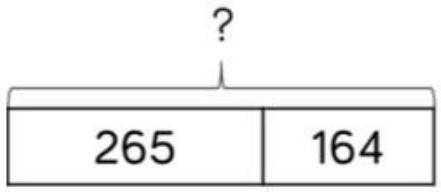
Add numbers with up to 3-digits







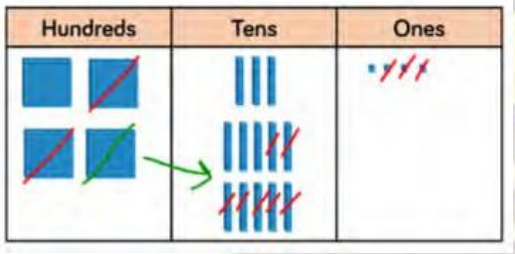
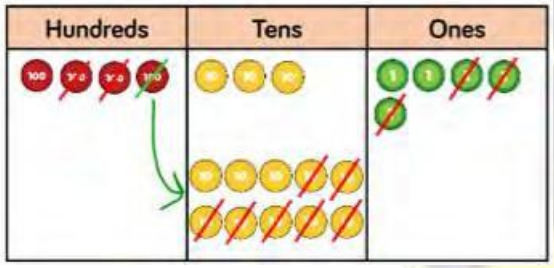
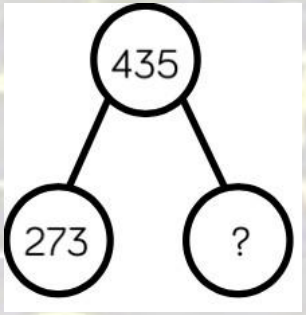
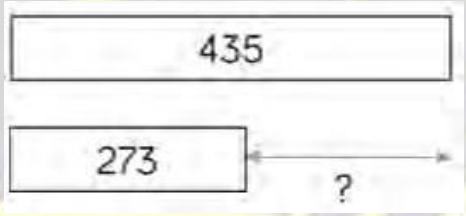
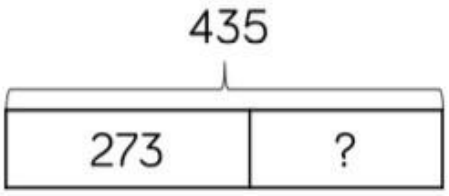




$$265 + 164 = 429$$

$$\begin{array}{r} 265 \\ +\ 164 \\ \hline 429 \\ \hline 1 \end{array}$$

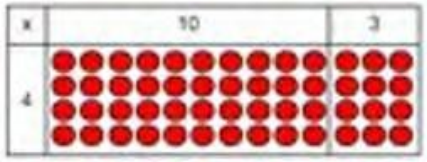
Subtraction

Objective & Strategy	Concrete	Pictorial	Abstract
Year 3 **Subtract numbers with up to 3 digits**	 	  	$435 - 273 = 262$ $\begin{array}{r} {}^{3}\not{4}{}^{1}\not{3}5 \\ -\ 273 \\ \hline 262 \end{array}$

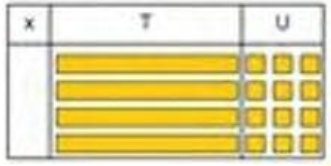
Multiplication

Objective & Strategy	Concrete	Pictorial	Abstract

Grid method.



4 rows of 10
4 rows of 3

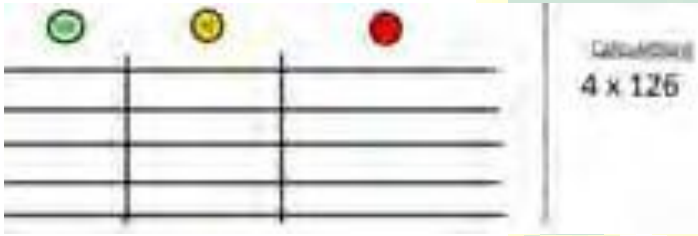


4 rows of 13

Show the links with arrays to first introduce the grid method.

Move onto dienes to move towards a more compact method.

Move on to place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows.



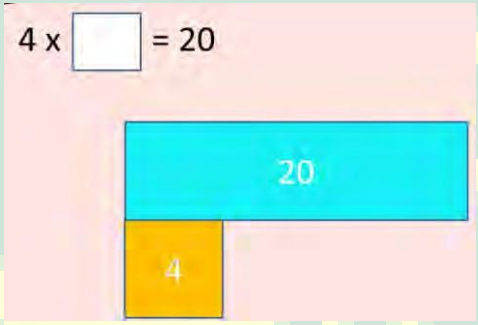
Fill each row with 126.

Add up each column, starting with the ones making any exchanges needed.

Then you have your answer.

Children can represent their work with place value counters in a way that they understand.

They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking as shown below.



Bar models are used to explore missing numbers.

×	30	5
7	210	35

210 + 35 = 245

Start with multiplying by one digit numbers and showing the clear addition alongside the grid.

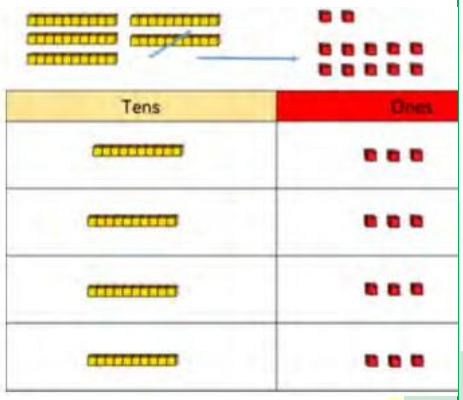
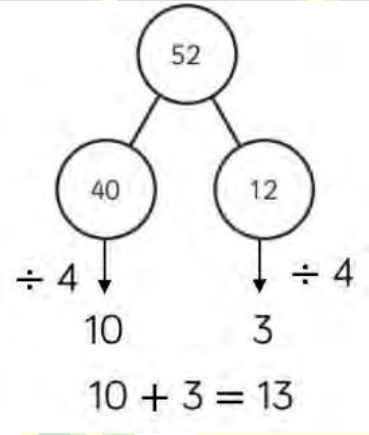
	10	8
10	100	80
3	30	24

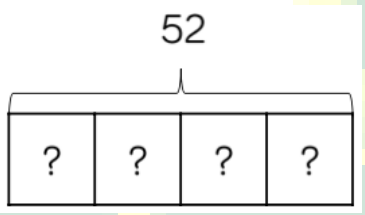
100
80
30
+ 4
214
1

Moving forward, multiply by a two-digit number showing the different rows within the grid method.

Division

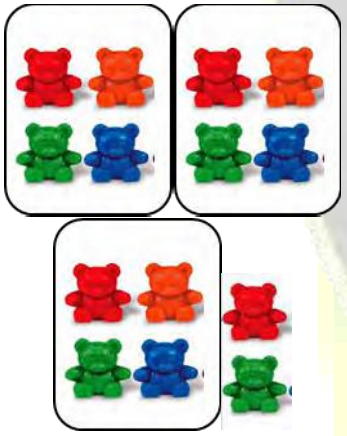
Objective & Strategy	Concrete	Pictorial	Abstract

Divide two-digit by 1-digit (share with exchange)		 	$52 \div 4 = 13$

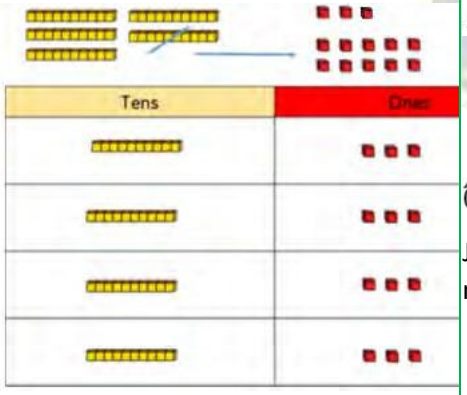
			

52
? ? ? ?

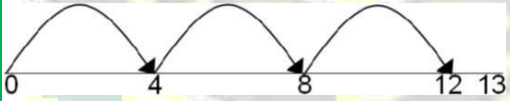
Divide two-digit by one-digit (sharing with remainders)



Divide objects between groups and see how much is left over.

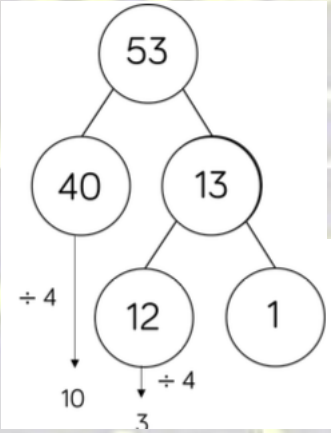


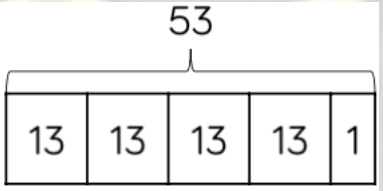
Draw dots and group them to divide an amount and clearly show a remainder

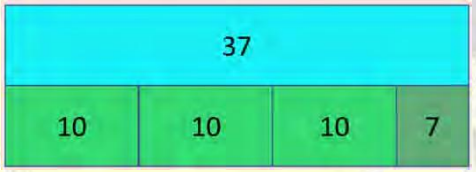


Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.

$53 \div 4 = 13\ r1$







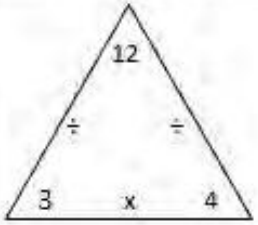
Use bar models to show division with remainders.

Year 3 Knowledge Organiser

Number Bonds To 100

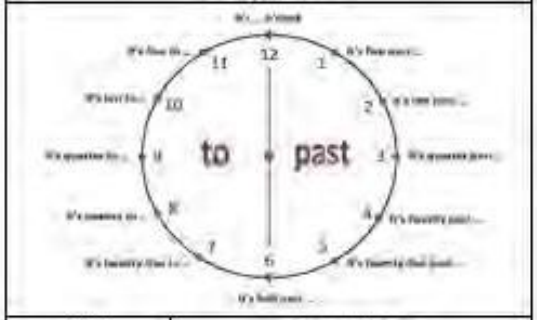
0	100		20	80		35	65
5	95		25	75		40	60
10	90		30	70		45	55
15	85					50	50

Multiplication and Division – Derived Facts



3 x 4 = 12
4 x 3 = 12
12 = 3 x 4
12 = 4 x 3
12 ÷ 3 = 4
12 ÷ 4 = 3
4 = 12 ÷ 3
3 = 12 ÷ 4

Telling The Time



2.05	five past two
3.10	ten past three
19.20	twenty past seven
16.25	twenty-five past four
8.35	twenty-five to nine
21.40	twenty to ten
5.50	ten to six
12.55	five to one

3D Shapes

Prisms and Pyramids	

Fractions

$\frac{1}{2}$	one half
$\frac{1}{3}$	one third
$\frac{2}{3}$	two thirds
$\frac{1}{4}$	one quarter
$\frac{3}{4}$	three quarters
$\frac{1}{5}$	one fifth
$\frac{1}{6}$	one sixth
$\frac{1}{7}$	one seventh
$\frac{1}{8}$	one eighth
$\frac{1}{9}$	one ninth

Multiplication Tables

X	4	8	3	6	9
1	4	8	3	6	9
2	8	16	6	12	18
3	12	24	9	18	27
4	16	32	12	24	36
5	20	40	15	30	45
6	24	48	18	36	54
7	28	56	21	42	63
8	32	64	24	48	72
9	36	72	27	54	81
10	40	80	30	60	90
11	44	88	33	66	99
12	48	96	36	72	108

Days in a Month

January	31
February	28*
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
November	30
December	31

Leap year is 366 days with 29 days in February

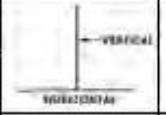
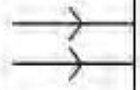
2D Shapes

triangle	a three sided polygon
quadrilateral	a four sided polygon
pentagon	a five sided polygon
hexagon	a six sided polygon
heptagon	a seven sided polygon
octagon	an eight sided polygon
nonagon	a nine sided polygon
decagon	a ten sided polygon
hendecagon	an eleven sided polygon
dodecagon	a twelve sided polygon

Measurements

mm in a cm	10 mm = 1 cm	m in a km	1000m = 1km
mm in a m	1000 mm = 1 m	g in a kg	1000g = 1 kg
cm in a m	100 cm = 1 m	ml in a l	1000 ml = 1 l
60 seconds in a minute.	60 minutes in an hour.	24 hours in one day.	
7 days in a week.	12 months in one year.		

Geometry

Vertical Horizontal		Parallel	
Perpendicular		Right Angle	
Quarter Turn		Three-quarter Turn	
Half Turn		Full Turn	
Perimeter			

Place Value Grid

	hundreds	tens	ones		tenths	hundredths
Numeral	100	10	1	●	0.1	0.01

Year 4

	Autumn Term	Spring Term	Summer Term
Week 1	Place value **Number**	Multiplication and division B **Number**	Decimals B **Number**
Week 2			
Week 3			Money **Measurement**
Week 4		Length and perimeter **Measurement**	
Week 5	Addition and subtraction **Number**		Time **Measurement**
Week 6		Fractions **Number**	
Week 7			Consolidation
Week 8	Area - **Measurement**		Shape **Geometry**
Week 9	Multiplication and division A		
Week 10			**Statistics**

January 2026

Week 11	**Number**	Decimals A **Number**	Position and direction **Geometry**
Week 12	Consolidation		

Year 4

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Place value **Number**	4.1.1 I count in multiples of 6, 7, 9, 25 and 1000. 4.1.2 I count backwards through zero to include negative numbers 4.1.3 I identify, represent and estimate numbers using different representations 4.1.4 I read Roman numerals to 100 and understand that over time, the numeral system changes to include the concept of zero and place value. 4.1.5 I find 1000 more or less than a given number 4.1.5 I recognise the place value of each digit in a four digit number 4.1.6 I compare and order numbers beyond 1000 4.1.7 I round any number to the nearest 10, 100 or 1000 4.1.8 I solve number and practical problems that involve all of the above with increasingly large positive numbers	- Step 1 Represent numbers to 1,000 - Step 2 Partition numbers to 1,000 - Step 3 Number line to 1,000 - Step 4 Thousands - Step 5 Represent numbers to 10,000 - Step 6 Partition numbers to 10,000 - Step 7 Flexible partitioning of numbers to 10,000 - Step 8 Find 1, 10, 100, 1,000 more or less - Step 9 Number line to 10,000 - Step 10 Estimate on a number line to 10,000 - Step 11 Compare numbers to 10,000 - Step 12 Order numbers to 10,000 - Step 13 Roman numerals - Step 14 Round to the nearest 10 - Step 15 Round to the nearest 100 - Step 16 Round to the nearest 1,000 - Step 17 Round to the nearest 10, 100 or 1,000	**negative numbers** **roman numerals** **1000 more** **1000 less** **thousands** **round**

Year 4

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Addition and subtraction **Number**	4.1.9 I estimate and use inverse operations to check answers to a calculation 4.1.10 I add numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate. 4.1.11 I subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction, where appropriate. 4.1.12 I solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	- Step 1 Add and subtract 1s, 10s, 100s and 1,000s - Step 2 Add up to two 4-digit numbers – no exchange - Step 3 Add two 4-digit numbers – one exchange - Step 4 Add two 4-digit numbers – more than one exchange - Step 5 Subtract two 4-digit numbers – no exchange - Step 6 Subtract two 4-digit numbers – one exchange - Step 7 Subtract two 4-digit numbers – more than one exchange - Step 8 Efficient subtraction - Step 9 Estimate answers - Step 10 Checking strategies	**4-digit number operations methods**

Year 4

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Multiplication and division A **Number**	4.1.13 I recall multiplication and division facts for tables up to 12x12. 4.1.14 I use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; multiplying three numbers together. 4.1.15 I recognise and use factor pairs and commutativity in mental calculations. 4.1.16 I multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout. 4.1.17 I divide 2-digit and 3-digit numbers by a 1-digit number using formal written layout with no remainder	- Step 1 Multiples of 3 - Step 2 Multiply and divide by 6 - Step 3 6 times-table and division facts - Step 4 Multiply and divide by 9 - Step 5 9 times-table and division facts - Step 6 The 3, 6 and 9 times-tables - Step 7 Multiply and divide by 7 - Step 8 7 times-table and division facts - Step 9 11 times-table and division facts - Step 10 12 times-table and division facts - Step 11 Multiply by 1 and 0 - Step 12 Divide a number by 1 and itself - Step 13 Multiply three numbers	**exchange** **mathematical statements** **missing number problems** **integer scaling problems** **correspondence problems** **derived facts**

Multiplication and division B **Number**	4.1.18 I solve problems involving multiplying and adding, 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 4.1.19 I find the effect of multiplying a number with up to 2 decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. 4.1.20 I find the effect of dividing a number with up to 2 decimal places by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.	- Multiply by 10. - Multiply by 100. - Divide by 10. - Divide by 100. - Factor pairs. - Efficient multiplication. - Written methods. - Multiply 2 digits by 1 digit. - Multiply 3 digits by 1 digit. - Divide 2 digits by 1 digit (1). - Divide 2 digits by 1 digit (2). - Correspondence problems	

Year 4

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Fractions **Number**	4.1.21 I count up and down in hundredths; recognise that hundredths arise from dividing an object into 100 equal parts and in dividing numbers or quantities by 100. 4.1.22 I recognise and show, using diagrams, families of common equivalent fractions 4.1.23 I add and subtract fractions with the same denominator. 4.1.24 I 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	- What is a fraction? - Equivalent fractions (1) - Equivalent fractions (2). - Fractions greater than 1.	**decimal equivalence** **hundredths** **convert** **proper fractions** **improper fractions** **decimal point**

Year 4

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Decimals A **Number**	4.1.25 I recognise and write decimals equivalents of any number of tenths or hundredths 4.1.26 I recognise and write decimal equivalents to ¼, ½ and ¾. 4.1.27 I round decimals with one decimal place to the nearest whole number. 4.1.28 I compare numbers with the same number of decimal places up to two decimal places. 4.1.29 I find the effect of dividing a 1-digit or 2-digit number by 10 and	- Count in fractions. - Add 2 or more fractions. - Subtract 2 fractions. - Subtract from whole amounts. - Calculate fractions of a quantity. - Problem solving calculate quantities.	**decimal equivalence** **hundredths** **convert** **proper fractions** **improper fractions** **decimal point**

Decimals B **Number**	100, identifying the value of the digits in the answer as ones, tenths and hundredths 4.1.30 I solve simple measure and money problems involving fractions and decimals to 2 decimal places	- Recognise tenths and hundredths. - Tenths as decimals. - Tenths on a place value grid. - Tenths on a number line. - Divide 1 digit by 10. - Divide 2 digits by 10. - Hundredths. - Hundredths as decimals. - Hundredths on a place value grid. - Divide 1 or 2 digits by 100.	

Year 4

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Money **Measurement**	4.2.1 I convert between different units of measure (e.g. km to m; hr to min) 4.2.2 I estimate, compare and calculate different measures including in pounds and pence	- Pounds and pence. - Ordering amounts of money. - Using rounding to estimate money. - Four operations.	
Length and perimeter **Measurement**	4.2.1 I convert between different units of measure (e.g. km to m; hr to min) 4.2.5 I measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m.	- Kilometres. - Perimeter on a grid. - Perimeter of a rectangle. - Perimeter of rectilinear shapes.	**kilometres km** **rectilinear figure**

Year 4

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Area **Measurement**	4.2.6 I find the area of rectilinear shapes by counting squares.	- What is area? - Counting squares - Making shapes. - Comparing area.	**area**

Time **Measurement**	4.2.1 I convert between different units of measure (e.g. km to m; hr to min) 4.4.3 I read, write & convert time between analogue and digital 12- and 24-hour clocks. 4.4.4 I solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	- Hours, minutes and seconds. - Years, months, weeks and days. - Analogue to digital 12 hour. - Analogue to digital 24 hour.	**convert**

Year 4

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Shape **Geometry**	4.3.1 I compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. 4.3.2 I identify lines of symmetry in 2D shapes presented in different orientations. 4.3.3 I complete a simple symmetric figure with respect to a specific line of symmetry 4.3.4 I identify acute and obtuse angles and compare and order angles up to two right angles by size.	- Identify angles. - Compare and order angles. - Triangles. - Quadrilaterals. - Lines of symmetry. - Complete a symmetric figure.	**isosceles** **equilateral** **scalene** **trapezium** **rhombus** **parallelogram** **kite** **geometric shapes** **quadrilaterals**
Position and direction **Geometry**	4.3.5 I describe positions on a 2D grid as coordinates in the first quadrant 4.3.6 I describe movements between positions as translations of a given unit to the left/right and up/down 4.3.7 I plot specified points and draw sides to complete given polygon	- Describe - position. - Draw on a grid. - Move on a grid. - Describe a movement on a grid.	**co-ordinates** **first quadrant** **grid** **translation** **plot** **polygon** **axis**

Year 4

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Statistics	4.4.1 I interpret and present discrete and continuous data using appropriate graphical methods, including: -bar charts -time graphs 4.4.2 I solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	- Interpret charts. - Comparison, sum and difference. - Introducing line graphs. - Line graphs.	**time graph** **discrete data** **continuous data** **line graph** **comparison problem** **sum problem** **difference problem** **calculate** **interpret**

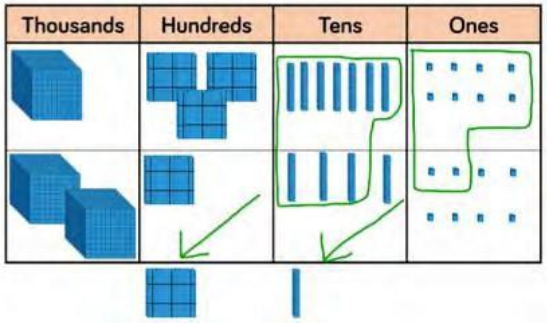
Year 4 Calculation Policy

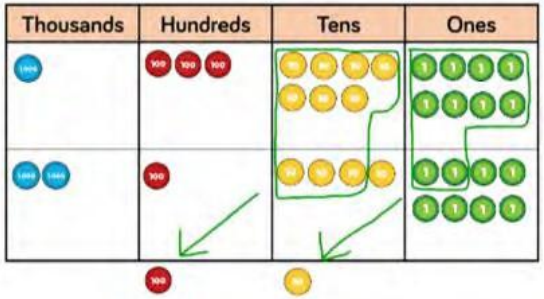
Addition

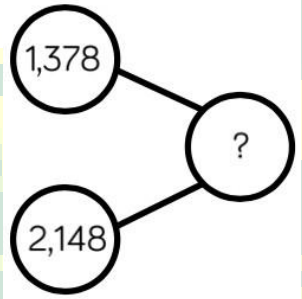
Objective & Strategy	Concrete	Pictorial	Abstract

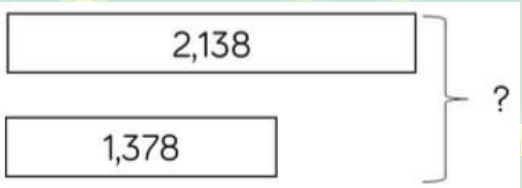
Year 4

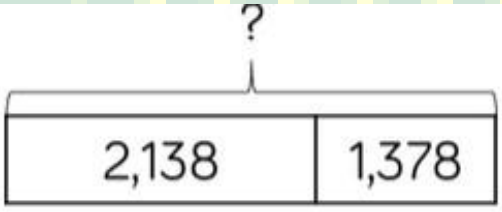
Add numbers with up to four-digits







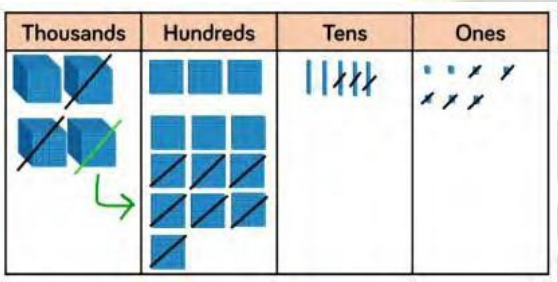
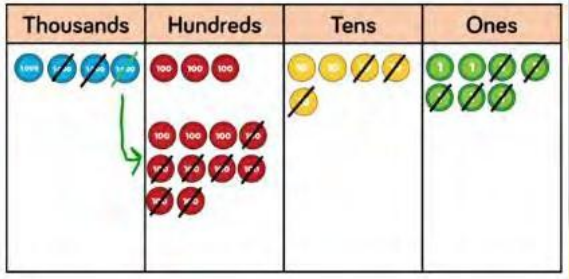
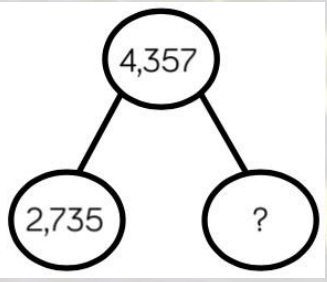
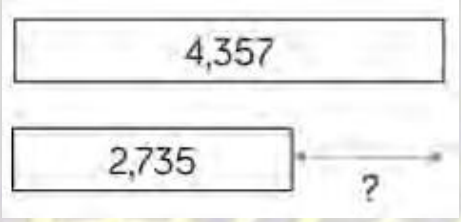
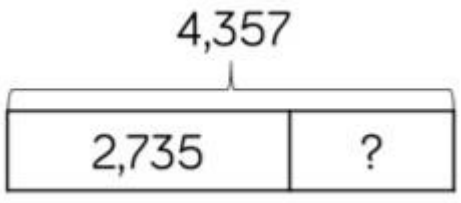




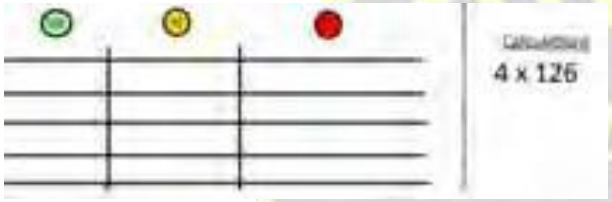
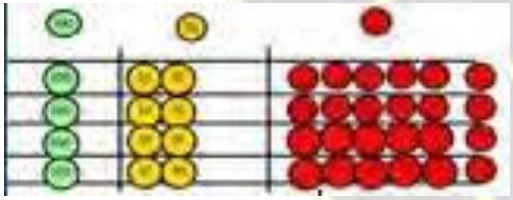
$$1{,}378 + 2{,}148 = 3{,}526$$

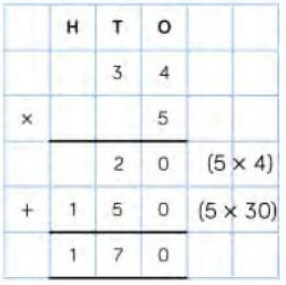
	1	3	7	8
+	2	1	4	8
	3	5	2	6
		1	1	

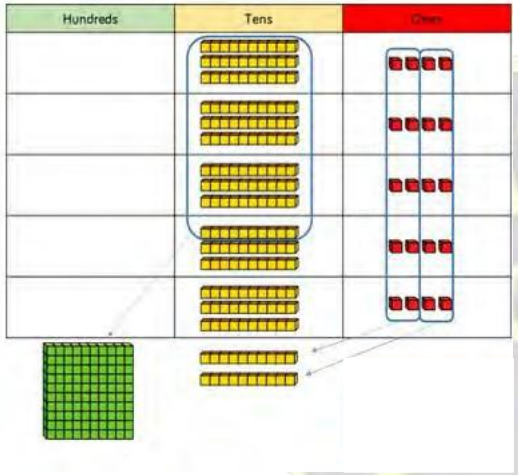
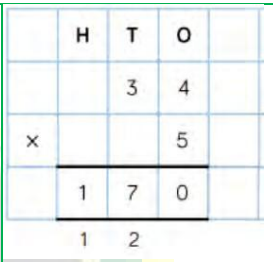
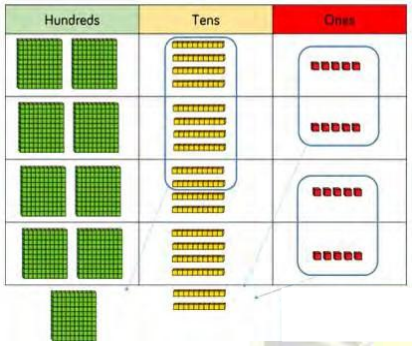
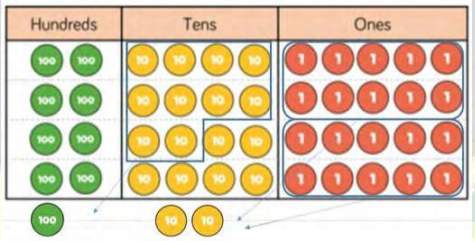
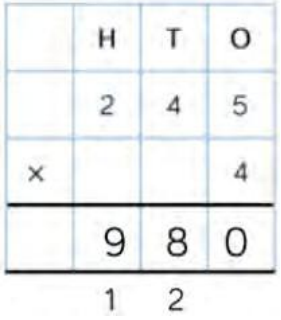
Division

Objective & Strategy	Concrete	Pictorial	Abstract
Subtract numbers with up to 4 digits	 	  	4,357 – 2,735 = 1,622 3 1 ~~4~~357 – 2735 1622

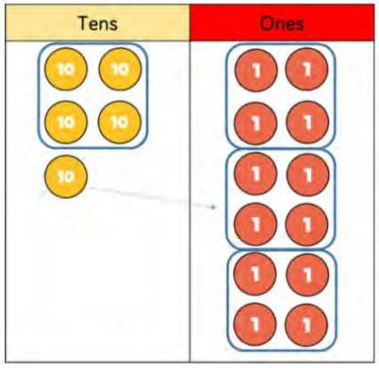
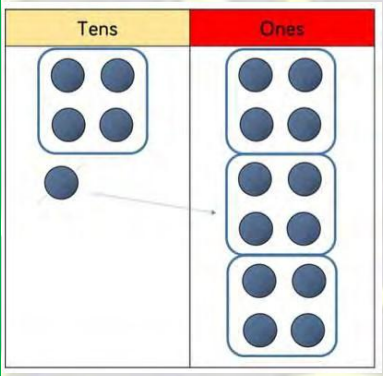
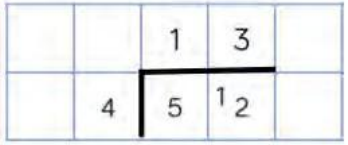
Multiplication

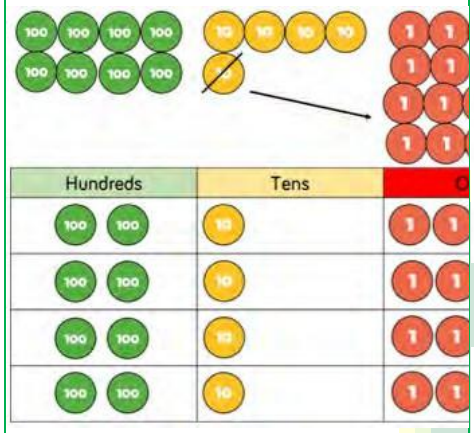
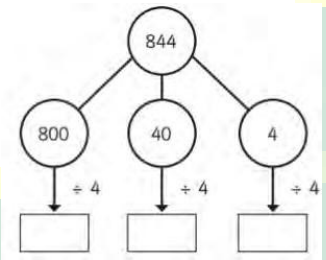
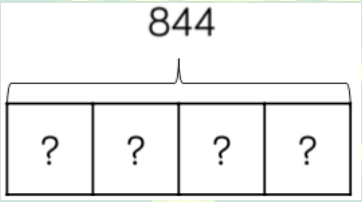
Objective & Strategy	Concrete	Pictorial	Abstract
Grid method recap from Year 3 for two-digit x one-digit	Move on to place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows.  Fill each row with 126.  Add up each column, starting with the ones making any exchanges needed. Then you have your answer.	Children can represent their work with place value counters in a way that they understand. They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking as shown below.	 210 + 35 = 245 Start with multiplying by one-digit numbers and showing the clear addition alongside the grid.

Column multiplication **(two-digit by one-digit)**	Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping. 321 x 6 = 642 It is important at this stage that they always multiply the ones first. The corresponding long multiplication is modelled alongside.		

			
Column multiplication **(three-digit by one-digit)**			

Division

Objective & Strategy	Concrete	Pictorial	Abstract
Divide two-digit by one-digit (grouping)			

Divide three-digits by one-digit (sharing)		 	844 ÷ 4 = 211

A Member of
Exceed Learning Partnership
• EVERY CHILD • EVERY CHANCE • EVERY DAY •

Year 4 Knowledge Organiser

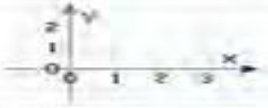
Fraction Decimal Equivalence

1/10 = 0.1	4/10 = 0.4	7/10 = 0.7	10/10 = 1	¾ = 0.75
2/10 = 0.2	5/10 = 0.5	8/10 = 0.8	½ = 0.5	1/100 = 0.01
3/10 = 0.3	6/10 = 0.6	9/10 = 0.9	¼ = 0.25	23/100 = 0.23

Roman Numerals

I	1	IX	9
II	2	X	10
III	3	XI	11
IV	4	X11	12
V	5	L	50
VI	6	C	100
VII	7	D	500
VIII	8	M	1000

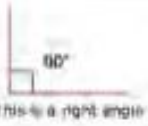
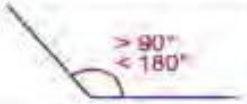
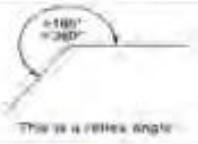
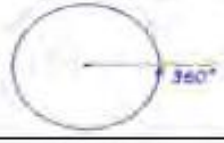
Coordinates

Coordinate Grid	
Finding the coordinates of a point. *(x then y)*	

Geometry

Perimeter		The distance around the outside of the shape.
Area		The amount of space taken up by a 2D shape.

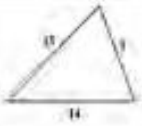
Angles

Acute Angle	1º to 89º	
Right Angle	90º	
Obtuse Angle	91º to 179º	
Reflex Angle	181º to 359º	
Full Turn	360º	

Multiplication Tables

X	7	6	12	11
1	7	6	12	11
2	14	12	24	22
3	21	18	36	33
4	28	24	48	44
5	35	30	60	55
6	42	36	72	66
7	49	42	84	77
8	56	48	96	88
9	63	54	108	99
10	70	60	120	110
11	77	66	132	121
12	84	72	144	132

Triangles

Equilateral	All three sides and angles equal.	
Isosceles	Two sides and angles equal.	
Scalene	All three sides and angles of different sizes.	
Right Angled	A triangle with a right angle. Can be isosceles or scalene.	

Quadrilaterals

Rectangle	• Four sides • Opposite sides parallel • Opposite sides equal length • Four right angles	
Parallelogram	• Four sides • Opposite sides parallel	
Rhombus	• Four equal sides • Opposite sides parallel • Opposite angles equal	
Kite	• Four sides • Pairs of adjacent sides equal • Angles where adjacent sides meet are equal • Diagonals intersect at right angles	

Place Value Grid

	thousands	hundreds	tens	ones		tenths	hundredths
Numeral	1000	100	10	1	●	0.1	0.01

Year 5

	Autumn Term	Spring Term	Summer Term
Week 1	Place value **Number**	Multiplication and division B **Number**	Shape **Geometry**
Week 2			
Week 3			
Week 4	Addition and subtraction **Number**	Fractions B **Number**	Position and direction **Geometry**
Week 5			
Week 6	Multiplication and division A **Number**	Decimals and percentages **Number**	Decimals **Number**
Week 7			
Week 8			
Week 9	Fractions A	Perimeter and area **Measurement**	Negative numbers – **Number**
Week 10			Converting units

Week 11	**Number**	**Statistics**	**Measurement**
Week 12			Volume - **Measurement**

Year 5

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Place value **Number**	5.1.1 I count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. 5.1.2 I count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 1000. 5.1.3 I interpret negative numbers in context, count forwards and backwards with positive and negative numbers including through zero. 5.1.4 I read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit 5.1.5 I read Roman numerals to 1000 and recognise years written in Roman numerals	- Number to 10,000. - Roman numerals to 1,000. - Round to the nearest 10, 100 and 1000. - Number to 100,000. - Compare and order numbers to 100,000. - Round numbers within 100,000. - Numbers to a million. - Counting in 10s, 100s, 1,000s, 10,000s and 100,000s. - Compare and order numbers to a million. - Round numbers to a million. - Negative numbers.	**ten thousands** **one hundred thousands** **powers of** **integer**

	5.1.6 I round any number up to 1,000,000 to the nearest 10, 100, and 1000 5.1.7 I round any number up to 1,000,000 to the nearest 10,000 or 100,000 5.1.8 I solve number problems and practical problems that involve all of the above		

Year 5

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Addition and subtraction **Number**	5.1.9 I use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. 5.1.10 I add whole numbers with more than 4 digits including using formal written methods (columnar addition). 5.1.11 I subtract whole numbers with more than 4 digits including using formal written methods (columnar subtraction). 5.1.12 I mentally: subtract any 2-digit numbers; 2-digit number from any 3-digit. 5.1.13 I mentally:subtract two 3-digit numbers; 1000's from any 4 or 5-digit number 5.1.14 I mentally: add 2-digit numbers; 2-digit number to any 3-digit. 5.1.15 I mentally: add two 3-digit numbers; 1000's to any 4 or 5-digit number. 5.1.16 I solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. 5.1.17 I solve problems involving addition and subtraction, multiplication and division and a combination of these, including understadnig the use of the equals sign	- Add whole numbers with more than 4 digits (column method). - Subtract whole numbers with more than 4 digits (column method). - Round to estimate and approximate. - Inverse operations (addition and subtraction). - Multi step addition and subtraction problems.	

Year 5

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Multiplication and division A **Number**	5.1.18 I identify multiples and factors including finding all factor pairs of a number and common factors of two numbers up to 100. 5.1.19 I multiply and divide numbers mentally drawing upon known facts. (12x12) 5.1.20 I know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers 5.1.21 I establish whether a number up to 100 is prime and recall prime numbers up to 19. 5.1.22 I recognise and use square numbers and cube numbers, and the notation for square2 and cubed3. 5.1.23 I multiply numbers up to 4-digits by a 1-digit using formal written methods. 5.1.24 I multiply numbers up to 4 digits by a 2-digit number using a formal written method,	- Multiples. - Factors. - Common factors. - Prime numbers. - Square numbers. - Cube numbers. - Multiplying by 10, 100 and 1000. - Dividing by 10, 100 and 1000. - Multiples of 10, 100 and 1000.	**multiples** **factors** **prime numbers** **square numbers** **cube numbers** **short division** **product** **dividend** **divisor** **quotient**

Multiplication and division B **Number**	including long multiplication for 2-digit numbers. 5.1.25 I divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for context. 5.1.26 I multiply whole numbers and those involving decimals by 10, 100 and 1000. 5.1.27 I divide whole numbers and those involving decimals by 10, 100 and 1000. 5.1.28 I solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes 5.1.29 I solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	- Multiply 4 digits by 1 digit. - Multiply 2 digits (area model). - Multiply 2 digits by 2 digits. - Multiply 3 digits by 2 digits. - Multiply 4 digits by 2 digits. - Divide 4 digits by 1 digit. - Divide with remainders.	**operations**

Year 5

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

<table>
<tr>
<td rowspan="2">Fractions A

Number</td>
<td rowspan="2">5.1.30 I identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.

5.1.31 I recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements.

5.1.32 I compare and order fractions whose denominators are all multiples of the same number.

5.1.33 I add and subtract fractions with the same denominator and denominators that are multiples of the same number

5.1.34 I multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</td>
<td>- Equivalent fractions.
- Improper fractions to mixed numbers.
- Mixed numbers to improper fractions.
- Number sequences.
- Compare and order fractions less than 1.
- Compare and order fractions greater than 1.
- Add and subtract fractions.
- Add fractions within 1.
- Add 3 or more fractions.
- Add fractions.
- Add mixed numbers.
- Subtract fractions.
- Subtract mixed numbers.
- Subtract breaking the whole.
- Subtract 2 mixed numbers</td>
<td rowspan="2">fifth
thousandths
mixed numbers
per cent %
factors
integer
complements</td>
</tr>
<tr>
<td>Fractions B

Number</td>
<td>- Multiply unit fractions by an integer.
- Multiply non-unit fractions by an integer.
- Multiply mixed numbers by integers.
- Fraction of an amount.
- Using fractions as operators.</td>
</tr>
</table>

Year 5

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Decimals and percentages **Number**	5.1.35 I read and write decimal numbers as fractions, e.g. 0.71 = 71/100. 5.1.36 I recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents 5.1.37 I round decimals with two decimal places to the nearest whole number and to one decimal place. 5.1.38 I read, write, order and compare numbers with up to three decimal places. 5.1.39 I solve problems involving numbers up to three decimal places	- Decimals up to 2 d.p. - Decimals as fractions (1). - Decimals as fractions (2). - Understand thousandths. - Thousands as decimals. - Rounding decimals. - Order and compare decimals. - Understand percentages. - Percentages as fractions and decimals. - Equivalent F.D.P.	**fifth** **thousandths** **mixed numbers** **per cent %** **factors** **integer** **complements**

Decimals **Number**	5.1.40 I recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred' and write percentages as a fraction with denominator 100, and as a decimal. 5.1.41 I solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25	- Adding decimals within 1. - Subtracting decimals within 1. - Complements to 1. - Adding decimals crossing the whole. - Adding decimals with the same number of decimal places. - Subtracting decimals with the same number of decimal places. - Adding decimals with a different number of decimal places. - Subtracting decimals with a different number of decimal places. - Adding and subtracting whole and decimals. - Decimal sequences. - Multiplying decimals by 10, 100 and 1000. - Dividing decimals by 10, 100 and 1,000.	

Year 5

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Perimeter and area **Measurement**	5.2.1 I convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml). 5.2.3 I use all four operations to solve problems involving measure (length, mass, volume, money) using decimal notation, including scaling 5.2.5 I measure and calculate the perimeter of composite rectilinear shapes in cm and m. 5.2.6 I calculate & compare the area of rectangles (including squares, & including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes	- Measure perimeter. - Calculate perimeter. - Area of rectangles. - Area of compound shapes. - Area of irregular shapes.	**decimal notation** **scaling** **metric units** **imperial units** **inches** **compound shape** **irregular shapes** **square centimetres** **square metres**
Converting units **Measurement**	5.2.1 I convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml). 5.2.2 I understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. 5.2.3 I use all four operations to solve problems involving measure (length, mass, volume, money) using decimal notation, including scaling 5.2.4 I solve problems involving converting between units of time.	- Kilograms and kilometres. - Milligrams and millilitres. - Metric units. - Imperial units. - Converting units of time. - Timetables.	**cubic centimetre** **pounds** **pints**

Year 5

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Volume **Measurement**	5.2.1 I convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml). 5.2.3 I use all four operations to solve problems involving measure (length, mass, volume, money) using decimal notation, including scaling 5.2.7 I estimate volume (e.g. using 1 cm3 blocks to build cubes, including cuboids) & capacity (e.g. using water).	- What is volume? - Compare volume. - Estimate volume. - Estimate capacity.	**cubic centimetre** **pounds** **pints**

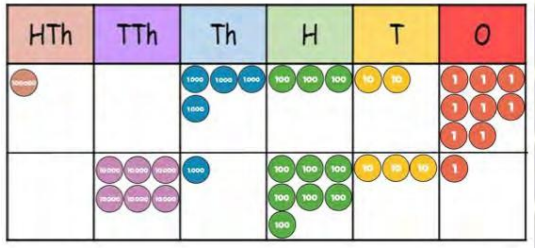
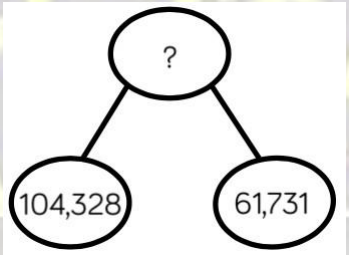
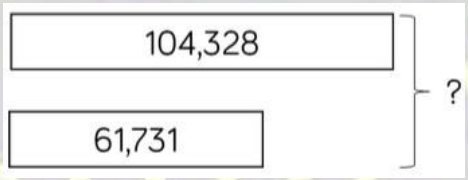
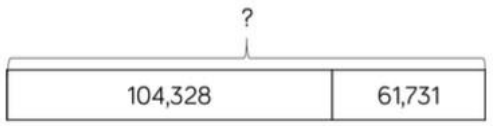
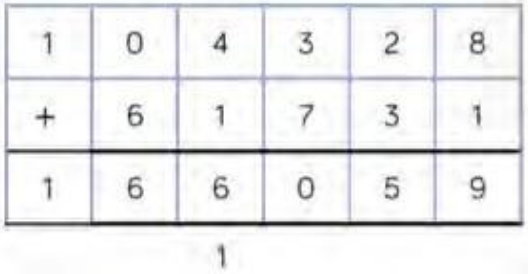
Shape **Geometry**	5.3.1 I distinguish between regular and irregular polygons based on reasoning about equal sides & angles 5.3.2 I use the properties of rectangles to deduce related facts & find missing lengths & angles. 5.3.3 I identify 3D shapes, including cubes and other cuboids, from 2D representations 5.3 4 I know angles are measured in degrees; estimate & compare acute, obtuse & reflex angles. 5.3.5 I draw given angles & measure them in degrees 5.3.6 I identify angles at a point on a straight line & ½ a turn (total 180°) 5.3.7 I identify angles at a point & one whole turn (total 360°) 5.3.8 I identify other multiples of 90°	- Measuring angles in degrees. - Measuring with a protractor (1). - Measuring with a protractor (2). - Drawing lines and angles accurately. - Calculating angles on a straight line. - Calculating angles around a point. - Calculating lengths and angles in shapes. - Regular and irregular polygons. - Reasoning about 3D shapes.	**regular polygon** **irregular polygon** **reflex angles** **degrees** **one whole turn** **angles on straight line** **angles around a point** **vertically opposite** **missing angles**

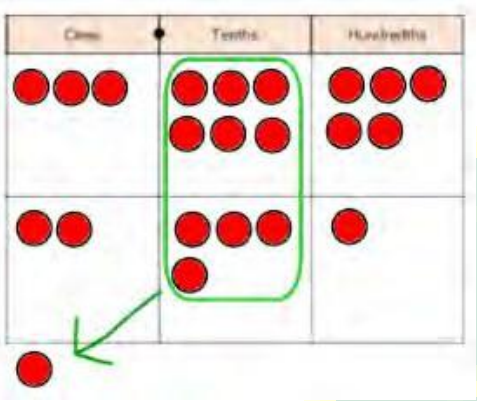
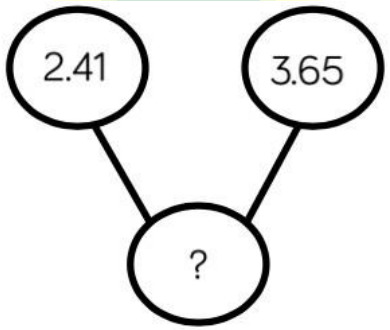
Year 5

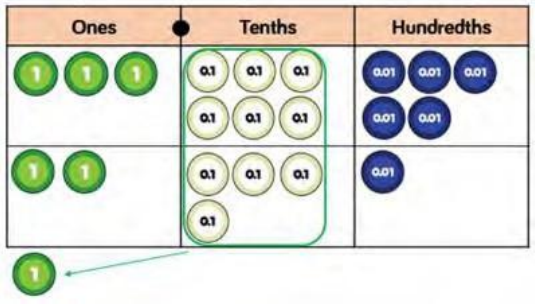
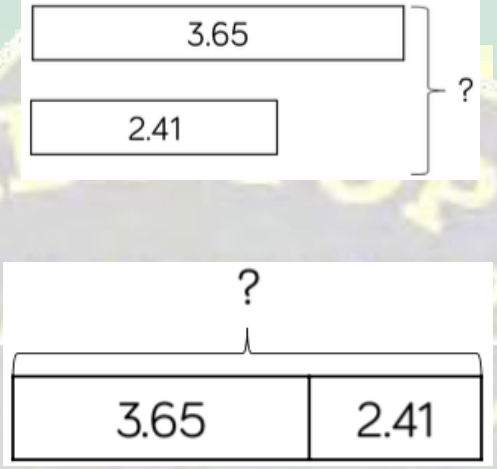
Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Position and direction **Geometry**	5.3.9 I 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	- Position in the first quadrant. - Reflection. - Reflection with coordinates. - Translation. - Translation with coordinates.	**reflection**
Statistics	5.4.1 I complete, read and interpret information in tables, including timetables Recap previous learning, read and interpret line graphs and problems with line graphs. Recall tables and extend to consider time tables and two way tables 5.4.2 I solve comparison, addition and difference problems using information presented in a line graph	- Read and interpret line graphs. - Draw line graphs. - Use line graphs to solve problems. - Read and interpret tables. - Two way tables. - Timetables.	**timetable** **two-way tables**

Addition

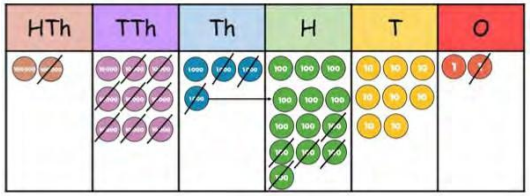
Objective & Strategy	Concrete	Pictorial	Abstract
Add numbers with more than 4 digits		  	$104,328 + 61,731 = 166,059$ 

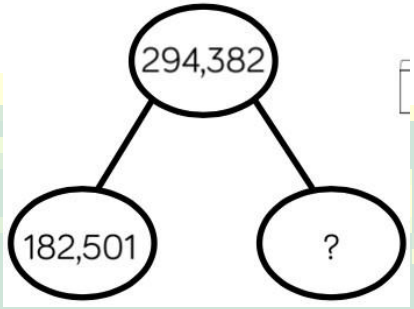
Add with up to 3 decimal places			$3.65 + 2.41 = 6.06$

			3.65 + 2.41 6.06 1

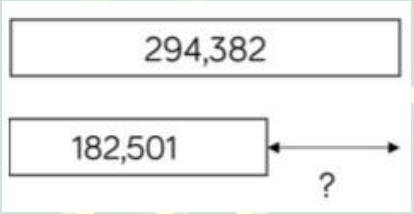
Subtraction

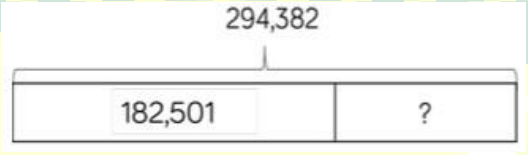
Objective & Strategy	Concrete	Pictorial	Abstract

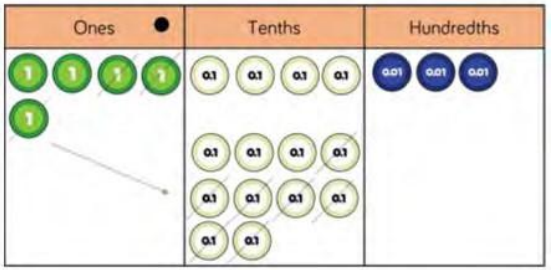
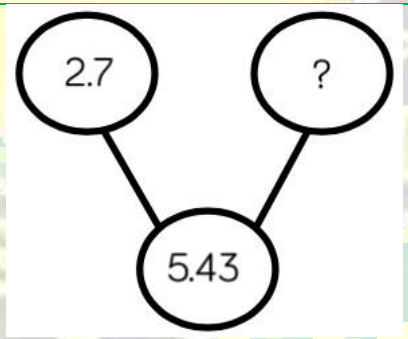
Subtract numbers with more than 4-digits			294,382 – 182,501 = 111,881

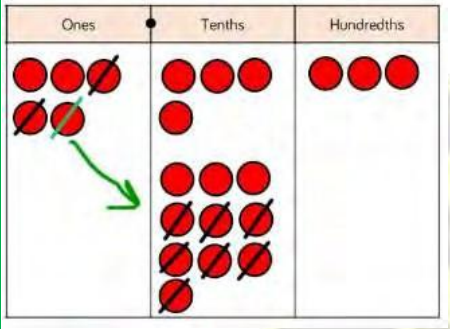
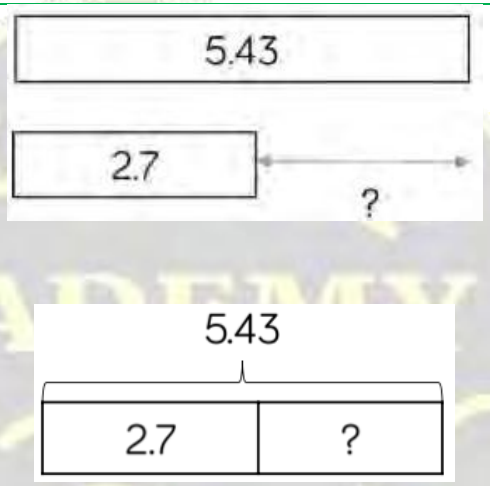


	2	9	$^{3}\not{4}$	$^{1}3$	8	2
−	1	8	2	5	0	1
	1	1	1	8	8	1

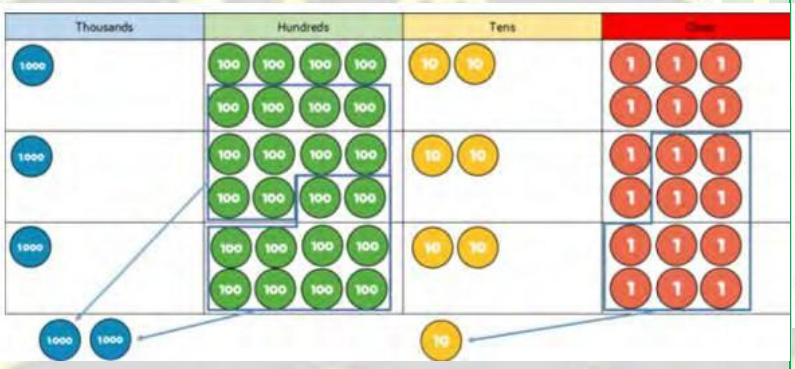
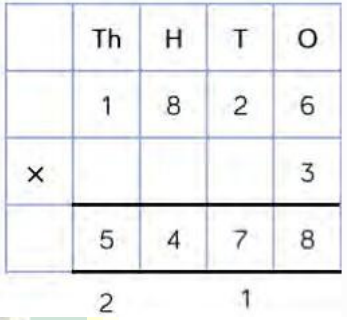




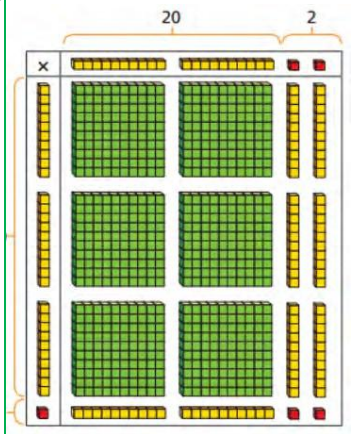
Subtract with up to 3 decimal places			$5.43 - 2.7 = 2.73$

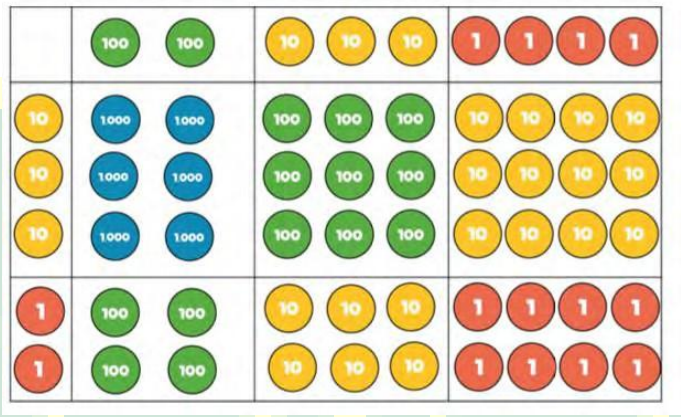
			$\overset{4}{\cancel{5}}\overset{1}{.}43$ $-\ 2.7$ 2.73

Multiplication

Objective & Strategy	Concrete	Pictorial	Abstract
Column multiplication for three and four-digits x one-digit			

Column multiplication for two-digit x two-digit





×	20	2
30	600	60
1	20	2

600

60

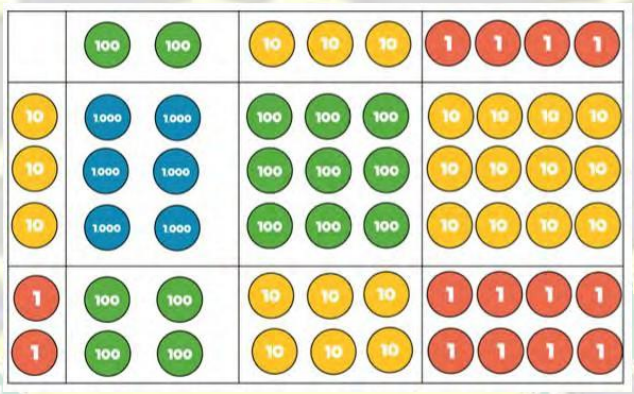
20

\+ 2

682

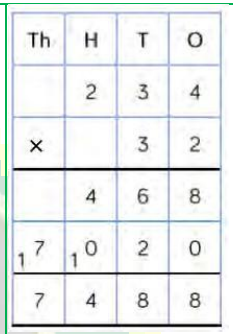
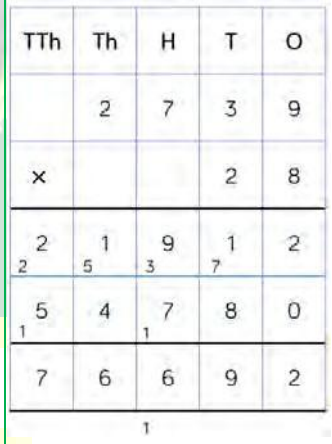
	H	T	O
		2	2
×		3	1
		2	2
	6	6	0
	6	8	2

Multiply three-digit numbers by two-digit numbers

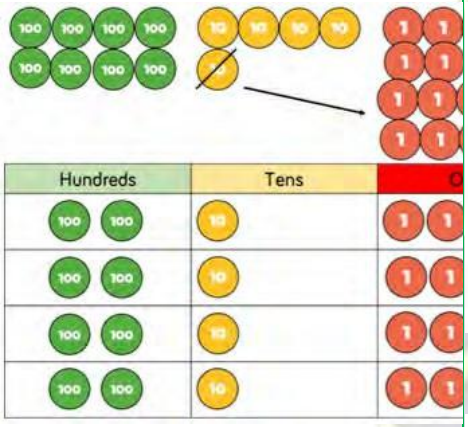
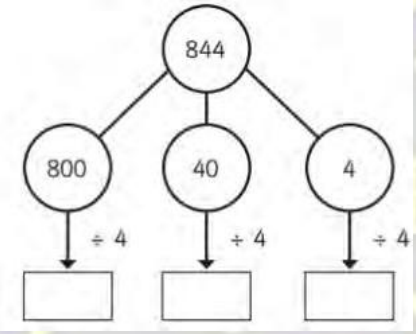
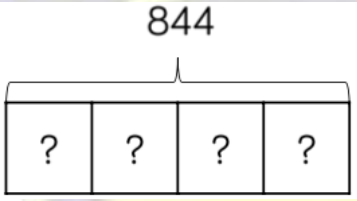


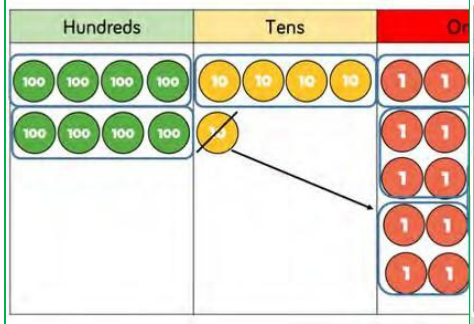
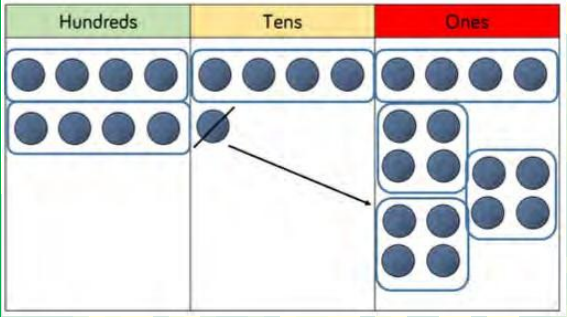
×	200	30	4
30	6,000	900	120
2	400	60	8

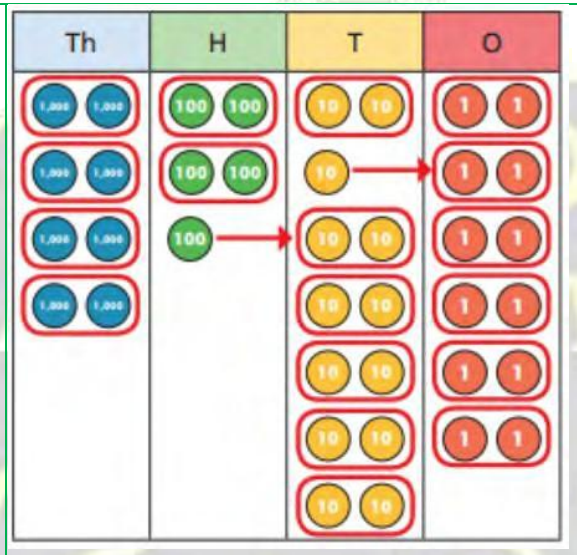
6000
900
120
400
60
+ 8
7488

			
Multiply four-digit numbers by two-digit numbers			

Division

Objective & Strategy	Concrete	Pictorial	Abstract
Divide three-digits by one-digit (sharing)		 	$844 \div 4 = 211$

Divide three-digit by one-digit (grouping) **Divide four-digits by one-digit**			

		 Th H T O	 4 2 6 6 2 8 5 13 12

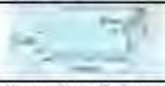
Year 5 Knowledge Organiser

Cube Numbers		Cube Roots	
1^3	1	$\sqrt{1}$	1
2^3	8	$\sqrt{4}$	2
3^3	27	$\sqrt{9}$	3
4^3	64	$\sqrt{16}$	4
5^3	125	$\sqrt{25}$	5

Square Numbers		Square Roots	
1^2	1	$\sqrt{1}$	1
2^2	4	$\sqrt{4}$	2
3^2	9	$\sqrt{9}$	3
4^2	16	$\sqrt{16}$	4
5^2	25	$\sqrt{25}$	5
6^2	36	$\sqrt{36}$	6
7^2	49	$\sqrt{49}$	7
8^2	64	$\sqrt{64}$	8
9^2	81	$\sqrt{81}$	9
10^2	100	$\sqrt{100}$	10
11^2	121	$\sqrt{121}$	11
12^2	144	$\sqrt{144}$	12
13^2	169	$\sqrt{169}$	13

Prime Numbers			
2	17	41	67
3	19	43	71
5	23	47	73
7	29	53	79
11	31	59	83
13	37	61	89

Numbers	
0	a number with no value that comes between the positive and negative numbers
positive number	a number more than 0
negative number	a number less than 0
prime number	A number with exactly two factors, itself and one.
composite number	A number with more than two factors

Geometry	
volume	
Volume = length x height x depth	

Statistics	
mean	the sum of all data points divided by the number of data points

Circle Geometry	
radius	a straight line from the centre to the circumference
chord	a straight line joining two points on the circumference
diameter	a chord which passes through the centre
circumference	the distance once around the circle

Roman Numerals	
I	1
V	5
X	10
L	50
C	100
D	500
M	1000

Angle Totals	
	Angles around a point total 360º
	Angles on a straight line total 180º
	Angles in a quadrilateral total 360º
	Angles in a triangle total 180º

Factors and Multiples	
factors	numbers we multiply together to get other numbers
multiple	the result of multiplying a number by an integer
HCF	Highest Common Factor - the largest factor shared by two or more numbers
LCM	Lowest Common Multiple - the smallest number that is a multiple of two or more numbers.

Multiplication Grid												
X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Place Value Grid											
	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones		tenths	hundredths	thousandths
Numeral	1,000,000	100,000	10,000	1000	100	10	1	.	0.1	0.01	0.001

Year 6

Week	Autumn Term	Spring Term	Summer Term
Week 1	Place value **Number**	**Ratio**	Shape **Geometry**
Week 2			
Week 3	Addition, subtraction, multiplication and division **Number**	**Algebra**	
Week 4			Position and direction – **Geometry**
Week 5		Decimals **Number**	Projects, consolidation and problem solving
Week 6			
Week 7		Fractions, decimals and percentages **Number**	
Week 8	Fractions A **Number**		
Week 9		Area, perimeter and volume **Measurement**	
Week 10	Fractions B **Number**		
Week 11			

January 2026

Week 12	Converting units - **Measurement**	**Statistics**	

Year 6

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Place value **Number**	6.1.1 I read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. 6.1.2 I round any whole number to the required degree of accuracy 6.1.3 I use negative numbers in context and calculate intervals across zero 6.1.4 I solve number and practical problems that involve rounding, negative numbers and comparing numbers up to 10 000 000	- Step 1 Numbers to 1,000,000 - Step 2 Numbers to 10,000,000 - Step 3 Read and write numbers to 10,000,000 - Step 4 Powers of 10 - Step 5 Number line to 10,000,000 - Step 6 Compare and order any integers - Step 7 Round any integer - Step 8 Negative numbers	**millions** **ten millions**

Year 6

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Addition, subtraction, multiplication and division **Number**	6.1.5 I perform mental calculations, including mixed numbers and large numbers 6.1.6 I use their knowledge of the order of operations to carry out calculations involving the four operations 6.1.7 I solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why 6.1.8 I identify common factors, common multiples and prime numbers. 6.1.9 I use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. 6.1.10 I multiply multi-digit numbers up to 4-digits by a 2-digit whole number using the formal written method of long multiplication. 6.1.11 I divide numbers up to 4-digits by a 2-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. 6.1.12 I perform mental calculations, including with mixed operations and large numbers 6.1.13 I solve problems involving addition, subtraction, multiplication and division 6.1.14 I use their knowledge of the order of operations to carry out calculations involving the four operations 6.1.15 I solve multiplication and division multi-step problems in contexts, deciding which operations and methods to use and why.	- Step 1 Add and subtract integers - Step 2 Common factors - Step 3 Common multiples - Step 4 Rules of divisibility - Step 5 Primes to 100 - Step 6 Square and cube numbers - Step 7 Multiply up to a 4-digit number by a 2-digit number - Step 8 Solve problems with multiplication - Step 9 Short division - Step 10 Division using factors - Step 11 Introduction to long division - Step 12 Long division with remainders - Step 13 Solve problems with division - Step 14 Solve multi-step problems - Step 15 Order of operations - Step 16 Mental calculations and estimation - Step 17 Reason from known facts	**multi-digit numbers** **long division**

Year 6

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Fractions A **Number**	6.1.16 I use common factors to simplify fractions; use common multiples to express fractions in the same denomination. 6.1.17 I compare and order fractions, including fractions >1. 6.1.18 I recall and use equivalences between simple fractions, decimals and percentages, including different contexts 6.1.19 I add fractions with different denominators and mixed numbers, using the concept of equivalent fractions. 6.1.20 I subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.	- Step 1 Equivalent fractions and simplifying - Step 2 Equivalent fractions on a number line - Step 3 Compare and order (denominator) - Step 4 Compare and order (numerator) - Step 5 Add and subtract simple fractions - Step 6 Add and subtract any two fractions - Step 7 Add mixed numbers - Step 8 Subtract mixed numbers - Step 9 Multi-step problems	

Fractions B **Number**	6.1.21 I multiply simple pairs of proper fraction, writing the answer in its simplest form 6.1.22 I divide proper fractions by whole numbers. 6.1.23 I associate a fraction with division and calculate decimal fraction equivalents (for example 0.375) for a simple fraction (for example 3/8)	- Step 1 Multiply fractions by integers - Step 2 Multiply fractions by fractions - Step 3 Divide a fraction by an integer - Step 4 Divide any fraction by an integer - Step 5 Mixed questions with fractions - Step 6 Fraction of an amount - Step 7 Fraction of an amount – find the whole	

Year 6

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary

Fractions, decimals and percentages **Number**	6.1.24 identify the value of each digit in numbers given to 3 decimal places. 6.1.25 I multiply and divide numbers by 10, 100 and 1000 giving answers up to 3 decimal places. 6.1.26 I multiply one-digit numbers with up to 2 decimal places by whole numbers 6.1.27 I use written division methods in cases where the answer has up to 2 decimal places 6.1.18 I recall and use equivalences between simple fractions, decimals and percentages, including different contexts	- Three decimal places. - Multiply by 10, 100 and 1,000. - Divide by 10, 100 and 1,000. - Multiply decimals by integers. - Divide decimals by integers. - Division to solve problems. - Decimals as fractions. - Fractions to decimals (1). - Fractions to decimals (2). - Fractions to percentages. - Equivalent FDP. - Percentage of an amount (1). - Percentage of an amount (2). - Percentages missing values. - Percentage increase and decrease. - Order FDP.	
Algebra	6.1.33 I use simple formulae to solve problem 6.1.34 I generate and describe linear number sequences. 6.1.35 I express missing number problems algebraically. 6.1.36 I find pairs of numbers that satisfy an equation with two unknowns 6.1.37 I enumerate possibilities of combinations of two variables	- Find a rule one step. - Find a rule two step. - Use an algebraic rule. - Substitution. - Formulae. - Word problems. - Solve simple one step equations. - Solve two step equations. - Find pairs of values. - Enumerate possibilities.	**formulae** **linear number sequences** **algebraically** **equation** **unknowns** **combinations** **variables**

Year 6

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Ratio	6.1.29 I solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. 6.1.30 I solve problems involving the calculation of percentages of whole numbers or measures such as 15% of 360 and the use of percentages for comparison. 6.1.31 I solve problems involving similar shapes where the scale factor is unknown or can be found 6.1.32 I solve problems involving unequal sharing and grouping using knowledge of fractions and multiples	- Use ratio language. - Ratio and fractions. - Introducing the ratio symbol. - Calculating ratio. - Using scale factors. - Calculating scale factors. - Ratio and proportion problems.	**relative size** **missing values** **integer multiplication** **percentages** **scale factor** **unequal sharing & grouping**

Area, perimeter and volume **Measurement**	6.2.4 I recognise that shapes with the same areas can have different perimeters and vice versa. 6.2.5 I recognise when it is possible to use the formulae for area & volume of shapes. 6.2.6 I calculate the area of parallelograms and triangles. 6.2.7 I calculate, estimate and compare volume of cubes and cuboids using standard units, including cm3 and m3, and extending to other units such as mm3 and km3.	- Shapes same area. - Area and perimeter. - Area of a triangle (1). - Area of a triangle (2). - Area of a triangle (3). - Area of a parallelogram. - Volume counting cubes. - Volume of a cuboid.	

Year 6

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Converting units	6.2.1 I use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to three decimal places. 6.2.2 I solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate. 6.2.3 I convert between miles & km.	- Step 1 Metric measures - Step 2 Convert metric measures - Step 3 Calculate with metric measures - Step 4 Miles and kilometres - Step 5 Imperial measures	**conversion** **miles** **formulae** **parallelograms** **triangles** **feet** **cubic metre** **cubic millimetre** **cubic kilometre** **gallons** **stones** **ounces**

Measurement			

Year 6

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Shape **Geometry**	6.3.1 I draw 2D shapes (triangles, quadrilaterals, pentagons, hexagons) using given dimensions and angles. 6.3.2 I compare and classify geometric shapes based on their properties and sizes 6.3.3 I illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. 6.3.4 I recognise, describe and build simple 3D shapes, including making nets. 6.3.5 I find unknown angles in any triangles, quadrilaterals, and regular polygons.	- Measure with a protractor. - Introduce angles. - Calculate angles. - Vertically opposite angles. - Angles in a triangle. - Angles in a triangle special cases. - Angles in a triangle missing angles. - Angles in special quadrilaterals. - Angles in regular polygons. - Draw shapes accurately. - Nets of 3D shapes.	**radius** **diameter** **circumference** **dimensions**

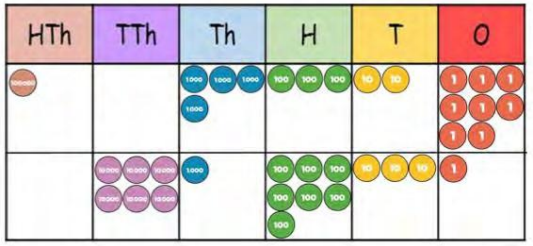
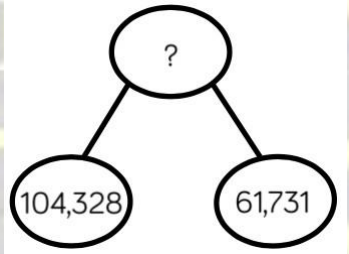
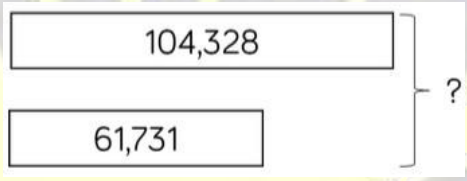
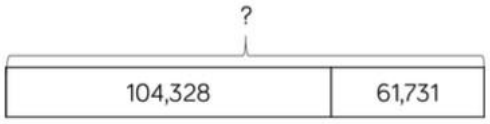
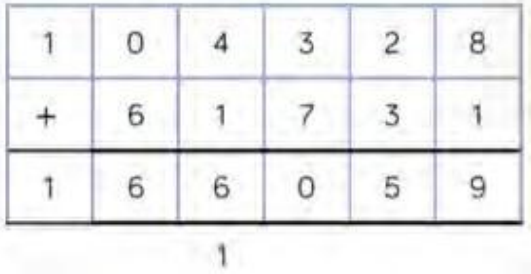
	6.3.6 I recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.		

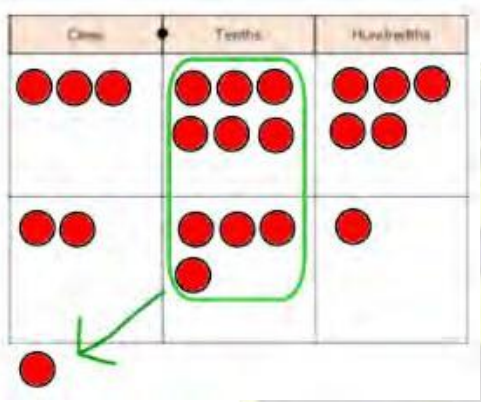
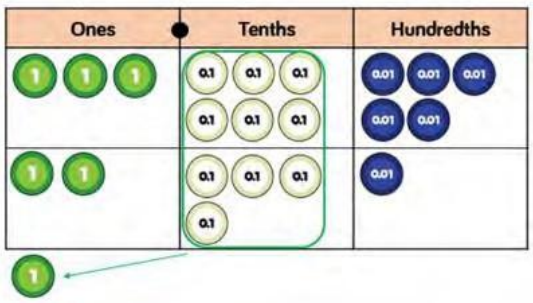
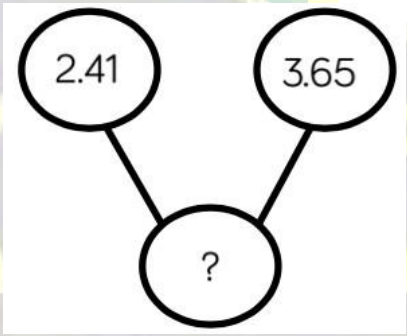
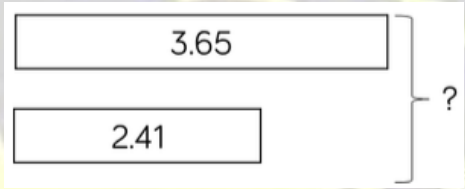
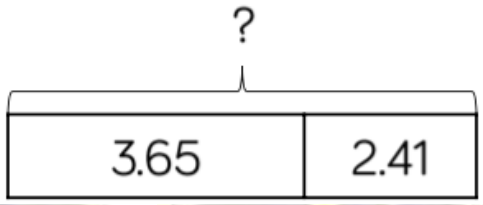
Year 6

Module & Concept	Core Content & Expectations	Intended Learning (White Rose Maths Small Steps)	Vocabulary
Position and direction **Geometry**	6.3.7 I describe positions on the full coordinate grid, all four quadrants 6.3.8 I draw and translate simple shapes on the coordinate plane and reflect them in the axes	- Coordinates in the first quadrant. - Coordinate in four quadrants. - Translations. - Reflections.	**four quadrants** **co-ordinate plane**
Statistics	6.4.1 I interpret and construct: Pie charts, line graphs and use these to solve problems 6.4.2 I calculate and interpret the mean as an average (Mean,mode and median, range)	- Read and interpret line graphs. - Draw line graphs. - Use line graphs to solve problems. - Circles. - Read and interpret pie charts. - Pie charts with percentages. - Draw pie charts. - The mean.	**pie chart** **mean**

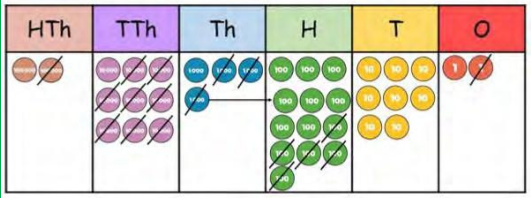
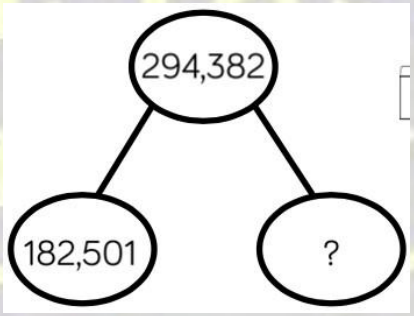
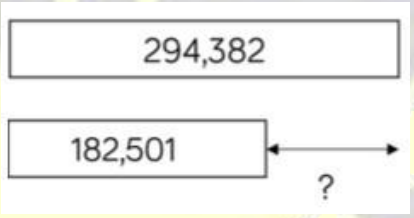
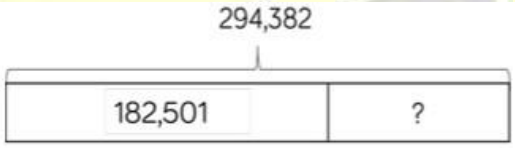
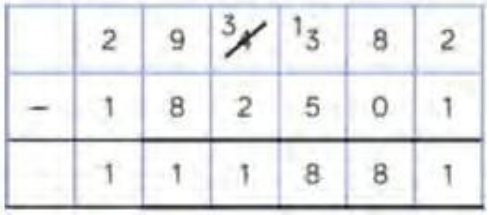
Year 6 Calculation Policy

Addition

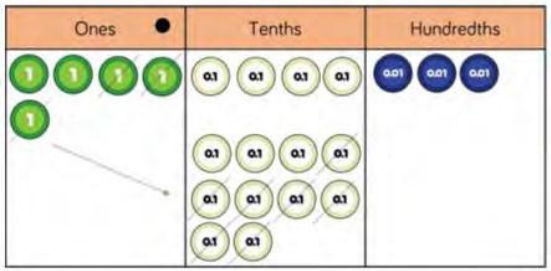
Objective & Strategy	Concrete	Pictorial	Abstract
Add numbers with more than 4 digits		  	104,328 + 61,731 = 166,059 

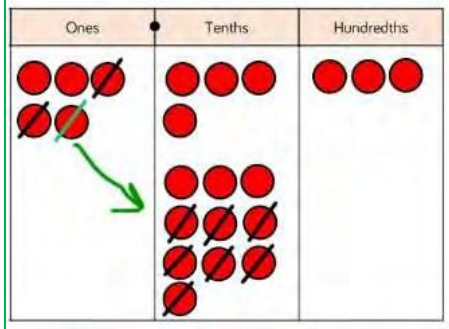
Add with up to 3 decimal places	 	  	**3.65 + 2.41 = 6.06** 3.65 + 2.41 6.06 1

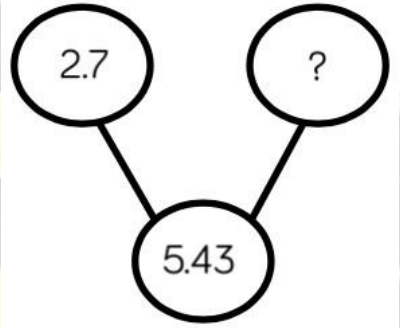
Subtraction

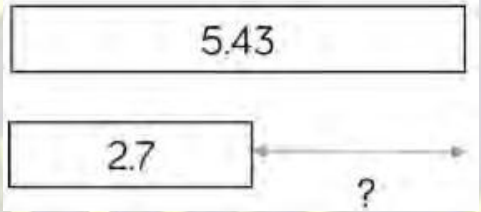
Objective & Strategy	Concrete	Pictorial	Abstract
Subtract numbers with more than 4-digits		  	294,382 – 182,501 = 111,881 

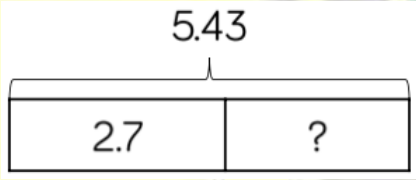
Subtract with up to 3 decimal places







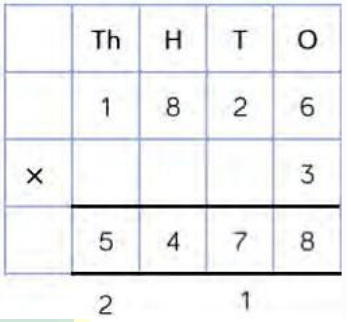


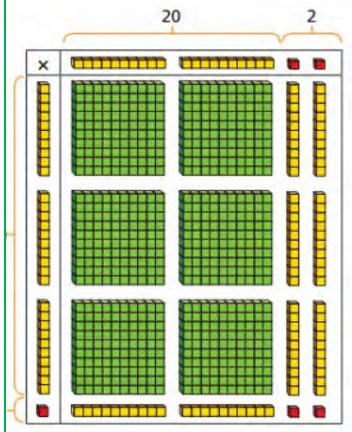
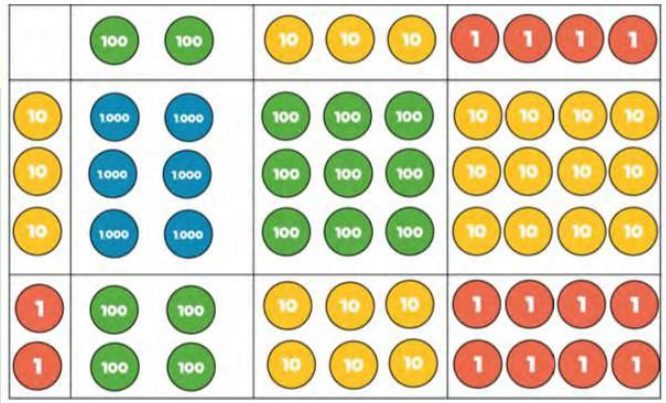


$$5.43 - 2.7 = 2.73$$

$$\begin{array}{r} {}^{4}\cancel{5}.{}^{1}43 \\ -\ 2.7 \\ \hline 2.73 \end{array}$$

Multiplication

Objective & Strategy	Concrete	Pictorial	Abstract
Column multiplication for three and four-digits x one-digit			

Column multiplication for two-digit x two-digit			<table><tr><td>×</td><td>20</td><td>2</td></tr><tr><td>30</td><td>600</td><td>60</td></tr><tr><td>1</td><td>20</td><td>2</td></tr></table> 600 60 20

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+ 2

682

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<tr><td></td><td>H</td><td>T</td><td>O</td></tr>
<tr><td></td><td></td><td>2</td><td>2</td></tr>
<tr><td>×</td><td></td><td>3</td><td>1</td></tr>
<tr><td></td><td></td><td>2</td><td>2</td></tr>
<tr><td></td><td>6</td><td>6</td><td>0</td></tr>
<tr><td></td><td>6</td><td>8</td><td>2</td></tr>
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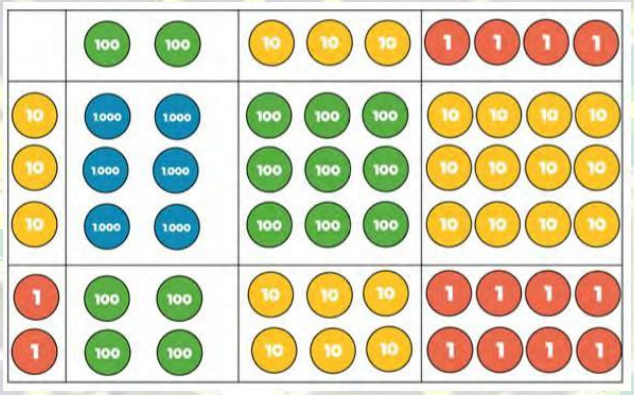
<tr>
<td>Multiply three-digit numbers by two-digit numbers</td>
<td></td>
<td>  </td>
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<tr><td>×</td><td>200</td><td>30</td><td>4</td></tr>
<tr><td>30</td><td>6,000</td><td>900</td><td>120</td></tr>
<tr><td>2</td><td>400</td><td>60</td><td>8</td></tr>
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<tr><td>Th</td><td>H</td><td>T</td><td>O</td></tr>
<tr><td></td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>×</td><td></td><td>3</td><td>2</td></tr>
<tr><td></td><td>4</td><td>6</td><td>8</td></tr>
<tr><td>1 7</td><td>1 0</td><td>2</td><td>0</td></tr>
<tr><td>7</td><td>4</td><td>8</td><td>8</td></tr>
</table>

6000
900
120
400
60
+ 8
7488

</td>
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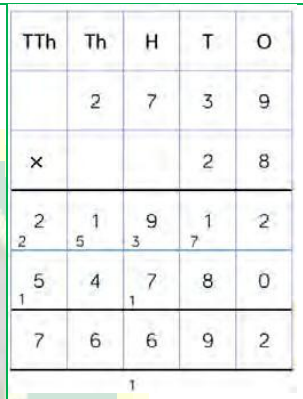
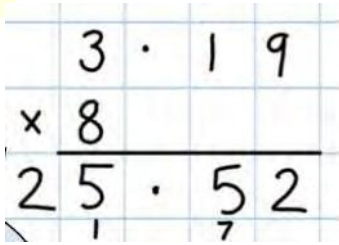
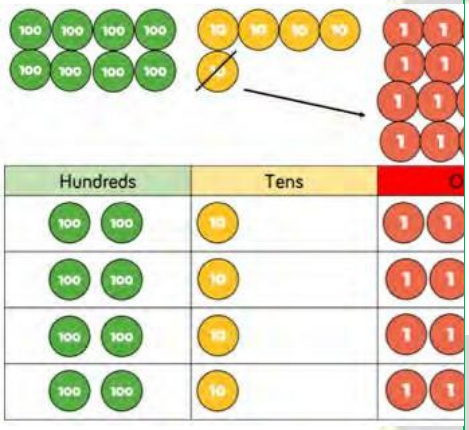
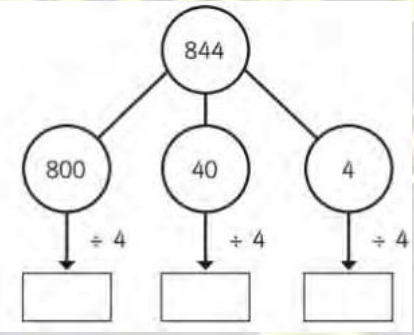
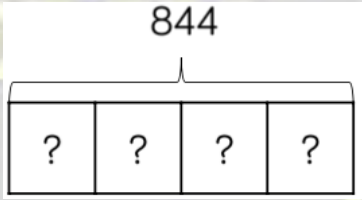
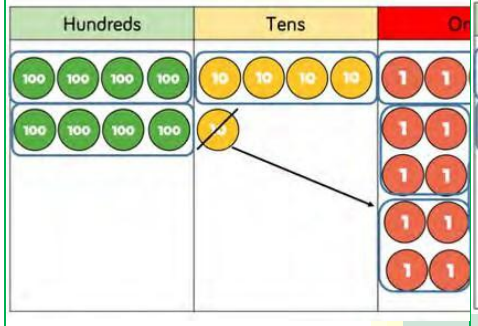
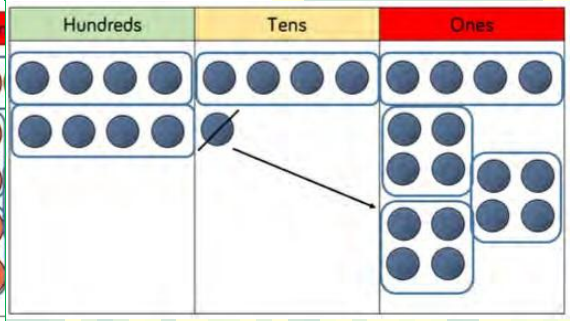
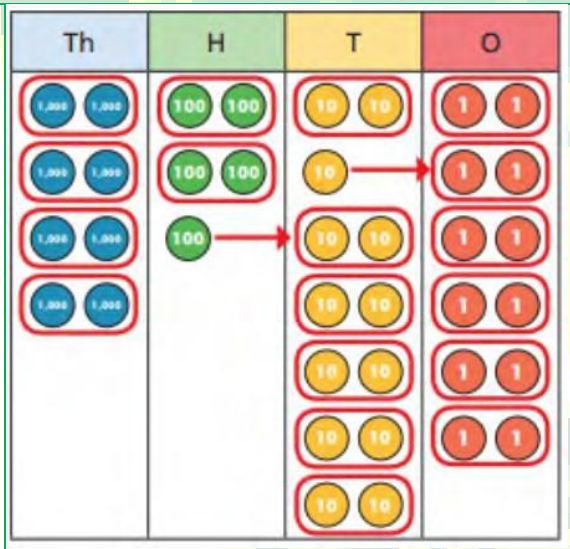
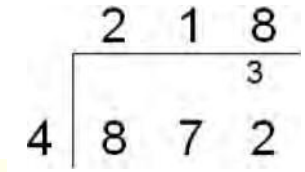
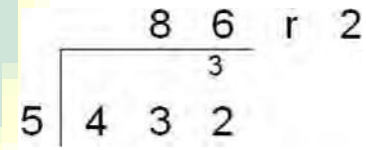
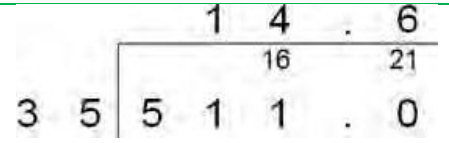
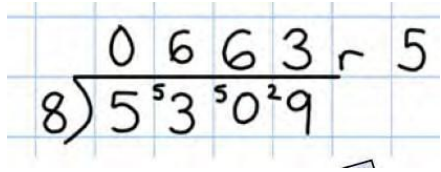
</table>

Multiply four-digit numbers by two-digit numbers			
Multiplying decimals up to two decimal places by a single digit.			 Remind children that the single digit belongs to the ones column. Line up the decimal point in the question and the answer.

Division

Objective & Strategy	Concrete	Pictorial	Abstract
Divide three-digits by one-digit (sharing)		 	$844 \div 4 = 211$

Divide three-digit by one-digit (grouping) **Divide four-digits by one-digit**			
			

Division with reminders			Begin with divisions that divide equally with no remainder.  Move onto divisions with a remainder.  Finally move into decimal places to divide the total accurately.
			 

Year 6 Knowledge Organiser

Cube Numbers		Cube Roots	
1^3	1	$\sqrt{1}$	1
2^3	8	$\sqrt{4}$	2
3^3	27	$\sqrt{9}$	3
4^3	64	$\sqrt{16}$	4
5^3	125	$\sqrt{25}$	5

Square Numbers		Square Roots	
1^2	1	$\sqrt{1}$	1
2^2	4	$\sqrt{4}$	2
3^2	9	$\sqrt{9}$	3
4^2	16	$\sqrt{16}$	4
5^2	25	$\sqrt{25}$	5
6^2	36	$\sqrt{36}$	6
7^2	49	$\sqrt{49}$	7
8^2	64	$\sqrt{64}$	8
9^2	81	$\sqrt{81}$	9
10^2	100	$\sqrt{100}$	10
11^2	121	$\sqrt{121}$	11
12^2	144	$\sqrt{144}$	12
13^2	169	$\sqrt{169}$	13

Prime Numbers			
2	17	41	67
3	19	43	71
5	23	47	73
7	29	53	79
11	31	59	83
13	37	61	89

Numbers	
0	a number with no value that comes between the positive and negative numbers
positive number	a number more than 0
negative number	a number less than 0
prime number	A number with exactly two factors, itself and one.
composite number	A number with more than two factors

Geometry	
volume	
Volume = length x height x depth	

Statistics	
mean	the sum of all data points divided by the number of data points

Circle Geometry	
radius	a straight line from the centre to the circumference
chord	a straight line joining two points on the circumference
diameter	a chord which passes through the centre
circumference	the distance round the circle

Roman Numerals	
I	1
V	5
X	10
L	50
C	100
D	500
M	1000

Angle Totals	
	Angles around a point total 360º
	Angles on a straight line total 180º
	Angles in a quadrilateral total 360º
	Angles in a triangle total 180º

Factors and Multiples	
factors	numbers we multiply together to get other numbers
multiple	the result of multiplying a number by an integer
HCF	Highest Common Factor - the largest factor shared by two or more numbers
LCM	Lowest Common Multiple - the smallest number that is a multiple of two or more numbers.

Multiplication Grid												
x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Place Value Grid											
	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones		tenths	hundredths	thousandths
Numeral	1,000,000	100,000	10,000	1000	100	10	1	●	0.1	0.01	0.001