Year 5 objective matching grid

Introduction

This grid is designed to help you with your planning by showing how the *Mult-e-Maths* lessons and starters match the renewed *Primary Framework for mathematics* learning objectives for Year 5. It lists all the Year 5 learning objectives, arranged in the seven Framework strands. Matching *Mult-e-Maths* lessons and starters are shown beside each objective using their activity references:

UA refers to the **Using and applying mathematics** strand
CN refers to the **Counting and understanding number** strand
NF refers to the **Knowing and using number facts** strand
CA refers to the **Calculating** strand
SH refers to the **Understanding shape** strand
ME refers to the **Measuring** strand
HD refers to the **Handling data** strand

UA5S1 refers to **Using and applying Year 5 Starter 1**
UA5L1 refers to **Using and applying Year 5 Lesson 1**

For ease of reference, all lessons are highlighted are in grey.

Using and applying	
Learning objectives (with end-of-year expectations in **bold)**	**Mult-e-Maths Starters and Lessons**
Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use	**UA5L1 More place value problems** Using knowledge of place value in puzzles and investigations
	UA5L2 Missing digits Solving calculation problems with missing digits
	UA5L3 Distance problems Using a distance chart in kilometres to solve problems involving mental addition and subtraction
	UA5L4 Money problems Solving money problems in the context of a trip to the zoo, including investigations of combinations of amounts with a given total
	UA5L5 Euro problems Solving problems that involve converting pounds to euros and vice versa
Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem	**UA5L6 Remainders** Investigating sequences and patterns involving remainders
Plan and pursue an enquiry; present evidence by collecting, organising and interpreting information; suggest extensions to the enquiry	**UA5L7 Totting up numbers** Arranging numbers along the sides of triangles or squares so that the numbers along each side have the same total
	UA5L8 Multiplying puzzles Solving puzzles that involve finding products of single-digit numbers, doubling and trebling

Explore patterns, properties and relationships and propose a general statement involving numbers or shapes; identify examples for which the statement is true or false	**UA5S1 Odds and evens** Identifying odd and even numbers, and predicting how they can be used to create odd and even totals and differences
	UA5S2 Using multiplication by 11 Using multiplying by 11 as an aid to adding a sequence of ten numbers where a number in the sequence is the sum of the two previous numbers
	UA5L9 Adding multiples Investigating sums of multiples of two different numbers
	UA5L10 Investigating diagonals Investigating general statements about diagonals
	UA5L11 Odd or even Investigating the outcomes of adding and subtracting odd and even numbers
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	**UA5L12 Investigating triangles** Classifying the triangles formed by a regular hexagon and its diagonals, and investigating the different triangles that can be drawn on dotty grids

Counting and understanding number

Learning objectives	Mult-e-Maths Starters and Lessons
Count from any given number in whole-number and decimal steps, extending beyond zero when counting backwards; relate the numbers to their position on a number line	**CN5S1 Estimating using a number line** Estimating numbers on a 0 to 10 000 number line
	CN5S2 Negative numbers Identifying missing negative numbers on a number grid and ordering negative numbers
	CN5S3 Number sequences Identifying number sequences, given non-consecutive entries, and completing them
	CN5S4 Completing number lines Predicting the numbers on a number line
	CN5S5 Estimating negative decimals Estimating decimals with one decimal place on a -5 to 0 number line
	CN5L1 Negative numbers Ordering positive and negative integers and finding differences between them
	CN5L2 Number sequences Recognising and extending number sequences
	CN5L3 Estimating decimals Estimating the positions of decimals with one or two decimal places on number lines
Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers	**CN5S6 Creating integers** Playing a game with the aim of making an integer with a given property from randomly generated digits
	CN5S7 Numbers and their properties Using digits to make numbers with a given property
	CN5S8 Large numbers Identifying and ordering large numbers
	CN5S9 Rounding integers Rounding integers to the nearest 10, 100 and 1000
	CN5S10 Ordering decimals Putting decimals in order
	CN5S11 Fractions, decimals and rounding Changing mixed numbers to decimals, and rounding

Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers (continued)	**CN5S12 Rounding decimals** Rounding decimals with one decimal place to the nearest whole number
	CN5L4 Identifying large numbers Reading numbers with more than four digits, identifying the values of their digits and partitioning them
	CN5L5 Comparing numbers Comparing numbers using inequality signs
	CN5L6 Comparing decimals Using understanding of decimal place value to compare decimals with up to 2 decimal places
	CN5L7 Ordering decimals Counting in hundredths from 0.01 to 5 and comparing decimals with 2 decimal places
	CN5L8 Rounding decimals Rounding decimals with 1 or 2 decimal places to the nearest whole number
Express a smaller whole number as a fraction of a larger one (e.g. recognise that 5 out of 8 is $^{5}/_{8}$); find equivalent fractions (e.g. $^{7}/_{10} = {}^{14}/_{20}$, or $^{19}/_{10} = 1{}^{9}/_{10}$); relate fractions to their decimal representations	**CN5S13 Counting in fractions** Counting on in fractional steps using improper fractions and mixed numbers
	CN5S14 Equivalent fractions Recognising equivalent fractions
	CN5S15 Fraction relationships Identifying equivalent fractions and relationships between fractions
	CN5S16 Fractions and decimals on number lines Identifying fractions and decimals on a number line
	CN5S17 Equivalent fractions and decimals Finding equivalent fractions and decimals
	CN5L9 Improper fractions and mixed numbers Finding improper fractions and mixed numbers that are equivalent
	CN5L10 Fraction relationships Identifying the relationships between fractions, e.g. that $^{1}/_{6}$ is a half of $^{1}/_{3}$
Understand percentage as the number of parts in every 100 and express tenths and hundredths as percentages	**CN5S18 Percentages** Finding percentages that make a whole and percentages of multiples of 100
	CN5S19 Percentage bingo Class game of bingo using fraction, decimal and percentage equivalents
	CN5L11 Showing percentages Colouring different percentages of a grid with 100 squares
	CN5L12 Percentages and fractions Finding equivalent percentages and fractions
Use sequences to scale numbers up or down; solve problems involving proportions of quantities (e.g. decrease quantities in a recipe designed to feed six people)	**CN5S20 Scaling** Completing sequences involving scaling
	CN5S21 Proportions in patterns Identifying the proportions of each colour in patterns and predicting the quantities of each colour in extended patterns
	CN5S22 Using doubling and halving Use doubling and halving to change ounces to grams and pounds to ounces
	CN5S23 Applying division Using mental division strategies to compare the nutritional information for a chocolate bar with that of a banana
	CN5L13 Shopping offers Investigating shopping offers where you get one free item when you buy a given number of items

Knowing and using number facts	
Learning objectives	**Mult-e-Maths Starters and Lessons**
Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. 6.5 ± 2.7, half of 5.6, double 0.34)	**NF5S1 Shopping problems** Using addition and subtraction strategies with money
	NF5S2 Near doubles with decimals Finding near doubles of 2-digit decimals with one decimal place
	NF5S3 Halving decimals Halving decimals with up to two decimal places
	NF5S4 Adding and subtracting decimals Adding and subtracting decimals less than 1 with up to two decimal places
	NF5L1 Adding and subtracting decimals Adding and subtracting pairs of decimals with units and tenths
	NF5L2 Decimal doubles Finding doubles of 2-digit decimals with one decimal place
Recall quickly multiplication facts up to 10 × 10 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts	**NF5S5 Multiplication and division facts** Using knowledge of times-tables to make predictions about the answers to divisions
	NF5S6 Using times-tables facts Completing multiplication grids given some heading numbers and some entries
	NF5S7 What's the number? Using knowledge of times-tables facts to identify a number from clues
	NF5S8 Multiplication grid Identifying missing numbers in fragments of a multiplication grid
	NF5S9 Product game Identifying pairs of numbers with a given product
	NF5S10 Finding division facts Deducing all the possibilities for missing integers in a division sentence
	NF5L3 Missing multiples Recognising multiples in a multiplication grid
	NF5L4 Using brackets Investigating the use of brackets in calculations
	NF5L5 Multiplying multiples of 10 and 100 Using the answer from one calculation to help with another
Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9)	**NF5S11 Factors** Identifying factors of 2-digit numbers
	NF5S12 Multiples of two numbers Identifying numbers that are multiples of two numbers
	NF5S13 Finding factors Identifying factors by drawing rectangles
	NF5S14 Factor puzzles Using knowledge of factors to solve a puzzle
	NF5L6 Finding factors Finding factors of numbers less than 100
Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations	**NF5L7 Using and applying estimation** Estimating answers to multiplications involving decimals and applying estimation to multiplication puzzles

Calculating	
Learning objectives	**Mult-e-Maths Starters and Lessons**
Extend mental methods for whole-number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12 × 9), to multiply by 25 (e.g. 16 × 25), to subtract one near-multiple of 1000 from another (e.g. 6070 – 4097)	**CA5S1 Complements to 100** Finding numbers with a total of 1000
	CA5S2 Differences in context Finding differences between times expressed in minutes and seconds
	CA5S3 Adding several money amounts Adding several money amounts up to £1 and giving the answer in pence and in pounds
	CA5S4 Finding differences Finding the difference between pairs of integers in the range 0 to 120
	CA5S5 Complements to 10 000 and 100 000 Finding pairs of multiples of 100 that make 10 000 and pairs of multiples of 1000 that make 100 000
	CA5S6 Near doubles Finding sums of 2-digit and 3-digit near doubles
	CA5S7 How many more to make? Finding what must be added to a 3-digit number to make the next multiple of 100
	CA5S8 Missing addition digits Finding the missing digits in additions involving 3-digit integers
	CA5S9 Missing subtraction digits Finding the missing digits in subtractions involving 3-digit integers
	CA5S10 Divisions with decimal answers Dividing whole numbers by single-digits to produce decimal answers, and checking answers using multiplication
	CA5S11 Related facts Using a known multiplication fact to find the answers to related multiplications and divisions mentally
	CA5S12 Multiplying by 9 and 11 Using knowledge of how to multiply by 10 to multiply 2-digit numbers by 9 and 11
	CA5S13 Broken calculator multiplications Using factors to enter multiplications on a calculator whose number 2 key is 'broken'
	CA5S14 Broken calculator divisions Using factors to enter divisions on a calculator whose number 2 key is 'broken'
	CA5S15 Finding and using multiplication facts Deducing multiplication facts for 13 from known facts, and using them to solve divisions with remainders
	CA5S16 Multiplying 2-digit numbers by 6 Using multiplication facts for 2 and 4 to multiply 2-digit numbers by 6
	CA5L1 Adding consecutive numbers Choosing and using strategies for adding several consecutive numbers
	CA5L2 Mental addition strategies Choosing and using mental strategies to add pairs of 3-digit numbers where at least one number is a multiple of 10
	CA5L3 Using multiples of ten Mentally adding and subtracting 2-digit near multiples of 10 to/from 3-digit numbers
	CA5L4 Missing numbers Using inverse operations to find missing numbers in calculations

Extend mental methods for whole-number calculations, for example to multiply a two-digit by a one-digit number (e.g. 12 × 9), to multiply by 25 (e.g. 16 × 25), to subtract one near-multiple of 1000 from another (e.g. 6070 – 4097) **(continued)**	**CA5L5 Adding several 2-digit numbers** Applying a range of mental strategies to additions of several 2-digit integers
	CA5L6 Finding differences Finding differences, focusing on counting up
	CA5L7 Mental strategies for 4-digit integers Mentally adding and subtracting pairs of 4-digit multiples of 100 and pairs of 4-digit near multiples of 1000
	CA5L8 Doubling and halving Using doubling and halving to make multiplication easier
	CA5L9 Splitting larger numbers Multiplying 2-digit numbers by single-digit numbers, by splitting the 2-digit numbers into smaller parts
	CA5L10 Using factors to multiply Using factors to multiply larger numbers
	CA5L11 Using factors to divide Using factors to divide larger numbers
Use efficient written methods to add and subtract whole numbers and decimals with up to two places	**CA5L12 Written integer subtraction** Using of the standard written method for HTU − HTU and ThHTU − ThHTU
	CA5L13 Written integer addition Using the standard written method for HTU + HTU and ThHTU + ThHTU
	CA5L14 Written decimal addition Using the standard written method for adding numbers with up to two decimal places
	CA5L15 Written decimal subtraction Using the standard written method for subtracting numbers with up to two decimal places
Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000	**CA5S17 Using place value to multiply and divide** Investigating the effect of multiplying and dividing integers and decimals by 10 and 100
	CA5S18 Multiplying and dividing by 1000 Multiplying and dividing whole numbers by 1000 to give whole-number answers
	CA5S19 Multiplying and dividing by 10 and 100 Multiplying and dividing integers and decimals by 10 and 100
	CA5L16 Multiplying and dividing by 10 and 100 Applying understanding of multiplying and dividing integers by 10 and 100 to multiplying and dividing decimals by 10, 100 and 1000
Refine and use efficient written methods to multiply and divide HTU × U, TU × TU, U.t × U and HTU ÷ U	**CA5S20 Short multiplication** Using missing number column multiplications to review the method of short multiplication
	CA5L17 The grid method of multiplication Developing informal written methods to multiply TU × TU
	CA5L18 Multiplying decimals Developing informal written methods to multiply U.t × U
	CA5L19 Written division with no remainders Developing an informal written method, using multiples of the divisor, for division of HTU by U
	CA5L20 Written division with remainders Developing informal written methods for division of HTU by U with remainders
	CA5L21 Rounding after division Solving word problems using division where rounding is required

Find fractions using division (e.g. $^1/_{100}$ of 5 kg), and percentages of numbers and quantities (e.g. 10%, 5% and 15% of £80)	**CA5S21 Fractions of numbers and inverses** Identifying the starting number given a fractional part
	CA5S22 Inverse relationships with decimals Multiplying decimals to find the missing number in sentences such as '3.5 is one half of …'
	CA5S23 Fraction measures Finding unit fractions of measures
	CA5S24 Percentages of numbers Positioning percentages on a number line and finding percentages of whole numbers
	CA5L22 Dividing pizzas Sharing pizzas to demonstrate the relationship between fractions and division
	CA5L23 Relating fractions to division Relating finding a unit fraction of a number to division
	CA5L24 Finding non–unit fractions of numbers Using known fractions of numbers to work out new fractions, and checking fractions of numbers using division
	CA5L25 Fractions of numbers Finding fractions of numbers by using familiar fractions
	CA5L26 Identifying numbers on a number line Using relationships between fractions to calculate fractions of numbers mentally
	CA5L27 Mixed numbers and decimals Finding one quarter of numbers and expressing answers that are not whole numbers as mixed numbers and as decimals
	CA5L28 Percentages of amounts Finding 10% of an amount and using this to work out other percentages of the same amount
	CA5L29 Percentage reductions Finding simple percentage reductions of prices that are multiples of 10, and using them to calculate new prices
Use a calculator to solve problems, including those involving decimals or fractions (e.g. find $^3/_4$ of 150 g); interpret the display correctly in the context of measurement	**CA5S25 Using a calculator** Using a calculator to find non-unit fractions of measurements and money amounts
	CA5L30 Using a calculator Using a calculator to solve word problems involving multiplication and division

Understanding shape

Learning objectives	Mult-e-Maths Starters and Lessons
Identify, visualise and describe properties of rectangles, triangles, regular polygons and 3-D solids; use knowledge of properties to draw 2-D shapes, and to identify and draw nets of 3-D shapes	**SH5S1 Odd triangle out** Describing and naming triangles and identifying similarities and differences between them
	SH5S2 2-D shapes Sketching 2-D shapes based on descriptions
	SH5L1 2-D shape properties Identifying the properties of 2-D shapes in order to classify them
	SH5L2 3-D shapes Visualising 3-D shapes from 2-D drawings

Read and plot coordinates in the first quadrant; recognise parallel and perpendicular lines in grids and shapes; use a set-square and ruler to draw shapes with perpendicular or parallel sides	**SH5S3 Coordinates** Giving and plotting coordinates on a grid of squares
	SH5L3 Coordinates Using compass directions and then coordinates to plot the outlines of polygons
	SH5L4 Parallel and perpendicular sides Identifying and drawing parallel and perpendicular lines
Complete patterns with up to two lines of symmetry; draw the position of a shape after a reflection or translation	**SH5S4 Symmetrical patterns** Completing symmetrical patterns on a grid of squares
	SH5L5 Symmetry and reflection Investigating lines of symmetry and reflections of 2-D shapes
	SH5L6 Translating shapes Investigating the effect of translating shapes on the coordinates of their vertices
Estimate, draw and measure acute and obtuse angles using an angle measurer or protractor to a suitable degree of accuracy; calculate angles in a straight line	**SH5S5 Angles** Estimating and measuring acute and obtuse angles
	SH5L7 Angles Estimating, measuring and drawing angles

Measuring

Learning objectives	Mult-e-Maths Starters and Lessons
Read, choose, use and record standard metric units to estimate and measure length, weight and capacity to a suitable degree of accuracy (e.g. the nearest centimetre); convert larger to smaller units using decimals to one place (e.g. change 2.6 kg to 2600 g)	**ME5S1 Changing units** Converting larger metric units to smaller ones
	ME5S2 Balancing masses Identifying combinations of masses, expressed in different units, with the same mass
	ME5S3 How much water? Measuring and interpreting capacities and finding ways of combining them to make 1 litre of water
	ME5L1 Mass Estimating and measuring masses, and expressing masses in different ways
Interpret a reading that lies between two unnumbered divisions on a scale	**ME5S4 Interpreting readings** Estimating mass readings on a circular scale
Draw and measure lines to the nearest millimetre; measure and calculate the perimeter of regular and irregular polygons; use the formula for the area of a rectangle to calculate the rectangle's area	**ME5S5 Area pairs** Finding areas that match the dimensions of rectangles
	ME5L2 Area Developing understanding that the area of a rectangle can be calculated by multiplying its length by its breadth
	ME5L3 Perimeter Finding the perimeters of polygons
Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals	**ME5S6 Telling the time** Writing the time from an analogue clock using 12-hour and 24-hour digital notation
	ME5L4 The 24-hour clock Interpreting and applying 24-hour clock times
	ME5L5 Organising time Using a calendar to investigate the current school year and planning a new school year with six terms
	ME5L6 Using a calendar Investigating the features of calendars and finding time lengths between dates

Handling data	
Learning objectives	**Mult-e-Maths Starters and Lessons**
Describe the occurrence of familiar events using the language of chance or likelihood	**HD5S1 How likely?** Discussing the likelihood of events
	HD5L1 Chance Discussing the likelihood of events occurring
Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using ICT to present features, and identify further questions to ask	**HD5S2 Investigating dice throws** Investigating which number on a dice is most likely to be thrown
	HD5L2 Computer survey Testing a hypothesis by collecting, representing and interpreting data
Construct frequency tables, pictograms and bar and line graphs to represent the frequencies of events and changes over time	**HD5S3 Temperatures** Reading temperatures from a thermometer and presenting and interpreting the data collected
Find and interpret the mode of a set of data	**HD5S4 Finding the mode** Finding the mode of given sets of data