

# Reasoning and Problem Solving

## Step 6: 1, 10, 100 More or Less

### National Curriculum Objectives:

Mathematics Year 3: (3N1b) [Count from 0 in multiples of 4, 8, 50 and 100](#)

Mathematics Year 3: (3N2b) [Find 10 or 100 more or less than a given number](#)

### Differentiation:

Questions 1, 4 and 7 (Problem Solving)

**Developing** Find three possible more than/less than statements using 4 cards showing 1, 10, 100 more or less than a number up to 1,000 using multiples of ten for 10 and 100 more or less. Numbers given in numerals and written in the same format.

**Expected** Find five possible more than/less than statements using 4 cards showing 1, 10, 100 more or less than a number up to 1,000 from any number. Numbers given in numerals and words and written in different formats.

**Greater Depth** Find five possible more than/less than statements using 4 cards showing multistep calculations for 1, 10, 100 more or less than a number up to 1,000 from any number. Numbers given in numerals and words and written in different formats, with some unconventional partitioning.

Questions 2, 5 and 8 (Problem Solving)

**Developing** Find the number (multiple of ten) that was put into a function machine after two steps of 1, 10, 100 more or less.

**Expected** Find the number that was put into a function machine after three steps of 1, 10, 100 more or less.

**Greater Depth** Find the number that was put into a multistep function machine after three steps of 1, 10, 100 more or less.

Questions 3, 6 and 9 (Reasoning)

**Developing** Determine whether a statement about 1, 10, 100 more or less than a given number is correct. Place value counters used to represent numbers. Includes adding/subtracting 1 counter from 1 column.

**Expected** Determine whether a statement about 1, 10, 100 more or less than a given number is correct. Place value counters used to represent numbers. Includes adding/subtracting 2 counters from 2 columns.

**Greater Depth** Determine whether a statement about 1, 10, 100 more or less than a given number is correct. Place value counters used to represent numbers. Includes adding/subtracting any number of counters from any column.

More [Year 3 Place Value](#) resources.

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# 1, 10, 100 More or Less

# 1, 10, 100 More or Less

1a. Using the  $>$  symbol, create five possible number sentences using these cards.

$409 + 1$	$340 + 100$
$700 + 10$	$450 + 100$



PS

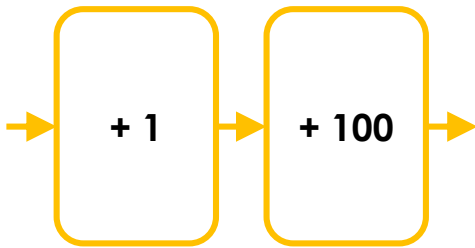
1b. Using the  $<$  symbol, create five possible number sentences using these cards.

$699 + 1$	$930 - 10$
$780 + 100$	$111 - 1$



PS

2a. Aoife put a number into this function machine and got a result of 900.

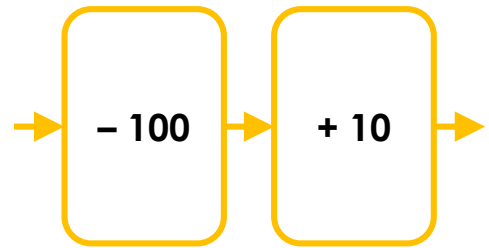


What number did she put in?



PS

2b. Ishmael put a number into this function machine and got a result of 720.



What number did he put in?



PS

3a. Joe wants to subtract 1 from this number.

H	T	O
●	●●●	●●●●●

He says,



I will have 2 counters left in the tens column. The answer is 126.

Do you agree? Explain why.



R

3b. Lacey wants to add 1 to this number.

H	T	O
●●●●●●●●	●●	●

She says,



I will have 8 counters in the hundreds column. The answer is 821.

Do you agree? Explain why.



R

# 1, 10, 100 More or Less

# 1, 10, 100 More or Less

4a. Using the > symbol, create five possible number sentences using these cards.

10 less than three hundred and twelve	100 less than 161
1 more than 313	ten more than three hundred and seven



PS

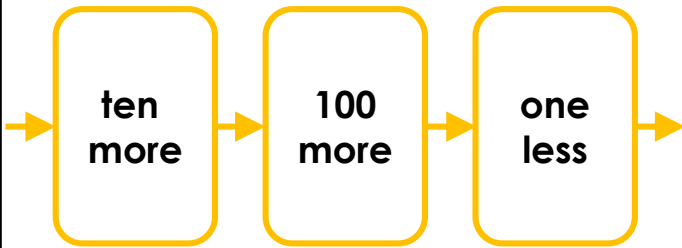
4b. Using the < symbol, create five possible number sentences using these cards.

100 more than seven hundred and eight	$819 - 10$
1 more than 809	one less than eight hundred and twelve



PS

5a. Sarah put a number into this function machine and got a result of 471.

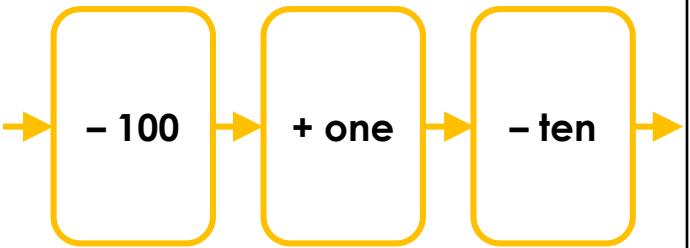


What number did she put in?



PS

5b. Harrison put a number into this function machine and got a result of 600.



What number did he put in?



PS

6a. Yussuf wants to subtract 10, then add 100 to this number.

H	T	O
3	1	5

He says,



I can take a counter from the tens column and add it to the hundreds column. The answer is 46.

Do you agree? Explain why.



R

6b. Hattie wants to add 1, then subtract 100 from this number.

H	T	O
5	2	10

She says,



I will have 10 counters in the ones column and 5 counters in the hundreds column. The answer is 5,210.

Do you agree? Explain why.



R

# 1, 10, 100 More or Less

# 1, 10, 100 More or Less

7a. Using the > symbol, create five possible number sentences using these cards.

100 less than two hundred and nineteen

$$504 - 10$$

1 more and 10 less than two hundred

10 more and 100 less than ninety tens



PS

7b. Using the < symbol, create five possible number sentences using these cards.

100 more than seventy tens and six ones

10 less than fifty tens and nine ones

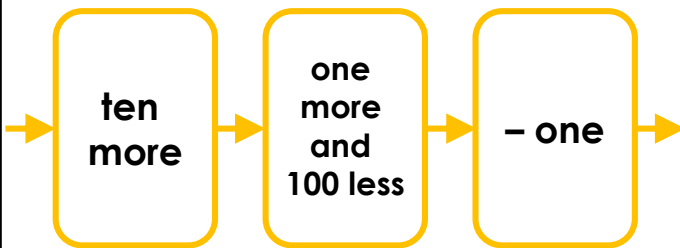
ten more and one less than sixty-eight tens

1 less and 100 more than twenty-six tens



PS

8a. Keira put a number into this function machine and got a result of 471.

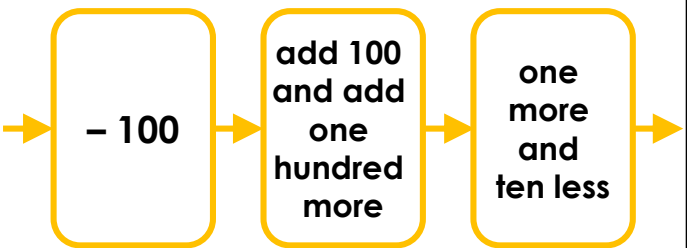


What number did she put in?



PS

8b. Mikey put a number into this function machine and got a result of 600.



What number did he put in?



PS

9a. Huw wants to add 1, add 10 and then subtract 100 from this number.

H	T	O
	●●●●●●●●	●●●●●●●●

He says,



I can just remove all of the counters and then put a counter in the hundreds column. The answer is 100.

Do you agree? Explain why.



R

9b. Luna wants to add 1, subtract 100 and then add 10 more to this number.

H	T	O
●	●●●●●●●●	●●●●●●●●

She says,



I will have 10 counters in both the ones and tens column. There will be 0 counters in the hundreds column. The answer is 1,010.

Do you agree? Explain why.



R

## Reasoning and Problem Solving

### 1, 10, 100 More or Less

#### Developing

- 1a. Various answers, for example:  
 $340 + 100 > 409 + 1$ ;  $700 + 10 > 450 + 100$ ;  
 $450 + 100 > 409 + 1$
- 2a. 799
- 3a. No because Joe has subtracted 10, not 1. His answer should be 135.

#### Expected

- 4a. Various answers, for example:  
ten more than three hundred and seven  
add ten  $>$  1 more than 313;  
ten more than three hundred and seven  $>$   
10 less than three hundred and twelve;  
ten more than three hundred and seven  $>$   
100 less than 161; 1 more than 313  $>$  10  
less than three hundred and twelve;  
1 more than 313  $>$  100 less than 161
- 5a. 362
- 6a. No. Although Yussuf has moved the counters correctly, he has not included the place holder for the tens column in his answer. The four counters are worth 400, not 40. His answer should be 406.

#### Greater Depth

- 7a. Various answers, for example:  
 $504 - 10 >$  100 less than two hundred and nineteen;  
 $504 - 10 >$  1 more and 10 less than two hundred;  
10 more and 100 less than ninety tens  $>$   $504 - 10$ ;  
10 more and 100 less than ninety tens  $>$  1 more and 10 less than two hundred;  
10 more and 100 less than ninety tens  $>$  100 less than two hundred and nineteen
- 8a. 561
- 9a. No. Although Huw has exchanged correctly and understood that there will be no counters left in the ones and tens columns, he has forgotten to subtract the 100. His answer should be 0.

## Reasoning and Problem Solving

### 1, 10, 100 More or Less

#### Developing

- 1b. Various answers, for example:  
 $111 - 1 <$   $699 + 1$ ;  $780 + 100 <$   $930 - 10$ ;  
 $699 + 1 <$   $780 + 100$
- 2b. 810
- 3b. No because Lacey added 100 not 1. Her answer should be 820.

#### Expected

- 4b. Various answers, for example:  
100 more than seven hundred and eight  $<$   
 $819 - 10$ ; 100 more than seven hundred and eight  $<$  1 more than 809;  
100 more than seven hundred and eight  $<$  one less than eight hundred and twelve;  
 $819 - 10 <$  1 more than 809;  
 $819 - 10 <$  one less than eight hundred and twelve
- 5b. 709
- 6b. No, because Hattie has made a mistake in the first step. She should have exchanged the 10 ones for 1 ten. This would leave 3 counters in the tens column and none in the ones. Her second step was correct. The answer should be 530.

#### Greater Depth

- 7b. Various answers, for example:  
1 less and 100 more than twenty-six tens  $<$   
100 more than seventy tens and six ones;  
1 less and 100 more than twenty-six tens  $<$   
10 less than fifty tens and nine ones;  
1 less and 100 more than twenty-six tens  $<$   
ten more and one less than sixty-eight tens;  
10 less than fifty tens and nine ones  $<$   
100 more than seventy tens and six ones;  
ten more and one less than sixty-eight tens  $<$   
100 more than seventy tens and six ones
- 8b. 509
- 9b. No because she has not exchanged her counters in the ones or tens column. Her answer should be 110.