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Mapping Cambridge Primary Maths (Stages 1–6) to Common Core State Standards Maths (Grades Kindergarten–5)

Introduction

Cambridge International Examinations has mapped the Cambridge Primary Maths (Stages 1 to 6) to CCSS Maths Grades Kindergarten to 5. This mapping document shows where the CCSS Maths standards are covered in the Cambridge Primary Maths Framework and scheme of work.

The Cambridge Primary Framework provides a comprehensive set of progressive learning objectives for Maths. The objectives detail what the learner should know or what they should be able to do in Maths in Stages 1 to 6 (the equivalent of the US Grades Kindergarten to 5) of primary education. They provide a structure for teaching and learning and a reference against which learners' ability and understanding can be checked. Each learning objective has a unique curriculum framework code, e.g. **1Nn4**. **These codes appear in the Cambridge Teacher** Guide, schemes of work and other published resources.

Cambridge Primary Maths Teacher Guide Appendix D – Opportunities for ICT outlines where in the Cambridge Curriculum Primary Framework opportunities for using ICT may be used if the equipment is available. A copy of the Teacher Guide and scheme of work, can be found at https://cambridgeprimary.cie.org.uk/

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CCSS Maths Standards	Cambridge Primary Maths	
CCSS Grade Kindergarten	**Stage 1**	
Key ideas and details	**Framework – learning objectives**	**Scheme of work – units**
Counting and Cardinality **K.CC.1.** Count to 100 by ones and by tens.	**1Nn4** Count on in tens from zero or a single-digit number to 100 or just over. **1Nn1** Recite numbers in order (forwards from 1 to 100, backwards from 20 to 0).	Unit 1A
K.CC.2. Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	**1Nn1** Recite numbers in order (forwards from 1 to 100, backwards from 20 to 0)	Unit 1A
K.CC.3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).	**1Nn2** Read and write numerals from 0 to 20	Unit 1A

CCSS Grade Kindergarten	Stage 1	
K.CC.4. Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. c. Understand that each successive number name refers to a quantity that is one larger.	**1Nn7** Within the range 0 to 30, say the number that is 1 or 10 more or less than any given number. **1Nn5** Count on in twos, beginning to recognize odd/even numbers to 20 as 'every other number'.	Unit 2A Unit 1A
K.CC.5. Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.	**1Nn3** Count objects up to 20, recognising conservation of number. **1Nn9** Order numbers to at least 20 positioning on a number track; use ordinal numbers.	Unit 1A Unit 1A
K.CC.6. Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.	**1Nn8** Use more or less to compare two numbers, and give a number which lies between them.	Unit 1A

CCSS Grade Kindergarten	Stage 1	
K.CC.7. Compare two numbers between 1 and 10 presented as written numerals.	**1Nn2** Read and write numerals from 0 to 20.	Unit 1A
Operations and Algebraic Thinking **K.OA.1.** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	**1Nc17** Recognise the use of a sign such as □ to represent an unknown, e.g. 6 + □ = 10.	Unit 3A
K.OA.2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	**1Nc1** Know all number pairs to 10 and record the related addition/subtraction facts.	Unit 1A
K.OA.3. Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).	**1Nc2** Begin to know number pairs to 6, 7, 8, 9 and 10. **1Nc3** Add more than two small numbers, spotting pairs to 10, e.g. 4 + 3 + 6 = 10 + 3.	Unit 1A

CCSS Grade Kindergarten	Stage 1	
K.OA.4. For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.	**1Nc4** Begin using pairs to 10 to bridge 10 when adding/subtracting, e.g. 8 + 3, add 2, then 1.	Unit 1A
K.OA.5. Fluently add and subtract within 5.	**1Nc18** Begin to add single- and two-digit numbers.	Unit 2A Unit 3A
Number and Operations in Base Ten **K.NBT.1.** Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	**1Nn6** Begin partitioning two-digit numbers into tens and ones and reverse.	Unit 2A
Measurement and Data **K.MD.1.** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	**1Ml1** Compare lengths and weights by direct comparison, then by using uniform non-standard units.	Unit 1C Unit 2C Unit 3C

CCSS Grade Kindergarten	Stage 1	
K.MD.2. Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. *For example, directly compare the heights of two children and describe one child as taller/shorter.*	**1MI3** Use comparative language, e.g. longer, shorter, heavier, lighter.	Unit 1C Unit 2C Unit 3C
K.MD.3. Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	**1Dh1** Answer a question by sorting and organising data or objects in a variety of ways, e.g. -using block graphs and pictograms with practical resources; discussing the results -in lists and tables with practical resources; discussing the results -in Venn or Carroll diagrams giving different criteria for grouping the same objects.	Unit 2B Unit 3B
Geometry **K.G.1.** Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as *above*, *below*, *beside*, *in front of*, *behind*, and *next to*.	**1Gp1** Use everyday language of direction and distance to describe movement of objects. **1Gs1** Name and sort common 2D shapes (e.g. circles, squares, rectangles and triangles) using features such as number of sides, curved or straight. Use them to make patterns and models.	 Unit 1B

CCSS Grade Kindergarten	Stage 1	
K.G.2. Correctly name shapes regardless of their orientations or overall size.	**1Gs1** Name and sort common 2D shapes (e.g. circles, squares, rectangles and triangles) using features such as number of sides, curved or straight. Use them to make patterns and models.	Unit 1B
K.G.3. Identify shapes as two-dimensional (lying in a plane, "flat") or three dimensional ("solid").	**1Gs2** Name and sort common 3D shapes (e.g. cube, cuboid, cylinder, cone and sphere) using features such as number of faces, flat or curved faces. Use them to make patterns and models.	Unit 1B
K.G.4. Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length).	**1Gs1** Name and sort common 2D shapes (e.g. circles, squares, rectangles and triangles) using features such as number of sides, curved or straight. Use them to make patterns and models.	Unit 1B
K.G.5. Model shapes in the world by building shapes from components (e.g, sticks and clay balls) and drawing shapes.	**1Gs1** Name and sort common 2D shapes (e.g. circles, squares, rectangles and triangles) using features such as number of sides, curved or straight. Use them to make patterns and models.	Unit 1B

CCSS Grade Kindergarten	Stage 1	
K.G.6. Compose simple shapes to form larger shapes. *For example, "Can you join these two triangles with full sides touching to make a rectangle?"*	**1Gs1** Name and sort common 2D shapes (e.g. circles, squares, rectangles and triangles) using features such as number of sides, curved or straight. Use them to make patterns and models. **1Nn12** Find halves of small numbers and shapes by folding, and recognise which shapes are halved.	Unit 1B Unit 3A
Note: There is no money introduced in CCSS until 2nd grade/stage 3, and time is not introduced until 1st grade/stage 2. **Problem solving is implied throughout the CCSS.**	**<u>Stage 1 Framework not mapped:</u>** **1Nn10, 1Nn11, 1Nc5, 1Nc6, 1Nc7, 1Nc8, 1Nc9, 1Nc10, 1Nc11, 1Nc12, 1Nc13, 1Nc14, 1Nc15, 1Nc16, 1Nc19, 1Nc20, 1Nc21, 1Nc22, 1Gs3, 1Mm1, 1Ml2, 1Mt1, 1Mt2, 1Mt3, 1Pt1, 1Pt2, 1Pt3, 1Pt4, 1Pt5, 1Pt6, 1Pt7, 1Pt8, 1Pt9**	

CCSS Maths Standards	Cambridge Primary Maths	
CCSS Grade 1	Stage 2	
Key ideas and details	Framework – learning objectives	Scheme of work – units
Operations and Algebraic Thinking **1.OA.1.** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	**2Nc2** Partition all numbers to 20 into pairs and record the related addition and subtraction facts. **2Pt4** Make sense of simple word problems (single and easy two-step), decide what operations (addition or subtraction, simple multiplication or division) are needed to solve them and, with help, represent them, with objects or drawings or on a number line.	Unit 1A Units 1C, 2B, 3C
1.OA.2. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	**2Nc9** Recognise the use of a symbol such as □ or Δ to represent an unknown, e.g. Δ + □ = 10. **2Nc10** Solve number sentences such as 27 + □ = 30.	Unit 3A Unit 3A

CCSS Grade 1	Stage 2	
1.OA.3. Apply properties of operations as strategies to add and subtract [Students need not use formal terms for these properties]. *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 =12. (Associative property of addition.)*	**2Pt6** Check the answer to an addition by adding the numbers in a different order or by using a different strategy, e.g. 35+19 by adding 20 to 35 and subtracting 1, and by adding 30+10 and 5+9.	Units 1A, 1C, 2A, 2C, 3A, 3C
1.OA.4. Understand subtraction as an unknown-addend problem. For example, subtract 10 - 8 by finding the number that makes 10 when added to 8.	**2Nc15** Understand subtraction as both difference and take away. **2Nc14** Understand that addition can be done in any order, but subtraction cannot.	Unit 2A Unit 1A
1.OA.5. Relate counting to addition and subtraction (e.g. by counting on 2 to add 2).	**2Nn4** Count in twos, fives and tens, and use grouping in twos, fives or tens to count larger groups of objects.	Units 1A, 2A, 3A
1.OA.6. Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	**2Nc1** Find and learn by heart all number pairs to 10 and pairs with a total of 20. **2Nc3** Find all pairs of multiples of 10 with a total of 100 and record the related addition and subtraction facts.	Units 1A, 2A, 3A Unit 1A

CCSS Grade 1	Stage 2	
1.OA.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 - 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*	**2Nc7** Use the = sign to represent equality, e.g. 16 + 4 = 17 + 3.	Unit 1A
1.OA.8. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = 5 – 3,* 6 + 6 =	**2Nc9** Recognise the use of a symbol such as □ or Δ to represent an unknown, e.g. Δ + □ = 10. **2Nc10** Solve number sentences such as 27 + □ = 30.	Unit 3A Unit 3A
Number and Operations in Base Ten **1.NBT.1.** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.	**2Nn1** Count, read and write numbers to at least 100 and back again. **2Nn2** Count up to 100 objects, e.g. beads on a bead bar. **2Nn3** Count on in ones and tens from single- and two-digit numbers and back again.	Unit 1A Unit 1A Units 1A, 2A

CCSS Grade 1	Stage 2	
1.NBT.2. Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones — called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	**2Nn6** Know what each digit represents in two-digit numbers; partition into tens and ones. **2Nn10** Place a two-digit number on a number line marked off in multiples of ten.	Units 2A, 3A Unit 1A
1.NBT.3. Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	**2Nn12** Order numbers to 100; compare two numbers using the > and < signs.	Units 2A, 3A
1.NBT.4. Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	**2Nc8** Add four or five small numbers together. **2Nc11** Add and subtract a single digit to and from a two-digit number.	Unit 1A Units 1A, 2A, 3A

CCSS Grade 1	Stage 2	
1.NBT.5. Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	**2Nn7** Find 1 or 10 more/less than any two-digit number.	Unit 1A
1.NBT.6. Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	**2Nc6** Relate counting on/back in tens to finding 10 more/less than any two-digit number and then to adding and subtracting other multiples of 10, e.g. 75-30.	Units 2A, 3A
Measurement and Data **1.MD.1.** Order three objects by length; compare the lengths of two objects indirectly by using a third object.	**2Ml1** Estimate, measure and compare lengths, weights and capacities, choosing and using suitable uniform non-standard and standard units and appropriate measuring instruments.	Units 1C, 2C, 3C
1.MD.2. Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*	**2Ml2** Compare lengths, weights and capacities using the standard units: centimetre, metre, 100 g, kilogram, and litre.	Units 1C, 2C, 3C

CCSS Grade 1	Stage 2	
1.MD.3. Tell and write time in hours and half-hours using analog and digital clocks.	**2Mt3** Read the time to the half hour on digital and analogue clocks.	Units 1C, 2C, 3C
1.MD.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	**2Dh1** Answer a question by collecting and recording data in lists and tables, and representing it as block graphs and pictograms to show results. **2Dh2** Using Carroll and Venn diagrams to sort numbers or objects using one criterion; begin to sort numbers and objects using two criteria; explain choices using appropriate language, including 'not'.	Unit 2B Unit 2B
Geometry **1.G.1.** Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.	**2Gs1** Sort, name, describe, visualise and draw 2D shapes (e.g. squares, rectables, circles, regular and irregular pentagons and hexagons) referring to their properties; recognise common 2D shapes in different positions and orientations.	Units 1B and 3B

CCSS Grade 1	Stage 2	
1.G.2. Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.	**2Gs1** Sort, name, describe, visualise and draw 2D shapes (e.g. squares, rectables, circles, regular and irregular pentagons and hexagons) referring to their properties; recognise common 2D shapes in different positions and orientations. **2Gs2** Sort, name, describe and make 3D shapes (e.g. cubes, cuboids, cones, cylinders, speheres and pyramids) referring to their properties; recognise 2D drawings of 3D shapes.	Units 1B and 3B
1.G.3. Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	**2Nn18** Recognise which shapes are divided in halves or quarters and which are not. **2Nn19** Find halves and quarters of shapes and small numbers of objecrs.	Unit 3A Unit 3A

CCSS Grade 1	Stage 2	
Note: Multiplication and division do not begin in CCSS until grade 3. Movement and position in geometry have been removed from CCSS.	**<u>Stage 2 Framework not mapped:</u> 2Nn5, 2Nn8, 2Nn9, 2Nn11, 2Nn13, 2Nn15, 2Nn16, 2Nn17, 2Nc4, 2Nc5, 2Nc12, 2Nc13, 2Nc16, 2Nc17, 2Nc18, 2Nc19, 2Nc20, 2Nc21, 2Nc22, 2Nc23, 2Gs3, 2Gs4, 2Gp1, 2Gp2, 2Gp3, 2Mm1, 2Mm2, 2Mm3, 2Mt1, 2Mt2, 2Mt4, 2Mt5, 2Pt1, 2Pt2, 2Pt3, 2Pt5, 2Pt7, 2Pt8, 2Pt9, 2Pt10, 2Pt11**	

CCSS Maths Standards	Cambridge Primary Maths	
CCSS Grade 2	Stage 3	
Key ideas and details	Framework – learning objectives	Scheme of work – units
Operations and Algebraic Thinking **2.OA.1.** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the proble*m.*	**3Pt3** Make sense of and solve word problems, single (all four operations) and two-step (addition and subtraction), and begin to represent them, e.g. with drawings or on a number line.	Units 1A, 2A, 3A
2.OA.2. Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.	**3Nc1** Know addition and subtraction facts for all numbers to 20.	Unit 1A
2.OA.3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.	**2Nn14** Understand even and odd numbers and recognise these up to at least 20.	Unit 1A (Stage 2)
2.OA.4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	**3Ps5** Describe and continue patterns which count on or back in steps of 2, 3, 4, 5, 10 or 100.	Units 1A, 2A, 3A

CCSS Grade 2	Stage 3	
Number and Operations in Base Ten **2.NBT.1.** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens — called a "hundred." b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	**3Nn5** Understand what each digit represents in three-digit numbers and partition into hundreds, tens and units.	Units 1A, 2A
2.NBT.2. Count within 1000; skip-count by 5s, 10s, and 100s.	**3Nn1** Recite numbers 100 to 200 and beyond. **3Nn3** Count on and back in ones, tens and hundreds from two- and three-digit numbers.	Unit 1A Units 1A, 2A
2.NBT.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	**3Nn2** Read and write numbers to at least 1000.	Unit 1A

CCSS Grade 2	Stage 3	
2.NBT.4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.	**3Nn11** Compare three-digit numbers, use < and > signs, and find a number in between.	Units 2A, 3A
2.NBT.5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	**3Nc17** Add/subtract single-digit numbers to/from three-digit numbers.	Units 2A, 3A
2.NBT.6. Add up to four two-digit numbers using strategies based on place value and properties of operations.	**3Nc12** Add several small numbers.	Unit 1A
2.NBT.7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.	**3Nc15** Add three-digit and two-digit numbers using notes to support. **3Ps6** Identify simple relationships between numbers, e.g. each number is three more than the number before it. **3Ps4** Use ordered lists and table sto help solve problems systematically.	Units 2A, 3A Units 1A, 2A, 3A Unit 2C

CCSS Grade 2	Stage 3	
2.NBT.8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	**3Nc2** Know the following addition and subtraction facts: -multiples of 100 with a total of 1000 -multiples of 5 with a total of 100.	Units 1A, 3A
	3Nc14 Add and subtract pairs of two-digit numbers.	Units 2A, 3A
	3Nc10 Add 100 and multiples of 100 to three-digit numbers.	Unit 1A
	3Nc9 Add and subtract 10 and multiples of 10 to and from two- and three-digit numbers.	Unit 1A
2.NBT.9. Explain why addition and subtraction strategies work, using place value and the properties of operations.	**3Ps2** Explain a choice of calculation strategy and show how the answer was worked out.	Units 1A, 2A, 2B, 3A, 3C
Measurement and Data **2.MD.1.** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	**3Ml1** Choose and use appropriate units and equipment to estimate, measure and record measurements.	Units 1C, 2B, 3C

CCSS Grade 2	Stage 3	
2.MD.2. Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	**3MI2** Know the relationship between kilometres and metres, metres and centimetres, kilograms and grams, litres and millilitres.	Units 1C, 2B, 3C
2.MD.3. Estimate lengths using units of inches, feet, centimeters, and meters.	**3MI2** Know the relationship between kilometres and metres, metres and centimetres, kilograms and grams, litres and millilitres.	Units 1C, 2B, 3C
2.MD.4. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	**3MI1** Choose and use appropriate units and equipment to estimate, measure and record measurements.	Units 1C, 2B, 3C
2.MD.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.	**3MI5** Solve word problems involving measures.	Units 1C, 2B, 3C

CCSS Grade 2	Stage 3	
2.MD.6. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.	**3Nn9** Place a three-digit number on a number line marked off in multiples of 100.	Units 1A, 2A
	3Nn10 Place a three-digit number on a number line marked off in multiples of 10.	Units 1A, 2A
2.MD.7. Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	**3Mt2** Read the time on analogue and digital clocks, to the nearest 5 minutes on an analogue clock and to the nearest minute on a digital clock.	Units 1C, 2B, 3C
2.MD.8. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*	**3Mm1** Consolidate using money notation.	Units 1C, 2B, 3C
	3Mm2 Use addition and subtraction facts with a total of 100 to find change.	Units 1C, 2B, 3C
	3Ps1 Make up a number story to go with a calculation, including in the context of money.	Units 1A, 2A, 2B, 3A, 3C

CCSS Grade 2	Stage 3	
2.MD.9. Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	**3MI4** Use a ruler to draw and measure lines to the nearest centimetre.	Units 1C, 2B, 3C
2.MD.10. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.	**3Dh2** Use tally charts, frequency tables, pictograms (symbol representing one or two units) and bar charts (intervals labelled in ones or twos).	Unit 2C
Geometry **2.G.1.** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.	**3Gs1** Identify, describe and draw regular and irregular 2D shapes including pentagons, hexagons, octagons and semi-circles.	Units 1B, 3B
2.G.2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.		

CCSS Grade 2	Stage 3	
2.G.3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	**3Nn20** Find halves, thirds, quarters and tenths of shapes and numbers (whole number answers).	Unit 3A
Note: Fractions in the CCSS begin in the 3rd grade. Multiples of numbers do not begin until 4th grade. 3D shapes in Geometry are no longer a part of CCSS.	**Stage 3 Framework not mapped:** **3Nn4, 3Nn6, 3Nn7, 3Nn8, 3Nn12, 3Nn13, 3Nn14, 3Nn15, 3Nn16, 3Nn17, 3Nn18, 3Nn19, 3Nc3, 3Nc4, 3Nc5, 3Nc6, 3Nc7, 3Nc8, 3Nc11, 3Nc13, 3Nc16, 3Nc18, 3Nc19-26, 3Gs2-8, 3Gp1-4, 3Ml3, 3Ml4, 3Mt1, 3Mt3, 3Mt4, 3Dh1, 3Dh3, 3Pt1, 3Pt2, 3Pt4-12, 3Ps3, 3Ps7, 3Ps8, 3Ps9**	

CCSS Maths Standards	Cambridge Primary Maths	
CCSS Grade 3	**Stage 4**	
Key ideas and details	**Framework – learning objectives**	**Scheme of work – units**
Operations and Algebraic Thinking **3.OA.1.** Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*	**4Nc4** Know multiplication for 2x, 3x, 4x, 5x, 6x, 9x and 10x tables and derive division facts. **4Nc16** Derive quickly doubles of all whole numbers to 50, doubles of multiples of 10 to 500, doubles of multiples of 100 to 5000, and corresponding halves.	Units 2A, 3A Units 2A, 3A
3.OA.2. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*	**4Nc23** Divide two-digit numbers by single-digit numbers (answers no greater than 20).	Units 1A, 2A
3.OA.3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	**4Nc24** Decide whether to round up or down after division to give an answer to a problem.	Units 2A, 3A

CCSS Grade 3	Stage 4	
3.OA.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 □ ÷ 3, 6 × 6 = ?.*	**4Nc25** Understand that multiplication and division are the inverse function of each other. **4Pt6** Check the result of a division using multiplication, e.g. multiply 4 by 12 to check 48 ÷ 4.	Unit 1A Units 2A, 3A
3.OA.5. Apply properties of operations as strategies to multiply and divide.2 *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3× 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*	**4Nc25** Understand that multiplication and division are the inverse function of each other. **4Pt6** Check the result of a division using multiplication, e.g. multiply 4 by 12 to check 48 ÷ 4. **4Pt5** Check multiplication using a different technique, e.g. check 6 x 8 = 48 by doing 6 x 4 and doubling.	Unit 1A Units 2A, 3A Unit 2A
3.OA.6. Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*	**4Nc25** Understand that multiplication and division are the inverse function of each other.	Unit 1A

CCSS Grade 3	Stage 4	
3.OA.7. Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.	**4Nc4** Know multiplication for 2x, 3x, 4x, 5x, 6x, 9x and 10x tables and derive division facts. **4Nc20** Double any two-digit number.	Units 2A, 3A Unit 1A
3.OA.8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**4Ps3** Choose strategies to find answers to addition or subtraction problems; explain and show working.	Units 1A, 2A, 3A
3.OA.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*	**4Nn7** Multiply and divide three-digit numbers by 10 (whole number answers) and understand the effect; begin to multiply numbers by 100 and perform related divisions. **4Nn14** Recognise and extend number sequences formed by counting in steps of constant size, extending beyond zero when counting back.	Units 2A, 3A Units 2A, 3A

CCSS Grade 3	Stage 4	
Number and Operations in Base Ten **3.NBT.1.** Use place value understanding to round whole numbers to the nearest 10 or 100.	**4Nn9** Round three- and four-digit numbers to the nearest 10 or 100.	Units 1A, 2A
3.NBT.2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.	**4Nc17** Add pairs of three-digit numbers. **4Nc1** Derive quickly pairs of two-digit numbers with a total of 100, e.g. 72 + □ = 100. **4Nc2** Derive quickly pairs of multiples of 50 with a total of 1000, e.g. 850 + □ = 1000.	Units 1A, 2A Units 2A, 3A Units 2A, 3A
3.NBT.3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	**4Nc21** Multiply multiples of 10 to 90 by a single-digit number. **4Nc22** Multiply a two-digit number by a single-digit number.	Unit 1A Units 1a, 2A
Number and Operations-Fractions **3.NF.1.** Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.	**4Nn24** Relate finding fractions to division.	Unit 3A

CCSS Grade 3	Stage 4	
3.NF.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line. b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.	**4Nn23** Recognize mixed numbers, e.g. 5 ¾, and order these on a number line.	Unit 3A

CCSS Grade 3	Stage 4	
3.NF.3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	**4Nn17** Order and compare two or more fractions with the same denominator (halves, quarters, thirds, fifths, eighths or tenths). **4Nn18** Recognize the equivalence between: ½, 4/8 and 5/10; ¼ and 2/8; 1/5 and 2/10. **4Nn19** Use equivalence to help order fractions, e.g. 7/10 and ¾.	Unit 3A Unit 3A Unit 3A

CCSS Grade 3	Stage 4	
Measurement and Data **3.MD.1.** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	**4Mt1** Read and tell time to the nearest minute on 12-hour digital and analogue clocks. **4Mt4** Choose units of time to measure time intervals.	Units 1B, 2C, 3B Units 1B, 2C, 3B
3.MD.2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).6 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	**4Ml1** Choose and use standard metric units and their abbreviations (km, m, cm, mm, kg, g, l and ml) when estimating, measuring and recording length, weight and capacity. **4Ml2** Know and use the relationships between familiar units of length, mass and capacity; know the meaning of 'kilo', 'centi', and 'milli'.	Units 1B, 2C, 3B Units 1B, 2C, 3B
3.MD.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*	**4Dh1** Answer a question by identifying what data to collect, organizing, presenting and interpreting data in tables, diagrams, tally charts, frequency tables, pictograms (symbol representing 2, 5, 10 or 20 units) and bar charts (intervals labelled in twos, fives, tens or twenties).	Units 1C, 3C

CCSS Grade 3	Stage 4	
3.MD.4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.	**4MI4** Interpret intervals/divisions on partially numbered scales and record readings accurately.	Units 1B, 2C, 3B
3.MD.5. Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.	**4Ma3** Find the area of rectilinear shapes drawn on a square grid by counting squares.	Units 1B, 2C, 3B
3.MD.6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	**4Ma3** Find the area of rectilinear shapes drawn on a square grid by counting squares.	Units 1B, 2C, 3B

CCSS Grade 3	Stage 4	
3.MD.7. Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* × *b* and *a* × *c*. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.	**4Ma2** Understand that area is measured in square units	Units 1B, 2C, 3B

CCSS Grade 3	Stage 4	
3.MD.8. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	**4Ma1** Draw rectangles, and measure and calculate their perimeters.	Units 1B, 2C, 3B
Geometry **3.G.1.** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	**4Gs1** Identify, describe, visualize, draw and make a wider range of 2D and 3D shapes including a range of quadrilaterals, the heptagon and tetrahedron; use pinboards to create a range of polygons. Use spotty paper to record results. **4Gs2** Classify polygons (including a range of quadrilaterals) using criteria such as the number of right angles, whether or not they are regular and their symmetrical properties.	Unit 2B Unit 2B
3.G.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*	**4Nn25** Find halves, quarters, thirds, fifths, eighths and tenths of shapes and numbers.	Unit 3A

CCSS Grade 3	Stage 4	
Note: Decimal notation does not begin in CCSS until 4th grade.	**Stage 4 Framework Not Yet Mapped:** **4Nn1-6,8, 4Nn10-13, 4Nn15-16, 4Nn20-22, 4Nc3, 4Nc5-13, 4Nc15, 4Nc18-19, 4Nc26, 4Gs3-5, 4Gp1-3, 4Ml3, 4Mt2-3, 4Dh2-3, 4Pt1-4, 4Pt7-8, 4Ps1-2, 4-9**	

CCSS Maths Standards	Cambridge Primary Maths	
CCSS Grade 4	Stage 5	
Key ideas and details	Framework – learning objectives	Scheme of work – units
Operations and Algebraic Thinking **4.OA.1.** Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	**5Nc13** Multiply by 19 or 21 by multiplying by 20 and adjusting. **5Nc14** Multiply by 25 by multiplying by 100 and dividing by 4.	Units 2A, 3A Units 2A, 3A
4.OA.2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	**5Ps10** Solve a larger problem by breaking it down into sub-problems or represent it using diagrams. **5Pt7** Consider whether an answer is reasonable in the context of a problem.	Units 1A, 1C, 2C, 3C Units 1A, 1C, 2A, 2C, 3A, 3C
4.OA.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**5Ps2** Choose an appropriate strategy for a calculation and explain how they worked out the answer. **5Ps10** Solve a larger problem by breaking it down into sub-problems or represent it using diagrams.	Units 1A, 2A, 2C, 3A, 3C Units 1A, 1C, 2C, 3C

CCSS Grade 4	Stage 5	
4.OA.4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	**5Nn13** Recognise odd and even numbers and multiples of 5, 10, 25, 50 and 100 up to 1000. **5Nc5** Recognise multiples of 6, 7, 8 and 9 up to the 10th multiple. **5Nc7** Find factors of two-digit numbers.	Unit 1A Units 1A, 2A Units 1A, 2A
3.OA.5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" & the starting number 1, generate terms in the resulting sequence & observe that the terms appear to alternate between odd & even numbers. Explain informally why the numbers will continue to alternate in this way.*	**5Nn1** Count on and back in steps of contstant size, extending beyond zero. **5Nn12** Recognise and extend number sequences.	Units 1A, 2A Unit 1A
Number and Operations in Base Ten **4.NBT.1.** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value & division.*	**5Nn5** Multiply and divide any number from 1 to 10,000 by 10 or 100 and understand the effect.	Units 1A, 2A

CCSS Grade 4	Stage 5	
4.NBT.2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**5Nn3** Partition any number up to one million into thousands, hundreds, tens and units. **5Nn2** Know what each digit represents in five- and six-digit numbers.	Units 1A, 2A Unit 1A
4.NBT.3. Use place value understanding to round multi-digit whole numbers to any place.	**5Nn6** Round four-digit numbers to the nearest 10, 100 or 1000. **5Nn7** Round a number with one or two decimal places to the nearest whole number.	Unit 1A Units 2A, 3A
4.NBT.4. Fluently add and subtract multi-digit whole numbers using the standard algorithm.	**5Nc19** Add or subtract any pair of three- and/or four-digit numbers, with the same number of decimal places, including amounts of money. **5Nc18** Find the total of more than three two- or three-digit numbers using a written method.	Units 2A, 3A Units 1A, 2A, 3A

CCSS Grade 4	Stage 5	
4.NBT.5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**5Nc20** Multiply or divide three-digit numbers by single-digit numbers. **5Nc21** Multiply two-digit numbers by two-digit numbers.	Units 1A, 2A Units 1A, 2A
4.NBT.6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**5Nc23** Divide three-digit numbers by single-digit numbers, including those with a remainder (answers no greater than 30).	Units 1A, 2A
Number and Operations-Fractions **4.NF.1.** Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	**5Nn15** Recognise equivalence between: ½, ¼ and 1/8; 1/3 and 1/6; 1/5 and 1/10.	Unit 3A
4.NF.2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	**5Nn8** Order and compare numbers up to a million using the > and < signs.	Unit 1A

CCSS Grade 4	Stage 5	
4.NF.3. Understand a fraction *a*/*b* with *a* > 1 as a sum of fractions 1/*b*. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.* c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	**5Nn18** Relate finding fractions to division and use to find simple fractions and quantities.	Unit 3A

CCSS Grade 4	Stage 5	
4.NF.4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a. Understand a fraction *a*/*b* as a multiple of 1/*b*. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* b. Understand a multiple of *a*/*b* as a multiple of 1/*b*, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)* c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*		

CCSS Grade 4	Stage 5	
4.NF.5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*	**4Nn20** Understand the equivalence between one-place decimals and fractions in tenths. **5Nn16** Recognise equivalence between the decimal and fraction forms of halves, tenths and hundredths and use this to help order fractions, e.g. 0.6 is more than 50% and less than 7/10.	Unit 3A (stage 4) Unit 3A
4.NF.6. Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*	**4Nn20** Understand the equivalence between one-place decimals and fractions in tenths. **5Nn16** Recognise equivalence between the decimal and fraction forms of halves, tenths and hundredths and use this to help order fractions, e.g. 0.6 is more than 50% and less than 7/10.	Unit 3A (stage 4) Unit 3A
4.NF.7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	**5Nn11** Order numbers with one or two decimal places and compare using the > and < signs.	Units 2A, 3A

CCSS Grade 4	Stage 5	
Measurement and Data **4.MD.1.** Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table. *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet & inches listing the number pairs (1, 12), (2, 24), (3, 36), ...*	**5MI1** Read, choose, use and record standard units to estimate and measure length, mass and capacity to a suitable degree of accuracy. **5MI2** Convert larger to smaller metric units (decimals to one place), e.g. change 2.6 kg to 2600 g.	Unit 1C, 2C, 3C Units 1C, 2C, 3C
4.MD.2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	**5Pt1** Understand everyday systems of measurement in length, weight, capacity, temperature and time and use these to perform simple calculations. **5Pt2** Solve single and multi-step word problems (all four operations); represent them, e.g. with diagrams or a number line.	Units 1C, 2C, 3C Units 1A, 2A, 3A
4.MD.3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*	**5Ma3** Use the formula for the area of a rectangle to calculate the rectangle's area.	Units 1C, 2C, 3C

CCSS Grade 4	Stage 5	
4.MD.4. Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	**5Dh5** Find and interpret the mode of a set of data.	Unit 2B
4.MD.5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	**5Gs6** Understand and use angle measure in degrees; measure angles to the nearest 5 degrees; identify, describe and estimate the size of angles and classify them as acute, right or obtuse.	Unit 3B
4.MD.6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	**5Gs7** Calculate angles in a straight line.	Unit 3B

CCSS Grade 4	Stage 5	
4.MD.7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	**5Gs6** Understand and use angle measure in degrees; measure angles to the nearest 5 degrees; identify, describe and estimate the size of angles and classify them as acute, right or obtuse.	Unit 3B
Geometry **4.G.1.** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	**5Gs5** Recognise perpendicular and parallel lines in 2D shapes, drawings and the environment. **5Gs6** Understand and use angle measure in degrees; measure angles to the nearest 5 degrees; identify, describe and estimate the size of angles and classify them as acute, right or obtuse.	Units 1B, 3B Unit 3B
4.G.2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	**5Gs5** Recognise perpendicular and parallel lines in 2D shapes, drawings and the environment.	Units 1B, 3B

CCSS Grade 4	Stage 5	
4.G.3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	**5Gs2** Recognise reflective and rotational symmetry in regular polygons. **5Gs3** Create patterns with two lines of symmetry, e.g. on a pegboard or squared paper.	Units 1B, 3B Unit 3B
	Stage 5 Framework not mapped: **5Nn4, 5Nn9-10, 5Nn14, 5Nn17, 5Nn19-22, 5Nc1-4, 5Nc6, 5Nc8-12, 5Nc15-17, 5Nc22, 5Nc24-27, 5Gs1, 5Gs4, 5Gp1-3, 5Ml3-7, 5Mt1-6, 5Ma1, 5Ma2, 5Dh1-4, 5Db1, 5Pt3-6, 5Ps1, 5Ps3-9**	

CCSS Maths Standards	Cambridge Primary Maths	
CCSS Grade 5	**Stage 6**	
Key ideas and details	**Framework – learning objectives**	**Scheme of work – units**
Operations and Algebraic Thinking **5.OA.1.** Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	**6Pt1** Choose appropriate and efficient mental or written strategies to carry out a calculation involving addition, subtraction, multiplication or division. **6Nc22** Know and apply the arithmetic laws as they apply to multiplication (without necessarily using the terms commutative, associative or distributive).	Units 1A, 2A, 3A Units 2A, 3A
5.OA.2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*		

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5.OA.3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*	**6Ps5** Identify relationships between numbers and make generalised statements using words, then symbols and letters, e.g. the second number is twice the first number plus 5 (n, 2n+5); all the numbers are multiples of 3 minus 1 (3n-1); the sum of angles in a triangle is 180 degrees.	Unit 3A
Number and Operations in Base Ten **5.NBT.1.** Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	**6Nn2** Know what each digit represents in whole numbers up to a million.	Units 1A, 2A
5.NBT.2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	**6Nn4** Multiply and divide any whole number from 1 to 10,000 by 10, 100 or 1000 and explain the effect.	Units 1A, 2A

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5.NBT.3. Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons	**6Nn12** Use the >, < and = signs correctly. **6Nn14** Order numbers with up to two decimal places (including different numbers of places).	Units 1A, 2A Units 2A, 3A
5.NBT.4. Use place value understanding to round decimals to any place.	**6Nn8** Round whole numbers to the nearest 10, 100 or 1000. **6Nn9** Round a number with two decimal places to the nearest tenth or to the nearest whole number.	Unit 1A, 2A Units 2A, 3A
5.NBT.5. Fluently multiply multi-digit whole numbers using the standard algorithm.	**6Nc14** Multiply pairs of multiples of 10, e.g. 30 x 40, or multiples of 10 and 100, e.g. 600 x 40. **6Nc18** Multiply two-, three- or four-digit numbers (including sums of money) by a single-digit number and two- or three-digit numbers by two-digit numbers.	Units 1A, 2A Unit 2A

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5.NBT.6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**6Nn4** Multiply and divide any whole number from 1 to 10,000 by 10, 100 or 1000 and explain the effect.	Units 1A, 2A
	6Nc10 Divide two-digit numbers by single-digit numbers, including leaving a remainder.	Units 1A, 2A
	6Nc19 Divide three-digit numbers by single-digit numbers, including those leaving a remainder and divide three-digit numbers by two-digit numbers (no remainder) including sums of money.	Units 2A, 3A
5.NBT.7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	**6Nc5** Add/subtract near multiples of one when adding numbers with one decimal place, e.g. 5.6+2.9; 13.5-2.1.	Unit 3A
Number and Operations-Fractions **5.NF.1.** Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = (ad + bc)/bd.)*	**6Nn21** Compare fractions with the same denominator and related denominators, e.g. ¾ with 7/8.	Unit 3A

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5.NF.2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*		
5.NF.3. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*		

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5.NF.4. Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)* b. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.		

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5.NF.5. Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.		
5.NF.6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.		

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5.NF.7. Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.* b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.* c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*	**6Nc21** Relate finding fractions to division and use them as operators to find fractions including several tenths and hundredths of quantities.	Unit 3A

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Measurement and Data **5.MD.1.** Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.	**6MI2** Convert between units of measurement (kg and g, l and ml, km, m, cm and mm), using decimals to three places, e.g. recognising that 1.245 m is 1 m 24.5 cm.	Units 1B, 2B, 3B
5.MD.2. Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*	**6Dh1** Solve a problem by representing, extracting and interpreting data in tables, graphs, charts and diagrams, e.g. line graphs for distance and time; a price 'ready-reckoner' for currency conversion; frequency tables and bar charts with grouped discrete data.	Unit 2C
5.MD.3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.		

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5.MD.4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	**6MI1** Select and use standard units of measure. Read and write to two or three decimal places.	Units 1B, 2B, 3B
5.MD.5. Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.		

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Geometry **5.G.1.** Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).	**6Gp1** Read and plot co-coordinates in all four quadrants.	Units 1C, 3C
5.G.2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	**6Gp1** Read and plot co-coordinates in all four quadrants.	Units 1C, 3C
5.G.3. Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*	**6Gs3** Identify and describe properties of quadrilaterals(including the parallelogram, rhombus and trapezium), and classify using parallel sides, equal sides, equal angles.	Units 1c, 3C

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5.G.4. Classify two-dimensional figures in a hierarchy based on properties.	**6Gs1** Classify different polygons and understand whether a 2D shape is a polygon or not.	Units 1C, 3C
Note: Time is no longer a standard in 5th grade CCSS.	**<u>Stage 6 Framework not mapped:</u> 6Nn1, 6Nn3, 6Nn5-7, 6Nn10-11, 6Nn13, 6Nn15-17, 6Nn19-20, 6Nn22-30, 6Nc1-4, 6Nc6-9, 6Nc11-13, 15-17, 6Nc20, 6Gs2, 6Gs4-6, 6Gp2, 6Ml3-5, 6Mt1-8, 6Ma1-3, 6Dh2-4, 6Db1, 6Pt2-5, 6Ps1-4, 6Ps6-9, 6Nn18**	