The Maths Curriculum at St. Thomas More VC Academy

Guiding Principles and Approach

Guiding Principles

1. **Daily** mathematical instruction must be **meticulously planned and assessed** to ensure that every foundational concept is securely understood, crucial for building a robust and predictable pathway for all pupils' mathematical development
2. The commitment to leaving nothing to chance in mathematics operates as a **preventative strategy** against cumulative learning deficits, with efficient and accurate recall of facts and procedures, combined with flexibility to move between contexts, recognise relationships, and choose appropriate strategies..
3. There is development of **robust number sense** and foundational fluency in Reception and Key Stage 1.
4. An understanding that **fluency** demands that pupils possess the flexibility to transition seamlessly between different contexts and representations of mathematics, to discern relationships, establish connections, articulate their reasoning, and judiciously select appropriate methods and strategies for problem-solving.
5. The teaching for **Mastery** approach, provides a structured and progressive journey for achieving deep, **connected**, and sustainable mathematical understanding for **all pupils**.
6. We challenge the notion of innate mathematical ability, asserting that with highly intentional teaching, well-designed tasks and resources, consistent practice and effort, and a **positive mindset**, every child can not only achieve but also genuinely **enjoy mathematics**.

Leaves nothing to chance.	Is **truly ambitious** for all students.

<u>Explicit Mathematics teaching that happens every day:</u>
- Explicit, highly intentional, daily Maths teaching
- Systematic number sense milestones across EYFS and KS1
- Structured, shorter lessons in early years moving to 45 minutes to an hour by the end of KS1 and an hour at KS2.
- Coherent curriculum design with white rose, oak academy and NCTEM.
- Whole class approach
- Carefully sequenced lesson design: use of recall and building on prior knowledge.
- A strong grounding in number and confident mental fluency, varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Teachers use visual representations and models (e.g. bar models, number lines, part-part-whole) to make abstract concepts concrete and reveal underlying patterns.
- Teacher-led direct instruction (Me, then you prior to independent application)
- Use of concrete manipulatives.
- Teacher has an understanding of:
  o the learning intention and outcome
  o the prerequisite knowledge
  o the common misconceptions (Identified on White Rose and Oak National Curriculum)
  o how the learning can be broken down into small, sequential steps
More Maths
Meticulously structured, carefully constructed, short lessons that immerse children in number. used to consolidate key learning for 10-15 minutes every day **outside** the maths lesson or as a minimum three times per week for up to 20 minutes.
	<u>Unwavering belief in universal capability</u>
	- whole-class progression at broadly the same pace addressing the needs of children from who may have had fewer opportunities to engage with numbers.
	- cultivation of true fluency beyond rote memorisation
	- that all pupils are capable of understanding and engaging with mathematics, provided they receive sufficient time and appropriate support through teaching.
	- pupils who demonstrate a rapid grasp of concepts, ambition means providing challenge by offering rich and sophisticated problems within the current content, characterised by exhibiting creativity, and engaging in independent mathematical exploration. (NRICH, Teams Resources)
	Assessment:
	- Rigorous formative assessment and tracking (of number, fluency and comprehension) allows for clear identification of where gaps exist, and teaching/support responds to these gaps with urgency.
	- Use of mini whiteboards to establish understanding and constant checking using mini whiteboards, cold calling, choral responses, turn and talk
	- Live teacher marking and instant feedback
	Support:
	- Pupils who are beginning to fall behind with number receive extra practice to ensure that they 'keep up'.
	- Number sense is not a fixed attribute but is highly trainable and responsive to intervention early experiences can shape the brain's capacity for mathematical reasoning.
	- effort and effective strategies lead to mastery, encouraging perseverance and a positive attitude towards challenges for all pupils
	- Teachers subtly alter examples and questions to highlight critical attributes of a concept or guide pupils through a logical progression of ideas.

Prioritises **language** and **vocabulary**.	Is **responsive** to context and need.
<u>Oracy</u> - w**<u>hen children articulate their strategies and reasoning, they are compelled to organise their thoughts, identify gaps in their understanding, and refine their problem-solving approaches.</u>** - There are critical opportunities for talk tasks in each lesson acting as a powerful metacognitive tool - Explicit teaching of precise mathematical language and vocabulary **Vocabulary - explicitly planned for and taught across the maths provision.** - This developing knowledge is embedded through repeated practice in different contexts. - Encouraging children to use mathematical vocabulary and discuss their thinking to foster deeper conceptual understanding - Use of full sentences to be taught using sentence stems.	**<u>Embedded in meaningful, everyday contexts and real-world applications</u>** - strategic use of manipulatives and visual aids - prompt teacher intervention to prevent gaps - continuous formative assessment to guide instruction. - Key Pedagogical Strategies for Early Number Sense Development - Play based learning opportunities combining deliberate teaching with ample opportunities for learning through play; leveraging children's spontaneous engagement with maths. - Embedding number learning in meaningful, everyday contexts (e.g. counting class, discussing quantities during snack time) - Maths working walls / displays are updated frequently to assist in learning and working memory, flip chart paper added, examples of representations and vocabulary essential

Mathematical Structures:

- Methodically develop key number sense milestones.
- Repeat, recall and revisit taught concepts to build on knowledge and understanding.
- Encourage staff to adopt their own creative flair within the parameters of these structures.

Number Sense Milestones - interdependent and hierarchical **A robust understanding at each stage contributes to greater cognitive efficiency in numerical processing**	**More Maths / Memory Maths**
1. **subitising**, the intuitive and immediate perception of the quantity of a small collection (typically up to 3-4 objects) without the need for counting. This ability is critical as it reduces the cognitive effort required for subsequent counting tasks. 2. **one-to-one correspondence** is a crucial developmental skill where a child accurately matches one number name to one object while counting. Mastery of this skill often requires consistent repetition and modelling. 3. **cardinality**, which signifies the understanding that the last number word stated when counting a set represents the total quantity of that set. The efficiency gained from subitising and one-to-one correspondence frees up cognitive resources, enabling the child to engage with this more abstract concept. 4. **composing and decomposing numbers**, which involves the ability to break down numbers into smaller parts and combine them flexibly (e.g., understanding 7 as 5 and 2). This skill is fundamental for mental arithmetic and flexible problem-solving. 5. **linking symbolic and non-symbolic representations** is essential, connecting written numerals (e.g., '2') to their corresponding quantities (e.g., two objects). Research consistently indicates that weaknesses in this crucial mapping in early childhood are strongly associated with subsequent difficulties in mathematical skill acquisition.	**Timetabled discretely, and do not precede or follow the maths lesson.** - A whole-class routine based around the Maths Working Board or IWB - Give pupils repeated practice of basic skills and concepts (fluency, consolidation, mastery of what has been taught) - Provide opportunities to develop number sense, (use of NCETM) - Make maths fun, lively and interesting - Have high expectations of pupil response and learning behaviours - Make connections between mathematical topics and with mathematics in everyday life - Model correct language use including correct mathematical vocabulary and full sentences - Use incorrect answers as teaching points - Teach briskly, covering several different segments in the 10-15 minute session - Allow opportunities for pupils to reason mathematically and explain their thinking **Pupils:** - Respond readily and are focused on the teacher - Appear to enjoy their learning - Explain their answers using correct vocabulary and full sentences - Use appropriate apparatus such as mini-whiteboards, bead strings - Develop conceptual understanding and fluency **Adults:** - Support pupil learning at all times - Reinforce correct vocabulary
Daily Maths Lesson - Pupils believe they can achieve and they enjoy Maths. Teacher conveys the message that progress is made through engagement and effort, expects every child to succeed, and is enthusiastic about the learning expected.	**Wider Opportunities**
Recap of previous taught ideas. Mini white boards to be used so that continuous assessment can take place. Planned meticulously, build fluency in a key skill or linked to the lesson content. **Teaching of New Learning** – direct instruction, carefully chosen visual and concrete manipulatives, flip chart teaching, explicit vocabulary teaching referred to and added to working wall, modelling using concrete manipulatives. Everyone says the most important star words, Misconceptions are anticipated and incorporated. Everyone answers in full sentences and talk time is modelled. **Talk Time** – opportunities for children to turn and talk using sentence stems, everyone is manipulating objects when appropriate and recording is not expected **Guided Practice** – Modelled practice. Opportunity for assessment, mini white boards. Misconceptions addressed. Visualisers, manipulatives used and modelled. Misconceptions are anticipated and incorporated. **Independent Application** – linked to the direct instruction. Opportunities for fluency practice, reasoning and problem solving. Everyone working on the same mathematical concept or skill. Carefully chosen manipulatives available. Opportunities for depth for the rapid graspers, demonstrating using concrete manipulatives/ drawing diagrams, explaining in full sentences or asking their own questions. **Plenary** – celebrate success, reaffirmation that success comes from effort, summarise the key learning, assessment opportunities, link to the vocabulary used, reasoning question, growth mindset.	Money Week Enterprise week – summer fair / Christmas fair. Raising money for Charity linked to CST. Assemblies, counting mission points etc. Links with secondary specialists for enrichment opportunities.

More Maths More Maths are a vital part of the Mathematics Mastery programme. Their purpose is to consolidate key areas of mathematics and develop fluency in recall of key knowledge. To be most effective, it is recommended that More Maths occur daily for 10 – 15 minutes. A Maths Meeting should cover several curricular areas, broken down into short segments; each segment should take approximately 2 – 3 minutes. • Give pupils repeated practice of basic skills and concepts (fluency, consolidation, mastery of what has been taught) • Provide opportunities to develop number sense, for example, exploring conservation of number, cardinality, subitising, using known facts, near doubles, commutativity, inverse etc. • Be an exciting whole-class ritual around the Meeting Board or IWB • Establish a routine for mathematical thinking in the day, building classroom culture, and making connections with mathematics in everyday life.	
More Maths should:	**More Maths expectations:**
• Give pupils repeated practice of basic skills and concepts (fluency, consolidation, mastery of what has been taught) • Provide opportunities to develop number sense, for example, exploring conservation of number, cardinality, subitising, using known facts, near doubles, commutativity, inverse etc. • Be an exciting whole-class ritual around the Meeting Board or IWB • Establish a routine for mathematical thinking in the day, building classroom culture, and making connections with mathematics in everyday life.	• Everyone in the class must be ready to respond • Everyone in the class must look at and listen to the teacher, or pupil if Maths Meeting is pupil led. • Teacher only accepts appropriate responses, including technical vocabulary and full sentences when appropriate. Teachers should plan their own More Maths depending on the needs of pupils, focusing on key knowledge to consolidate. Teachers should prioritise key learning areas for their class and also incorporate current learning in the More Maths where necessary. Assessments will also inform the content of the More Maths.

EYFS

Important concepts for EYFS More Maths:
The topics below must be included each term for both fluency and because some key learning will not be revisited until a later term and requires ongoing consolidation. Teachers should also consult the more detailed guidelines in this document for suggested activities and other areas to include.

Term	Detail
Autumn	Number (ELG): • Counting on and back within ten along a number line (vertical and horizontal) • Conservation of number and cardinality activities, for example, 6 is still '6' in any arrangement and the number will stay the same unless more are added or some are taken away • Number bonds up to 5 (including subtraction facts) • One more and one fewer within 3, 6 and then within 10 Numerical patterns (ELG): • Verbally count beyond 20, recognising the pattern of the counting system. • Explore and represent patterns within numbers up to 10. • Start to identify odd and even within 10 Shape and Pattern: • Recognise, create and describe two-criteria patterns of colour or size • Matching shapes that are the same Measures: • Introduce comparative long, longer, longest, short, shorter, shortest, tall, taller, tallest, big, bigger, biggest and small, smaller, smallest Time: • Sequencing daily timetable • Days of the week • Months of the year Money: • Introduce coins 1p, 2p, 5p and 10p
Spring	Number (ELG): • Counting on and back within 20 • Subitising (recognise quantities without counting) within five • One greater or one less than a given number within 10 • Representing addition and subtraction within 10 on a ten frame • Identifying the number of groups, how many in each group and how many altogether (within 10) • Automatically recall number bonds to 5 and some number bonds to 10 Numerical patterns (ELG): • 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 evens and odds within numbers up to 10 Shape and Pattern: • Naming 3-D and 2-D shapes and matching shapes that are the same. Time: • Days of the week; today, tomorrow and yesterday • Months of the year • Introduce the clock and talk about familiar times of the day such as the time to start school, for lunch, for the end of the school day etc. Measures: • Ordering lengths • Introduce comparative vocabulary related to weight, capacity and volume Money: • Introduce 20p coin

Summer	Number (ELG): • Double and half numbers (within 10) • Counting using the abstraction principle and subitising • Represent addition and subtraction within 10 using a bead string • Counting in twos, fives and tens • Comparing two numbers using vocabulary greater and less • Recall number bonds to 5 (and some to 10) Numerical patterns (ELG): • Verbally count beyond 20, recognising pattern of number system • Explore and represent double facts within numbers up to 10 • Explore evens and odds within numbers up to 10 • Explore how quantities can be distributed equally Shape and Pattern: • Describing the properties of 3-D and 2-D shapes using the vocabulary face, edge, side, vertices Measures: • Comparing two or more lengths, weights and capacities Time: • Introduce the clock and o'clock times

Additional concepts and activities for Reception More Maths	
Term	**Detail**
Autumn	Number & Numerical patterns: • One-to-one correspondence within 10 (ELG) • Saying cardinal number names in order within 20 • Consolidating numbers within 5 (ELG) • Patterns of numbers within 5 (ELG) • Subitising within 5 (ELG) • Counting on and back within 10, but not always at the same starting point, along a number track (vertical and horizontal) • Ordering numbers within 10 on a number line (vertical and horizontal) • Conservation of numbers within 10 (ELG) • Components of numbers within 10 (ELG) • Counting on and back within 20 • Number bonds up to 5 (including subtraction facts) (ELG) • Ordinal numbers 1st to 10th • One more or one less than a given number within 10 • Counting on and back within 10, but not always at the same starting point, along a number track (vertical and horizontal) • Estimate a number of objects and check by counting • Comparing quantities up to 10 in different contexts (ELG) • Conservation of number 1–15 o Number song or counting – do not always start at 1 o Ten Green Bottles, Five Little monkeys, Five little speckled Frogs o Number of the day – encourage pupils to spot the given number in their classroom environment o Show different patterns of pegs and pegboards or Unifix cubes o Daily ordering of numbers on the number line Sets: • Sorting objects that are the same • Comparing objects that differ in some way • Forming sets of objects with two similar attributes, e.g. size and colour, colour and shape

	Data Handling: • Use manipulatives to represent data. o Straws could be used to represent the number of days at school or the number of More Maths in the week so far (these should be shown on a place value board to show they are 'ones'). Shape and pattern: • Matching shapes that are the same • Recognise, create and describe two-criteria patterns of colour, shape or size • Rhythm patterns, e.g. clapping, tapping • Two-criteria patterns of shape, size or colour • Naming 2-D shapes: rectangle, square, circle and triangle Copyright © 2021 • Positions and directions – use vocabulary such as: next to, behind, under, in front of, top, back, bottom, forwards Capacity, volume, length and weight: • Discuss size, weight, capacity and length using everyday language: full, empty, long, short, heavy, light, big, and small • Comparison of equivalent and inequivalent weights, lengths and volumes • Use vocabulary such as: longest, shortest, heaviest, lightest, more, less o Use objects and pupils from the classroom for comparisons, e.g. books, tables, chairs and pencils for heavy and light; pencils, colours and rulers for long and short o Use the pupils' drink containers to compare heaviest, lightest; more, less Time: • Events associated with time • Vocabulary: night, day, today, tomorrow, yesterday, days of the week • Discuss everyday events using vocabulary: after, soon, before, always, late, early, later o Discussion of events that happened or will happen using specific vocabulary e.g. PE will happen on Wednesday, art was yesterday o Time song: 'Ticker, ticker, ticker, tick. What time is it? Aha! Ticker, ticker, ticker, tock. What time is it? Aha! Stop!' o Recognise familiar times of the day on the clock o Relating events that happen every day to daytime or night time Money: • Coin recognition: 1p, 2p and 5p • Coin recognition 1p to 10p • Discuss uses of money o Show each coin to the class until they are familiar with each one o Allow pupils to experiment and play with real money when possible, e.g. role play in the shop o Use Dienes blocks alongside each coin to show their value, for example, a 20p coin is the same as two ten sticks; a 50p coin is the same as five ten sticks, etc.
Spring	Calendar Maths: • Days of the week o 'Days of the Week' song (Adams family tune) http://www.youtube.com/watch?v=HtQcnZ2JWsY o Today is…, Yesterday was…, Tomorrow will be… • Months of the year o 'Months of the Year' song (found on YouTube) http://www.youtube.com/watch?v=5enDRrWyXaw o This month is… • Date • Seasons of the year o 'Seasons of the Year' song (several versions are available on YouTube) o This season is… • Weather o 'What's the Weather?' song (several versions are available on YouTube) Number & Numerical patterns: • Verbally counting beyond 20 (ELG) • One more or one less than a given number within 10 • One-to-one correspondence within 10 • Composition of each number up to 10 (ELG) • Number bonds to 10 (ELG) • Double facts within 10 (ELG) • Even and odd numbers within 10 (ELG)

	• Recognising one quantity as greater than, less than or the same as another (ELG) • Patterns of numbers within 10 (ELG) • Double facts within 10 (ELG) • Representing numbers on a ten frame o Number song or counting – do not always start at 1 o Ten Green Bottles, Five Little monkeys, Five little speckled Frogs o Number of the day – encourage pupils to spot the given number in their classroom environment o Show different patterns of pegs and pegboards or Unifix cubes o Daily ordering of numbers on the number line Sets: • Sorting objects that are the same • Comparing objects that differ in some way • Forming sets of objects with two (or more) similar attributes, e.g. size and colour, colour and shape o Using objects or toys from around the classroom and grouping them on the basis of similar attributes o Using the pupils themselves based on hair or eye colour, etc. o Sorting song 'Red and yellow, pink and blue, sorting (counters, Lego, buttons), me and you. Sort the colours, sort the size, sort the shapes, just Copyright © 2021 use your eyes.' Data Handling: • Use manipulatives to represent data. o Straws could be used to represent the number of days at school or the number of More Maths in the week so far (these should be shown on a place value board to show they are 'ones'). Shape and pattern: • Positions and directions – use vocabulary: first, next, last, before, after, morning, afternoon, evening, night, over, under, above, below, top, bottom, side, on, in, next to, behind, under, in front of, top, backwards, forwards, across, between, up, down, left, right, towards, away from • Naming and describing 2-D shapes: rectangle, square, circle and triangle • Increasingly more difficult rhythm patterns, e.g. clapping, drumming • Three-criteria patterns of shape, size or colour Capacity, volume, length and weight: • Ordering lengths • Introduce vocabulary: tall, thin, wide, narrow and bigger • Comparing two or more lengths, weights and capacities o Use objects and pupils from the classroom for comparisons, e.g. books, tables, chairs and pencils for heavy and light; pencils, colours and rulers for long and short o Use pupils' drink containers to compare heaviest, lightest; more, less Time: • Introduce vocabulary: tall, thin, wide, narrow and bigger o Discussion of events that happened or will happen using specific vocabulary e.g. PE will happen on Wednesday, art was yesterday o Time song: 'Ticker, ticker, ticker, tick. What time is it? Aha! Ticker, ticker, ticker, tock. What time is it? Aha! Stop!' o Recognise familiar times of the day on the clock o Relating events that happen every day to day time or night time Money: • Coin recognition 1 p to 50 p o Show each coin to the class until they are familiar with each one o Allow pupils to experiment and play with real money when possible, e.g. role play in the shop o Use Dienes blocks alongside each coin to show their value, for example, a 20p coin is the same as two ten sticks; a 50p coin is the same as five ten sticks, etc.
Summer	Number & Numerical patterns: • Skip counting in fives and tens • Verbally count beyond 20 (ELG) • Subtraction counting songs • Comparing two numbers within 10 using vocabulary greater than, less than or the same as (ELG) • One more or one less than a given number • Number bonds to 10 (ELG) • Even and odd numbers within 10 (ELG) • Distribute quantities equally within 10 (ELG)

	• Double facts within 10 (ELG) • Explore and represent patterns within numbers up to 10 (ELG) • Identify and recognise a pair of objects is equal to a set or group of two objects o Number song or counting – do not always start at 1 o Ten Green Bottles, Five Little monkeys, Five little speckled Frogs o Number of the day – encourage pupils to spot the given number in their classroom environment o Show different patterns of pegs and pegboards or Unifix cubes o Daily ordering of numbers on the number line Sets: • Form sets of objects using a Venn diagram (with hoops or a pictorial representation) where the objects that have the same attributes are placed in the overlapping section. Data Handling: • Use manipulatives to represent data. o Straws could be used to represent the number of days at school or the number of More Maths in the week so far (these should be shown on a place value board to show they are 'ones'). Shape and pattern: • Describing the properties of 3-D shapes using vocabulary such as edge, face, vertex and vertices Capacity, volume, length and weight: • Ordering lengths • Introduce vocabulary: tall, thin, wide, narrow and bigger • Comparing two or more lengths, weights and capacities o Use objects and pupils from the classroom for comparisons, e.g. books, tables, chairs and pencils for heavy and light; pencils, colours and rulers for long and short o Use pupils' drink containers to compare heaviest, lightest; more, less Time: • Introduction to the clock – discuss the numbers around the clock, the hands of the clock and o'clock times • Talking about day time and night time o Discussion of events that happened or will happen using specific vocabulary e.g. PE will happen on Wednesday, art was yesterday o Time song: 'Ticker, ticker, ticker, tick. What time is it? Aha! Ticker, ticker, ticker, tock. What time is it? Aha! Stop!' o Recognise familiar times of the day on the clock o Relating events that happen every day to day time or night time Money: • Coin recognition £1 and how it is the same as 100 pennies • Addition and subtraction problems within 20 o Show each coin to the class until they are familiar with each one o Allow pupils to experiment and play with real money when possible, e.g. role play in the shop o Use Dienes blocks alongside each coin to show their value, for example, a 20p coin is the same as two ten sticks; a 50p coin is the same as five ten sticks, etc.

Year 1

Important concepts for Year 1 More Maths
The topics below must be included each term for both fluency and because some key learning will not be revisited until a later term and requires ongoing consolidation. Teachers should also consult the more detailed guidelines in this document for suggested activities and other areas to include.
Throughout Year 1 time and money should be regularly incorporated into More Maths.

Term	Detail
Autumn	Number: • Count on and back within 20, with a focus on ordinality, cardinality and conservation of number. When counting do not always start at 1 and support conceptual understanding with different representations of the numbers. • Number bonds within ten, for example, identifying all the ways of making 6 (using the part-whole model to represent this) • Double and half of numbers within 10 Shape and Pattern: • Name 2-D and 3-D shapes Measures: • Comparison and ordering of capacities, lengths and weights Time: • O'clock and half past times • Begin to measure and record the time Money: • Recognition of all coins and £5 and £10 notes
Spring	Number: • Number bonds to and within 10 with part-whole representation • Using inverse to find missing numbers in equations • Applying known calculation strategies in addition and subtraction • Recognising patterns that increase and decrease in steps of 2, 5 and 10 • Half and double within 20 • Grouping and sharing within 20 Measures: • Comparison and ordering of containers using vocabulary: full, empty, more than, less than, half full, quarter full Time: • Tell the time one or two hours before and after a time • Match activities to different times of the day Money: • Recognition of all coins and notes
Summer	Number: • • Addition and subtraction within 20, drawing attention to strategies (e.g. Make 10, counting on) and structures (e.g. 'first, then, now', combining or partitioning sets, finding difference). • • Partitioning 2-digit numbers into tens and ones • • Exploring repeated addition and the part-whole model and how it links with multiplication and division Shape and Pattern: • • Use mathematical language to describe size and position using vocabulary whole, half, quarter, three quarter turns, clockwise and anti-clockwise • • Identify and describe 2-D and 3-D shapes using vocabulary side, edge, face and vertices

Additional concepts and activities for Year 1 More Maths	
Term	**Detail**
Autumn	Calendar Maths (Throughout each term) • Days of the week o Today is, yesterday was, tomorrow will be o 'Days of the Week' song (Adams family tune) http://www.youtube.com/watch?v=HtQcnZ2JWsY • Months of the year o This month is, last month was, next month will be o 'Months of the Year' song (found on YouTube) http://www.youtube.com/watch?v=5enDRrWyXaw • Seasons of the year o This season is, last season was, next season will be o 'Seasons of the Year' song (several versions are available on YouTube) • Date and year o Use calendar to show: Today's date is the 12th, therefore yesterday was the… [11th] and tomorrow will be the… [13th] • Sequencing the days and months in order • Use ordinal number 1st, 2nd, 3rd, last. • Weather o 'What's the Weather' song (several versions are available on YouTube) o Create a weather pictograph - adding a coloured square to the chart each day Number • Say cardinal number names in order within 20 • Patterns of numbers within 20 including multiples of two • Count in steps of two and five • Count on and back within 20, but do not always start at 1, along number track (vertical and horizontal) • Order numbers within 20 on a number line (vertical and horizontal) o Number songs, or counting – do not always start at 1 o Number songs to highlight subtraction e.g. 10 green bottles o Number patterns within 20 using ten frames, pegs and peg boards and Dienes blocks o Number of the week: Count on and back from the number. Is it greater or less than 10? What is the total of the digits? Etc. • Addition and subtraction within 10 and then 20 • Number bonds to and within ten • Double and half within 10 • One more or less than a given number within 20 • Ordinal numbers 1st, 2nd … • Place value of 2-digit numbers within 40 • Number bonds to and within ten o Guess my number – it is less than 16, it has no tens, it is half of 8, etc.… o Missing or secret number e.g. 6 and 3 make…show using fingers. Record answers on More Maths board. o Use concrete manipulatives and pictures for addition and subtraction Copyright © 2021 scenarios. o Show images of sets of objects and question pupils about what ten more or ten fewer would be. These objects can be represented with Dienes blocks or a bead string. o The whole is 37. The parts are 0 and __? The parts are 10 and __? The parts are 20 and __? The parts are 30 and __.

	o Finding half and a quarter of a shape: are the parts equal? Is this half or not half? Why/why not? Finding half of one group of pupils – what would double this group be? If this is a half, what is the whole? If this is a quarter of the group of apples, how many apples are there altogether? Link to a part-whole representation. o Display a blank number line with multiples of ten marked. Write numbers on small post-it notes. Invite pupils to add these appropriately to the number line. Sets • Partition a whole into two or more sets o The pupils could be used for partitioning; all the boys are the main set and then partition with certain criteria, e.g. black hair, brown shoes, etc. • Combine two or more sets into a whole o A reverse of the idea above, start with the subsets and combine these to make a collective group of boys o Large hula hoops or circles marked on the ground are a resource to show the full set Data Handling • Sort using a Venn diagram with two separate criteria • Use manipulatives for data handling o Large hula hoops or circles represent a Venn diagram • Represent data using a place value chart o Straws or single Dienes block can be used to show the number of More Maths or days in school and should be kept in the 'ones' column of the place value chart—build to ten days and regroup. Shape and pattern • Use vocabulary related to shape accurately • Recognise and name 2-D and 3-D shapes • Patterns by colour, shape or size • Number patterns • Use mathematical language to describe direction and position, including left, right, across, below, next to, row, above • Identify half as two equal parts using shapes, objects or quantities o Shape songs (several available on YouTube) o Pattern of the day: one pupil takes ownership of this daily and creates a pattern. The pattern they made is discussed during the Maths Meeting. o Feely bag: a pupil describes the shape without removing it from the bag • Copy, continue and make patterns by colour, shape, size and number • Use mathematical language to describe size and position using vocabulary: whole and half turns, on top of, in front of, above, between, around, near, close, far, up, down, forwards, backwards, inside and outside. o Take a photo of class seating arrangement and question pupils on their positions, e.g. who sits to the left or right of ___? o Use the Big Picture from current and previous units as a base for questioning position. o What's the next or missing number in the sequence? Capacity, volume, length and weight • Comparison and ordering of containers using vocabulary full and empty; more than, less than, half full • Comparison and ordering of lengths and heights using vocabulary: longer and shorter, tall, short, double, half • Comparison and ordering of weight using vocabulary: heavy, light, heavier than, lighter than • Explore measuring objects using non-standard units o Use pupil's own drink containers for comparison purposes, looking at the size and shape of containers. o Use items from around the classroom to compare lengths and weights, with an emphasis on the correct vocabulary. Time • Recognise specific times on a clock face, e.g. start of the school day, time for lunch • Recognise o'clock times • Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening • Tell the time to the nearest half hour • Begin to compare events and solve practical problems using vocabulary: quicker, slower, earlier, later, how often?, always, never, often, sometimes, usually, once, twice • Begin to measure and record the time o Using a large clock, pictures could be placed beside certain times e.g. a lunch box beside 12 o'clock, a house beside 3 o'clock to represent home time o Play 'What's the time Mr Wolf?' o Time song: "Ticker, ticker, ticker, tick. What time is it? Aha! Ticker, ticker, ticker, tock. What time is it? Aha! Stop!" Money • Coin recognition 1p, 2p, 5p, 10p, 20p, 50p, £1, £2 • Coin recognition of all coins and notes £5 and £10

Spring	Number • Skip counting in 2s, 5s and 10s • Missing number equations including the addition and subtraction of zero, linked to 'first, then, now' stories • Using inverse to find missing numbers in equations • Applying known calculation strategies in addition and subtraction • Count to 100, forwards and backwards, from any given number • Number patterns that increase and decrease in steps of 2, 5 and 10. o Number songs, or counting – do not always start at 1 o Number songs to highlight subtraction e.g. 10 green bottles o Number patterns within 20 using ten frames, pegs and peg boards and Dienes blocks o Number of the week: Count on and back from the number. Is it greater or less than 10? What is the total of the digits? Etc. o Guess my number – it is less than 16, it has no tens, it is half of 8, etc.… o Missing or secret number e.g. 6 and 3 make…show using fingers. Record answers on More Maths board. o Use concrete manipulatives and pictures for addition and subtraction scenarios. o Show images of sets of objects and question pupils about what ten more or ten fewer would be. These objects can be represented with Dienes blocks or a bead string. o The whole is 37. The parts are 0 and __? The parts are 10 and __? The parts are 20 and __? The parts are 30 and __. o Finding half and a quarter of a shape: are the parts equal? Is this half or not half? Why/why not? Finding half of one group of pupils – what would double this group be? If this is a half, what is the whole? If this is a quarter of the group of apples, how many apples are there altogether? Link to a part-whole representation. o Display a blank number line with multiples of ten marked. Write numbers on small post-it notes. Invite pupils to add these appropriately to the number line. Sets • Partition a whole into two or more sets o The pupils could be used for partitioning; all the boys are the main set and then partition with certain criteria, e.g. black hair, brown shoes, etc. • Combine two or more sets into a whole o A reverse of the idea above, start with the subsets and combine these to make a collective group of boys. o Large hula hoops or circles marked on the ground are a resource to show the full set. Data Handling • Use pictograms and a tally to represent data o Pictogram to record daily weather, transport, etc. Shape and pattern • Position and language vocabulary: clockwise and anti-clockwise o Shape songs (several available on YouTube) Copyright © 2021 o Pattern of the day: one pupil takes ownership of this daily and creates a pattern. The pattern they made is discussed during the Maths Meeting. o Feely bag: a pupil describes the shape without removing it from the bag. o Take a photo of class seating arrangement and question pupils on their positions, e.g. who sits to the left or right of ___? o Use the Big Picture from current and previous units as a base for questioning position. o What's the next or missing number in the sequence? Time • Tell the time one or two hours before and after • Match activities to different times of the day o Using a large clock, pictures could be placed beside certain times e.g. a lunch box beside 12 o'clock, a house beside 3 o'clock to represent home time o Time song: 'Ticker, ticker, ticker, tick. What time is it? Aha! Ticker, ticker, ticker, tock. What time is it? Aha! Stop!' Money • Coin recognition of all coins and notes o Hidden coin: one pupil picks a coin without letting the other pupils see and describes the attributes of the coin until someone guesses the correct coin. o Missing coin: ask all the pupils to close their eyes and remove one of the coins. They must then guess which one has been removed. • Add together coins to find a total value • Solve simple change problems in a 'first, then, now' story context. o Making amounts of money using different coins o Blind counting – drop 1 p or 2 p coins into a tin: pupils must count how much money you drop in by listening. o Simple problems such as 'I had 50p and then I bought a drink for 30p. How much money do I have now? Capacity, volume, length and weight • Comparison and ordering of containers using vocabulary full and empty; more than, less than, half full

	• Comparison and ordering of lengths and heights using vocabulary: longer and shorter, tall, short, double, half • Comparison and ordering of weight using vocabulary: heavy, light, heavier than, lighter than • Explore measuring objects using non-standard units o Use pupil's own drink containers for comparison purposes, looking at the size and shape of containers. o Use items from around the classroom to compare lengths and weights, with an emphasis on the correct vocabulary.
Summer	Number • One more, one fewer, ten more and ten fewer within 100 • Addition and subtraction within 100 using a range of calculation strategies and exploring which is most efficient • Exploring partitioning of any 2-digit number • Reading and writing numbers in numerals and words • Placing numbers on a number line within 100 • Exploring repeated addition and the part-whole model and how it links with multiplication and division • Recognising and finding half and a quarter of an object, shape or quantity o Number songs, or counting – do not always start at 1 o Number songs to highlight subtraction e.g. 10 green bottles o Number patterns within 20 using ten frames, pegs and peg boards and Dienes blocks o Number of the week: Count on and back from the number. Is it greater or less than 10? What is the total of the digits? Etc. o Guess my number – it is less than 16, it has no tens, it is half of 8, etc.… o Missing or secret number e.g. 6 and 3 make…show using fingers. Record answers on More Maths board. o Use concrete manipulatives and pictures for addition and subtraction scenarios. o Show images of sets of objects and question pupils about what ten more or ten fewer would be. These objects can be represented with Dienes blocks or a bead string. o The whole is 37. The parts are 0 and __? The parts are 10 and __? The parts are 20 and __? The parts are 30 and __. o Finding half and a quarter of a shape: are the parts equal? Is this half or not half? Why/why not? Finding half of one group of pupils – what would double this group be? If this is a half, what is the whole? If this is a quarter of the group of apples, how many apples are there altogether? Link to a part-whole representation. o Display a blank number line with multiples of ten marked. Write numbers on small post-it notes. Invite pupils to add these appropriately to the number line. Sets • Partition a whole into two or more sets o The pupils could be used for partitioning; all the boys are the main set and then partition with certain criteria, e.g. black hair, brown shoes, etc. • Combine two or more sets into a whole o A reverse of the idea above, start with the subsets and combine these to make a collective group of boys o Large hula hoops or circles marked on the ground are a resource to show the full set. Data Handling • Use pictograms and a tally to represent data o Pictogram to record daily weather, transport, etc. Copyright © 2021 Shape and pattern • Position and language vocabulary: whole, half, quarter and three-quarter turns clockwise and anti-clockwise. • Identify and describe 2-D and 3-D shapes using vocabulary: side, edge, face and vertices o Shape songs (several available on YouTube) o Pattern of the day: one pupil takes ownership of this daily and creates a pattern. The pattern they made is discussed during the Maths Meeting. o Feely bag: a pupil describes the shape without removing it from the bag. o Take a photo of class seating arrangement and question pupils on their positions, e.g. who sits to the left or right of ___? o Use the Big Picture from current and previous units as a base for questioning position. o What's the next or missing number in the sequence? Capacity, volume, length and weight • Explore measuring objects using non-standard and standard units o Use pupils' own drink containers for comparison purposes, looking at the size and shape of containers o Use items from around the classroom to compare lengths and weights, with an emphasis on the correct vocabulary. Money

	• Coin recognition of all coins and notes o Hidden coin: one pupil picks a coin without letting the other pupils see and describes the attributes of the coin until someone guesses the correct coin o Missing coin: ask all the pupils to close their eyes and remove one of the coins. They must then guess which one has been removed. • Add together coins to find a total value • Solve simple change problems in a 'first, then, now' story context. o Making amounts of money using different coins o Blind counting – drop 1 p or 2 p coins into a tin: pupils must count how much money you drop in by listening o Simple problems such as 'I had 50p and then I bought a drink for 30p. How much money do I have now?

Important concepts for Year 2 More Maths
The topics below must be included each term for both fluency and because some key learning will not be revisited until a later term and requires ongoing consolidation. Teachers should also consult the more detailed guidelines in this document for suggested activities and other areas to include.
Throughout Year 2 **money, time, fractions, graphs, 2-D and 3-D shape** should be regularly incorporated into More Maths.

Term	Detail
Autumn	Number: • Count on and back in 2s, 3s, 5s and 10 from any number within 100 along a number line (vertical and horizontal) • Recognise the place value of each digit in a 2-digit number (tens, ones) • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • Add and subtract tens and ones to 1 and 2-digit numbers within 100 (no regrouping) Shape and Pattern: • Use vocabulary related to shape accurately including the number of sides, edges, vertices and faces on 2-D and 3-D shapes • Describe position, direction and movement, including whole and half turns (clockwise and anti-clockwise) Measures: • Introduce cm as a standard unit for length (and continue to use m) • Compare the length of objects using cm and m Time: • Tell the time to the hour and half past Money: • Coin recognition of all coins and notes (£5, £10, £20) • Use £ and p symbols Data: • Interpret tables and scaled pictograms, block diagrams and simple graphs
Spring	Number: • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • Add and subtract tens and ones to 1 and 2-digit numbers within 100 (with regrouping) • Find unit and non-unit fractions (halves, thirds and quarters) of quantity and recognise that one half is equal to two quarters • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables Shape and Pattern: • Identify and describe the properties of 2-D and 3-D shapes including number of sides and line symmetry (2-D) and number of edges, vertices and faces (3-D) • Describe position, direction and movement, including whole, half, quarter and three- quarter turns (clockwise and anti-clockwise) • Copy, continue and make patterns by colour, size and shape • Order and arrange combinations of mathematical objects in patterns and sequences Time: • Tell the time to the nearest five minutes and quarter past and to the hour • Relate the multiplication table of 5 to the divisions on the clock face. Money: • Solve simple problems involving the addition and subtraction of money of the same unit, including giving change
Summer	Number: • Place value of numbers within 1000 • Complete addition or subtraction calculations using a range of strategies and deciding which is the most efficient • Use the inverse operations to solve missing number problems Measures: • Introduce standard units for mass (kg, g) and capacity (ml, L) and use these standard units when comparing and ordering mass and capacity • Practise reading sequences scaled in steps of 2, 5 and 10 and use known facts to derive reading scales in 20s, 50s and 100s. • Reading temperature on a thermometer • Estimate and calculate capacity, length and weight using standard units Shape and space: • Identify right angles in relation to shapes and everyday objects and in relation to quarter turns • Identify 2-D shapes on the surface of 3-D shapes • Identify and describe the properties of common 2-D shapes including the number of sides and line symmetry in a vertical line

	• Identify and describe the properties of common 3-D shapes including the number of edges, vertices and sides Time: • Calculating time intervals and durations

Additional concepts and activities for Year 2 More Maths	
Term	**Detail**
Autumn	Calendar maths • Days of the week o Today is, yesterday was, tomorrow will be o Days of the Week song (Adams family tune) http://www.youtube.com/watch?v=HtQcnZ2JWsY • Months of the year o This month is, last month was, next month will be o Months of the Year song (found on YouTube) http://www.youtube.com/watch?v=5enDRrWyXaw o Date and year o Number patterns of 7 on the calendar o Ordering the months of the year • Weather o Collate and compile weather data using a bar chart Number • Say cardinal numbers' names in order within 100 • Numbers to 100 and patterns of numbers within 100 o 100 square puzzle – show one part of the hundred square with only 2 or 3 numbers showing. The children must fill in the remaining numbers • Recognise the place value of each digit in a two-digit number (tens, ones) and partitioning numbers in different ways (canonical and non-canonical) o Number of the week – count on and back in fives to and from our number; how many tens and ones? etc. o Guess my number: it is odd, it has 6 in the tens column, it has a digit total of 9, etc. Data handling • Data handling e.g. travel to school, lunches o Use straws to represent how many More Maths have taken place. Show these in the 'ones' column on your place value board Shape and pattern • Recognise common 3-D shapes, including cuboids, cubes, pyramids and spheres • Copy, continue and make patterns by colour, size and shape o Pattern of the day using 3 criteria. Discuss and continue the pattern in your Maths Meeting Measures o Which is bigger, longer, heavier? How do you know? How could we check? What units of measurement will we use? o Create a metre/centimetre; board where pupils bring in items and add them to the relevant board Time o Time song: "Ticker, ticker, ticker, tick. What time is it? Aha! Ticker, ticker, ticker, tock. What time is it? Aha! Stop!" Copyright © 2021 o Sequence familiar stories, e.g. Cinderella, using specific language: first, last, before, after, next o Sequence the events of the day using language: morning, afternoon and evening

Spring and Summer	Calendar maths • 24 hours in one day Number • Create equations for a given set of numbers (commutativity and inverse) o Teacher writes three or four addition or subtraction equations on the board, ensuring one of them is wrong. The children must work out which one it is within a given time o Select three numbers that would form an addition or subtraction equation and ask pupils what the equations could be o 5 + 3 = 8 therefore 50 + 30 = 80. What would 56 + 30 be equal to? • Solve one- and two-step word problems • Read and write numbers up to 1000 in numerals and words • Compare and order numbers up to 1000 • Count on and back in hundreds from any number within 1000 Data handling • Construct and interpret pictograms, tables and simple graphs • Ask and answer simple questions about totally and comparing categorical data o Read and interpret TV schedules, bus or train timetables, etc. Shape and pattern • Copy, continue and make patterns by colour, size and shape o Pattern of the day using 3 criteria. Discuss and continue the pattern in your Maths Meeting • Describe position, direction and movement, including whole, half, quarter and three-quarter turns (clockwise and anti-clockwise) o Use class photo or Big Pictures to describe positions o Use a grid and give directions to guide an object from one corner to another using whole, half, quarter and three-quarter turns and mapping out the path taken Measures • Compare and record lengths/mass using <, > and = o Which is bigger, longer, heavier? How do you know? How could we check? What units of measurement will we use? o Create a metre/centimetre; board where pupils bring in items and add them to the relevant board Time o Time a Maths Meeting and record its duration o Compare durations of More Maths at the end of every week

Year 3

Important concepts for Year 3 More Maths The topics below must be included each term for both fluency and because some key learning will not be revisited until a later term and requires ongoing consolidation. Teachers should also consult the more detailed guidelines in this document for suggested activities and other areas to include. Throughout Year 3, time, money and angles should be regularly incorporated into More Maths. After Unit 11 (Fractions), counting up and back in tenths should also feature regularly.	
Term	**Detail**
Autumn	Number: • Consolidate mental addition and subtraction for 2-digit numbers (with and without regrouping) using a range of calculation strategies • Represent numbers to 1000 with concrete manipulatives and images, including number lines • Place value of digits in numbers with up to three digits • Derive multiplication and division equations using arrays (multiples of 2, 5 & 10) • Recognise, find and write fractions of lengths, shapes and quantities • Choose and discuss efficient calculation strategies for 3-digit addition and subtraction, emphasising using number bonds / make ten • Derive facts from known facts 'If I know…, what else do I know?' (number bonds) • Doubles & halves (continue throughout the year) Shape and Pattern: • Name and describe 2-D and 3-D shapes according to their properties • Describe position, direction and movement in terms of straight line movements and rotations including angles • Identify horizontal and vertical lines Measures: • Read scales with intervals of 2, 5, 10 and 100 (comparing to increments of 1) Time: • Tell the time to the nearest five minutes Money: • Coin recognition of all coins and notes (£5, £10, £20)
Spring	Number: • Recognise that two halves/three thirds/four quarters are equal to one whole • Count in halves, thirds and quarters within 10 • Choose and justify efficient calculation strategies for age-appropriate calculations • Derive facts from known facts (multiplication / division and addition / subtraction) • Introduce counting in tenths during Unit 9 • Multiply by 10 and 100 recognising the importance of place value • Doubles & halves Data: • Read scales in steps of 2, 3, 4, 5 and 10 Shape and measure: • Identify right angles and that two right angles make a half turn • Calculate the perimeter of simple 2-D shapes Time: • Tell the time to the nearest minute • Tell the time from an analogue clock using Roman numbers I to XII
Summer	Number: • Recognise equivalent fractions using a fraction wall • Count in halves, thirds, quarters and tenths from any number • Find fractions (thirds, halves and quarters) of simple amounts (linked to division) • Multiplication and division by 10 and 100 • Choose efficient calculation strategies for age-appropriate calculations • Derive new facts from known number facts (all four operations) • Given a number, pupils identify calculations (from all four operations) that could result in that number.

	Data: • Read scales in steps of 2, 3, 4, 5, 10, 50 and 100 • Interpret tallies, tables, bar charts and pictograms Measures: • Read scales with intervals of 2, 5, 10, 25, 50, 100, 250 and 500 Shape and pattern: • Identify pairs of perpendicular and parallel lines Money: • Recognise British coins and notes and use in practical contexts

Additional concepts and activities for Year 3 More Maths	
Term	**Detail**
Autumn	Calendar maths o Discuss using vocabulary: century, calendar and leap year • Days of the week o Today is, yesterday was, tomorrow will be o Days of the Week song (Adams family tune) http://www.youtube.com/watch?v=HtQcnZ2JWsY • Months of the year o This month is, last month was, next month will be o Months of the Year song (found on YouTube) http://www.youtube.com/watch?v=5enDRrWyXaw o Time, date and year o Ordering the months of the year • Weather o Collate and compile weather data using a bar chart o Measure and read the temperature in degrees Celsius o Record the daily temperature using a bar chart Number • Multiplication tables of 2, 3, 4, 5, 6 and 10 and related division facts • Patterns of numbers within 100 o 'Pass the teddy' counting game – the teddy is passed around the class with each child saying 2, 3, 5 or 10 more or less than the previous number o Use a hundred square to show patterns within 100 o 100 square puzzle – show one part of the hundred square with only 2 or 3 numbers showing. Fill in the remaining numbers • Say cardinal numbers' names in order within 10 000 • Estimate a set of objects within 100 o Use jars of marbles, pencils, counters, etc. for estimation o Pictorial estimation – show a picture of 50+ objects, estimate and then count in groups of 3, 4, etc. • Order numbers within 1000 on a number line (vertical and horizontal) • Compare numbers within 1000 using < and > signs • Place value of digits in numbers within 1000 o Number of the day or week – count on and back in tens to and from the number; how many tens and ones?; reverse the digits – what is the number now? o Guess my number: it is odd, it has 6 in the thousands column, zero hundreds, it has a digit total of 9, etc. • Bar model representations for addition and subtraction • Bar model representations for multiplication and division Data handling • Solve problems using pictograms, bar charts, tallies and tables • Represent data using pictograms, bar charts and tallies. • Understand and use simple scales in pictograms and bar charts

	Copyright © 2021 o Link data opportunities to calendar maths: recording the daily temperature, weather, lunches, etc. o Compile data using random collections of toys or manipulatives and represent on a pictogram or bar chart Shape and pattern • Clarify the properties of different 2-D and 3-D shapes o Feely bag of shapes o Sort shapes using a Carroll diagram • Repeat and continue patterns and sequences o Pattern of the day – can be number, colour, size or shape • Describe position, direction and movement in terms of straight line movements and rotations including angles o Use a grid and guide an object from one position to another marked one using clockwise and anti-clockwise rotations as well as straight line movements • Identify horizontal and vertical lines Measures • Word problems using cm and m including addition, subtraction, multiplication and division o Example questions: If all the objects were lined up what would the total length be? What is the difference in length between the shortest and the longest object? • Apply addition, subtraction, multiplication and division in the context of weight • Recognising 100 cm is equal to 1 m, 2 m is equal to 200 cm, etc. • Read the length to the nearest m and cm o Pick one large object to measure weekly, e.g. door, table, whiteboard. Keep a record of each one; comparisons can be made more easily as your list grows • Read volume to the nearest unit of ml or l; measure capacity in ml and in l o Collect rainwater overnight and keep a record using a bar chart • Read scales to the nearest g and kg; measure weight in g and in kg o Lunch boxes with or without lunches could be weighed; lightest or heaviest box, collective weight of everyone's lunch • Compare lengths/capacity using < and > signs Time • Know the number of minutes in an hour, hours in a day, days in a week and number of days in each month o Discuss time referring to a.m. and p.m. o Egg timers measuring 5 minutes could be used to time the length of the Maths Meeting or segments of it Money • Represent a given amount in different ways • Addition and subtraction of money of the same unit, including giving change o Practical word problems including how addition and subtraction could integrate with weight or other measures, e.g., 1 kg of tomatoes costs 79 p. How much would 2 kg cost?
Spring and Summer	Calendar maths o Discuss using vocabulary: century, calendar and leap year • Days of the week o Today is, yesterday was, tomorrow will be o Days of the Week song (Adams family tune) http://www.youtube.com/watch?v=HtQcnZ2JWsY • Months of the year o This month is, last month was, next month will be o Months of the Year song (found on YouTube) http://www.youtube.com/watch?v=5enDRrWyXaw o Time, date and year o Ordering the months of the year o Months of the year rhyme • Weather o Collate and compile weather data using a bar chart o Measure and read the temperature in degrees Celsius o Record the daily temperature using a bar chart Number • Skip counting in steps of 6 and 8 • Recognise and find unit and non-unit fractions: halves, quarters and thirds of a length, shape and quantity o Finding fractions of the shape of the day or a set of objects o Dividing a shape into tenths • Count on in halves, thirds and quarters within 10

	• Recognise equivalent fractions using a fraction wall • Identify what fraction of an area model, length model or quantity is shaded/indicated • Pupils identify the multiplication and division equations that an array can represent • Recognise the commutative property of multiplication • Compare and order numbers up to 1000 • Count on and back in hundreds from any number within 1000 Data handling • Using and reading scales of 2, 4, 5, 10, 100 and 1000 on pictograms and bar charts Shape and pattern • Recognise that two right angles make a half turn • Identify if an angle is greater or less than a right angle Measures o Pupils suggest appropriate units of measurement depending on the object to be measured • Word problems using cm and m including addition, subtraction, multiplication and division Copyright © 2021 o Example questions: If all the objects were lined up what would the total length be? What is the difference in length between the shortest and the longest object? • Apply addition, subtraction, multiplication and division in the context of weight • Calculate the perimeter of a shape using its properties to identify the lengths of any unknown sides Time • Compare time in terms of seconds, minutes and hours • Compare and sequence intervals of time using a.m. and p.m. • Compare durations of events Money • Represent a given amount in different ways • Addition and subtraction of money of the same unit, including giving change o Practical word problems including how addition and subtraction could integrate with weight or other measures, e.g.: 1 kg of tomatoes costs 79 p. How much would 2 kg cost?

Year 4

Important concepts for Year 4 More Maths The topics below must be included each term for both fluency and because some key learning will not be revisited until a later term and requires ongoing consolidation. Teachers should also consult the more detailed guidelines in this document for suggested activities and other areas to include. Throughout Year 4, times tables and Roman numerals should be regularly incorporated into More Maths.	
Term	**Detail**
Autumn	Number: • Count in multiples of 6, 8, 25, 100 and 1000 • Using the multiplication tables up to 12 × 12 • Roman numerals to 100 (I to C) • Derive facts from known facts (number bonds and multiplication facts, using knowledge of place value, inverse relationship, commutativity etc.) 'If I know…, what else do I know?' using all four operations • Add and subtract 3-digit numbers mentally using a range of calculation strategies • Calculate multiplications and divisions mentally using a range of strategies (including known facts, halving, doubling, applying place value, inverse, commutativity etc). • Compare and order fractions • Find fractions of simple amounts and quantities (linking this to division) • Count in tenths and hundredths forwards and backwards Shape and Pattern: • Recognise 3-D shapes in different orientations and describe their properties • Identify right angles, compare angles and classify angles as acute or obtuse • Recognise quarter, half, three-quarter and whole turns and their equivalent number of right angles • Identify lines of symmetry in the surrounding environment and regular 2-D shapes • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines Time: • Tell and write the time from an analogue clock, including Roman numerals from I to XII and 12-hour and 24-hour clocks • Estimate and read the time to the nearest minute Money: • Add and subtract money, including mixed units, and give change in practical contexts
Spring	Number: • Divide by ten and 100 (using knowledge of place value) to get a decimal fraction • Use the number line to represent numbers (including decimals), fractions (including mixed numbers) and measures • Recognise and use factor pairs and commutativity in mental calculations • Multiply three numbers together Geometry and shape: • Calculate the perimeters of rectilinear 2-D shapes on cm grids • Identify lines of symmetry in 2-D shapes Measures including money: • Solve problems, including missing number problems using number facts, place value and more complex addition and subtraction problems • Add and subtract money, including mixed units, and give change in practical contexts Time: • Estimate and read time to the nearest minute • Compare time in terms of seconds, minutes and hours • Convert units of time e.g. minutes to seconds, weeks to days

Summer	Number: • Identify the place value of the digits in a number with up to two decimal places • Suggest a decimal fraction that is equivalent to a fraction in tenths or hundredths • Round decimals with one decimal place to the nearest whole number • Compare numbers with the same number of decimal places up to two decimal places • Add and subtract 4-digit numbers mentally using a range of calculation strategies Geometry, position and direction: • Use flags to identify angles, shapes, symmetry, parallel and perpendicular lines • Describe positions on a 2-D grid as coordinates in the first quadrant Measures: • Recognise and write decimal equivalents to one quarter, one half and three quarters in the context of capacity, length and mass • Recognise centimetres written in metres; ml written in litres • Round lengths to the nearest metre Money: • Recognise how many ten pence pieces equal one pound, how many one pence pieces equal one pound and relate them to tenths and hundredths of a pound • Compare amounts of money up to two decimal places Time: • Look at timetables using correct vocabulary e.g. arrive / depart, first, last.

Additional concepts and activities for Year 4 More Maths	
Term	**Detail**
Autumn	Calendar maths • Days of the week o Today is, yesterday was, tomorrow will be o Today is Monday the 11th - what will the date be next Monday? What was the date last Monday? • Months of the year o This month is, last month was, next month will be o Date and year including Roman numerals o Ordering the months of the year • Weather o Collate and compile weather data using a bar chart o Record the daily temperature using a line graph o Compile the total weekly rainfall in ml o Display and compare dates of birth Number • Order and compare numbers within 10 000 • Round any number to the nearest ten, hundred and thousand • Recognise and use fractions as numbers • Add and subtract fractions with the same denominator within one whole o Number of the week - pick a number to focus on every week and complete such activities as: count on or back in tens; place value; reverse the digits – what is the number now? What is the biggest, smallest number you can make using the same digits? o Secret number: it is even, it has 6 in the tens column, it is greater than 500, etc. o Roman numeral of the day – (could correspond to the date); change the number by adding one more or less o Convert numbers to roman numerals Data handling • Interpret and present data using bar charts, pictograms and tables • Solve one-step and two-step problems using information presented in bar charts, pictograms and tables o Temperature and rainfall of the day can be represented on line graphs and tables. At the end of a set period of time, e.g. 1 week or 1 month, the teacher should set problems based on pupils' findings

	o Compile bar charts, pictograms and tables based on other opportunities that may arise in the classroom, e.g. a daily timetable for the class Geometry: shape and symmetry • Recognise common 3-D shapes in different orientations o Feely bag activities o Use the classroom, current or previous Big Pictures, or general landscape pictures to identify horizontal and vertical lines as well as perpendicular and parallel lines Copyright © 2021 Measures including money • Comparison of lengths, including simple scaling by integers e.g. twice as long or five times as high o Scale questions could include find something in the classroom that is twice as long as the book or half as long as the table. o Which is heavier – 300 g or 300 kg? • Compare, add and subtract masses in kg and g o Practical word problems, including addition and subtraction problems, could integrate with measures, e.g. 300 g of carrots costs 61p. How much would 900 g cost? If I had £2, how much change would I receive? o Menu of prices and calculations to follow using the menu. A bar chart could be used to represent quantities of food sold. Time • Use time vocabulary, including: o'clock, a.m. / p.m.
Spring and Summer	Calendar maths • 24 hours in one day Number • Use number line to show fractions, numbers and measures o Place these decimals on a line from 0 to 2: 0.3, 0.1, 0.9, 0.5, 1.2, 1.9 • Estimate the answer when adding and subtracting and use inverse operations to check • Count in decimal fractions (after Unit 8) • Suggest a decimal fraction that is equivalent to a fraction in tenths or hundredths o What is the decimal fraction equivalent to two tenths and five hundredths? Twenty-nine hundredths? • Suggest decimal fractions between numbers o Suggest a decimal fraction between 4.1 and 4.2 Data handling • Interpret and present discrete and data using bar charts, pictograms, tables, Venn and Carroll diagrams and time graphs Geometry: Shape and coordinates • Use flags to identify angles, shapes, symmetry, parallel and perpendicular lines o Select a flag and investigate the shapes, angles, lines of symmetry, parallel and perpendicular lines on the flag. Change the flag each week (http://nrich.maths.org/7749) • Describe positions on a 2-D grid as coordinates in the first quadrant Measures including money • Solve simple measure problems o Problem of the day/week: a full bucket holds 5 12 litres. A full jug holds 12 a litre. How many jugs full of water will fill the bucket? Copyright © 2021 o Alan jumped 2.25 metres on his second try at the long jump. This was 75 centimetres longer than on his first try. How far in metres did he jump on his first try? o A box of four cakes costs £2.96. How much does each cake cost? Mike and Lucy buy 3 boxes of cakes between them. Mike pays £4.50. How much must Lucy pay? • Recognise and compare weights written in kg with up to two decimal places o Show pupils a rectilinear shape drawn on square paper and ask them to calculate the area and perimeter. Use a different shape each day and then compare the areas and the perimeters of the five shapes on a Friday. Time o Time a Maths Meeting and record its duration o Compare durations of More Maths at the end of every week

Year 5

Important concepts for Year 5 More Maths The topics below must be included each term for both fluency and because some key learning will not be revisited until a later term and requires ongoing consolidation. Teachers should also consult the more detailed guidelines in this document for suggested activities and other areas to include. Throughout Year 5, negative numbers and angles should be regularly incorporated into More Maths.	
Term	**Detail**
Autumn	Number: • Place value of 5-digit and 6-digit whole numbers • Count back past zero to include negative numbers using a number line • Recognise Roman numerals up to 1000 (M) • Count forwards and backwards in steps of powers of ten (including tenths and hundredths) • Count in multiples of 7, 9, 25, 50, 100 and 1000 • Recalling and using multiplication facts up to 12 x 12 • Add, subtract, multiply and divide numbers mentally with increasingly large numbers, drawing upon known facts (including number bonds and multiplication facts, halving, doubling, applying place value, inverse, commutativity etc). • Compare and order fractions and decimals • Find fractions of simple amounts and quantities (linking this to division) • Add and subtract fractions with the same denominator Geometry: • Name and describe the properties of 2-D and 3-D shapes • Identify acute and obtuse angles and compare and order angles (do not include reflex angles at this point) Measures including money and time: • Convert between different units of metric measure (cm/mm, cm/m, kg/g, km/m, l/ml) • Tell the time to the nearest minute with analogue and digital clocks and 12-hour and 24-hour notation • Solve problems involving converting between units of time from hours to minutes; minutes to seconds; years to months; weeks to days • Measure and calculate the perimeter of a rectilinear shape (including squares) in cm and m Statistics: • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs
Spring	Number: • Interpret negative numbers in context and calculate intervals across zero • Continue number sequences including negative numbers • Identify the place value in a number with up to three decimal places • Compare and order fractions, including mixed number and improper fractions whose denominators are multiples of the same number • Identify multiples and factors, including finding all factor pairs and common factors of two numbers • Read decimal numbers as fractions • Read, order and compare numbers with up to three decimal places • Convert mixed numbers to improper fractions and vice versa Measures including money and time: • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Calculate and compare the area and perimeter of rectangles • Estimate and compare acute, obtuse and reflex angles • Identify: angle at a point and one whole turn (total 360°); angles at a point on a straight line and a turn (total 180°); other multiples of 90° • Read and convert time between analogue, digital, 12- and 24-hour clock Statistics: • Solve comparison, sum and difference problems using information presented in line graphs Complete, read and interpret information in tables, including timetables

Summer	Number: • Write percentages as a fraction and as a decimal number • Add and subtract fractions with the same denominator and denominators that are multiples of the same number • Use all four operations to solve problems involving measure, using decimal notation Measures, including money and time: • Solve problems involving converting between units of time Geometry: • Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language • Know and use the angles at a point / full turn sum to 360° • Know and use the angles on a straight line / half turn sum to 180°

Additional concepts and activities for Year 5 More Maths	
Term	**Detail**
Autumn	Calendar maths • Time, day, date and year o Today is Monday the 11th - what will the date be next Monday? What was the date last Monday? • Number of days in each month and year, including leap years o Months of the year rhyme o Date and year including Roman numerals o Ordering the months of the year o Display and compare dates of birth • Weather o Collate and compile weather data using a bar chart o Record the daily temperature using a line graph o MET office WOW website http://wow.metoffice.gov.uk o Calculate the total weekly rainfall in ml Number • Add and subtract three-digit and four-digit numbers mentally o http://nrich.maths.org/6606 supports mental/written addition • Recognise and use factor pairs and commutativity in mental calculations • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout o Completed calculations – spot the mistake • Recall prime numbers up to 19 • Identify multiples and factors, including finding all factor pairs for a given number and common factors of two numbers • Ordering and comparing numbers including fractions and decimals o Counting stick activities; skip counting and rhymes o Order numbers with similar digits e.g. 1.01, 0.11, 1.101 o Number of the day (including negative numbers) – count on and back in different amounts from that number; how many hundreds, tens, ones; reverse the digits; make the largest or smallest number possible by rearranging the digits; identify factors and multiples Statistics • Solve one-step and two-step problems using information presented in bar charts, pictograms and tables o Use ITP data handling resources to create and then interpret charts and graphs http://www.taw.org.uk/lic/itp/line_graph.html Geometry • Compare and classify geometric shapes o Guess my shape - name and identify properties of 2-D and 3-D shapes. • Estimate, in degrees, the size of a given angle o Angle guesser game http://www.primaryresources.co.uk/online/angle.swf o Online angle game: http://nrich.maths.org/1235 • Identify 3-D shapes from 2-D representations

	Copyright © 2021 Measures including money and time • Solve simple measure and money problems involving fractions and decimal fractions to two decimal places o Recall dividing by 10, 100 and 1000 when converting units o Which is longer: 3 cm or 3 inches? o Look at and interpret a timetable o Analogue and digital clock on display in the classroom. Daily practice of converting analogue to digital and vice versa. Time • Use time vocabulary including o'clock, a.m. / p.m.
Spring and Summer	Calendar maths • Time, day, date and year o Today is Monday the 11th - what will the date be next Monday? What was the date last Monday? • Number of days in each month and year, including leap years o Months of the year rhyme o Date and year including Roman numerals o Ordering the months of the year o Display and compare dates of birth • Weather o Collate and compile weather data using a bar chart o Record the daily temperature using a line graph o MET office WOW website http://wow.metoffice.gov.uk o Calculate the total weekly rainfall in ml Statistics • Solve one-step and two-step problems using information presented in bar charts, pictograms and tables o Use ITP data handling resources to create and then interpret charts and graphs http://www.taw.org.uk/lic/itp/line_graph.html Number • Distinguish between prime and composite numbers up to 19 • Establish whether a number up to 100 is prime o Factor bugs drawing or physical movement to list factors • Recognise and use square numbers and cube numbers and notation for squared (2) and cubed (3) • Interpret negative numbers in context and calculate intervals across zero o http://nrich.maths.org/5865 supports negative numbers o Compare and order decimals and fractions o Odd one out activities o Place fractions on a number line between 0 and 1, including equivalent fractions Copyright © 2021 • Find fractions and percentages of amounts o Find 210 of 20, 50, 100 and discuss patterns o 30% of 60 is equal to ___; 30% of ___ is equal to 60. o Which is greater using mixed percentages and fractions of same value Data handling • Interpret and present discrete and data using bar charts, pictograms, tables, Venn and Carroll diagrams and time graphs Geometry: Shape and coordinates • Describe position on the full coordinates grid o Plot and read coordinates on a graph using x and y axes in the first quadrant o Plot coordinates and join them up to make a picture Measures, including money and time o Time a Maths Meeting and record its duration. Compare durations of More Maths at the end of every week o Order amounts using mixed units of measure

Year 6

Important concepts for Year 6 More Maths This document contains a list of key areas of mathematics and key activities which should be covered across More Maths and teachers should be aware of these when planning their More Maths. Teachers should also consult the more comprehensive PowerPoint document for suggested activities and other areas to include.	
Term	**Detail**
Number and place value	• Counting should be daily practice and include negative numbers, decimal and fractions, larger integers, counting in multiples etc. • Recognise, read and write Roman numerals • Identify multiples and factors, including finding all factor pairs and common factors of two numbers • Know prime, square and cube numbers including being able to apply knowledge and understanding of these to solve problems.
Number: addition, subtraction, multiplication and division	• Using the multiplication tables up to 12 × 12 • Add, subtract, multiply and divide numbers mentally with increasingly large numbers, drawing upon known facts • Multiply and divide by 10, 100 and 1000 • Derive decimal facts for the four operations (e.g. 7 × 8 = 56 so 0.7 × 8 = 5.6; 2 + 7 = 9 so 0.02 + 0.07 = 0.09) • Interpret remainders appropriately in division, including rounding up and down, as a fraction and as a decimal
Number: Fractions, decimals and percentages	• Compare and order fractions, including mixed number and improper fractions whose denominators are multiples of the same number • Write percentages as a fraction with denominator 100 and as a decimal
Ratio and proportion	• Explore the language of ratio and proportion and make connections to previous experiences with fractions and multiplication
Algebra	• Sequences, including fractions and decimals • Generalised arithmetic • Finding unknowns with operations on both sides
Measurement	• Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Know the mathematics around the calendar including number of days in each month and calculate using these • Solve problems involving converting between units of time from • hours to minutes; minutes to seconds; years to months; weeks to days • Convert between different units of metric measure
Geometry: properties of shape and position and direction	• Identify: angles at a point and one whole turn (total 360°); angles at a point on a straight line and a half turn (total 180°); other multiples of 90° • Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language • Identify lines of symmetry in a range of 2-D shapes and patterns
Statistics	• Interpret data from a range of contexts presented in a variety of ways