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Mult e Maths

KS2 Measures, Shape, Space and Handling Data Teacher's Notes

Series consultant – Anita Straker

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Frontmatter
More information

Introduction

All activities in the Mult-e-Maths Strand CD-ROMs are accompanied by teacher's notes, which are included on the CD-ROMS as PDFs. This pre-printed pack is designed to save you printing time, providing a ready-to-use resource that you can file in a ring-binder alongside your maths planning.

The pack consists of four parts, one for each of Years 3, 4, 5 and 6. In each part there are:

- a list of contents, including the titles of the on-screen activities and brief descriptions of them;
- a planning grid linking activities to objectives in the National Numeracy Strategy *Framework for teaching mathematics* (see below for further details);
- teacher's notes for starters and then lessons (see overleaf for further details).

Planning

The **planning grids** included in this pack are designed to help you to incorporate the Mult-e-Maths Strands into your planning.

The left-hand column of each grid shows NNS *Framework* objectives for the appropriate strand and year. They appear in the same order as in the *Framework*.

The right-hand column shows the starter and lesson activities that match each objective. (Lessons are shaded to enable you to distinguish between starters and lessons more easily.)

Note: The grids show the main learning objective for each activity, whereas the teacher's notes also detail any linked objectives.

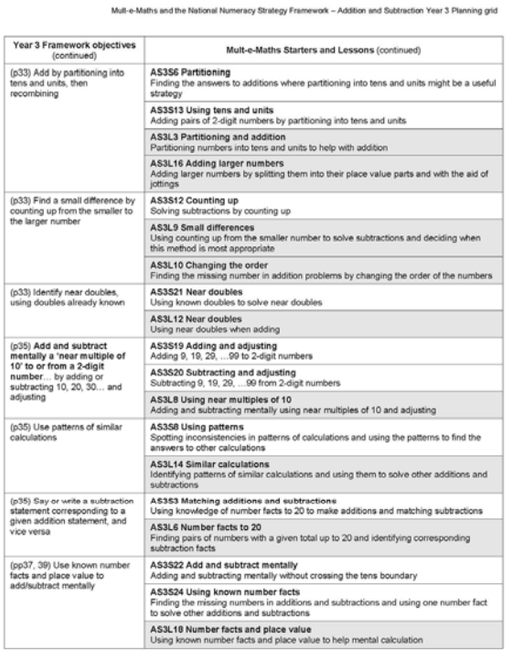
The Mult-e-Maths Strands do not cover all of the NNS *Framework* objectives, but are designed to support other methods of effective teaching, including practical and pencil and paper work.

Medium term plans can be downloaded from the Mult-e-Maths website. These show how each Mult-e-Maths Strand activity can be mapped into your termly planning. They are provided in Microsoft Word ® format to enable you to adapt them to your own school plans.

Clicking on the Mult-e-Maths icon on any screen of a Mult-e-Maths Strand will take you directly to the website at:

www.cambridge-hitachi.com/multemaths/

The medium term plans can be accessed from the 'Ideas and inspiration' section.



Mult-e-Maths and the National Numeracy Strategy Framework – Addition and Subtraction Year 3 Planning grid

Year 3 Framework objectives (continued)	Mult-e-Maths Starters and Lessons (continued)
(p33) Add by partitioning into tens and units, then recombining	**AS3S6 Partitioning** Finding the answers to additions where partitioning into tens and units might be a useful strategy
	AS3S13 Using tens and units Adding pairs of 2-digit numbers by partitioning into tens and units
	AS3L3 Partitioning and addition Partitioning numbers into tens and units to help with addition
	AS3L16 Adding larger numbers Adding larger numbers by splitting them into their place value parts and with the aid of jottings
(p33) Find a small difference by counting up from the smaller to the larger number	**AS3S12 Counting up** Solving subtractions by counting up
	AS3L9 Small differences Using counting up from the smaller number to solve subtractions and deciding when this method is most appropriate
	AS3L10 Changing the order Finding the missing number in addition problems by changing the order of the numbers
(p33) Identify near doubles, using doubles already known	**AS3S21 Near doubles** Using known doubles to solve near doubles
	AS3L12 Near doubles Using near doubles when adding
(p35) **Add and subtract mentally a 'near multiple of 10' to or from a 2-digit number**… by adding or subtracting 10, 20, 30… and adjusting	**AS3S19 Adding and adjusting** Adding 9, 19, 29, …99 to 2-digit numbers
	AS3S20 Subtracting and adjusting Subtracting 9, 19, 29, …99 from 2-digit numbers
	AS3L8 Using near multiples of 10 Adding and subtracting mentally using near multiples of 10 and adjusting
(p35) Use patterns of similar calculations	**AS3S8 Using patterns** Spotting inconsistencies in patterns of calculations and using the patterns to find the answers to other calculations
	AS3L14 Similar calculations Identifying patterns of similar calculations and using them to solve other additions and subtractions
(p35) Say or write a subtraction statement corresponding to a given addition statement, and vice versa	**AS3S3 Matching additions and subtractions** Using knowledge of number facts to 20 to make additions and matching subtractions
	AS3L6 Number facts to 20 Finding pairs of numbers with a given total up to 20 and identifying corresponding subtraction facts
(pp37, 39) Use known number facts and place value to add/subtract mentally	**AS3S22 Add and subtract mentally** Adding and subtracting mentally without crossing the tens boundary
	AS3S24 Using known number facts Finding the missing numbers in additions and subtractions and using one number fact to solve other additions and subtractions
	AS3L18 Number facts and place value Using known number facts and place value to help mental calculation

Planning grid for Addition and Subtraction Year 3

Year 3 sample plan: Autumn term, part 1

EVERY DAY: Practise and develop oral and mental skills (e.g. counting, mental strategies, rapid recall of +, –, x and ÷ facts).

Read and write whole numbers up to 1000.
Add/subtract 1, 10 and 100 to/from any whole number.
Count on/back in 10s and 100s from any 2- or 3-digit number.
Recall addition and subtraction facts for each number to at least 10.
Recall pairs of whole numbers that total 20.
Derive doubles of whole numbers to 15, and corresponding halves.
Recall multiplication facts for 5 times-table, and derive division facts.
Recall multiplication facts for 10 times-table, and derive division facts.
Recall multiplication facts for 2 times-table, and derive division facts.

Unit	Days	Pages	Topic	Objectives: children will be taught to …	Mult-e-Maths starter reference	Mult-e-Maths lesson reference
1	3	8–19	Place value, ordering, estimating, rounding	Read and write whole numbers to 1000 in figures and words. Know what each digit represents, and partition 3-digit numbers into a multiple of 100, a multiple of 10, and ones. Read and begin to write the vocabulary of estimation. Estimate up to 100 objects.	NS3S4 NS3S12 NS3S3 NS3S1	NS3L2 NS3L3 NS3L1
		76–77	Reading numbers from scales	Read scales to the nearest division.	SS3S13	
2–3	10	24–29	Understanding + and –	Extend understanding of the operations of addition and subtraction. Read and begin to write related vocabulary. Use +, – and = signs. Recognise that addition can be done in any order.		
		66–69	Money and 'real life' problems	Recognise all coins and notes. Understand £.p. notation (e.g. £3.06). Find totals, give change and work out how to pay.		AS3L15, SP3L6
		32–41	Mental calculation strategies (+ and –)	Put the larger number first to count on. Identify near doubles. Bridge through a multiple of 10 and adjust.	AS3S11 AS3S21 AS3S17, AS3S18, AS3S23	AS3L13 AS3L12 AS3L7
		58–61	Making decisions, checking results	Choose appropriate number operations and calculation methods to solve word problems. Explain and record methods informally. Check sums by adding in different order.		SP3L1
		13	Place value, ordering, estimating, rounding	Say the number that is 1, 10 or 100 more, or less, than any given 2- or 3-digit number.	NS3S2, NS3S11	NS3L4
4–6	13	70–77	Measures, including problems	Read time to 5 minutes. Read and begin to write the vocabulary related to length. Use a ruler to draw and measure lines to the nearest half cm. Read scales to the nearest division. Use decimal notation for m and cm. Measure and compare using m and cm. Know the relationships between m and cm, km and m. Suggest suitable units and equipment to estimate or measure lengths, including km. Record to nearest whole/half unit, or as mixed units (e.g. 3 m 20 cm). Choose an appropriate number operation and calculation method to solve word problems. Explain and record methods informally.	SS3S9	SS3L6 SS3L7
		80–89	Shape and space	Classify and describe 3-D and 2-D shapes, referring to reflective symmetry, faces, sides/edges, vertices, angles. Read and begin to write the vocabulary of position. Use spaces on square grids. Identify right angles in 2-D shapes and in the environment.	SS3S1, SS3S3 SS3S15 SS3S5	SS3L2 SS3L3
		62–65	Reasoning about shapes	Investigate general statements about shapes.		
7	2		Assess and review			

Sample medium term plans for Year 3

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Frontmatter
More information

Teacher's notes

Each strand except Solving Problems consists of separate starters and lessons to enable you to mix and match starter and lesson activities appropriate to your planning. (The starters for Solving Problems are incorporated within the lessons, because each starter is designed to revise specific maths skills needed in the problem-solving lesson activity.) All of the activities are accompanied by teacher's notes.

The teacher's notes for starters include the following sections:

- **Objective(s)** from the NNS *Framework*
- **Prior knowledge and skills** to help you to plan when it is appropriate to incorporate this activity into your teaching
- **Vocabulary**
- **Resources**
- **Main teaching activity** to give a suggested order of teaching, plus notes on using the Mult-e-Maths activity
- **Probing questions**

In addition to these sections, teacher's notes for lessons may also include some or all of the following:

- **Differentiated pupil activities**
- **Plenary**
- **Key idea and assessment** to suggest a focus for what to assess during the plenary
- **Solutions** to pupil activities

For ease of reference, each activity and its accompanying teacher's notes are coded, for example:

- FD6S17 means Year 6 Starter 17 of the Fractions, Decimals, Percentages, Ratio and Proportion Strand.
- AS3L7 means Year 3 Lesson 7 of the Addition and Subtraction Strand.

The codes for the six Mult-e-Maths Strands are:

FD Fractions, Decimals, Percentages, Ratio and Proportion

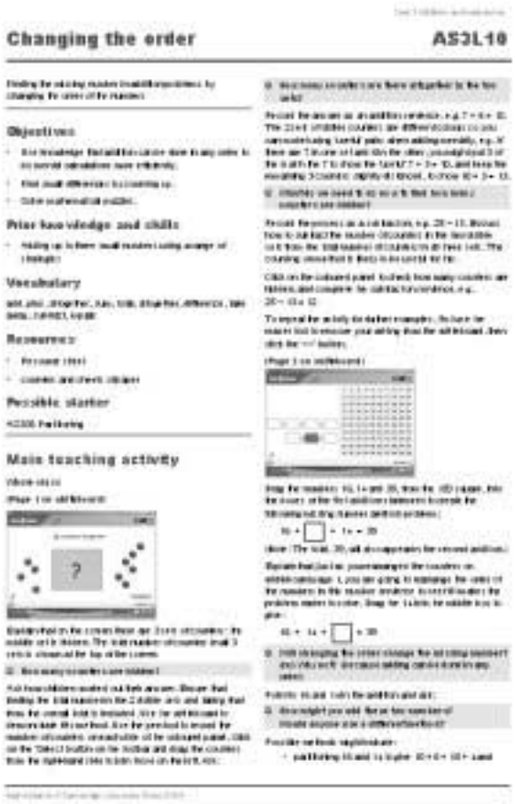
NS Numbers and the Number System

AS Addition and Subtraction

MD Multiplication and Division

SS Measures, Shape, Space and Handling Data

SP Solving Problems


Changing the order AS3L10

Objectives

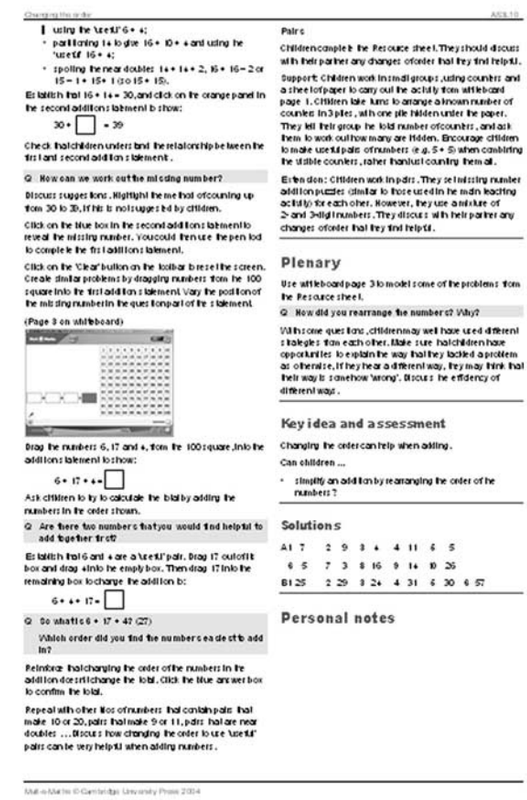
Prior knowledge and skills

Vocabulary

Resources

Possible starter

Main teaching activity


Plenary

Key idea and assessment

Solutions

Personal notes

Sample teacher's notes for AS3L10

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Frontmatter
More information

Measures, Shape, Space and Handling Data Year 3 Contents

Planning grid

Starters

Lessons

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Frontmatter
More information

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Gill Potter
Frontmatter
More information

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Starters

Lessons

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Frontmatter
More information

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More information

Measures, Shape, Space and Handling Data Year 5 Contents

Planning grid

Starters

Lessons

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Frontmatter
More information

Lessons (continued)

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Frontmatter
More information

Measures, Shape, Space and Handling Data Year 6 Contents

Planning grid

Starters

Lessons

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More information

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Gill Potter
Frontmatter
More information

Measures, Shape, Space and Handling Data Year 3 Planning grid

Year 3 Framework objectives	Mult-e-Maths Starters and Lessons
(p73) Measure and compare using standard units	**SS3S9 What's the length?** Estimating, measuring and comparing lengths
	SS3L7 Measuring lengths Measuring lengths to the nearest half centimetre
	SS3L8 Measuring mass Measuring masses in kilograms, and in kilograms and grams, and using the masses to solve problems
	SS3L9 Finding capacities Measuring capacities in litres and in millilitres, and solving problems involving capacities
(p77) Read scales to the nearest division	**SS3S8 How heavy?** Estimating masses, reading scales and calculating combined masses
	SS3S10 How much water? Reading from scales on measuring cylinders
	SS3S13 What's the temperature? Reading a thermometer scale
(p79) **Use units of time and know the relationships between them**	**SS3S7 One minute countdown** Estimating and finding how many simple additions children can make and solve in one minute
	SS3L11 Dates and times Discussing units of time and using a calendar
(p79) Read the time to 5 minutes on an analogue clock and a 12-hour digital clock, and use the notation 9:40	**SS3S6 Telling the time** Reading the time on an analogue or digital clock, and making the matching time on the other type of clock
	SS3L6 Telling the time Reading the time on an analogue clock and writing 12-hour digital clock times
(p81) Classify and describe 3-D and 2-D shapes referring to their properties	**SS3S1 Odd shape out** Finding similarities and differences in 2-D shapes
	SS3S3 3-D shape properties Describing the properties of 3-D shapes
	SS3L2 Properties of 3-D shapes Describing and sorting 3-D shapes according to their properties
(p83) Make and describe shapes and patterns	**SS3S2 Combining shapes** Combining shapes to make other shapes
	SS3L4 Patterns Describing and making patterns
(p85) **Identify** and sketch **lines of symmetry in simple shapes, and recognise shapes with no lines of symmetry**	**SS3L1 Properties of 2-D shapes** Sorting and classifying 2-D shapes according to their properties
(p87) Read and begin to write the vocabulary related to position, direction and movement	**SS3S4 Directions and coordinates** Describing squares on a grid using compass directions and coordinates
	SS3S15 Using coordinates Using simple coordinates to identify the positions of squares on a grid
	SS3L3 Giving positions Giving instructions and finding positions on a grid of squares

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Gill Potter
Frontmatter
More information

Year 3 Framework objectives (continued)	**Mult-e-Maths Starters and Lessons** (continued)
(p89) Make and describe right-angled turns, including turns between the four compass points	**SS3L5 Right-angled turns** Making right-angled turns on a 4-point compass and on a clock
(p89) **Identify right angles** in 2-D shapes and the environment	**SS3S5 Right angles** Identifying right angles in 2-D shapes and pictures of everyday objects
(p89) Compare angles with a right angle	**SS3L12 Right angles** Identifying right angles, and saying whether a given angle is greater than or less than a right angle
(pp91, 93) **Solve a given problem by organising and interpreting numerical data in simple lists, tables and graphs**	**SS3S11 Sorting numbers** Identifying how given numbers in a Venn diagram have been sorted
	SS3S12 Sorting 2-D shapes Sorting 2-D shapes according to their properties
	SS3S14 Interpreting bar charts Interpreting a bar chart in which each interval represents two
	SS3L10 Organising information Solving problems by organising and interpreting data in tally charts, pictograms and bar charts

Key to lesson and starter references

SS3S1 refers to Measures, Shape, Space and Handling Data Year 3 Starter 1

SS3L1 refers to Measures, Shape, Space and Handling Data Year 3 Lesson 1

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