Subtraction Prior Learning Assessment Question 5:

LO: I can partition numbers to help me to subtract.

I am beginning to use written methods for subtraction sums.

NC: NAS2 add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

Assessment Question:

Prior Learning:

Number • Place Value	**Question 5:** I am beginning to use a written method for subtraction sums.	I feel

Show me how to work out:

a) 283 - 131 =

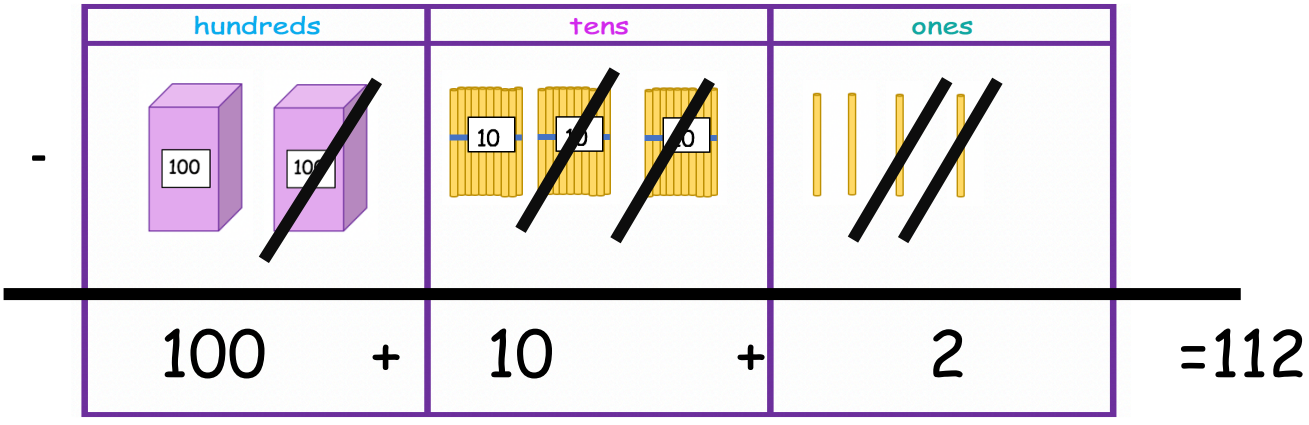
b) 232 - 112 =

Teacher Input Ideas: Below are different stages the children may go through when being introduced to subtracting using a written method. Some school policies begin to introduce written methods with number lines by looking at counting back and counting on to find the difference in chunks. Lesson 4 provides some resources for this.

Introduction to written methods

For example: 234 – 122 = 112

Use a place value chart and images or grouped objects to begin to take away amounts practically and visually using partitioning.



Next step: partitioning in a grid

	hundreds	tens	ones	
	200	30	4	
-	100	20	2	
	100 +	10 +	2	= 112

Model partitioning 2 and 3 digit amounts into hundreds, tens and ones to help with subtracting in sections. Children should be able to move their mental methods on here and make links with addition written methods. Model subtracting 100 from 200, 20 from 30 and 2 from 4. Then combining these answers back together. At this stage some children may start with subtracting the hundreds and work from left to right. As the children become more familiar with the method and more formal methods, encourage the children to suggest working from right to left before introducing exchanging.

Also ensure that the children understand why a + sign is used. Ensure the children do not get confused and begin to add the amounts or replace with subtraction signs.

Expanded column subtraction

	H	T	O
	200	+ 30	+ 4
-	100	+ 20	+ 2
	100	+ 10	+ 2 = 112

The children should begin to explore how the layout of the partitioned sentences above can help them to subtract quickly, preparing them for a more formal written method.

Also ensure that the children understand why a + sign is used to partition the amounts. Ensure the children do not get confused and begin to add the amounts or replace with subtraction signs. Some children may benefit from having these removed.

Practice Activities

Purple Practice 1 : Most suited for children who will benefit from practically or visually subtracting partitioned amounts.

The children are presented with 3 task sheets containing 2 and 3 digit numbers partitioned into hundreds, tens and ones to help with subtraction. The children should show understanding that the hundreds, tens and ones can be subtracted from each other to work out the answer to each sum. As the children show more confidence, they may begin to replace the images with digits or partitioned numbers to move onto a more formal written method.

If there are some children demonstrating difficulty , large place value charts and objects grouped in hundreds, tens and ones should be used instead of images.

Green Practice: Most suited for children who demonstrate some understanding in Question 5, however will benefit from being introduced to a structured way of partitioning.

The children are presented with place value charts to help partition the sum they are presented with. The first question contains an example to help the children understand how the amounts can be partitioned to subtract the hundreds from the hundreds, the tens from the tens and the ones from the ones. Encourage the children to discuss what they are doing at each step and to discuss why the sums are laid out in this way to help them .

Yellow Practice Most suited for children able to partition the amounts to subtract in Question 5 and are ready to be introduced to expanded column subtraction. .

For this activity, the place value charts have been removed and the children are encouraged to partition the amounts and lay them out as in the expanded column method to prepare them for formal column subtraction. There are examples in the first 3 questions, however as the task progresses the children are required to layout the method independently.

Mastery : Fluency This activity can be extended for a large part of the lesson to apply knowledge of number bonds, place value and mental and written subtraction methods.

For this activity the children are required to suggest two 3-diigt amounts that can be placed into the empty boxes to make the sum correct. The children are required to explore the position of the digits to make the sum accurate. This requires the children to use knowledge of number bonds, place value and apply mental or written subtraction methods to work out and check their answers,

Key questions:

- How can you work this out?
- What methods are you going to use?
- What information have you got?
- How will this help you?
- Where are you going to start?

Allow the children some time to start thinking of ideas and suggestions of numbers and starting points. Some children may need further support in starting points.

- Why is it important that the first 3 digit number is larger than the second 3 digit number? Which digit will make the number larger?
- Which number can be placed into the hundreds box? How do you know? Why?
- There are 2 hundreds in the answer, so I know that ? - ? = 200 (or 2 hundreds) . Which numbers can be subtracted to make this correct? Is there only one option?
- What do I know about the tens box in the answer? Which digits can be subtracted from each other to make 3 tens or 30?
- How can you check your answer? Which method will you use?

This activity can also be extended by questioning the children, how many different combinations are there? Encourage the children to find another way to position the digits. Encourage the children to swap partners and talk about their ideas and answers. Is there more than one answer?

Answers

Purple:

1) 121	2) 222	3) 41
4) 17	5) 103	6) 166

Green:

1) 222	2) 113	3) 53
4) 129	5) 103	6)357
7) 631	8)32	9)117

Yellow:

1) 122	2) 43	3) 44
4) 113	5) 143	6) 113
7) 224	8) 333	9) 320

Mastery:

Some suggestions and encourage children to share all of their combinations.

546 - 312 = 234 465 - 231 = 234

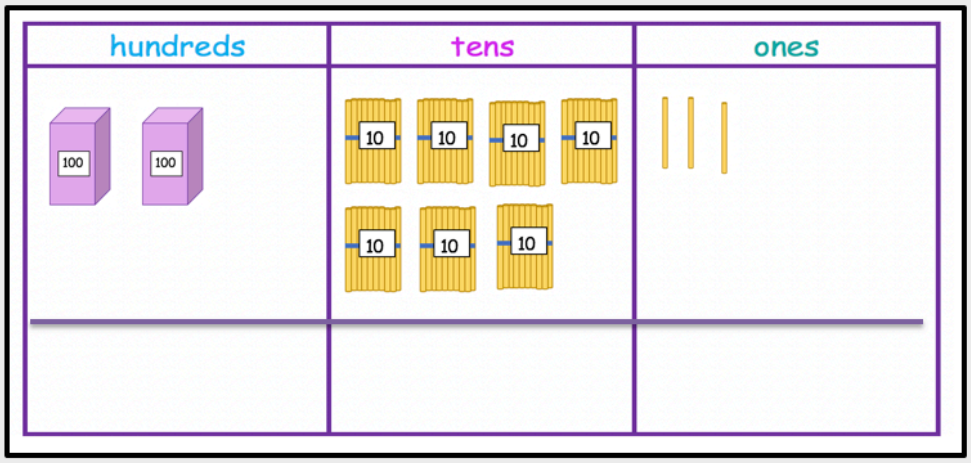
BRICKWORK Mathematics

Purple Activity

LO: I can subtract 2 and 3 digit amounts using partitioning.

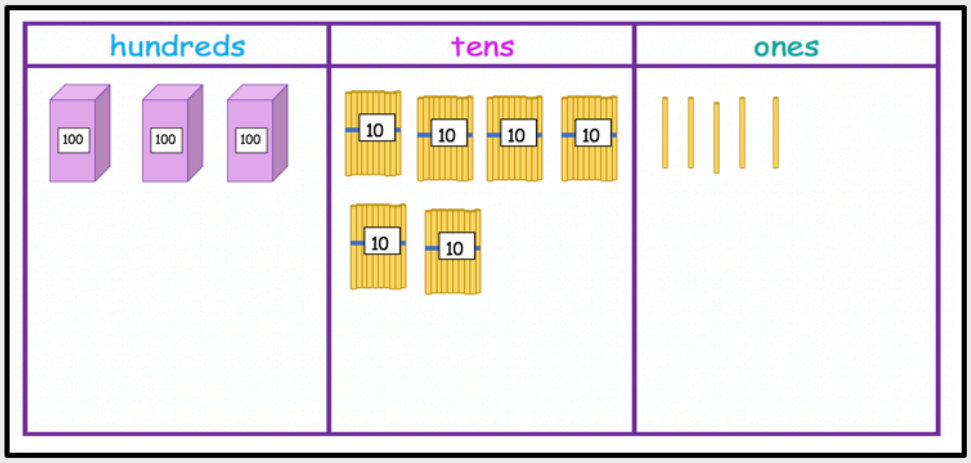
Look at the sum in each question. Use the images to help you to work out each answer.

1) 273 - 152



273 - 152 =

2) 365 - 143



365 - 143 =

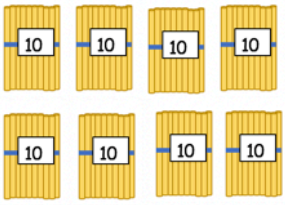
BRICKWORK Mathematics

Purple Activity

LO: I can subtract 2 and 3 digit amounts using partitioning.

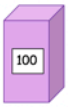
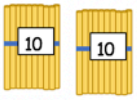
Look at the sum in each question. Use the images to help you to work out each answer.

3) 86 - 45

hundreds	tens	ones
		

86 - 45 =

4) 127 - 110

hundreds	tens	ones
		

127 - 110 =

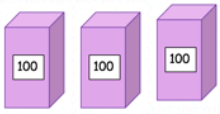
BRICKWORK Mathematics

Purple Activity

LO: I can subtract 2 and 3 digit amounts using partitioning.

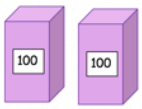
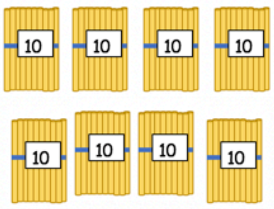
Look at the sum in each question. Use the images to help you to work out each answer.

5) 314 - 211

hundreds	tens	ones
		

314 - 211 =

6) 289 - 123

hundreds	tens	ones
		

289 - 123 =

BRICKWORK Mathematics

Green Activity

LO: I can subtract 3-digit and 2-digit amounts using partitioning.

Can you use the place value chart and partitioning to help you to work out each answer to these subtraction sums?

1)

278 - 56

hundreds	tens	ones
200	70	8
	50	6
200	20	2

= 222

2)

345 - 232

hundreds	tens	ones

=

3)

267- 214

hundreds	tens	ones

=

BRICKWORK Mathematics

Green Activity 2

LO: I can subtract 3-digit and 2-digit amounts using partitioning.

Can you use the place value chart and partitioning to help you to work out each answer to these subtraction sums?

4)

369 - 240

hundreds	tens	ones

-

=

5)

408- 305

hundreds	tens	ones

-

=

6)

678-321

hundreds	tens	ones

-

=

BRICKWORK Mathematics

Green Activity 3

LO: I can subtract 3-digit and 2-digit amounts using partitioning.

Can you use the place value chart and partitioning to help you to work out each answer to these subtraction sums?

7)

976 - 345

	hundreds	tens	ones
-			

=

8)

78 - 46

	hundreds	tens	ones
-			

=

9)

869 - 752

	hundreds	tens	ones
-			

=

BRICKWORK Mathematics

Yellow Activity

LO: I can subtract 2 and 3 digit amounts using the expanded column method.

Partition the amounts for each sum and then work out the answer using the layout shown below.

234 - 112 =

	H	T	O
	200	+ 30	+ 4
-	100	+ 10	+ 2
	100	+ 20	+ 2 = 122

86 - 43 =

	T	O
	80	+ 6
-	40	+ 3

99- 55 =

	T	O
	90	+ 9
-	50	+ 5

234 - 121 =

H	T	O
-		

287 - 144 =

H	T	O
-		

164 - 51 =

H	T	O
-		

564 - 340 =

H	T	O
-		

745 - 412 =

H	T	O
-		

990 - 670 =

H	T	O
-		

Can you explain how you worked out each answer?

BRICKWORK Mathematics

Mastery

Fluency

Create two 3 digit numbers from the number blocks below to make the sum correct.