Maths Subject Overview

Lindal and Marton

Teaching for Mastery

Our scheme of learning, based on the Hamilton scheme, is designed to support a mastery approach to teaching and learning and is consistent with the aims and objectives of the National Curriculum.

- **Spiral curriculum**: our curriculum is spiral which ensure that opportunities to revisit previously learned skills are built into our curriculum. This means that children acquire an in-depth understanding of the curriculum.
- **Consistent calculation strategy**: we have a clear and consistent calculation strategy throughout the school. Children are hearing consistent language, seeing the same representations and models and using progressive methods that build from one year to the next. Children are not confronted with new pedagogy at every year or key stage transition. Age-appropriate vocabulary for each maths topic is displayed in classrooms and in pupil books.
- **Fluency, reasoning and problem solving:** our scheme develops all three key areas of the National Curriculum giving children the knowledge and skills they need to become confident mathematicians. In every maths lesson children will encounter:
  1) Daily fluency challenges to begin lessons
  2) Fluency tasks and consolidation
  3) Reasoning language and opportunities to problem solve
  4) Dedicated reasoning and problem-solving lessons
  5) Arithmetic tests to end the week (longer assessment style tests half termly)
- **Mastering key number skills:** Key skills are the heart of our curriculum and enable children to become successful in maths. They are the building blocks of maths without which children will be hindered from making further progress. Our Maths Clinic ensures that children do not miss any of these vital building blocks.
  "*Strategies for solving problem types are then best taught and learned once pupils can recall and deploy facts and methods with speed and accuracy"* (OFSTED research review, 2021).

Different types of Knowledge

Declarative: "I know that" number facts, concepts and formulae
Procedural: "I know how" methods and procedures
Conditional: "I know when" finding the relationship between information, strategies formed to problem solve.

Concrete – Pictorial – Abstract

In our curriculum, when introduced to a new concept, children have the opportunity to build confidence and competency by following a CPA approach. Concrete resources and maths working walls are available and readily used in each classroom.

Misconceptions and addressing areas requiring additional support

Teachers plan for common mistakes and misconceptions by visiting the “misconceptions” section of each Hamilton unit. This ensures that they are pre-informed with additional support that may be required. Maths Clinic is designed to address any misconceptions that arise in a small group or 1:1.

Vocabulary

Children are hearing consistent language that is built from one year to the next. We use “Stem Sentences” and begin each topic with vocabulary to support children’s mathematical language and to therefore develop their reasoning skills.

	Autumn term						Spring term						Summer term						
	Understanding number	**Shapes and patterns**	**How many?**	**Time**	**Number and sets**	**Measure**	**Understanding number**	**Position and time**	**Addition and subtraction**	**Comparison and measure**	**Shapes**	**Money and coins**	**Understanding numbr**	**Comparison and measure**	**Addition and Subtraction**	**Shapes and sorting**	**Counting**	**Time**	**Patterns**
EYFS	Counting and ordering	Explore symmetry and repat patterns. Exploring 2D shapes	Know one more or less up to 12	Introducing time, days, weeks	Recognising number bonds and creating number bonds	Compare lengths and measures directly.	Counting an estimating. Order and compare numbers	Where is it? Finding O’clock on analogue and digital	1 more or less Counting on to add Count back to subtract	Comparing and measuring weights	Explore and play with 3D shape	Coin recognition	Teen numbers and exploring 100	Measuring outside	Equivalence and bonds to 10	Sorting shapes into groups	1 more or less	Telling the tine to the o’clock and sequencing events.	Doubling and halving Half and quarters.
Curriculum links	Nursery rhymes	Body management in PE	Science: Space order of planets	Science: Space		Science: Space PSHE: heights		Chinese New Year			DT: 3D castles	History: Pirates				DT: houses and homes		PSHE: ages of people and the future	Art: Festivals
Year 1/2 A	**Place value**	**Addition and Subtraction (A)**	**Measures**	**Time**	**Fractions and multiplication**	**Addition and Subtraction (B)**	**Place value**	**Addition and Subtraction (A)**	**Money and Time**	**Measures and Data**	**Fractions**	**Shape**	**Place value and fractions**	**Addition and Subtraction**	**Multiplication and Division (A)**	**Position and time (A)**	**Subtracting using money**		

Objectives	Count and estimate Teens and place value in 2-digit numbers Numbers on a line. Compare /order. Count to 100.	Partition number and learn number bonds Add by counting on in 1s or 10s Counting back; understand + and –	Comparing and measuring lengths	Tell time to half and quarter hours Understand units of time	Understanding halves and quarters Doubling & halving; odd & even numbers Counting in steps of 5 and 10	Using different strategies for addition Coin recognition: find amounts & change	2-digit place value Numbers and quantities	Mental addition and subtraction Add and subtracting money	Add/sub pairs of 2-digit numbers Tell the time; units of time	Compare and measure weight Measure and represent capacity	Doubling and halving. Halving odd numbers Halves and quarters	2D shape 3D shape Symmetry	Finding numbers between on a number line. Finding inequalities Bar model fractions and missing numbers	Adding and subtracting 10s. Adding 2-digit numbers using partitioning. Counting up or back? Worded problems	Count in 2s, 5s, 10s. Division on beaded lines Groups of 2, 5, 10 Word problem	Directional instructions Mapping turns Half an hour later. Ordering time. Telling time (5-mon intervals)	Bridging 10 and counting up subtraction Finding totals Finding change
Reasoning	Spot mistakes in number sequences. What comes next?	Missing numbers Working backwards	Compare Convince me Application	Explain thinking What do you notice Working backwards	What do you notice? True or false? Spotting patterns	How do you know? Efficient methods using fact families	True or False What comes next?	What do you notice? Make an estimate	Possibilities	Application Investigate	What do you notice? Fact families	What's the same and different? Visualising	Convince me Finding the odd one out	Working backwards What else do you know? Worded problems	Making connection Convince me True or false? Using the inverse	Always, sometimes, never? Other possibilities	Worded problems Making an estimate
Curriculum links		PE: Attack and defend scoring	Science: plants			DT Constructing windmills		PE: hit, catch run keeping score	Geography: hot and cold locations	Science: plants DT cooking	DT: Mechanisms	Art: Printmaking		PE: Athletics heart rate and recoding times/scores		Geography: mapping and fieldwork	PSHE: economic wellbeing
Year 1/2 B	**Place value**	**Addition and Subtraction (C)**	**Measures**	**Time**	**Fractions and multiplication**	**Addition and Subtraction (B)**	**Place value**	**Addition and Subtraction (B)**	**Money and Time**	**Measures and Data**	**Fractions**	**Shape**	**Place value and addition**	**Addition and Subtraction**	**Multiplication and Division (B)**	**Shape time and data (B)**	**Subtracting using money**
Objectives	Count and estimate Teens and place value in 2-digit numbers Numbers on a line. Compare /order. Count to 100.	Reinforce and consolidate number bonds Use number facts to add and subtract Adding and subtracting tens and ones	Comparing and measuring lengths	Tell time to half and quarter hours Understand units of time	Understanding halves and quarters Doubling & halving; odd & even numbers Counting in steps of 5 and 10	Using different strategies for addition Coin recognition: find amounts & change	2-digit place value Numbers and quantities	Bridging and adding 2-digit numbers Finding differences. Subtract 2-digit numbers	Add/sub pairs of 2-digit numbers Tell the time; units of time	Compare and measure weight Measure and represent capacity	Doubling and halving. Halving odd numbers Halves and quarters	2D shape 3D shape Symmetry	Place Value in 2-digit numbers Add/sub 1-digit numbers using patterns Bonds to 10; complements to 10s numbers Adding three numbers	Adding and subtracting 10s. Adding 2-digit numbers using partitioning. Counting up or back? Worded problems	Doubling and halving. Worded problem. Division using beads. Money division	Exploring shape properties Telling the time - quarter and 5-mon intervals. Units of time; data handling	Bridging 10 and counting up subtraction Finding totals Finding change

Reasoning	Spot mistakes in number sequences. What comes next?	Missing numbers Working backwards	Compare Convince me Application	Explain thinking What do you notice Working backwards	What do you notice? True or false? Spotting patterns	How do you know? Efficient methods using fact families	True or False What comes next?	What do you notice? Make an estimate	Possibilities	Application Investigate	What do you notice? Fact families	What's the same and different? Visualising	Convince me Finding the odd one out	Working backwards What else do you know? Worded problems	Making connection Convince me True or false? Using the inverse	Always, sometimes, never? Other possibilities	Worded problems Making an estimate
Curriculum links		PE: Attack and defend scoring	DT: Cooking and nutrition	Geography: time zones Barrow and Nairobi	DT: Cooking and nutrition	DT: structures Baby Chair		PE: hit, catch run keeping score	Science: plants	DT: Mechanisms moving monster		Computing: scratch DT: structures Baby Chair		PE: Athletics heart rate and recoding times/scores	Science: everyday materials	Art: printmaking Geography: fieldwork skills Bowness	Geography: Bowness study DT: Textiles - selling their pouches
3/4 Year A	**Place Value**	**Addition & Subtraction (A)**	**Multiplication and Division (A)**	**Fractions**	**Shape**	**Place value and fractions**	**Addition & Subtraction (A)**	**Measures**	**Decimals and Money**	**Multiplication**	**Time**	**Number and Place Value**	**Addition & Subtraction (A)**	**Multiplication and Division (A)**	**Fractions**	**Measures and data**
Objectives	Numbers on a line; compare and order PV in 3-/4-digit nums; amounts of money +/- 1, 10, 100 and 1000, and multiples	Strategies for adding and subtracting Number bonds to 100 Subtract by counting up: frog	Rehearsing & understanding times tables Partitioning in multiplication and division	Doubling, halving and the concept of a half Conceptualising fractions Finding fractions of amounts	Symmetry and 2-D shapes Understanding 3-D shapes Co-ordinates in the first quadrant	Negative numbers Equivalent fractions; +/– fractions Find , , and of number Find 10ths and 5ths	Mental addition and subtraction 3-digit +/– 1-digit numbers	Length and data Weight and data	x and ÷ with money and 1-place decimals Decimals and money on a line	Times tables and factors Partitioning in multiplication	Telling the time Time and data	Using place value to add and subtract Ordering three-digit number Round 4-digit numbers to the nearest multiple of 10, 100. Roman numerals	Written algorithms Finding a difference – whole numbers	Times tables, factors and multiples Division with remainders	Matching fractions Find fractions of amounts Finding equivalent fractions Equivalent fractions and decimals	Area and Perimeter Time Line Graphs and Bar Charts
Reasoning	Spot the mistakes What comes next?	Efficient methods What else do you know? Fact families	Known facts How close can you get? Inverse relationships	What do you notice? Using known facts	Visualising Convince me	Continue the pattern Spot the mistake	Known facts Estimating answers Prove it	Investigating Position and symbols	Missing numbers Making links	Using known facts Prove it True or false?	Explain your thinking What do you notice? Spotting patterns	What comes next? Convince me	Missing symbols Make an estimate	Using known facts Make an estimate What do you know? How close can you get?	Spot the mistake What do you notice? What comes next?	True or false? Convince me Finding trends and patterns
Curriculum links	History: Stone Age and Iron age timelines	PE: Tag Rugby keeping score		DT: Mechanical systems	Art: Cave art Gymnastics: shape and symmetry		PE: Tennis keeping score	DT: structures Science: forces	DT: Cooking, eating seasonally	Geography: OS maps and scale	Geography: OS maps and scale	History: Ancient Egypt – timelines	PE: Netball keeping score			Science: Plants Geography: local area study

3/4 Year B	**Place Value**	**Addition & Subtraction (B)**	**Multiplication and Division (B)**	**Fractions**	**Shape**	**Place value and fractions**	**Addition & Subtraction (B)**	**Measures**	**Decimals and Money**	**Division & fractions**	**Time**	**Number and Place Value**	**Addition & Subtraction (B)**	**Multiplication and Division (B)**	**Decimals**	**Shape**
Objectives	Numbers on a line; compare and order PV in 3-/4-digit nums; amounts of money +/- 1, 10, 100 and 1000, and multiples	+/- near-/multiples of 10, 100, 1000 Partitioning and column addition Formal addition & subtraction algorithms	Dividing by 3, 4, 5 and 10: remainders Dividing using chunking on a number line. 2-digit division with remainders	Doubling, halving and the concept of a half Conceptualising fractions Finding fractions of amounts	Symmetry and 2-D shapes Understanding 3-D shapes Co-ordinates in the first quadrant	Negative numbers Equivalent fractions; +/– fractions Find , , and of number Find 10ths and 5ths	Column addition Frog and decomposition	Length and data Weight and data	x and ÷ with money and 1-place decimals Decimals and money on a line	Dividing with remainders Dividing by 2, 3, 4, 5, 8, and 10 Find unit & non-unit fractions of numbers	Telling the time Time and data	Using place value to add and subtract Ordering three-digit number Round 4-digit numbers to the nearest multiple of 10, 100. Roman numerals	Money: finding change and differences Written addition and subtraction	Partitioning to double, halve and multiply. Scaling problems and mental strategies	Decimals and Money Decimals and Measures 3	Exploring shape properties Co-ordinates and 3-D shapes
Reasoning	What comes next? What do you notice?	Missing numbers Known facts Make an estimate	How close can you get? Using the inverse Making links	What do you notice? Spot the mistake Top tips	What's the same and different? Convince me Explain how you know.	What comes next? Mistakes in sequences	Fact families True or false? Efficient methods	Testing and investigating Always, sometimes, never	Missing symbols Complete the pattern ordering	Making links top tips using known facts	Explain your thinking Working backwards What do you know?	Continue the pattern What do you notice? Possible answers. What comes next?	Worded problems True or false? Possible answers.	Prove it Use what you know Missing numbers Efficient methods	Ordering sequences Spotting patterns Working backwards	Visualising Convince me Always, sometimes, never
Curriculum links	History: Anglo Saxons and Scots timeline	PE: multi-sport and skills scoring			Art: Drawing perspectives	History: Anglo Saxons and Scots timeline	PE: Tennis scoring	DT: cooking and nutrition		PE: Dance	Geography: longitude and latitude	History: Romans timeline	PE: Netball and rounders scoring	Science: sound		Geography: Map work coordinates PE: Orienteering

Year 5/6 A	**Place value**	**Decimals**	**Addition and subtraction (A)**	**Multiplication and division (A)**	**Fractions**	**Shape**	**Place value**	**Calculation Strategies**	**Decimals and Fractions**	**Time, Data and measures**	**Multiplication and division**	**Algebra and ratio**	**Revision menus and Y5 recap**	**Revision menus and Y5 recap**	**Decimals Addition and Subtraction**	**Number properties and Multiplication**	**Division, Fractions and Percentages**	**Measures, Shape, Data**
Objectives	PV and +/- in 5-digit and 6-digit numbers Numbers on a line; round to powers of 10	PV in 2- and 3-place decimal numbers Count/add/subtract 0.1, 0.01, 0.001	Column addition with whole numbers 2. Column addition: decimals and money 3.	Properties of numbers including primes Written multiplication strategies Mental division	Order fractions of amounts Decimal/ fraction equivalents Add/ subtract fractions using	Quadrilaterals, other polygons and circles Find missing angles and draw 2-D shapes	Comparing and ordering large numbers Adding and subtracting 1, 10, 100, 1000, 10,000	Use of brackets in calc- Addition and subtraction	Frog for decimals Explore fractions decimals & percentages Multiply and divide fractions	Time and timetables. Line graphs and pie charts Units of measurement Area,	Multiples, factors and mental strategies Multiplication 4-Digit multiplication	Complete the sequences, function machine and missing numbers Finding ratio and proporti	Numbers and place value Addition and subtraction Decimals, multiplication	Fractions, ratio and percentage Charts, graphs and algebra Area, perimete	Exploring decimals Smashing subtraction Accomplished addition	Number properties Exploring multiplication	Calculating with fractions Mastering percentages	Line graphs Understanding angles

		Place value in decimals Rounding and adding decimals	Whole number column subtraction & frog	strategies	equivalence	Sort 3-D shapes; nets and 3-D shapes Coordinates: polygons & transformations	and 100,000 Rounding to the nearest 100 or 1000. Negative numbers			perimeter, scaled shapes Finding volumes	and division	on of recipes. Equivalate fractions and percentages	and division	r and angles				
Reasoning	Spot the mistakes What comes next? What do you notice?	Making links Using known facts True or false?	Continue the pattern Missing symbols Convince me	Making links Using known facts Use the inverse	Ordering and sequences Spot the mistake What comes next?	What's the same and different? Convince me Always, sometimes, never	Continue the pattern Explain how you know	Top tips Fact families What do you notice?	Efficient methods Working backwards What comes next?	Top tips Missing values Visualising	Use the inverse Convince me Making links	Making connections Spotting patterns Undoing and working backwards	Efficient methods What do you know? Top tips Do then explain Possible answers	Convince me Missing information Create a question	Efficient methods Using known facts Worded problem Unpicking problem Working backward	Making connections Spot the mistakes	Do, then explain Top tips Odd one out True or false?	Convince me Always sometimes never Create a question
Curriculum links	History: Monarchs timeline	DT: cooking and nutrition converting in decimals	PE: Basketball scoring	Geography: North America converting distances	DT: cooking and nutrition measures with fractions	Art: Cubism	History: battle of Britain timeline	Computing: mars rover coding		Computing: Big Data	Science: light and electricity converting measures	Art: printmaking (mixing ink)						Geography: orienteering Art: sculpture
Year 5/6 B	**Place value**	**Decimals**	**Addition and subtraction (B)**	**Multiplication and division (B)**	**Fractions**	**Shape**	**Place value**	**Calculation Strategies**	**Decimals and Fractions**	**Time, Data, measure**	**Multiplication and division**	**Algebra and ratio**	**Revision menus and Y5 recap**	**Revision menus and Y5 recap**	**Decimals Addition and Subtraction**	**Number properties and Multiplication**	**Division, Fractions and Percentages**	**Measures, Shape, Data**
Objectives	PV and +/- in 5-digit and 6-digit numbers Numbers on a line; round to powers of 10	PV in 2- and 3-place decimal numbers Count/add/subtract 0.1, 0.01, 0.001 Place value in decimals Rounding and	Money: counting up, change, differences Subtract nums with 1 or 2 decimal places Strategies for +/-; word	Mental mult/div; problem solving Written division strategies	Order fractions fractions of amounts Decimal/ fraction equivalents Add/ subtract fractions using equivalence	Quadrilaterals, other polygons and circles Find missing angles and draw 2-D shapes Sort 3-D shapes; nets and	Comparing and ordering large numbers Adding and subtracting 1, 10, 100, 1000, 10,000 and 100,000 Rounding to the	Use of brackets in calc- Addition and subtraction	Frog for decimals Explore fractions decimals & percentages Multiply and divide fractions	Time and timetables. Line graphs and pie charts Units of measurement Area, perimete	Multiples, factors and mental strategies Multiplication 4-Digit multiplication and division	Complete the sequences, function machine and missing numbers Finding ratio and proportion of recipes. Equivalate	Numbers and place value Addition and subtraction Decimals, multiplication and division	Fractions, ratio and percentage Charts, graphs and algebra Area, perimeter and angles	Exploring decimals Smashing subtraction Accomplished addition	Number properties Exploring multiplication	Calculating with fractions Mastering percentages	Line graphs Understanding angles

		adding decimals	problems			3-D shapes Coordinates: polygons & transformations	nearest 100 or 1000. Negative numbers			r, scaled shapes Finding volumes		fractions and percentages						
Reasoning	Spot the mistakes What comes next? What do you notice?	Making links Using known facts True or false?	Continue the pattern Missing symbols Convince me	Making links Using known facts Use the inverse	Ordering and sequences Spot the mistake What comes next?	What's the same and different? Convince me Always, sometimes, never	Continue the pattern Explain how you know	Top tips Fact families What do you notice?	Efficient methods Working backwards What comes next?	Top tips Missing values Visualising	Use the inverse Convince me Making links	Making connections Spotting patterns Undoing and working backwards	Efficient methods What do you know? Top tips Do then explain Possible answers	Convince me Missing information Create a question	Efficient methods Using known facts Worded problem Unpicking problem Working backward	Making connections Spot the mistakes	Do, then explain Top tips Odd one out True or false?	Convince me Always sometimes never Create a question
Curriculum links	Science: living things and their habitats timeline	Geography: temperatures and decimals for distance and height	PE: Scoring basketball	Geography: Biomes converting distances	DT: Electrical systems	Art: subtractive drawing	History: Mayans timeline	Science: calculating forces	Science: forces	Science: Earth and Space time zones Computing: Big Data 2	DT: Mechanical systems converting measures	Art: reduction printing					Science: properties of materials %	DT: bridges Geography: OS maps and fieldwork