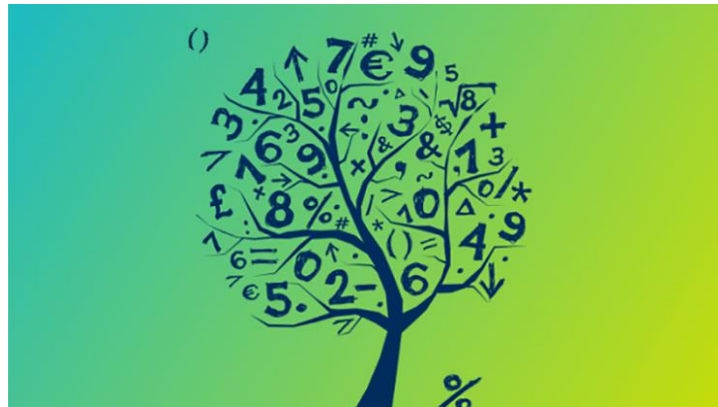




POLICY 2023-24

MATHS POLICY



To open up a world of opportunities, we work together to ensure everyone is safe, happy, learning and succeeding as valued and respectful individuals

* Nurture * Individual * Excellence * Love of Learning * Determination * Success

Intent

At Niels Junior, Infant and Nursery School, we have a mission to **open up a world of opportunity** for our children, and believe that maths plays a vital role in achieving our mission. **By working together** across our whole school family and the wider community, we aim to make our Maths curriculum enjoyable, engaging and meaningful so that children have a **successful**, positive experience of Maths and gain the powerful tools needed for their futures.

Through high-quality mastery teaching and use of resources, we ensure that everyone has the **right to learn and succeed** and develop pupils' **love of learning** Maths.

Throughout our whole school Maths curriculum, the aims, skills and knowledge of the National Curriculum are embedded, sequenced and underpinned by current research. In addition, we have carefully considered the context of our school, and have created a curriculum which is highly ambitious and precisely designed to meet and **nurture** the needs of all **individual** pupils, including those who have SEND and those who are disadvantaged.

National Curriculum

The national curriculum for mathematics intends to ensure that all pupils:

- * Become fluent in the fundamentals of mathematics, including through 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.
- * Reason mathematically by: following a line of enquiry; conjecturing relationships and generalisations; developing an argument, justification or proof using mathematical language.
- * Can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas.

White Rose Maths

The aims of the scheme "White Rose Maths" are clear and taken from the relevant National Curriculum. The programme has been validated and supported by robust research to support and challenge children on their maths learning journey. From Nursery to Year Six, the programme is meticulously planned to progress children to be able to be fluent in arithmetical, additive and multiplicative reasoning.

See appendices 1 – 4 for overview of units, progression of skills over years, calculation policies and language progression.

Implementation

Planning

At Niels, staff plan the teaching and learning of Maths using the WRM resources adapted to suit the context of individual classes and groups of children. Within the daily timetable, Maths is allocated 60 minutes at KS1 (45 minutes Maths lesson, 15 minutes of arithmetical proficiency, to include multiplicative reasoning) and 80 minutes at KS2 (60 minutes Maths lesson, 10 minutes arithmetical proficiency and 10 minutes multiplicative reasoning).

These are planned as follows:

Arithmetical Proficiency

KS1: Use of the Fluency Bee scheme from White Rose, (Appendix 5) which is a structured teaching programme designed to give children confidence with numbers through varied and frequent practice. Key representations are used throughout the programme to help children build visual images, and there's lots of emphasis on mathematical talk, games and a hands-on, practical approach.

KS2: Daily sessions on arithmetical fluency, spotting patterns and making connections through the use of manipulatives and fluency practice. We learn by moving from the concrete to the abstract using structured

apparatus such as Dienes and Cuisenaire rods, which we know can be helpful for learning about place value or number bonds. However, the meaning isn't in the manipulatives themselves - it has to be constructed by children over a period of time, through playing around with them and connecting them directly to mental and recorded calculation.

Multiplicative reasoning

Session expectations

We follow the suggested order of times tables progression, as laid out by the NCETM. (Appendix 6). We use manipulatives to show groups of and arrays, discussing appropriate vocabulary then make connections to equivalent facts, nearby facts and place value facts, completing derivation boards to illustrate this. (Appendix 7)

WRM lesson

The typical Maths lesson at Nields follows the same basic structure across the year groups:

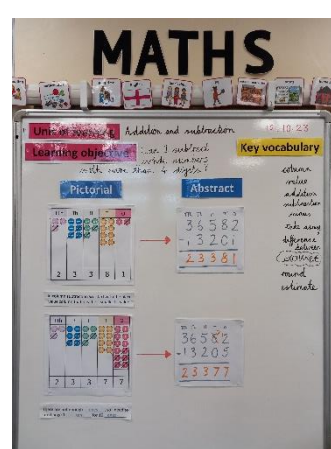
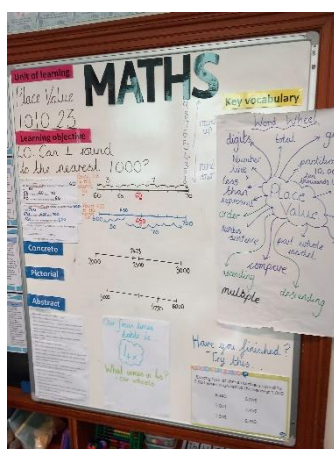
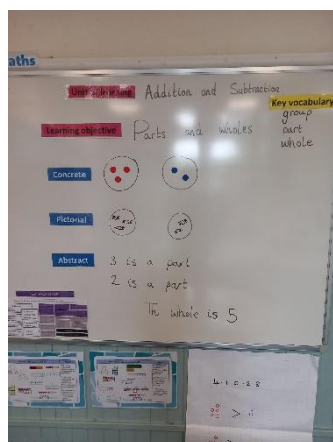
- Flashback 4
- Introduction to new 'small step' of learning
- Whole class teaching, using WR teaching slides as the basis, with children completing tasks on small whiteboards or in their exercise books
- Children completing independent fluency tasks linked to their learning, in WR Maths books.
- Further teaching using WR slides for those who are ready to move on to PS & R and further support for those who are not yet ready
- Challenge tasks, taken both from WR and from 'I See Maths' resources, which are to be found in the Maths folder on Staff Shared.

Learning Environments

At Nields, Maths learning environments are designed as working walls which promote our school values of **love of learning, determination** and **success**. They exemplify and reflect the current learning and provide children with clear opportunities to observe models and progress their own knowledge and skills in line with year group expectations.

Expectations for Maths working walls include:

- headings for the topic with LO/step
- key vocabulary and word wheels
- concrete, pictorial and abstract examples
- year group exemplifications for 4 operations.
- exemplification of number formation
- teacher models reflecting the current learning
- scaffolds and prompts to support current learning of skills and knowledge (word mats/ worksheets/ definitions/ examples/ non-examples)
- number lines which conserve number
- resources and manipulatives are readily available within the learning environment



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Teaching and Learning

Our teaching clearly reflects our mission of “**opening up a world of opportunity**” and connects with our vision of working together to achieve our values. Strategies are underpinned by current, robust research which meets the needs of pupils within the context of their class. For example, manipulatives and representations (such as number lines and graphs) are used to help pupils engage with mathematical ideas, examples and non-examples are routinely used, children are taught to use and compare different approaches and in Early Years children explore mathematics through different contexts, including storybooks, puzzles, songs, rhymes, puppet play and games.

Staff are ambitious for all pupils and differentiate approaches in order for everyone to have the opportunities to access the lesson content and for the outcome to be achieved by all.

Teaching is based on clear learning objectives which focus on the intended learning relevant to age-related expectations as well as key conceptual, transferable knowledge and skills, which build links with other areas of learning.

Teachers gradually release responsibility to learners through a process of modelling, shared learning and independent activities. This enables pupils to progress within a clear sequence building upon previous learning.

Within Maths, pupils are supported to have positive attitudes towards their learning, they are encouraged to be committed and stretch their talents.

Pupil Output

At Niels, anything which a child produces is expected to be to the best of their ability. Within Maths, we nurture expectations of individual excellence to ensure children are determined to be successful in what they produce: valuing, respecting and taking pride in theirs and others’ work.

Pupil output is also integral to both formative and summative assessment at Niels. Staff effectively use pupil output to assess an individual’s knowledge and understanding in accordance with year group expectations, and systematically plan next steps for feedback, scaffold or challenge where appropriate (see marking & feedback/forward expectations).

Our children have 2 books for Maths: a WRM workbook and an exercise book

Expectations for Maths output include:

*** Maths book:**

- pupils use pencil
- short date on the top left corner
- Heading of the unit title for beginning of the unit
- Ks1 write the step
- Ks2 write the Learning Objective
- Write one digit per square
- incorrect answers are written again at the side
- pupils use correct number formation
- pupils practice learning in maths book
- pupils complete flashback 4 in maths book: Y1-3 glue in the questions, Y4-6 only write answers in book where appropriate
- pupils complete reasoning and problem-solving activities in their book
- pupils self-mark in purple pen
- pupil corrections are made in purple pen

*** WRM workbook:**

- pupils use pencil
- short date on top of page
- pupils use correct number formation
- pupils complete fluency activities in WRM workbook and reasoning/problem solving where appropriate
- pupils self-mark in purple pen
- pupil corrections are made in purple pen

Marking and feedback/forward

Pupil output is also integral to both formative and summative assessment at Nields. Staff effectively use pupil output to assess an individual's knowledge and understanding in accordance with year group expectations, and systematically plan next steps for feedback, scaffold or challenge where appropriate.

The majority of marking within Maths is responsive and is carried out during the lesson; providing opportunities to inform and shape teaching and learning strategies in the moment. This ensures that teachers are able to formatively assess individuals' work and support or challenge where appropriate, and that all verbal feedback is focused precisely on the learning objective and success criteria, building determination to succeed in the lesson.

We believe that marking assures children that their work is valued and that we believe they can achieve excellence through expecting them to self-correct, revise and edit their work.

At Nields, we also mark work to feedforward and plan subsequent lessons. In this instance, no comments are expected to be recorded. Teachers will review the work and complete whole class feedback sheets which supports them to identify common misconceptions, errors, aspects of learning to focus on and where to challenge learning.

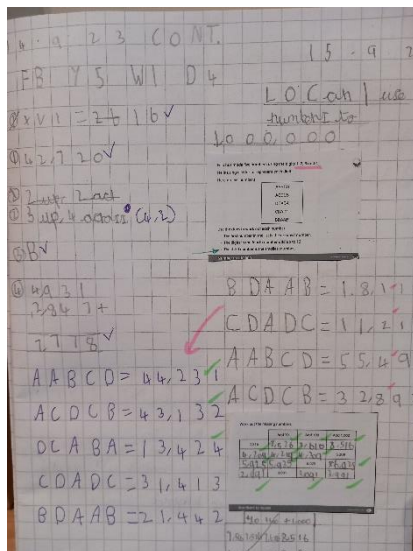
Following this, teachers will then plan subsequent learning activities, scaffolding and challenge. Self and peer marking are also encouraged across all lessons in order to promote our values of "nurture", "determination" and "excellence", while respecting others' hard work.

Across whole school, staff use green and pink highlighters to mark responsively. Comments made by staff within reading records are written in green pen and any revisions, editions, corrections or self/peer marking is completed in purple pen by pupils.

Expectations for Maths marking and feedback/forward include:

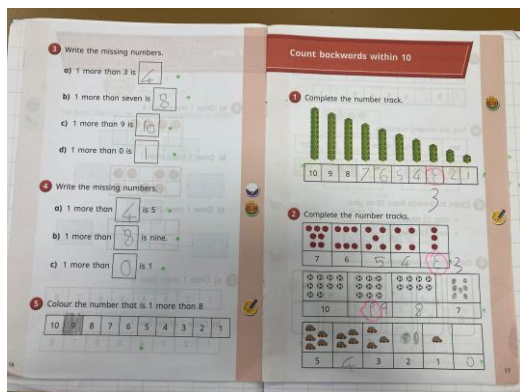
*** Maths book:**

- written feedback is not expected
- correct answers are dotted/ticked with green highlighter
- specific parts which are pertinent to correct answers are highlighted green where appropriate
- incorrect answers are dotted with pink highlighter
- specific parts which are pertinent to incorrect answers are highlighted pink where appropriate
- answers which are not incorrect but need more in the answer have three pink dots
- pupils self-mark, correct or revise in purple pen



*** WRM workbook:**

- written feedback is not expected
- correct answers are dotted/ticked with green highlighter
- specific parts which are pertinent to correct answers are highlighted green where appropriate
- incorrect answers are dotted with pink highlighter
- specific parts which are pertinent to incorrect answers are highlighted pink where appropriate
- answers which are not incorrect but need more in the answer have three pink dots
- pupils self-mark, correct and revise in purple pen



Assessment

Staff continually assess our pupils and record their progress in a variety of formative strategies. Information is gathered in various ways live in lessons through questioning, observing and live marking, which supports the adaptation of their teaching strategies.

All children are also summatively assessed each term using standardised tests relevant to the year group and time of year.

Question Level Analysis is then conducted on the standardised tests and gap analysis is conducted. This feeds into the next term's planning for whole class, groups of pupils or to target individuals.

Data is added to an online assessment tool which is used in discussions with the Maths lead and class teacher to analyse and discuss pupil attainment and progress. This data is used to set pupil targets and identify priorities for the teaching and the intervention of all children.

Review

This policy is shared with the link governor and is to be reviewed annually by the Maths subject leader and the headteacher.

Jeremy McKinna
Maths Leader

Jenni Wyrill
Headteacher

Neil Dooley
Link Governor

Appendices

Appendix 1 Overview of WRM Units

Reception

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Getting to know you		Match, sort and compare FREE TRIAL VIEW	Talk about measure and patterns VIEW	It's me 1, 2, 3 VIEW		Circles and triangles VIEW	1, 2, 3, 4, 5 VIEW		Shapes with 4 sides VIEW		
Spring term	Alive in 5 VIEW	Mass and capacity VIEW	Growing 6, 7, 8 VIEW	Length, height and time VIEW	Building 9 and 10 VIEW		Explore 3-D shapes VIEW					
Summer term	To 20 and beyond VIEW	How many now? VIEW	Manipulate, compose and decompose VIEW	Sharing and grouping VIEW	Visualise, build and map VIEW		Make connections VIEW	Consolidation				

Nields Maths Policy 2023-24

Year 1

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value (within 10) FREE TRIAL VIEW					Number Addition and subtraction (within 10) VIEW					Geometry Shapes VIEW	Consolidation
Spring term	Number Place value (within 20) VIEW	Number Addition and subtraction (within 20) VIEW			Number Place value (within 50) VIEW	Measurement Length and height VIEW	Measurement Mass and volume VIEW					
Summer term	Number Multiplication and division VIEW			Number Fractions VIEW	Geometry Position and direction VIEW	Number Place value (within 100) VIEW	Measurement Money VIEW	Measurement Time VIEW			Consolidation	

Year 2

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value FREE TRIAL VIEW				Number Addition and subtraction VIEW				Geometry Shape VIEW			
Spring term	Measurement Money VIEW	Number Multiplication and division VIEW				Measurement Length and height VIEW	Measurement Mass, capacity and temperature VIEW					
Summer term	Number Fractions VIEW				Measurement Time VIEW	Statistics VIEW		Geometry Position and direction VIEW		Consolidation		

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Nields Maths Policy 2023-24

Year 3

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value FREE TRIAL VIEW		Number Addition and subtraction VIEW				Number Multiplication and division A VIEW					
Spring term	Number Multiplication and division B VIEW		Measurement Length and perimeter VIEW		Number Fractions A VIEW		Measurement Mass and capacity VIEW					
Summer term	Number Fractions B VIEW	Measurement Money VIEW	Measurement Time VIEW		Geometry Shape VIEW		Statistics VIEW		Consolidation			

Year 4

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value FREE TRIAL VIEW		Number Addition and subtraction VIEW		Measurement Area VIEW	Number Multiplication and division A VIEW			Consolidation			
Spring term	Number Multiplication and division B VIEW		Measurement Length and perimeter VIEW	Number Fractions VIEW			Number Decimals A VIEW					
Summer term	Number Decimals B VIEW	Measurement Money VIEW	Measurement Time VIEW	Consolidation		Geometry Shape VIEW		Statistics VIEW	Geometry Position and direction VIEW			

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Nields Maths Policy 2023-24

Year 5

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number Place value FREE TRIAL VIEW		Number Addition and subtraction VIEW		Number Multiplication and division A VIEW			Number Fractions A VIEW				
Spring term	Number Multiplication and division B VIEW			Number Fractions B VIEW		Number Decimals and percentages VIEW			Measurement Perimeter and area VIEW		Statistics VIEW	
Summer term	Geometry Shape VIEW			Geometry Position and direction VIEW		Number Decimals VIEW			Number Negative numbers VIEW	Measurement Converting units VIEW		Measurement Volume VIEW

Year 6

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	
Autumn term	Number Place value FREE TRIAL VIEW		Number Addition, subtraction, multiplication and division VIEW				Number Fractions A VIEW		Number Fractions B VIEW		Measurement Converting units VIEW		
Spring term	Number Ratio VIEW		Number Algebra VIEW		Number Decimals VIEW		Number Fractions decimals and percentages VIEW		Measurement Area, perimeter and volume VIEW		Statistics VIEW		
Summer term	Geometry Shape VIEW			Geometry Position and direction VIEW	Themed projects, consolidation and problem solving VIEW								

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Appendix 2 Progression of skills through the years

This document is distributed at staff insets, with relevant parts highlighted and discussed:

New

Primary schemes of learning

National curriculum and 'Ready to progress' mapping
Updated for March 2023

#MathsEveryoneCan

White
Rose
Maths

Appendix 3 Calculation Policies

The calculation policies for Addition and Subtraction and for Multiplication and Division are easily found on the WR website and in the Maths folder on Staff Shared.

Year 1 - 6

Calculation Policy
Addition and Subtraction

#MathsEveryoneCan


White
Rose
Maths

Year 1 - 6

Calculation Policy

Multiplication and Division

#MathsEveryoneCan



Language Progression
Appendix 4a Language Progression
By year group

EYFS

New vocabulary



Number and Place Value	Addition and Subtraction	Multiplication and Division	Measure	Geometry (position and direction)	Geometry (Properties of shape)	Fractions	General/problem solving.
Number	Number line	Odd, even	Full, half, empty	Over, under, underneath, above, below, top, bottom, side	Sort	Whole	Listen, join in
One, two, three to twenty and beyond.	Add, more, plus, make, sum, total, altogether	Double, halve	Holds	On, in, outside, inside	Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square	Equal	Say, think, imagine, remember
None	Double	Share, share equally	Container	In front, behind	Shape	One half	Start from
Count on/up/to/from/down	Half, halve	Group in pairs	Weigh, weighs, balance	Front, back	Flat, curved, straight, round		Look at, point to
Before, after	Equals, is the same (including equals sign)	Divide	Heavy, heavier, heaviest, light, lighter, lightest	Before, after	Solid		Put
More, less, many, few, fewer, fewest, smaller, smallest	How many more to make...? How many more is... then...? How much more is...?		Scales	Beside, next to	Corner		What comes next?
Equal to, the same as			Time	Middle	Face, side		Find, use, make, build
Odd, even			Days of the week: Monday, Tuesday etc.	Up, down, forwards, backwards. Sideways	Make, build, draw		Tell me, describe, pick out, talk about, explain, show me
Digit	Subtract, take away, minus.		Seasons: Spring, Summer, Autumn, Winter	Close, far			Read, write
Numeral			Days, week, month, year, weekend	Through			Tick, draw a line, ring
Compare			Birthday, holiday	Towards, away from			Cost
Order			Morning, afternoon, evening, night	Side, roll, turn			Count, work out
Size			Bedtime,				Number line, number track, number square, number cards

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Year 1

New vocabulary

 <p>Number</p> <p>Zero, one, two, three to twenty, and beyond</p> <p>None</p> <p>Count (on/up/to/from/down)</p> <p>Before, after</p> <p>More, less, many, few, fewer, least, fewest, smallest, greater, lesser</p> <p>Equal to, the same as</p> <p>Odd, even</p>	<p>Pair</p> <p>Units, ones, tens</p> <p>Ten more/less</p> <p>Digit</p> <p>Numeral</p> <p>Figure(s)</p> <p>Compare</p> <p>(In) order/a different order</p> <p>Size</p> <p>Value</p> <p>Between, halfway between</p> <p>Above, below</p>	<p>+ -</p> <p>Number bonds, number line</p> <p>how much more is...?</p> <p>Add, more, plus, make, sum, total, altogether</p> <p>Subtract, take away, minus</p> <p>Double, near double</p> <p>How many fewer is...than...?, how much less is...?</p> <p>Half, halve</p> <p>Equals, is the same as (including equals sign)</p> <p>Difference between</p> <p>How many more to...</p>	<p>× ÷</p> <p>Odd, even</p> <p>Count in twos, threes, fives</p> <p>Count in tens (forwards/backwards from)</p> <p>How many times?</p> <p>Lots of, groups of</p> <p>Once, twice, three times, five times</p> <p>Multiple of, times, multiply, multiply by</p> <p>Repeated addition</p> <p>Array, row, column</p> <p>Double, halve</p> <p>Share, share equally</p> <p>Group in pairs, threes, etc.</p> <p>Equal groups of</p> <p>Divide, divided by, left, left over</p>	<p>Measure</p> <p>Full, half full, empty</p> <p>Holds</p> <p>Container</p> <p>Weight, weighs, balances</p> <p>Heavy, heavier, heaviest, light, lighter, lightest</p> <p>Scales</p> <p>Time</p> <p>Days of the week: Monday, Tuesday, etc.</p> <p>Seasons: spring, summer, autumn, winter</p> <p>Day, week, month, year, weekend</p> <p>Birthday, holiday</p> <p>Morning, afternoon, evening.</p> <p>Light, midnight</p> <p>Bedtime, bedtime, bedtime</p> <p>Today, yesterday, tomorrow</p> <p>Before, after</p> <p>Next, last</p> <p>How much, early, late</p> <p>Quick, quicker, quickest, quickly, fast, faster, fastest, slow, slower, slowest, slowly, more, more, more</p> <p>Takes longer, takes less time</p> <p>How, it took, half past</p> <p>Clock, watch, hands</p> <p>How long, light, how long will it be to...?, how long will it take to...?, how often?</p> <p>Always, never, often, sometimes, usually</p> <p>Once, twice</p> <p>First, second, third, etc.</p>	<p>Position</p> <p>Over, under, underneath, above, below, top, bottom, side</p> <p>Direction</p> <p>Journey</p> <p>Left, right, up, down, forwards, backwards, sideways</p> <p>on, in, outside, inside</p> <p>around, in front, behind</p> <p>Front, back</p> <p>Before, after</p> <p>Beside, next to, Opposite</p> <p>Apart</p> <p>Between, middle, edge, centre</p> <p>Corner</p> <p>Left, right, up, down, forwards, backwards, sideways</p> <p>Across</p> <p>Close, far, near</p> <p>Along, through</p> <p>To, from, towards, away from</p> <p>Movement</p> <p>Slide, roll, turn, whole turn, half turn</p> <p>Stretch, bend</p>
 <p>Group, sort</p> <p>Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square</p> <p>Shape</p> <p>Flat, curved, straight, round</p> <p>Hollow, solid</p> <p>Corner (point, pointed)</p> <p>Face, side, edge</p> <p>Make, build, draw</p>	<p>Direction</p> <p>Left, right, up, down, forwards, backwards, sideways</p> <p>Across</p> <p>Close, far, near</p> <p>Along, through</p> <p>To, from, towards, away from</p> <p>Movement</p> <p>Slide, roll, turn, whole turn, half turn</p> <p>Stretch, bend</p>	<p>Whole</p> <p>Equal parts, four equal parts</p> <p>One half, two halves</p> <p>A quarter, two quarters</p>			









Year 2

New vocabulary

 <p>Numbers to one hundred</p> <p>Hundreds</p> <p>Partition, recombine</p> <p>Hundred more/less</p>	<p>Time</p> <p>Quarter past/to</p> <p>m/km, g/kg, ml/l</p> <p>Temperature (degrees)</p>	<p>Rotation</p> <p>Clockwise, anticlockwise</p> <p>Straight line</p> <p>Ninety degree turn, right angle</p>	<p>Size</p> <p>Bigger, larger, smaller</p> <p>Symmetrical, line of symmetry</p> <p>Fold</p> <p>Match</p> <p>Mirror line, reflection</p> <p>Pattern, repeating pattern</p>	<p>Position</p> <p>Three quarters, one third, a third</p> <p>Equivalence, equivalent</p>
 <p>Count, tally, sort</p> <p>Vote</p> <p>Graph, block graph, pictogram, Represent</p> <p>Group, set, list, table</p> <p>Label, title</p> <p>Most popular, most common, least popular, least common</p>	<p>Problem Solving</p> <p>Predict</p> <p>Describe the pattern, describe the rule</p> <p>Find, find all, find different</p> <p>Investigate</p>			







Year 3

New vocabulary

 <p>Numbers to one thousand</p>	 <p>Column addition and subtraction</p>	 <p>Product Multiples of four, eight, fifty and one hundred Scale up</p>	 <p>Twelve-hour/twenty-four-hour clock Roman numerals I to XIII</p>	 <p>Greater/less than ninety degrees Orientation (same orientation, different orientation)</p>
 <p>Horizontal, vertical, perpendicular and parallel lines</p>	 <p>Numerator, denominator Unit fraction, non-unit fraction Compare and order Tenths _____</p>	 <p>Chart, bar chart, frequency table, Carroll diagram, Venn diagram Axis, axes Diagram</p>		






Year 4

New vocabulary

 <p>Tenths, hundredths Decimal (places) Round (to nearest) Thousand more/less than Negative integers Count through zero Roman numerals (I to C)</p>	 <p>Convert</p>	 <p>Multiplication facts (up to 12x12) Division facts Inverse Derive</p>	 <p>Coordinates Translation Quadrant x-axis, y-axis Perimeter and area</p>	 <p>Equivalent decimals and fractions</p>
 <p>Continuous data Line graph</p>				








Year 5

New vocabulary

 Powers of 10	 Factor pairs Composite numbers, prime number, prime factors, square number, cubed number Formal written method	 Volume Imperial units, metric units	 Reflex angle Dimensions	 Proper fractions, improper fractions, mixed numbers Percentage Half, quarter, fifth, two fifths, four fifths Ratio, proportion
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Year 6

New vocabulary

 Numbers to ten million	 Order of operations Common factors, common multiples	 Four quadrants (for coordinates)	 Vertically opposite (angles) Circumference, radius, diameter	 Degree of accuracy Simplify
 Linear number sequence Substitute Variables Symbol Known values	 Mean Pie chart Construct			


Appendix 4b
Language progression by strand

Early Years – New Vocabulary

Number and Place Value	Addition and Subtraction	Multiplication and Division	Measure	Geometry (position and direction)	Geometry (Properties of shape)	Fractions	General/problem solving.
Number	Number line	Odd, even	Full, half, empty	Over, under, underneath, above, below, top, bottom, side	Sort	Whole	Listen, join in
One, two, three to twenty and beyond.	Add, more, plus, make, sum, total, altogether	Double, halve	Holds	On, in, outside, inside	Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square	Equal	Say, think, imagine, remember
None	Double	Share, share equally	Container	In front, behind	Shape	One half	Start from
Count on/up/to/from/down	Half, halve	Group in pairs	Weigh, weighs, balance	Front, back	Flat, curved, straight, round		Look at, point to
Before, after	Equals, is the same (including equals sign)	Equal groups of	Heavy, heavier, heaviest, light, lighter, lightest	Before, after	Solid		Put
More, less, many, few, fewer, fewest, smaller, smallest	How many more to make...? How many more is... then...? How much more is...?	Divide	Scales	Beside, next to	Corner		What comes next?
Equal to, the same as			Time	Middle	Face, side		Find, use, make, build
Odd, even			Days of the week: Monday, Tuesday etc.	Up, down, forwards, backwards, Sideways	Make, build, draw		Tell me, describe, pick out, talk about, explain, show me
Digit	Subtract, take away, minus.		Seasons: Spring, Summer, Autumn, Winter	Close, far			Read, write
Numeral			Days, week, month, year, weekend	Through			Tick, draw a line, ring
Compare			Birthday, holiday	Towards, away from			Cost
Order			Morning, afternoon, evening, night	Side, roll, turn			Count, work out
Size			Bedtime,				Number line, number track, number square, number cards

Place Value – New Vocabulary

<u>Year 1</u>	<u>Year 2</u>
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<p>Number Zero, one, two, three to twenty, and beyond</p> <p>None</p> <p>Count (on/up/to/from/down)</p> <p>Before, after</p> <p>More, less, many, few, fewer, least, fewest, smallest, greater, lesser</p> <p>Equal to, the same as</p> <p>Odd, even</p>	<p>Pair</p> <p>Units, ones, tens</p> <p>Ten more/less</p> <p>Digit</p> <p>Numeral</p> <p>Figure(s)</p> <p>Compare</p> <p>(In) order/a different order</p> <p>Size</p> <p>Value</p> <p>Between, halfway between</p> <p>Above, below</p>
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Numbers to one hundred

Hundreds

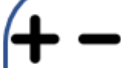
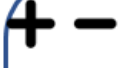
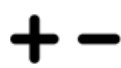
Partition, recombine

Hundred more/less





<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
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<p>Numbers to one thousand</p>	<p>Tenths, hundredths Decimal (places)</p> <p>Round (to nearest)</p> <p>Thousand more/less than</p> <p>Negative integers</p> <p>Count through zero</p> <p><u>Roman numerals (I to C)</u></p>	<p>Powers of 10</p>	<p>Numbers to ten million</p>
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Addition and Subtraction – New Vocabulary

Year 1	Year 2	Year 3
 <p>Number line</p> <p>Add, more, plus, make, sum, total, altogether</p> <p>Double</p> <p>Half, halve</p> <p>Equals, is the same (including equals sign)</p> <p>How many more to make...? How many more is... then...? How much more is...?</p> <p>Subtract, take away, minus.</p>	 <p>Number bonds, number line</p> <p>Add, more, plus, make, sum, total, altogether</p> <p>Inverse</p> <p>Double, near double</p> <p>Half, halve</p> <p>Equals, is the same as (including equals sign)</p> <p>Difference between</p> <p>How many more to</p> <p>how much more is..?</p> <p>Subtract, take away, minus</p> <p>How many fewer is...than..?, how much less is..?</p>	 <p>Column addition and subtraction</p>

Shape – New Vocabulary

Year 1	Year 2	Year 3	Year 4
 <p>Group, sort</p> <p>Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square</p> <p>Shape</p> <p>Flat, curved, straight, round</p> <p>Hollow, solid</p> <p>Corner (point, pointed)</p> <p>Face, side, edge</p> <p>Make, build, draw</p> <p>Direction</p> <p>Journey</p> <p>Left, right, up, down, forwards, backwards, sideways</p> <p>Across</p> <p>Close, far, near</p> <p>Along, through</p> <p>To, from, towards, away from</p> <p>Movement</p> <p>Slide, roll, turn, whole turn, half turn</p> <p>Stretch, bend</p>	 <p>Size</p> <p>Bigger, larger, smaller</p> <p>Symmetrical, line of symmetry</p> <p>Fold</p> <p>Match</p> <p>Mirror line, reflection</p> <p>Pattern, repeating pattern</p>	 <p>Horizontal, vertical, perpendicular and parallel lines</p>	 <p>Vertically opposite (angles)</p> <p>Circumference, radius, diameter</p>

Multiplication and Division – New Vocabulary



Year 1	Year 2
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<div style="text-align: center; font-size: 2em; margin-bottom: 10px;"> \times \div </div> <p>Odd, even</p> <p>Count in twos, threes, fives</p> <p>Count in tens (forwards from/backwards from)</p> <p>How many times?</p> <p>Lots of, groups of</p> <p>Once, twice, three times, five times</p> <p>Multiple of, times, multiply, multiply by</p> <p>Repeated addition</p> <p>Array, row, column</p> <p>Double, halve</p> <p>Share, share equally</p> <p>Group in pairs, threes, etc.</p> <p>Equal groups of</p> <p>Divide, divided by, left, left over</p>	<div style="text-align: center; font-size: 2em; margin-bottom: 10px;"> \times \div </div> <p>Product</p> <p>Multiples of four, eight, fifty and one hundred</p> <p>Scale up</p>
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Year 3	Year 4	Year 5
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<div style="display: flex; justify-content: space-between; align-items: center; margin-bottom: 10px;"> \times \div </div> <p>Multiplication facts (up to 12x12)</p> <p>Division facts</p> <p>Inverse</p> <p>Derive</p>	<div style="display: flex; justify-content: space-between; align-items: center; margin-bottom: 10px;"> \times \div </div> <p>Factor pairs</p> <p>Composite numbers, prime number, prime factors, square number, cubed number</p> <p>Formal written method</p>	<div style="display: flex; justify-content: space-between; align-items: center; margin-bottom: 10px;"> \times \div </div> <p>Order of operations</p> <p>Common factors, common multiples</p>
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Fractions – New Vocabulary

Year 1	Year 2
 <p><u>Whole</u></p> <p>Equal parts, four equal parts</p> <p>One half, two halves</p> <p>A quarter, two quarters</p>	 <p>Three quarters, one third, a third</p> <p>Equivalence, equivalent</p>

Year 3	Year 4	Year 5
 <p>Numerator, denominator</p> <p>Unit fraction, non-unit fraction</p> <p>Compare and order</p> <p><u>Tenths</u></p>	 <p>Equivalent decimals and fractions</p>	 <p>Degree of accuracy</p> <p>Simplify</p>

Position and Direction – New Vocabulary

Year 1	Year 2
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Position

Over, under, underneath, above, below, top, bottom, side

on, in, outside, inside

around, in front, behind

Front, back

Before, after

Beside, next to, Opposite

Apart

Between, middle, edge, centre

Corner

Direction

Journey

Left, right, up, down, forwards, backwards, sideways

Across

Close, far, near


Along, through

To, from, towards, away from

Movement

Slide, roll, turn, whole turn, half turn

Stretch, bend




Rotation

Clockwise, anticlockwise

Straight line

Ninety degree turn, right angle


Year 3	Year 4	Year 5	Year 6
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Greater/less than ninety degrees

Obtuse/acute angles

Orientation (same orientation, different orientation)




Coordinates

Translation

Quadrant


x-axis, y-axis

Perimeter and area



Reflex angle





Dimensions



Four quadrants (for coordinates)

Statistics – New Vocabulary

<u>Year 2</u>	<u>Years 3 & 4</u>	<u>Year 5</u>	<u>Year 6</u>

 <p>Count, tally, sort Vote Graph, block graph, pictogram, Represent Group, set, list, table Label, title Most popular, most common, least popular, least common</p>	 <p>Chart, bar chart, frequency table, Carroll diagram, Venn diagram Axis, axes Diagram</p>	 <p>Continuous data Line graph</p>	 <p>Mean Pie chart Construct</p>
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Appendix 5 Fluency Bee Scheme of Learning

Year 1

<p>Stage 1</p> <p>Perceptual subitising FREE TRIAL</p> <p>VIEW</p>	<p>Stage 1</p> <p>Conceptual subitising</p> <p>VIEW</p>	<p>Stage 1</p> <p>Composition to 5</p> <p>VIEW</p>	<p>Stage 1</p> <p>Comparison to 5</p> <p>VIEW</p>	<p>Stage 1</p> <p>1 more (within 5)</p> <p>VIEW</p>	<p>Stage 1</p> <p>1 less (within 5)</p> <p>VIEW</p>
<p>Stage 2</p> <p>Composition of 6 and 7</p> <p>VIEW</p>	<p>Stage 2</p> <p>Composition of 8 and 9</p> <p>VIEW</p>	<p>Stage 2</p> <p>Composition of 10</p> <p>VIEW</p>	<p>Stage 2</p> <p>Comparison to 10</p> <p>VIEW</p>	<p>Stage 3</p> <p>Introduction to addition and subtraction</p> <p>VIEW</p>	
<p>Stage 3</p> <p>1 more (within 10)</p> <p>VIEW</p>	<p>Stage 3</p> <p>1 less (within 10)</p> <p>VIEW</p>	<p>Stage 3</p> <p>Add and subtract with 0</p> <p>VIEW</p>	<p>Stage 3</p> <p>Odd and even numbers</p> <p>VIEW</p>		
<p>Stage 3</p> <p>Doubles to 10</p> <p>VIEW</p>	<p>Stage 3</p> <p>Add 2</p> <p>VIEW</p>	<p>Stage 3</p> <p>Subtract 2</p> <p>VIEW</p>	<p>Stage 3</p> <p>Final facts</p> <p>VIEW</p>		
<p>Stage 4</p> <p>Ten and a bit 11-15</p> <p>VIEW</p>	<p>Stage 4</p> <p>Ten and a bit 16-20</p> <p>VIEW</p>	<p>Stage 4</p> <p>Comparison to 20</p> <p>VIEW</p>	<p>Stage 5</p> <p>Count in 10s</p> <p>VIEW</p>	<p>Stage 5</p> <p>Count in 5s</p> <p>VIEW</p>	<p>Stage 5</p> <p>Count in 2s</p> <p>VIEW</p>

Year 2

<p>Stage 1</p> <p>6 and 7 FREE TRIAL</p> <p>VIEW</p>	<p>Stage 1</p> <p>8 and 9</p> <p>VIEW</p>	<p>Stage 1</p> <p>10</p> <p>VIEW</p>	<p>Stage 1</p> <p>Comparison to 10</p> <p>VIEW</p>	<p>Stage 1</p> <p>Addition and subtraction</p> <p>VIEW</p>	<p>Stage 1</p> <p>Ten and a bit</p> <p>VIEW</p>	<p>Stage 1</p> <p>Comparison to 20</p> <p>VIEW</p>
<p>Stage 2</p> <p>1 more (within 20)</p> <p>VIEW</p>	<p>Stage 2</p> <p>1 less (within 20)</p> <p>VIEW</p>	<p>Stage 2</p> <p>Make connections</p> <p>VIEW</p>	<p>Stage 2</p> <p>Odd and even</p> <p>VIEW</p>	<p>Stage 2</p> <p>Doubles to 20</p> <p>VIEW</p>	<p>Stage 2</p> <p>Near doubles</p> <p>VIEW</p>	
<p>Stage 2</p> <p>Add 2</p> <p>VIEW</p>	<p>Stage 2</p> <p>Subtract 2</p> <p>VIEW</p>	<p>Stage 3</p> <p>Add through 10</p> <p>VIEW</p>	<p>Stage 3</p> <p>Subtract through 10</p> <p>VIEW</p>	<p>Stage 3</p> <p>Bonds to 20</p> <p>VIEW</p>	<p>Stage 4</p> <p>How many?</p> <p>VIEW</p>	<p>Stage 4</p> <p>Comparison to 100</p> <p>VIEW</p>
<p>Stage 5</p> <p>Introduction to multiplication and division</p> <p>VIEW</p>	<p>Stage 5</p> <p>The 2 times-table</p> <p>VIEW</p>	<p>Stage 5</p> <p>The 10 times-table</p> <p>VIEW</p>	<p>Stage 5</p> <p>The 5 times-table</p> <p>VIEW</p>			

NCETM suggested order for learning times tables

Whole school planning

Focus on **ONE times table each half term** – with opportunities built in to also practise those learnt previously

YEAR	First half term	Second half term	Third half term	Fourth half term	Fifth half term	Sixth half term
Year 1	Experience of counting in 1s, 2s, 5, 10s					
Year 2	1x	(1x) 2x	5x	(5x)10x	0x and revision	revision
Year 3	(2x) 4 x	(4x) 8 x	3x	(3x) 6x	(6x) 12x	revision
Year 4	9x	7x	11x	Squares	revision	Test: June

NCETM suggested order for learning times tables

Year 5 revision

Year 5	1x, 2x, 5x, 10x	2x, 4x, 8x	3x, 6x, 12x	9x, 7x, 11x	Squares 10x, 100x (ie 10 x 345) (ie 100 x 546)	10x, 100x, 1000x Revision
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Appendix 7 Derivation Board

