Mathematics

Year 5 Planning 2023-24

(Updated September, 2023)

This is a working document.

Teachers to make changes, where appropriate, based on both formative and summative assessment. Rich tasks and curriculum links are also to be identified and added to planning.

To build on from the Ready to Progress Criteria used in Summer 2021, we will be using the NCETM Progression documents.
Follow the link below to access the interactive copy of this curriculum map. Click on the domain to download the learning objectives for each domain.
https://www.ncetm.org.uk/classroom-resources/cp-year-5-curriculum-map/
Use the National Curriculum objectives sheet to ensure coverage of all objectives (see page 4).

	Unit	Unit name
Autumn 1	1	Decimal fractions
	2	Money
Autumn 2	3	Negative numbers
	4	Short multiplication and short division
Spring 1	5	Area and scaling
Spring 2	6	Calculating with decimal fractions
	7	Factors, multiples and primes
Summer 1	8	Fractions
Summer 2	9	Converting units
	10	Angles and transformations

- Number and place value
- Number facts
- Multiplication and division
- Fractions
- Geometry
- Other

Year 5

Curriculum map

NCETM
NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

June 2021

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

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

Where year group objectives have not been covered by the NCETM Prioritisation Guidance, these will be covered in additional units. These objectives will also be covered in **daily memory jogger activities** and the **daily arithmetic lesson**.

Please add any planned rich tasks and wider curriculum links that you use to deliver these objectives.

Term	Unit	Unit name	Learning Objectives/ Outcomes	Rich Tasks	Wider Curriculum Links
Autumn 1	**See National Curriculum**	**Number and Place Value**	Read, write, order and compare numbers to at least 1,000, 000. Know what each digit represents in numbers to 1,000,000. Count forwards or backwards in steps of powers of 10 for any given number up to 1,000, 000.		
	1	Decimal Fractions	*see learning outcomes detailed in curriculum map on website*		
	2	Money	*see learning outcomes detailed in curriculum map on website*		
Autumn 2	3	Negative numbers	*see learning outcomes detailed in curriculum map on website*		
	4	Short multiplication and short division	*see learning outcomes detailed in curriculum map on website*		
Spring 1	5	Area and scaling	*see learning outcomes detailed in curriculum map on website*		
Spring 2	6	Calculating with decimal fractions	*see learning outcomes detailed in curriculum map on website*		
	7	Factors, multiples and primes	*see learning outcomes detailed in curriculum map on website*		
Summer 1	8	Fractions	*see learning outcomes detailed in curriculum map on website*		
Summer 2	9	Converting units	*see learning outcomes detailed in curriculum map on website*		
	10	Angles and transformations	*see learning outcomes detailed in curriculum map on website*		
	See National Curriculum	**Statistics**	Solve 'comparison' problems using information presented in a line graph. Solve 'sum' problems using information presented in a line graph. Solve 'difference' problems using information presented in a line graph. Complete, read and interpret information in tables, including timetables.		Science- Geography- History-

Strand	Year 5 National Curriculum Objectives showing coverage through NCETM Curriculum Prioritisation Guidance (COVID recovery)
Number & Place value	I can read, write, order and compare numbers to at least 1, 000, 000.
	I know what each digit represents in numbers to 1, 000, 000.
	I can count forwards or backwards in steps of powers of 10 for any given number up to 1, 000, 000.
	I can use negative numbers in context; count forwards and backwards with positive and negative whole numbers
	I can round any number up to 1, 000, 000 to the nearest 10, 100, 1000, 10 000 and 100 000.
	I can solve number problems and practical problems that involve all of the below.
	I can read Roman numerals to 1000 (M) and recognise years written in Roman numerals ***(from Year 4).***
Addition & Subtraction	I can add and whole numbers with more than 4 digits.
	I can subtract and whole numbers with more than 4 digits.
	I can add mentally using increasingly large numbers.
	I can subtract mentally using increasingly large numbers.
	I can use rounding to check answers to calculations.
	I can use addition and subtraction to solve multi-step problems.
Multiplication and Division	I can identify multiples and factors, including finding all factor pairs.
	I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
	I can establish whether a number up to 100 is prime and recall prime numbers up to 19.
	I can multiply numbers up to 4 digits by a one- or two-digit number.
	I can divide numbers up to 4 digits by a one-digit number.
	I can multiply and divide numbers mentally.
	I can x and ÷ whole numbers and those involving decimals by 10, 100 and 1000.
	I can recognise and use square numbers and cube numbers, and the notation for squared and cubed.
	I can solve problems involving x and ÷ including using factors and multiples, squares and cubes.
	I can solve problems involving x and ÷ including scaling by simple fractions and problems involving simple rates.
Measurement	I can convert between different units of metric measure.
	I understand and use approximate equivalences between metric units and common imperial units such as inches,
	I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.
	I can calculate and compare the area of rectangles (including squares).
	I can estimate the area of irregular shapes.
	I can estimate volume and capacity.
	I can solve problems involving converting between units of time.
	I can use all four operations to solve problems involving measure using decimal notation, including scaling.
Fractions and Decimals	I can compare and order fractions whose denominators are all multiples of the same number.
	I can identify, name and write equivalent fractions of a given fraction.
	I can recognise mixed numbers and improper fractions and convert from one form to the other.
	I can + and - fractions with the same denominator and denominators that are multiples of the same number.
	I can multiply proper fractions and mixed numbers by whole numbers.
	I can read, write decimal numbers as fractions.
	I can recognise and use 1000ths and relate them to 10ths, 100ths and decimal equivalents.
	I can round decimals with 2 decimal places to the nearest whole number and to one decimal place.
	I can read, write, order and compare numbers with up to 3 decimal places.
	I can solve problems involving number up to 3d.p.
	I can recognise the % symbol and understand what it means.
	I can write % as a fraction.
Geometry	I can identify 3-D shapes, including cubes and other cuboids, from 2-D representations.
	I know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
	I can draw given angles, and measure them in degrees (o).
	I can identify angles at a point and one whole turn.
	I can identify angles at a point on a straight line and ½ a turn.
	I can identify other multiples of 90◦.
	I can use the properties of rectangles to deduce related facts and find missing lengths and angles.
	I can distinguish between regular and irregular polygons.
	I can identify, describe and represent the position of a shape following a reflection or translation.

	1. Decimal fractions		6. calculating with decimal fractions **(see 1)**
	2. Money		7. Factors, multiples and primes
	3. Negative numbers		8. Fractions
	4. Short multiplication and short division		9. Converting units
	5. Area and scaling		10. Angles and transformations

NB- Addition and subtraction objectives to be assessed and covered through daily memory jogger and arithmetic lesson. Unit of learning to be added after number and place value (if needed).

Pupils are to be given opportunities to apply their knowledge and understanding through problem solving and reasoning activities using the following criteria:

Problem Solving	Reasoning
Engage with mathematical activities and problems, making links and moving between different representations *(concrete, pictorial, abstract)*	Provide a clear, correct, logical justification, expressing generalisation/rules in words.
Independently choose to scaffold thinking using concrete, pictorial or abstract representations, if required	Reflect on others' justifications and use this to improve their work.
Independently choose to represent thinking using concrete, pictorial or abstract representations, as appropriate	Edit and improve their own and a peer's justification.
Make suggestions of ways to solve a range of problems	Investigate 'what if?' questions.
Organise work from the outset, looking for ways to record and work systematically	Create 'what if? 'questions
Find and predict possibilities that match the context using patterns spotted to support	
Independently check and improve work *(e.g. look for other possibilities, repeats, missing answers, errors and ways to improve)*	
Pattern spot and independently express generalisations/rules in words	
Make and investigate conjectures and provide examples and counter-examples	
When they have solved a problem, pose a similar problem for a peer	