

Partitioning and recombining

1. Break down these numbers into 5s and 1s.
The first one has been done for you.



a) 9

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 b) 6

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 c) 8

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 d) 7

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2. Write the answer to this sum.

a) $6 + 7 = (5 + 1) + (5 + 2) = (5 + 5) + (1 + 2) = 10 + 3 = \square$

Now do these sums in the same way.

b) $9 + 8 = (_ + _) + (_ + _) = (_ + _) + (_ + _) = _ + _ = \square$

c) $8 + 6 = \underline{\hspace{2cm}} = \square$

d) $7 + 9 = \underline{\hspace{2cm}} = \square$



3. Fill in the missing numbers.



a) $17 + 8 = (15 + _) + (5 + _)$
 $= (15 + _) + (2 + _) = 20 + 5 = \square$

b) $6 + 18 = (_ + 1) + (_ + 3)$
 $= (_ + 15) + (_ + 3) = 20 + 4 = \square$

c) $14 + 26 = (10 + 4) + (20 + 6)$
 $= (_ + _) + (_ + _) = 30 + 10 = \square$

Tough
Challenge

Break down some three-digit numbers
into hundreds, tens and units like this:
 $267 = 200 + 60 + 7$



Partitioning and recombining



1. Write out the thinking stages as you do these sums.
The first one has been done for you.

a) $20 + 17 =$ $20 + (15 + 2) = 20 + 15 + 2 = 35 + 2 = 37$

b) $35 + 19 =$ _____

c) $30 + 16 =$ _____

d) $45 + 18 =$ _____

2. Think in the same way when you do these sums.



a) $25 + 13 =$

c) $55 + 19 =$

e) $45 + 16 =$

b) $40 + 17 =$

d) $50 + 14 =$

f) $60 + 18 =$

3. Write out the thinking stages to the sums below
in the same way as the one that is done for you.



a) $25 + 44 =$ $(20 + 5) + (40 + 4) = (20 + 40) + (5 + 4) = 60 + 9 = 69$

b) $36 + 52 =$ _____

c) $34 + 45 =$ _____

- 4) Think in terms of 'tens and units' when you do these sums.



a) $63 + 26 =$

b) $71 + 25 =$

c) $37 + 32 =$

Tough
Challenge

Break down some four-digit numbers into thousands, hundreds, tens and units like this: $1428 = 1000 + 400 + 20 + 8$

Partitioning and recombining



1. Write out the thinking stages as you do these calculations.
Two have already been done for you.

a) $37 + 45 =$ $(30 + 7) + (40 + 5) = 70 + 12 = 82$

b) $26 + 39 =$ _____

c) $42 + 48 =$ _____

d) $254 + 143 =$ $(200 + 100) + (50 + 40) + (4 + 3) = 300 + 90 + 7 = 397$

e) $431 + 325 =$ _____

f) $342 + 654 =$ _____

2. Think in the same way as you work out the answers to the following calculations.

a) $37 + 34 =$

c) $29 + 46 =$

e) $215 + 764 =$

b) $34 + 28 =$

d) $40 + 24 =$

f) $346 + 532 =$



3. Show your thinking stages as you do these subtractions.
The first one has been done for you.

a) $56 - 38 =$ $56 - 30 - 8 = 26 - 8 = 18$

b) $78 - 45 =$ _____

c) $89 - 66 =$ _____

4. Think in the same way as you do these take away problems.

a) What is the difference between seventy-four and forty-seven?

b) How many less than fifty-eight is thirty-six?



Tough
Challenge

Write your thinking stages for calculations a - d in Q2.
Look at Q1 if you need some help.

Support for Mental Maths

Unit 1 - Mental Strategies for Number and Word Calculations

Book A

INTRODUCTION

About the series

General Information

The activity pages in **Support for Mental Maths** are intended for primary pupils working between levels 1 and 4 of the NC and for secondary pupils who are experiencing difficulties with mental mathematics and who are performing below the expected level for pupils of their age. Each of the four units has three books (A, B, C) which are incremental in difficulty ranging between NC Mental Mathematics levels 1 and 4. Unit 4 also has an accompanying CD for use with the SATs style practice tests contained in that unit. The structure, the title and the NC level of each book is summarised on the chart below.

	Unit 1 Mental Strategies for Number and Word Calculations			Unit 2 Mental Strategies for Real Life, Money and Measuring Problems			Unit 3 Strategy Check-up Tests			Unit 4 SATs Style Practice Tests (includes CD)		
Book	A	B	C	A	B	C	A	B	C	A	B	C
NC Maths level	1-2	2-3	3-4	1-2	2-3	3-4	1-2	2-3	3-4	1-2	2-3	3-4

Units 1 and 2 concentrate on providing suitable reinforcement activities for developing the main mental maths strategies outlined in the National Numeracy Strategy. The activity sheet titles listed on the contents page of each book give a clear idea of the strategy focus for each sheet. In order to reinforce the intended strategy to be used by the pupils to complete a sheet, it is strongly recommended that you spend some teaching time for each strategy and engage in some oral maths work before they start. Unit 3 offers *Check-up tests* for the strategies dealt with in Units 1 and 2. These should give you a clear idea of how well individual pupils are progressing with their strategy skills. Unit 4 has SATs style practice tests that will provide pupils with experience in and familiarity with this kind of material. In all units the answers to the questions should be worked out either mentally or mentally with jottings. No written calculations should be carried out. Pocket calculators should only be used by the pupils for checking final answers.

Unit structure

All books in the same unit (with the exception of Unit 4) are structurally linked in that the same numbered page in each book addresses the same mental strategy or strategies. Thus, for example, you will find that the activity sheet on Page 9 in Unit 1 Books A-C is always about 'Adding order' and the activity sheet on Page 15 is always related to 'Doubles and halves'. Therefore, differentiation between children of varying abilities is simplified by using different sheets from the same page number from more than one book to provide the same or similar material at different NC levels.

Unit 1 - Mental Strategies for Number and Word Calculations.

The content of this unit mirrors that of Unit 2 but all questions are number and word calculations and do not involve any real life, money or measuring problems. The '*Tough Challenge*' question is intended as an extension activity for the more able pupil.

Unit 2 - Mental Strategies for Real Life, Money and Measuring Problems.

The content of this unit mirrors that of Unit 1 but all questions are real life, money or measuring problems and do not contain any number and word calculations. As in Unit 1, the '*Tough Challenge*' question is intended as an extension activity for the more able pupil.

Unit 3 - Strategy Check-up Tests.

The *Check-up tests* in each section are linked to the strategy sheets in the same numbered section in Units 1 and 2 and allow you to test either two or four strategies at a time. The tests have been arranged in this way so that the sheets can also be used as ordinary activity sheets when mixed strategy activities are required on the same sheet.

Unit 4 - SATs Style Practice Tests

Although written as an integral part of the *Support for Mental Maths* series this unit can equally well be used separately as a useful method of giving pupils realistic practice for the SATs mental maths test which takes place at the end of Key Stages 2 and 3. An accompanying CD containing the oral questions for each test is included with the unit but a written transcript is also provided in each book for those teachers who prefer to read out the test questions themselves.

Learning Outcomes/Pupil's Record Sheet

A record of an individual pupil's results can be made by photocopying the *Pupil's Record Sheet* to be found on the inside back cover. This provides guidance on the intended learning outcomes of each activity sheet in Units 1, 2 and 3. You may also find them useful when planning your programme of work in mental maths.

Teacher's Notes

These complement the activity sheets in Units 1 and 2 and contain some suggestions for reinforcement and back-up oral activities.

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Support for Mental Maths

Unit 1 - Mental Strategies for Number and Word Calculations

Book A

William Hartley

Illustrated by Peter Rigg

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