Reasoning and Problem Solving
Step 6: Partitioning

National Curriculum Objectives:

Mathematics Year 4: (4N4a) Identify, represent and estimate numbers using different representations
Mathematics Year 4: (4N6) Solve number and practical problems that involve 4N1 - 4N5 and with increasingly large positive numbers

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Find two different ways to partition a 4-digit number. Includes pictorial representations. Each number is partitioned once. Some unconventional partitioning.
Expected Find two different ways to partition a 4-digit number. Using some instances of multiple examples of unconventional partitioning within a number.
Greater Depth Find two different ways to partition a 4-digit number. Includes some pictorial representations. Multiple examples of unconventional partitioning within a number where the parts are not given in place value order.

Questions 2, 5 and 8 (Reasoning)
Developing Explain which statement partitions a 4-digit number correctly. Includes pictorial representations. Each number is partitioned once. Some unconventional partitioning.
Expected Explain which statement partitions a 4-digit number correctly. Using some instances of multiple examples of unconventional partitioning within a number.
Greater Depth Explain which statement partitions a 4-digit number correctly. Includes written representations with multiple examples of unconventional partitioning within a number, where the parts are not given in place value order.

Questions 3, 6 and 9 (Reasoning)
Developing Explain which partitioned representation does not show a given 4-digit number. Includes a variety of pictorial representations where each number has been partitioned once. Some use of unconventional partitioning.
Expected Explain which partitioned representation does not show a given 4-digit number. Includes pictorial and written representations. Using some instances of multiple examples of unconventional partitioning within a number.
Greater Depth Explain which partitioned representation does not show a given 4-digit number. Pictorial and written representations used. Multiple examples of unconventional partitioning within a number where parts are not given in place value order.

More Year 4 Place Value resources.

Did you like this resource? Don't forget to review it on our website.

Partitioning

1a. Sam says,

This is the only way to partition 3,185.

Th	H	T	O
●●	●●●	●●●●●●	●●
●	●●●	●●●●●●	●
	●●●	●●●●●●	●
		●●●●●●	●

Prove Sam wrong by finding one more different way to partition 3,185.

D PS

1b. Frances says,

This is the only way to partition 5,916.

Th	H	T	O
●●	●●●●	●	●●
●●	●●●●		●●
●	●		●●

Prove Frances wrong by finding one more different way to partition 5,916.

D PS

2a. These children are making the number 8,245.

Gracie

I used 8 thousands, 2 hundreds, 3 tens and 15 ones.

I have used 7 thousands, 11 hundreds, 9 tens and 45 ones.

Wasim

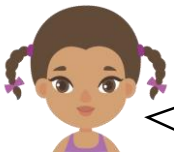
Who has partitioned the number correctly? Explain why.

D R

2b. These children are making the number 3,265.

I used 2 thousands, 12 hundreds and 65 ones.

Tommy



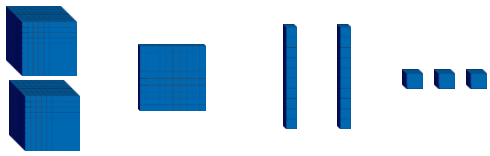
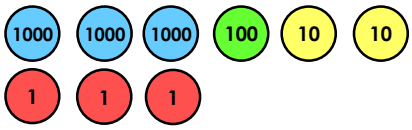
Misha

I have used 3 thousands, 2 hundreds, 4 tens and 25 ones.

Who has partitioned the number correctly? Explain why.

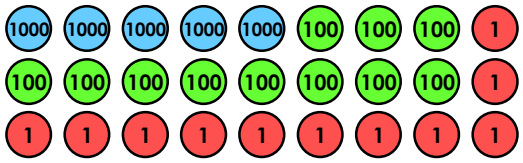
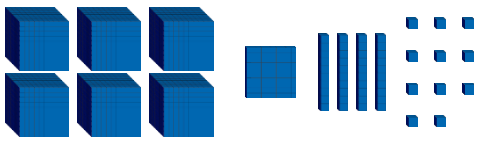
D R

3a. Which representation does *not* show 3,123? Explain why.

A.	
B.	3 thousands, 11 tens and 13 ones
C.	

D R

3b. Which representation does *not* show 6,151? Explain why.

A.	6 thousands, 15 tens and 1 one
B.	
C.	

D R

Partitioning

4a. Blake says,

These are the only two ways to partition 2,923.

2,000 + 900 + 20 + 3

1,000 + 1,900 + 10 + 13

Prove Blake wrong by finding two more different ways to partition the number.

E PS

Partitioning

4b. Natasha says,

These are the only two ways to partition 6,029.

6,000 + 0 + 20 + 9

5,000 + 1,000 + 20 + 9

Prove Natasha wrong by finding two more different ways to partition the number.

E PS

5a. These children are making the number 2,921.

Alex: I used 2 thousands and 92 tens.

I used 1 thousand, 19 hundreds, 2 tens and 1 one.

Vishal

Who has partitioned the number correctly? Explain why.

E R

5b. These children are making the number 5,071.

I used 5 thousands, 7 hundreds and 1 ten.

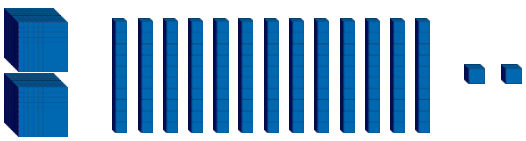
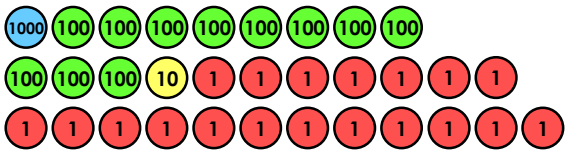
Ashley

Zahra: I used 4 thousands, 10 hundreds and 71 ones.

Who has partitioned the number correctly? Explain why.

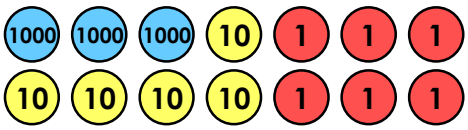
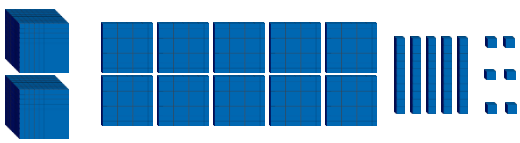
E R

6a. Which representation does *not* show 2,132? Explain why.

A.	
B.	two thousands, 13 tens and two ones
C.	

E R

6b. Which representation does *not* show 3,056? Explain why.

A.	30 thousands, 5 tens and 6 ones
B.	
C.	

E R

Partitioning

7a. Adam says,

There are only two ways to partition 7,201.

Prove Adam wrong by finding at least *three* different ways to partition 7,201. Record them below.

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____

GD PS

Partitioning

7b. Hallie says,

There are only two ways to partition 4,598.

Prove Hallie wrong by finding at least *three* different ways to partition 4,598. Record them below.

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____

GD PS

8a. These children are making the number 6,805.

Rory

I have used 38 hundreds, 68 tens, 28 ones and 2 thousands.

I used 130 tens, 105 ones, 3 thousands and 24 hundreds.

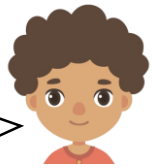
Emily

Who has partitioned the number correctly? Explain why.

GD R

8b. These children are making the number 9,673.

I have used 183 ones, 4 thousands, 53 hundreds and 19 tens.



Boris

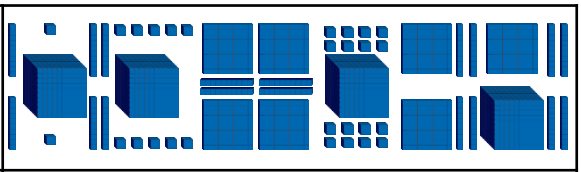
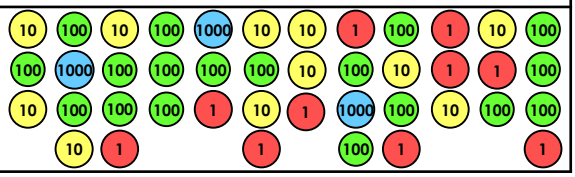
Tiffany

I used 21 tens, 25 hundreds, 53 ones and 7 thousands.

Who has partitioned the number correctly? Explain why.

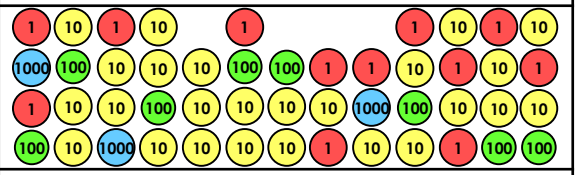
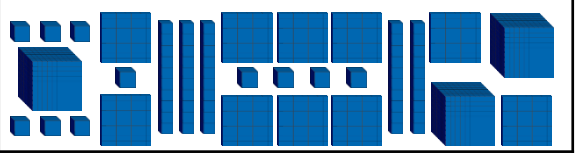
GD R

9a. Which representation does *not* show 4,920? Explain why.

A.	
B.	12 hundreds, 10 ones, 3 thousands and 71 tens
C.	

GD R

9b. Which representation does *not* show 4,061? Explain why.

A.	3 tens, 4 thousands and 31 ones
B.	
C.	

GD R

Reasoning and Problem Solving Partitioning

Developing

1a. Various answers, for example:
3 thousands + 1 hundred + 8 tens + 5 ones; 3 thousands + 1 hundred + 5 tens + 35 ones; 2 thousands + 11 hundreds + 85 ones.

2a. Grace is correct because 8 thousands + 200 + 30 + 15 = 8,245. Wasim has made 8,235.

3a. A is incorrect because it shows 2,123.

Expected

4a. Various answers, for example:
2 thousands + 9 hundreds + 1 ten + 13 ones; 2 thousands + 91 tens + 3 ones; 1 thousand + 1 thousand + 9 hundreds + 1 ten + 13 ones.

5a. Vishal is correct because 1 thousand + 19 hundreds + 2 tens + 1 one = 2,921. Alex has made 2,920.

6a. C is incorrect because it shows 2,129.

Greater Depth

7a. Various answers, for example:
7 thousands + 2 hundreds + 1 one; 6 thousands + 11 hundreds + 10 tens + 1 one; 6 thousands + 12 hundreds + 1 one; 5 thousands + 21 hundreds + 8 tens + 21 ones and 4 thousands + 31 hundreds + 6 tens + 41 ones.

8a. Emily is correct because 3 thousands + 24 hundreds + 130 tens + 105 ones = 6,805. Rory has made 6,508.

9a. A is incorrect because it shows 4,908.

Reasoning and Problem Solving Partitioning

Developing

1b. Various answers, for example:
4 thousands, 17 hundreds, 18 tens + 36 ones; 3 thousands + 20 hundreds + 90 tens + 16 ones; 5 thousands + 8 hundreds + 11 tens + 6 ones.

2b. Tommy and Misha are both correct. Tommy is correct because 2 thousands + 12 hundreds + 65 ones = 3,265. Misha is also correct because 3 thousands + 2 hundreds + 4 tens + 25 ones = 3,265.

3b. B is incorrect because it shows 6,111.

Expected

4b. Various answers, for example:
4 thousands + 20 hundreds + 2 tens and 9 ones; 3 thousands + 30 hundreds + 2 tens + 9 ones; 4 thousands + 202 tens + 9 ones.

5b. Zarah is correct because 4 thousands + 10 hundreds + 71 ones = 5,071. Ashley has made 5,710.

6b. A is incorrect because it shows 30,056.

Greater Depth

7b. Various answers, for example: 4 thousands + 5 hundreds + 9 tens + 8 ones; 3 thousands + 15 hundreds + 8 tens + 18 ones; 3 thousands + 13 hundreds + 27 tens + 28 ones; 2 thousands + 22 hundreds + 33 tens + 68 ones.

8b. Boris is correct because 4 thousands + 53 hundreds + 19 tens + 83 ones = 9,673. Tiffany has made 9,763.

9b. B is incorrect because it shows 4,062.