



Number strings – Rachel

Objectives

The relevant framework objectives are:

- use known facts and place value to add or subtract mentally, including any pair of two–digit whole numbers (key objective);
- explain methods and reasoning about numbers orally and in writing;
- solve mathematical problems or puzzles, recognise and explain patterns and relationships, generalise and predict.

Activity description

The pupils had to arrange the digits 3, 1, 8 and 7 as four–digit numbers. The teacher discussed with them the need to use a systematic method. They were then encouraged to investigate further for themselves and some pupils chose to look at patterns of answers when adding and subtracting pairs of two–digit numbers.

Commentary

Rachel is beginning to organise her work and explain her thinking. She has recorded the different four–digit numbers in a fairly systematic way.

When investigating further, Rachel has discovered a pattern in the answers generated when rearranging the digits in subtraction calculations. She has decided to see if she obtains the same result when using a different set of digits. She has then realised that the pattern only works with certain numbers.

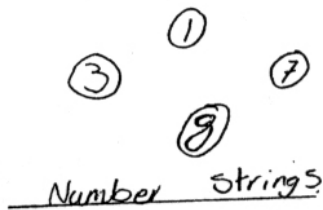
This piece of work demonstrates attainment at level 3 of Ma1 as she is beginning to organise her work and to explain her thinking.

She can also confidently add and subtract two–digit numbers mentally which demonstrates attainment at level 3 of Ma2.



Items of work

Rachel's investigations when adding pairs of two-digit numbers



3187	$31 + 87 = 118$
3718	$13 + 78 = 91$
3871	$17 + 38 = 55$
3178	$71 + 83 = 114$
3781	$87 - 31 = 56$
3817	$78 - 13 = 65$
1738	$38 - 17 = 21$
1783	$83 - 71 = 12$
1378	
1387	
1873	
1837	
2183	
7138	
7318	
7381	
7831	
7813	
7183	
7138	
8173	
8137	
8317	
8371	
8731	

$87 - 31 = 56$
 $78 - 13 = 65$
 $38 - 17 = 21$
 $83 - 71 = 12$

Swap taking away
 numbers swaps round
 answer

going to see if
 happens to any
 numbers.

2 4 6 6

$65 - 24 = 41$
 $56 - 42 = 14$
 $45 - 26 = 19$
 $82 - 54 = 28$

this pattern only works
 with certain numbers.

3 7 1 9

$37 - 19 = 18$
 $91 - 73 = 18$



About this entry

Subject: mathematics

Year: 4

Key stage: 2

NC programme of study: Ma2p1f, Ma2p1k, Ma2p3e

Attainment target: Ma1, Ma2

Evidence for: level 3

Framework for teaching mathematics – objectives:

- Use known number facts and place value to add or subtract mentally, including any pair of two–digit whole numbers.