Year 5 Planning grid

Introduction

This document is designed to help you to match activities from the *Mult-e-Maths* strand discs with the renewed *Primary Framework*.

The planning grid lists all the Year 5 learning objectives from the *Primary Framework* arranged in the seven Framework strands:

- Using and applying mathematics
- Counting and understanding number
- Knowing and using number facts
- Calculating
- Understanding shape
- Measuring
- Handling data

End-of-year expectations are given in **bold.**

Each *Mult-e-Maths* activity is matched to the Framework learning objective it links to most closely. In some cases a *Mult-e-Maths* activity now better matches a different year group from that given in its activity reference, e.g. equivalent fractions concepts discussed in the 'FD6S1: Fraction patterns' are now better suited to the Year 5 learning objectives. Such activities are marked in the planning grid with an asterisk, e.g. * **MD6S1 Fraction patterns**

Mult-e-Maths lessons and starters are referenced in the planning grid by the strand CD-ROM they were included on and by their activity number:

FD refers to the Fractions, Decimals, Percentages, Ratio and Proportion strand
NS refers to the Numbers and the Number System strand
AD refers to Additions and Subtraction strand
MD refers to Multiplication and Division strand
SS refers to Measures, Shape, Space and Handling Data strand
SP refers to the Solving Problems strand

AS5S1 refers to Addition and Subtraction Year 5 Starter 1
AS5L1 refers to Addition and Subtraction Year 5 Lesson 1

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

We are developing a fully revised edition of *Mult-e-Maths* matched to the renewed Primary Framework. For further information about this please call the Education Information Line on 01223 325013, or email educustserve@cambridge.org

Using and applying	
Learning objectives	**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	**SP5L3 More place value problems** Using knowledge of place value in puzzles and investigations
	SP5L5 Missing digits Solving calculation problems with missing digits
	SP5L7 Distance problems Using a distance chart in kilometres to solve problems involving mental addition and subtraction
	SP5L8 Money problems Solving money problems in the context of a trip to the zoo, including investigations of combinations of amounts with a given total
	SP5L10 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	**SP5L2 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	**SP5L1 Totting up numbers** Arranging numbers along the sides of triangles or squares so that the numbers along each side have the same total
	MD5L12 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	**SP5L4 Adding multiples** Investigating sums of multiples of two different numbers
	SP5L9 Investigating diagonals Investigating general statements about diagonals
	NS5S4 Odds and evens Identifying odd and even numbers and predicting how they can be used to create odd and even totals and differences
	NS5L11 Odd or even? Investigating the outcomes of adding and subtracting odd and even numbers
	MD5S9 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
Explain reasoning using diagrams, graphs and text; refine ways of recording using images and symbols	**SP5L6 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	**NS5S1 Estimating using a number line** Estimating numbers on a 0 to 1000 number line
	NS5S7 Negative numbers Identifying missing negative numbers on a number grid and ordering negative numbers
	NS5S12 Number sequences Identifying number sequences, given non-consecutive entries, and completing them

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 **(continued)**	**NS5S13 Completing number lines** Predicting the numbers on a number line
	NS5S15 Estimating negative numbers Estimating decimals with one decimal place on a -5 to 0 number line
	* **NS6S2 Estimating using a number line** Making and justifying estimates on a number line
	* **NS6S4 Extending sequences** Recognising and extending number sequences with whole number step sizes
	NS5L6 Negative numbers Ordering positive and negative integers and finding differences between them
	NS5L7 Number sequences Recognising and extending number sequences
	NS5L9 Estimating Further developing strategies for estimating large numbers of objects and numbers on a number line
Explain what each digit represents in whole numbers and decimals with up to two places, and partition, round and order these numbers	**NS5S5 Making numbers** Playing a game with the aim of making the largest possible number from given digits
	NS5S6 Numbers and their properties Using digits to make numbers with a given property
	NS5S10 Large numbers Identifying and ordering large numbers
	NS5L1 Making numbers Reading numbers with more than 4 digits, identifying the values of their digits and partitioning them
	NS5L5 Comparing numbers Comparing numbers using inequality signs
	NS5L10 Rounding Further developing rounding integers to the nearest 10 and 100, and extending to rounding integers to the nearest 1000
	FD5S12 Ordering decimals Putting decimals in order
	FD5S14 Rounding decimals Changing mixed numbers to decimals, and rounding
	FD5L8 Comparing decimals Using understanding of decimal place value to compare decimals with up to two decimal places
	FD5L9 Ordering decimals Counting in hundredths from 0.01 to 5 and comparing decimals with two decimal places
	FD5L10 Rounding decimals Positioning decimals with one decimal place on a number line to round them 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	**FD5S1 Counting in fractions** Counting on in fractional steps using improper fractions and mixed numbers
	FD5S2 Equivalents snap Recognising equivalent fractions
	FD5S3 Fractions wall Representing fractions as a wall of rods
	FD5S13 Count on Putting fractions and decimals on a line
	FD5S15 Equivalents Finding equivalent fractions and decimals

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 **(continued)**	* **FD6S1 Fraction patterns** Identifying and continuing patterns of equivalent fractions
	* **FD6S16 Fraction count** Counting on and back in fractions
	FD5L2 Improper fractions and mixed numbers Finding improper fractions and mixed numbers that are equivalent
	* **FD6L1 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	**FD5S18 Percentages grid** A class game of adding percentages
	FD5S19 Percentages bingo A class game of bingo using fraction, decimal and percentage equivalents
	FD5L12 Showing percentages Colouring different percentages of a grid with 100 squares
	FD5L13 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)	**FD5S7 Ratio** Using multiples to show a ratio pattern
	FD5S8 Cube patterns Making ratio patterns with cubes
	FD5L7 Shopping offers involving ratio Working out information about shopping items when you get one free item for every given number bought
	MD5S10 Use doubling and halving Using doubling and halving to change ounces to grams and pounds to ounces
	MD5S12 Applying division Using mental division strategies to compare the nutritional information for a chocolate bar with that of a banana
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, halve 5.6, double 0.34)	**AS5S4 Shopping problems** Using addition and subtraction strategies with money
	AS5L5 Adding and subtracting decimals Adding and subtracting pairs of decimal numbers each with units and tenths
	AS5L7 Decimal doubles Finding doubles and near doubles of 2-digit decimals with one decimal place
	FD5S11 Adding and subtracting decimals A class game of adding and subtracting decimals
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	**MD5S2 Using times-tables facts** Completing multiplication grids given some heading numbers and some entries
	MD5S3 What's the number? Using knowledge of times-tables facts to identify a number from clues
	MD5S4 Multiplication grid Identifying missing numbers in fragments of a multiplication grid
	MD5S5 Product game Identifying pairs of numbers with a given product
	MD5S6 Finding division facts Using knowledge of times-tables to deduce all the possibilities for the missing numbers in a division sentence

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 **(continued)**	* **MD6S11 Applying times-tables facts** Using times-tables facts to multiply multiples of 10, 100 and 1000
	MD5L6 Using brackets Investigating the use of brackets on calculations
	MD5L13 Using known facts Using the answer from one calculation to help with another
	NS5S3 Multiples Using knowledge of multiples to decide whether the answers to divisions will be whole numbers
	* **NS6L4 Missing multiples** Recognising multiples in a multiplication grid
Identify pairs of factors of two-digit whole numbers and find common multiples (e.g. for 6 and 9)	**NS5S8 Factors** Identifying factors of 2-digit numbers
	NS5S11 Multiples of two numbers Identifying numbers that are multiples of two numbers
	NS5S14 Finding factors Identifying factors by drawing rectangles
	* **NS6S11 Factors** Using knowledge of factors to solve a puzzle
	NS5L12 Finding factors Finding factors of numbers less than 100
	* **FD6S2 Finding factors** Identifying factors and common factors of numbers
Use knowledge of rounding, place value, number facts and inverse operations to estimate and check calculations	

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)	**AS5S3 Complements** Finding what number added to a given number gives a total of 100 or 1000
	AS5S5 Time differences Finding differences between times
	AS5S7 Finding differences Subtracting one number from another, where both numbers are in the range 0 to 120
	AS5S8 Missing addition digits Finding the missing digits in additions involving 3-digit numbers
	AS5S9 Missing subtraction digits Finding the missing digits in subtractions involving 3-digit numbers
	* **AS4S5 Multiples of 10, 100 and 1000** Adding and subtracting multiples of 10, 100 and 1000 to/from 4-digit numbers
	* **AS6S6 Adding multiples of 100** Adding pairs of 4-digit multiples of 100
	AS5L1 Adding consecutive numbers Choosing and using different strategies for adding several consecutive numbers *
	AS5L3 Mental addition strategies Choosing and using different mental strategies to add pairs of 3-digit numbers where at least one is a multiple of 10
	AS4L5 Using multiples of ten Adding and subtracting mentally using multiples of 10 and adjustment
	AS5L6 How many more to make …? Finding pairs of numbers that total a multiple of 100

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)**	* **AS4L11 Missing numbers** Using inverse operations to find missing numbers in calculations
	* **AS6L1 multiples of 100 and 1000** Adding and subtracting pairs of 4-digit multiples of 100 and pairs of near multiples of 1000
	MD5S13 Broken calculator multiplications Using factors to enter multiplications on a calculator whose number 2 key is 'broken'
	MD5S14 Broken calculator divisions Using factors to enter divisions on a calculator whose number 2 key is 'broken
	MD5S15 Related facts Using a known multiplication fact to find the answers to related multiplications and divisions mentally
	* **MD6S7 Missing number multiplications** Using times-tables facts to identify the missing numbers in diagrams involving multiplication
	* **MD6S8 Making products** Using single-digit numbers to make a target product
	* **MD6S12 Missing number multiplication grids** Identifying missing numbers in multiplication grids
	* **MD6S13 Using known facts to divide** Finding missing numbers in division sentences
	* **MD6S14 Making multiplications and divisions** Using a given set of numbers to make as many multiplication and division sentences as possible
	* **MD6S17 Division facts** Recalling, or deriving, division facts
	MD5L1 Doubling and halving Using doubling and halving to make multiplication easier
	MD5L7 Splitting larger numbers Multiplying 2-digit numbers by single-digit numbers, by splitting the 2-digit numbers into smaller parts
	MD5L8 Using factors to multiply Using factors to multiply larger numbers
	MD5L9 Using factors to divide Using factors to divide larger numbers
	* **MD4L4 Dividing money amounts** Applying understanding of division and remainders in the context of money
	* **AS6S3 Complements to 10 000 and 100 000** Finding pairs of multiples of 100 to make 10 000 and pairs of multiples of 1000 to make 100 000
	* **AS6L1 Multiples of 100 and 1000** Adding and subtracting pairs of 4-digit multiples of 100 and pairs of near multiples of 1000
Use efficient written methods to add and subtract whole numbers and decimals with up to two places	**AS5L4 3- and 4-digit differences** Making subtractions using pairs of 3-digit numbers, then 4-digit numbers, and solving them using a written method
Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000	**NS5S2 Multiplying and dividing by 10 or 100** Multiplying and dividing positive integers by 10 and 100
	* **NS6S1 Multiplying and dividing by 1000** Multiplying and dividing whole numbers by 1000 to give whole-number answers

Use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 or 1000 **(continued**	**NS5L2 Multiplying and dividing by 10 and 100** Using multiplication and division by 10 and 100 to solve missing number problems
	* **NS6L1 Multiplying and dividing by 10 and 100** Applying knowledge of multiplying and dividing integers by 10 and 100 to multiplying and dividing decimals by 10 and 100
	FD5S9 Tenths and hundredths Multiplying and dividing by 10 and 100
Refine and use efficient written methods to multiply and divide HTU × U, TU × TU, U.t × U, and HTU ÷ U	**MD5S11 Egyptian multiplication** Comparing the Ancient Egyptian method of multiplication (which is based on doubling and partitioning) with other methods
	MD5S16 Lattice multiplication Using the lattice method of multiplication, and checking answers using mental strategies
	MD5S17 Short multiplication Using missing number column multiplications to review the method of short multiplication
	MD5L3 Written division Developing an informal written method, using multiples of the divisor, for division of HTU by U
	MD5L4 Written division with remainders Developing informal written methods for division of HTU by U with remainders
	MD5L5 Rounding after division Solving word problems using division where rounding is required
	MD5L14 The grid method of multiplication Developing informal written methods to multiply TU × TU
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)	**FD5S5 What's my number?** Finding fractions of numbers by dividing
	FD5S6 Inverse relationships with decimals Multiplying decimals to find the missing number in sentences such as '3.5 is one half of … ?'
	FD5S16 Fraction measures Finding fractions of measures
	FD5S17 Understanding percentages Putting percentages on a number line and finding percentages of whole numbers
	FD5L1 Dividing pizzas Sharing pizzas to demonstrate the relationship between fractions and division
	FD5L3 Relating fractions to division Relating finding a unit fraction of a number to division
	FD5L4 Finding fractions Using known fractions of numbers to work out new fractions, and checking fractions of numbers using division
	FD5L5 Using fractions to identify numbers on a number line Using relationships between fractions to calculate fractions of numbers mentally
	FD5L11 Mixed numbers and decimals Dividing whole numbers by 4 and expressing an answer that is not a whole number as a mixed number and as a decimal
	FD5L14 Percentages of amounts Finding 10% of an amount and using this to work out other percentages of the same amount
	FD5L15 Percentage reductions Finding simple percentage reductions of prices that are multiples of 10, and using them to calculate new prices
	MD5L2 Fractions of numbers Finding fractions of numbers by using familiar fractions

Use a calculator to solve problems, including those involving decimals or fractions, (e.g. to find $^3/_4$ of 150 g); interpret the display correctly in the context of measurement	**MD5L11 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 identify and draw nets of 3-D shapes	**SS5S1 Odd triangle out** Describing and naming triangles and identifying similarities and differences between them
	SS5S2 Nets Identifying which arrangements of joined squares are nets of an open cube
	SS5L1 2-D shape properties Identifying the properties of 2-D shapes in order to classify them
	SS5L2 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	**SS5S4 Coordinates** Giving and plotting coordinates on a grid of squares
	SS5L3 Coordinates Using compass directions and then coordinates to plot the outlines of polygons
Complete patterns with up to two lines of symmetry; draw the position of a shape after a reflection or translation	**SS5S3 Symmetrical patterns** Completing symmetrical patterns on a grid of squares
	SS5L4 Symmetry and reflection Investigating lines of symmetry and reflections of 2-D shapes
	SS5L12 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	**SS5S5 Angles** Estimating and measuring acute and obtuse angles
	SS5L5 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)	**SS5S7 Changing units** Converting larger metric units to smaller ones
	SS5S8 Balancing masses Identifying items with the same mass
	SS5S10 How much water? Comparing the capacities of containers, and identifying ways of making 1 litre of water
	SS5L8 Mass Estimating and measuring masses, and expressing masses in different ways
Interpret a reading that lies between two unnumbered divisions on a 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	**SS5S9 Finding the perimeter** Calculating perimeters of rectangles and regular polygons
	SS5S15 Area pairs Finding areas that match the dimensions of rectangles
	SS5L7 Area Carrying out area investigations to develop understanding that the area of a rectangle can be calculated by multiplying its length by its breadth

Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals	**SS5S6 Telling the time** Writing the time from an analogue clock using 12-hour and 24-hour digital notation
	SS5L6 The 24-hour clock Interpreting and applying 24-hour clock times
	SS5L11 Organising time Planning a school year with six terms
	* **SS3L11 Dates and times** Discussing units of time and using a calendar
Handling data	
Learning objectives	**Mult-e-Maths Starters and Lessons**
Describe the occurrence of familiar events using the language of chance or likelihood	**SS5S12 How likely?** Discussing the likelihood of events
	SS5L9 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	**SS5S11 Investigating dice throws** Investigating which number on a dice is most likely to be thrown
	SS5L10 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	**SS5S13 Temperatures** Reading temperatures from a thermometer and presenting and interpreting the data collected
Find and interpret the mode of a set of data	**SS5S14 Finding modes and ranges** Finding the mode and the range of sets of data