Maths Curriculum

Numeracy and mathematics

1.1 Teachers should use every relevant subject to develop pupils' mathematical fluency. Confidence in numeracy and other mathematical skills is a precondition of success across the national curriculum.

1.2 Teachers should develop pupils' numeracy and mathematical reasoning in all subjects so that they understand and appreciate the importance of mathematics. Pupils should be taught to apply arithmetic fluently to problems, understand and use measures, make estimates and sense check their work. Pupils should apply their geometric and algebraic understanding, and relate their understanding of probability to the notions of risk and uncertainty. They should also understand the cycle of collecting, presenting and analysing data. They should be taught to apply their mathematics to both routine and non-routine problems, including breaking down more complex problems into a series of simpler steps.

National Curriculum: Mathematics

Purpose of study

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

The national curriculum for mathematics aims 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, and 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. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.
The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Information and communication technology (ICT)

Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of key stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. In both primary and secondary schools, teachers should use their judgement about when ICT tools should be used.

Spoken language

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

School curriculum

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate. All schools are also required to set out their school curriculum for mathematics on a year-by-year basis and make this information available online.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Schools are not required by law to teach the example content in [square brackets] or the content indicated as being 'non-statutory'.

Key notes for Teachers

Using this document

This document mirrors and links to the NCETM Mastery materials and spines, the DFE Ready to Progress Criteria and Oak Academy for our planning, teaching and assessment cycles.
Please refer to the ***National curriculum***, ***Fact Fluency Progression***, ***CPA (Concrete***, ***Pictorial***, ***Abstract) Progression*** and ***St Joseph's Calculation document*** for examples and calculation exemplars.
Teachers should ensure that lessons are structured with opportunities for fluency and varied fluency, a range of problem solving alongside consistent reasoning and talk woven through.

Fact Fluency progression is written in blue. This is using 'Number Sense' to build firm foundations for mental arithmetic and calculation.

Other mental Maths should still take place to develop fluency and address any gaps or misconceptions dependent on the needs of your class – to support this please refer to our Fact Fluency Progression document, Numbersense resources and Hands on Maths for interventions.

(Electronic versions are available in the Maths folder on staff share)

Yellow highlighted sections indicate the progression throughout the year to ensure that end of year expectations are worked towards. These can also be used to inform your differentiation.

This is a ***working document*** and any changes should be added and fed back to the Maths subject leader.

Working Walls

A good Working Wall should have:

- Skill list- what do we need to learn? (Tick these off as you do them)
- Key number skills always displayed (eg. 'teen' numbers)
- Resources for number- number line and 100 square
- Modelling that is clear and easy to read (adult and child)
- Differentiated modelling of methods/representations taught- children can then see their next steps (as per the progression outlines)
- Examples of Concrete, Pictorial and Abstract methods being taught
- Practical resources that can be used by the children (accessible)
- Key vocabulary, in context where possible, eg: $\frac{\text{Numerator}}{\text{denominator}}$
- Interactive activities
- Photos of children learning where appropriate
- Facts relevant to the year group, eg: Maths symbols, conversions

Unit/Lesson Map:

ASSESS	PLAN	TEACH	MASTERY APPROACH	REFLECT/ ASSESS
Cold Assessment Task for the unit. (Quizes as pre assessment documents or oracy games/activities) – See Oak Academy for these. *Observe and mark work to gain opportunities for Gap analysis to inform your planning.* Use as evidence and think about next steps for the groups.	Use your Gap analysis and small step progression to support planning. Use Mastery materials and RTP criteria to 'S' plan and map out the progression of small steps. Use gap trends to pitch/set targets and subsequent learning for your unit of work.	Manipulatives and appropriate/progressive representations should be used consistently. Teach your lessons with reference to the working wall - add modelling, show progression of representations (as applicable), resources and children's work. Ensure VF is signposted to show how you are moving learning on. Look out for assessment opportunities (eg in a mental starter/answers during reasoning) to build a picture of progress/next steps. Use 'workshops' to re-group and support/extend children based on gaps/misconceptions.	Lesson Structure: 1) Fluency 2) Varied fluency 3) Reasoning / Problem solving opportunities. * During stages 1) and 2) C-P-A differentiation should be applied and opportunities for reasoning should be woven throughout. SEE CALCUALTION DOCUMENT FOR GUIDENCE *(Concrete – Pictorial – Abstract)*	Children should be given time to reflect on the targets from the beginning of the unit of work and think about their next steps. Add in opportunities for peer and self-assessment at this stage. Re-assess to measure progress – TRY SAME TASK AGAIN.

Key stage 1 – years 1 and 2

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].



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

A suggested progression for teaching addition facts

Group A: Year 1 (Within 10)

1. Adding 1 (e.g. 7 + 1 *and* 1 + 7)
2. Doubles of numbers to 5 (e.g. 4 + 4)
3. Adding 2 (e.g. 4 + 2 *and* 2 + 4)
4. Number bonds to 10 (e.g. 8 + 2 *and* 2 + 8)
5. Adding 10 to a number (e.g. 5 + 10 *and* 10 + 5)
6. Adding 0 to a number (e.g. 3 + 0 *and* 0 + 3)
7. Near doubles (e.g. 3 + 4 *and* 4 + 3)
8. The ones without a family! 5 + 3, 3 + 5, 6 + 3, 3 + 6

Group B: Year 2 (Bridging 10)

9. Doubles of numbers to 10 (e.g. 7 + 7)
10. Near doubles (e.g. 5 + 6 *and* 6 +5)
11. Bridging (e.g. 8 + 4 *and* 4 + 8)
12. Compensating

Alongside

Partitioning 2, 3, 4, 5, 6 and 10

Partitioning 7, 8 and 9

Partitioning 11 – 20 into single digit addends

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

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

Year 1 and 2 subtraction root facts.

13 = 8 + ___	13 = 4 + ___	13 = ___ + 7	13 = 5 + ___
13 = ___ + 7	13 = 9 + ___	13 = 6 + ___	13 = 8 + ___
13 = 9 + ___	13 = ___ + 5	13 = ___ + 7	13 = 9 + ___
13 = 5 + ___	13 = ___ + 6	13 = 8 + ___	13 = ___ + 4

13 – 8 =	13 – 9 =	13 – 5 =	13 – 7 =
13 – 4 =	13 – 5 =	13 – 6 =	13 – 8 =
13 – 7 =	13 – 4 =	13 – 8 =	13 – 6 =
13 – 9 =	13 – 7 =	13 – 5 =	13 – 4 =
13 – 8 =	13 – 6 =	13 – 7 =	13 – 9 =

Year 1 Maths Overview: Exemplification of ready-to-progress criteria | NCETM

Term/Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn 1	Measurement/ Number, Addition and Subtraction 1.1 Comparison of quantities and measures.			Number, Addition and Subtraction 1.2 Introducing 'whole' and 'parts'				
Autumn 2	Number, Addition and Subtraction 1.3 Composition of numbers: 0-5 (cont.)			Number, Addition and Subtraction 1.3 Composition of numbers: 0-5			Assessment Geometry: Recognise, Compose, Decompose and manipulate 2D/3D shapes.	
Spring 1	Number, Addition and Subtraction 1.4 Composition of numbers: 6-10		Number, Addition and Subtraction 1.5 Additive structures: introduction to aggregation and partitioning.		Number, Addition and Subtraction 1.6 Additive structures: introduction to augmentation and reduction.			
Spring 2	Number, Addition and Subtraction 1.7 Addition and subtraction: strategies within 10. up to 100.			Number, Addition and Subtraction 1.8 Composition of numbers: multiples of 10		Assessment Geometry: Recognise, Compose, Decompose and manipulate 2D/3D shapes.		
Summer 1	Number, Addition and Subtraction 1.8 Composition of numbers: multiples of 10 (cont.)		Number, Addition and Subtraction 1.9 Composition of numbers: 20-100	Number, Addition and Subtraction 1.10 Composition of numbers: 11-19		Number: Multiplication and division. 2.1 Counting, Unitising and Coins.		
Summer 2	Number: Multiplication and division. 2.1 Counting, Unitising and Coins. (cont.)	Measurement Time – sequencing events and telling the time to the hour and half an hour.	EOY assessment Geometry: Position and Direction including fractions of turns.	Over learning based on gaps: Ready to Progress criteria. Measurement: Length and Height		Over learning based on gaps: Ready to Progress criteria. Measurement: Mass and Capacity.		

Year 1

1 — Previous Reception experiences and counting within 100
- 1NPV–1 Count within 100, forwards and backwards, starting with any number.
- 1.9 Composition of numbers: 20–100

2 — Comparison of quantities and part–whole relationships
- 1NPV–1 Count within 100, forwards and backwards, starting with any number.
- 1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- 1.1 Comparison of quantities and measures
- 1.2 Introducing 'whole' and 'parts': part–part–whole

3 — Numbers 0 to 5
- 1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- 1AS–1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.
- 1.3 Composition of numbers: 0–5

4 — Recognise, compose, decompose and manipulate 2D and 3D shapes
- 1G–1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.
- 1G–2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.

5 — Numbers 0 to 10
- 1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- 1AS–1 Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.
- 1.4 Composition of numbers: 6–10

6 — Additive structures
- 1AS–2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.
- 1.5 Additive structures: introduction to aggregation and partitioning
- 1.6 Additive structures: introduction to augmentation and reduction

7 — Addition and subtraction facts within 10
- 1NF–1 Develop fluency in addition and subtraction facts within 10.
- 1.7 Addition and subtraction: strategies within 10

8 — Numbers 0 to 20
- 1NPV–2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.
- 1.10 Composition of numbers: 11–19

9 — Unitising and coin recognition
- 1NF–2 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.
- 2.1 Counting, unitising and coins

10 — Position and direction
- This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.

11 — Time
- This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.

Number and place value
Number facts
Addition and subtraction
Multiplication and division
Fractions
Geometry
Other

Dark grey references are ready-to-progress criteria from the DfE Guidance 2020

Light grey references are from the NCETM Primary Mastery Professional Development materials

Both are available online

Year 2 Maths Overview: Exemplification of ready-to-progress criteria | NCETM

Term/Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn 1	Number, Addition and Subtraction 1.11 Addition and Subtraction bridging 10.		Number, Addition and Subtraction 1.12 Subtraction as difference.	Number, Addition and Subtraction 1.13 2-digit and 1-digit numbers.		Number, Addition and Subtraction 1.14 2-digit numbers and multiples of 10.		
Autumn 2	Measurement: Sense of measure: capacity, volume and mass.		Multiplication and Division 2.2 Structures: multiplication representing equal groups.			Assessment Geometry Discuss and compare 2D shapes.	Geometry Discuss and compare 3D shapes.	
Spring 1	Multiplication and Division 2.3 Timetables: Groups of 2 and commutativity (part 1)		Multiplication and Division 2.4 Timetables: Groups of 10, 5 and factors of 0, 1.		Measurement: Money: recognise coins and use £ and p symbols.			
Spring 2	Multiplication and Division 2.5 Commutativity: doubles and halves. (part 2)				Assessment Multiplication and Division 2.6: Structures: Quotative and Partitive division.	Number, Addition and Subtraction 1.15-addition of 2 digit and 2digit numbers.		
Summer 1	Number, Addition and Subtraction 1.15-addition of 2 digit and 2digit numbers. (cont)	Number, Addition and Subtraction 1.16 subtraction of 2 digit and 2 digit numbers.		Fractions Identify equal parts and be familiar with halves, quarters and thirds.		Geometry Position and Direction.		
Summer 2	Measurement: Y1: Time – sequencing events and telling the time to the hour and half an hour. Y2: Write and tell the time to 5 mins.		EOY Assessment	Statistics Interpret (ask/answer questions) and construct simple pictograms, tally charts, block diagrams and simple tables.		Over learning based on gaps: Ready to Progress criteria. Problem solving and efficient methods. Real life problems and investigations.		

Year 2

1 Numbers 10 to 100
- 2NPV–1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning.
- 2NPV–2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10.
- 1.8 Composition of numbers: multiples of 10 up to 100
- 1.9 Composition of numbers: 20–100

2 Calculations within 20
- 2AS–1 Add and subtract across 10.
- 2AS–2 Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?".
- 1.11 Addition and subtraction: bridging 10
- 1.12 Subtraction as difference

3 Fluently add and subtract within 10
- 2NF–1 Secure fluency in addition and subtraction facts within 10, through continued practice.
- 1.7 Addition and subtraction: strategies within 10

4 Addition and subtraction of two-digit numbers (1)
- 2AS–3 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number.
- 1.13 Addition and subtraction: two-digit and single-digit numbers
- 1.14 Addition and subtraction: two-digit numbers and multiples of ten

5 Introduction to multiplication
- 2MD–1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.
- 2.2 Structures: multiplication representing equal groups
- 2.3 Times tables: groups of 2 and commutativity (part 1)
- 2.4 Times tables: groups of 10 and of 5, and factors of 0 and 1
- 2.5 Commutativity (part 2), doubling and halving

6 Introduction to division structures
- 2MD–2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).
- 2.6 Structures: quotitive and partitive division

7 Shape
- 2G–1 Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.

8 Addition and subtraction of two-digit numbers (2)
- 2AS–4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.
- 1.15 Addition: two-digit and two-digit numbers
- 1.16 Subtraction: two-digit and two-digit numbers

9 Money
- This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.

10 Fractions
- 3.0 Guidance on the teaching of fractions in Key Stage 1

11 Time
- This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.

12 Position and direction
- This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.

13 Multiplication and division – doubling, halving, quotitive and partitive division
- 2.5 Commutativity (part 2), doubling and halving
- 2.6 Structures: quotitive and partitive division

14 Sense of measure – capacity, volume, mass
- This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery Professional Development Materials.

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Addition and subtraction
Multiplication and division
Fractions
Geometry
Other

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Lower key stage 2 – years 3 and 4

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.
Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Year 3 Maths Overview: Exemplification of ready-to-progress criteria | NCETM

Term/Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn 1	Number, Addition and Subtraction 1.17 Composition and calculation: 100 and bridging 100.		Number, Addition and Subtraction 1.18 Composition and calculation: 3 digit numbers.		Number, Addition and Subtraction 1.19 Securing mental strategies: Calculation up to 999.		Geometry Parallel and perpendicular sides of polygons.	
Autumn 2	Number, Addition and Subtraction 1.20 Algorithms: Column addition.		Number, Addition and Subtraction 1.20 Algorithms: Column subtraction.			Assessment		
					Multiplication and Division 2.7 Times tables: 2, 4 and 8 times table and the relationship between them.			
Spring 1	Geometry Parallel and perpendicular sides of polygons.	Multiplication and Division 2.8 Times tables: 3, 6 and 9 times table and the relationship between them.		Multiplication and Division 2.8 Times tables: 7 and the relationships within/across times tables.		Measurement Tell the time to the nearest minute.		
Spring 2	Measurement: Compare units of time.	Fractions 3.1 Preparing for fractions: part whole relationship.	Fractions 3.2 Unit fractions: identifying, representing and comparing.			Assessment		
					Fractions 3.3 Non-Unit fractions: identifying, representing and comparing.			
Summer 1	Fractions 3.3 Adding and subtracting within one whole.		Measurement Measuring length and recording in tables.		Statistics Interpret and present data using bar charts, pictograms and tables.			
Summer 2	Measurement: Mass and Capacity		EOY Assessment	Measure/Number, Addition and Subtraction Add and subtract amounts of money to give change using both £ and P in practical contexts.	Over learning based on gaps: Ready to Progress criteria. Problem solving and efficient methods. Real life problems and investigations.			

Year 3

1 — Adding and subtracting across 10
- 2AS–1 Add and subtract across 10.
- 3NF–1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice.
- 1.11 Addition and subtraction: bridging 10

2 — Numbers to 1,000
- 3NPV–1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10.
- 3NPV–2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.
- 3NPV–3 Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.
- 3NPV–4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.
- 3AS–1 Calculate complements to 100.
- 3NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).
- 1.17 Composition and calculation: 100 and bridging 100
- 1.18 Composition and calculation: three-digit numbers

3 — Right angles
- 3G–1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations.

4 — Manipulating the additive relationship and securing mental calculation
- 3AS–3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.
- 1.19 Securing mental strategies: calculation up to 999

5 — Column addition
- 3AS–2 Add and subtract up to three-digit numbers using columnar methods.
- 1.20 Algorithms: column addition

6 — 2, 4, 8 times tables
- 3MD–1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.
- 3NF–2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.
- 3NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).
- 2.7 Times tables: 2, 4 and 8, and the relationship between them

7 — Column subtraction
- 3AS–2 Add and subtract up to three-digit numbers using columnar methods.
- 1.21 Algorithms: column subtraction

8 — Unit fractions
- 3F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.
- 3F–2 Find unit fractions of quantities using known division facts (multiplication tables fluency).
- 3.1 Preparing for fractions: the part–whole relationship
- 3.2 Unit fractions: identifying, representing and comparing

9 — Non-unit fractions
- 3F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.
- 3F–3 Reason about the location of any fraction within 1 in the linear number system.
- 3F–4 Add and subtract fractions with the same denominator, within 1.
- 3.3 Non-unit fractions: identifying, representing and comparing
- 3.4 Adding and subtracting within one whole

10 — Parallel and perpendicular sides in polygons
- 3G–2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.

11 — Time
- This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.

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Fractions
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Other

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Year 4 Maths Overview

Term/Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn 1	Number, Addition and Subtraction 1.22 Composition and Calculation: 1000- and four-digit numbers.		Number, Addition and Subtraction 1.23 Composition and Calculation: tenths.		1.24 Composition and Calculation: hundredths and thousandths.			
Autumn 2	Measurement/ Number, Addition and Subtraction 1.25 Addition and subtraction: Money.		Multiplication and Division 2.10: Connecting multiplication, division and the distributive law.	Multiplication and Division 2.11 Times tables: 11 and 12.		Assessment Multiplication and Division 2.12 Division with remainders.	Measurement: Time: conversion between 12 and 24 hour clock: Analogue and digital.	
Spring 1	Multiplication and Division 2.13 Multiplying and dividing by 10 and 100.		Multiplication and Division 2.14 Multiplication: Partitioning leading to short multiplication.		Multiplication and Division 2.15 Division: Partitioning leading to short division.			
Spring 2	Multiplication and Division 2.16 Multiplicative contexts: Area and Perimeter 1.		Multiplication and Division 2.17 Structures: Using measures and comparison to understand scaling.		Assessment Measurement: Coordinates.			
Summer 1	Fractions: 3.5 Working across one whole: improper fractions and mixed numbers.			Fractions: 3.6 Multiplying whole numbers and fractions.			Statistics: Interpret and present data using bar charts, pictograms and tables.	
Summer 2	Measurement: Properties of 2D and 3D shapes and symmetry.		EOY Assessment	Measurement: Money: apply efficient strategies when calculating with money.		Over learning based on gaps: Ready to Progress criteria. Problem solving and efficient methods. Real life problems and investigations.		

Year 4

1 Review of column addition and subtraction

- 3AS–2 Add and subtract up to three-digit numbers using columnar methods.
- 1.20 Algorithms: column addition
- 1.21 Algorithms: column subtraction

2 Numbers to 10,000

- 4NPV–1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.
- 4NPV–2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning.
- 4NPV–3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each.
- 4NPV–4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.
- 4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100).
- 1.22 Composition and calculation: 1,000 and four-digit numbers

3 Perimeter

- 4G–2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons.
- 2.16 Multiplicative contexts: area and perimeter 1

4 3, 6, 9 times tables

- 4NF–1 Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number.
- 2.8 Times tables: 3, 6 and 9, and the relationship between them

5 7 times table and patterns

- 4NF–1 Recall multiplication and division facts up to 12×12, and recognise products in multiplication tables as multiples of the corresponding number.
- 2.9 Times tables: 7 and patterns within/across times tables

6 Understanding and manipulating multiplicative relationships

- 4MD–1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.
- 4MD–2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.
- 4MD–3 Understand and apply the distributive property of multiplication.
- 4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)
- 2.10 Connecting multiplication and division, and the distributive law
- 2.13 Calculation: multiplying and dividing by 10 or 100

7 Coordinates

- 4G–1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.

8 Review of fractions

- 3F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.
- 3.1 Preparing for fractions: the part–whole relationship

9 Fractions greater than 1

- 4F–1 Reason about the location of mixed numbers in the linear number system.
- 4F–2 Convert mixed numbers to improper fractions and vice versa.
- 4F–3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.
- 3.5 Working across one whole: improper fractions and mixed numbers

10 Symmetry in 2D shapes

- 4G–3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.

11 Time

- This topic is part of the National Curriculum but is not included in the DfE 2020 guidance or the NCETM Mastery PD Materials.

12 Division with remainders

- 4NF–2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders.
- 2.12 Division with remainders

Number and place value

Number facts

Addition and subtraction

Multiplication and division

Fractions

Geometry

Other

Dark grey references are ready-to-progress criteria from the DfE Guidance 2020

Light grey references are from the NCETM Primary Mastery Professional Development materials

Both are available online

Upper key stage 2 – years 5 and 6

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.

Year 5 Maths Overview: Exemplification of ready-to-progress criteria | NCETM

Term/Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn 1	RTP criteria: 5NPV – 1 -4 (See resources in Ready to Progress criteria folder under number and place value/number facts.) RTP criteria: 5NF – 2 (See resources in Ready to Progress criteria folder under number and place value/number facts.)			Number, Addition and Subtraction 1.23 Composition and Calculation: tenths. 1.24 Composition and calculation: hundredths and thousandths.			Number, Addition and Subtraction 1.25 Addition and Subtraction: Money	
Autumn 2	Number, Addition and Subtraction 1.25 Addition and Subtraction: Money	Number, Addition and Subtraction 1.26 Composition and Calculation: Multiples of 1,000 – 1,000,000			Assessment Number, Addition and Subtraction 1.27 Negative numbers: Counting, Comparing, Calculating			
Spring 1	Number, Addition and Subtraction 1.28 Common structures and the part-part whole relationship.			Number, Addition and Subtraction 1.29 Using equivalence and the compensation property to calculate.				
Spring 2	Multiplication and division 2.18: Using equivalence to calculate.			Assessment Multiplication and division 2.19 Calculation: x/÷ decimal fractions by whole numbers.		Measurement: Understand the concept of volume KS2 | Y5 Maths | Lesson Resources | Oak National Academy		
Summer 1	Multiplication and division 2.20 Multiplication with 3 factors and volume.	Multiplication and division 2.21 Factors, Multiples, Prime numbers and composite numbers.		Multiplication and division 2.22 Combining multiplication with addition and subtraction.				
Summer 2	Measurement: Converting units KS2 | Y5 Maths | Lesson Resources | Oak National Academy		Fractions: 3.7 Finding equivalent fractions and simplifying fractions.		Fractions: 3.8 Common denomination: more addition and subtraction.		Measurement: Angles: compare, name, estimate and measure angles KS2 | Y5 Maths | Lesson Resources | Oak National Academy	

Year 5

1 Decimal fractions

- 5NPV–1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.
- 5NPV–2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning.
- 5NPV–3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.
- 5NPV–4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts.
- 5NF–2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).
- 1.23 Composition and calculation: tenths
- 1.24 Composition and calculation: hundredths and thousandths

2 Money

- 1.25 Addition and subtraction: money

3 Negative numbers

- 1.27 Negative numbers: counting, comparing and calculating

4 Short multiplication and short division

- 5MD–3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.
- 5MD–4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.
- 2.14 Multiplication: partitioning leading to short multiplication
- 2.15 Division: partitioning leading to short division

5 Area and scaling

- 5G–2 Compare areas and calculate the area of rectangles (including squares) using standard units.
- 2.16 Multiplicative contexts: area and perimeter 1
- 2.17 Structures: using measures and comparison to understand scaling

6 Calculating with decimal fractions

- 5MD–1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.
- 2.19 Calculation: ×/÷ decimal fractions by whole numbers
- 2.29 Decimal place-value knowledge, multiplication and division

7 Factors, multiples and primes

- 5MD–2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.
- 2.20 Multiplication with three factors and volume
- 2.21 Factors, multiples, prime numbers and composite numbers

8 Fractions

- 5NPV–5 Convert between units of measure, including using common decimals and fractions.
- 5F–1 Find non-unit fractions of quantities.
- 5F–2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system.
- 5F–3 Recall decimal fraction equivalents for ½, ¼, ⅕ and 1/10, and for multiples of these proper fractions.
- 3.6 Multiplying whole numbers and fractions
- 3.7 Finding equivalent fractions and simplifying fractions
- 3.10 Linking fractions, decimals and percentages

9 Converting units

- 5NPV–5 Convert between units of measure, including using common decimals and fractions.

10 Angles

- 5G–1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.

Number and place value

Number facts

Addition and subtraction

Multiplication and division

Fractions

Geometry

Other

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Term/Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn 1	RTP criteria: 6 AS/MD – 1 - 2 (See resources in Ready to Progress criteria folder under addition subtraction/multiplication division.)		Number, addition and subtraction: 1.28 Common structures and part-part whole relationship.		Number, addition and subtraction: 1.29 Using equivalence and compensation property to calculate.		Number, addition and subtraction: Multiples of 1,000 1.26 Composition and calculation: multiples of 1,000 up to 1,000,000	
Autumn 2	RTP criteria: 6NPV – 1 – 4 (See resources in Ready to Progress criteria folder under number and place value) Number, addition and subtraction: 1.30 Composition and calculation: Numbers up to 10,000.		Multiplication and Division: RTP criteria: 6AS/MD – 2 2.18 Using equivalence to calculate 2.23 Multiplication strategies for larger numbers and long multiplication.			Assessment RTP criteria: 6G – 1 Draw compose and decompose shapes. (See resources in Ready to Progress criteria folder under geometry)		
Spring 1	Multiplication and Division: 2.24 Division: dividing by 2 digit divisors. 2.25 Using compensation to calculate.		RTP criteria: 6F – 1-3 (See resources in Ready to Progress criteria folder under fractions and percentages.)		Fractions: 3.8 common denomination: more adding and subtracting. 3.9 Multiplying fractions and dividing fractions by a whole number.			
Spring 2	Fractions: 3.10 Linking fractions, decimals and percentages.		Multiplication and Division: 2.30 Multiplicative contexts: area and perimeter 2.		RTP Criteria: 6AS/MD – 3 Solve problems involving ration relationships. Number, addition and subtraction: Multiplication and Division: 2.27 Scale factors, ration and proportional reasoning.			
Summer 1	REVISION RTP criteria: 6AS/MD –3 Use a given additive or multiplicative calculation to derive or complete a related calculation using arithmetic properties, inverse relationships and PV understanding.		REVISION Number, addition and subtraction: 1.29 Using equivalence and compensation property to calculate.	REVISION Number, addition and subtraction: RTP Criteria 6AS/MD – 4 Solving problems with 2 unknowns. 1.31 Problems with 2 unknowns.	SATS WEEK	Order of operations KS2 | Y6 Maths | Lesson Resources | Oak National Academy	Statistics KS2 | Y6 Maths | Lesson Resources | Oak National Academy	

Summer 2	[Mean average KS2 | Y6 Maths | Lesson Resources | Oak National Academy]	Real life Financial and contextual projects/problem solving opportunities.

