Addition Prior Learning Assessment Question 2:

Objective: I use my knowledge of number bonds to add mentally.

NC NAS 2: add and subtract numbers mentally with increasingly large numbers

Teacher Input Ideas:

- Place lots of numbers around and children to add these up mentally as going around. Ask the children for their strategies that they used and how they did this. Allow a lot of time for children to share ideas.
- Place a sum on the board such as 13 + 14 + 15 + 16 = ask the children to work it out mentally. When they have one way place one finger up, then ask the children to find a different way to work it out and place another finger up. See how many different ways the children can find the answer in one minute. Share all of the strategies children used and talk about how efficient these are. Place another few sums on the board and repeat to encourage the children to explore different strategies and try using a new one suggested from other children.
- Place cards around that make number bonds to 10, 100 and 1000 and see if the children can find the different number bonds.
- Model using number bonds when you have 2, 3 or 4 amounts to add together. Model using number bonds using the tens, hundreds and ones. Such as 73 and 39, 70 and 30 makes one hundred and then the 3 and 9 can be add.
- Or 14 + 45 + 26 . I would add the 14 and 26 together first as I know that addition is commutative which means I can add the numbers in any order. So 14 and 26 = 40 then I can add the 45. Also may want children to apply knowledge of rounding if appropriate.

Practice Activities

Purple Practice: most suited for children who need to develop their understanding of using number bonds with different amounts.

The children are provided with a variety of blocks with different amounts on. The children are to try to make zeroes in either the ones place, tens, hundreds or all three. This activity provides the children with the opportunity to find different number bonds and add these together mentally. There are many different combinations and the children should explore different options. (See the answers section for examples.)

Green Practice: **Most suited for children who will benefit from exploring the commutative law to help use their knowledge of number bonds to add mentally.**

The children have been given 3 or 4 blocks to add at a time. The children should be encouraged to explore which blocks to add together first using their knowledge of number bonds to help them. Encourage the children to share strategies and methods for each question with a partner. Children may also use knowledge of rounding (fluency).

Yellow Practice: **Most suited for children ready to explore the use of number bonds and other mental strategies for addition.**

Most suited for children who will benefit from securing use of number bonds to add 3 and 4 numbers which are presented in calculations with different formats . The children are also provided with the opportunity to think of their own numbers using their knowledge of number bonds, rounding and near doubles to create target numbers. Encourage the children to discuss the strategies they have used and compare with strategies used by other children, reflecting on which are the most efficient.

Mastery For this mastery task, the children are presented with an investigation . The children are to investigate what they notice when they add different amounts of odd and even digits together to make the total of 10 or 100. The children are to explore adding 2 even digits, 2 odd digits, a mixture of even and odd digits and 3 odd digits to make 10 or 100.

The children may suggest ways they can record their working out and may need additional paper. Additionally, for questions 5,6,7 and 8, the children may want to explore possible combinations for 10 first and then 100, so the sheet can be altered here.

Once the children have found that when you add 3 odd digits you cannot make 100 or 10, the children to then explore odd and even mixed combinations. The children to explore how to present their working out and their findings to help them to explain what they notice and reason their findings. (Examples can be found in answer section.)

Answers

Purple: Suggestions :

63 and 17 = 80 63 and 37 = 100 63 and 1037 = 1100

24 and 16 = 40 24 and 206 = 230 976 + 24 = 1000

25 and 45 = 70 1945 and 25 = 1970 1945 and 55 = 2000

55 and 45 = 100

Green:

1) 49 2) 51 3) 178 4) 121
5) 294 6) 120 7) 718 8) 3043

Yellow:

1 a) 75 b) 279 c) 494

d, e, f) accept any combinations that reach the target number

2 a) 239 b) 110 c) 2125

d, e, f) accept any combinations that reach the target number

Mastery:

1) 3 and 7 9 and 1 5 and 5
2) 75 and 25 93 and 7 accept any correct odd combination
3) 2 and 8, 4 and 6
4) 98 and 2 66 and 34 accept any correct even combination
5) You may encourage children to try find 3 odd numbers for 10 first and then 100. They should notice that no odd numbers can be placed in the blocks and explain that when odd and odd numbers are added, an even number is created. When an additional odd number is added this makes an odd number. As both 100 and 10 are even numbers, this will not work.
6) You may encourage children to try find 3 even numbers for 10 first and then 100.
   2, 2, 6 88, 4 and 8 20, 62, 18
7) You may encourage children to try find 3 numbers for 10 first and then 100.
   7, 1, and 2 3 ,3 and 4 35 , 35 and 30 23, 37 and 40

   They should notice that when odd and odd numbers are added, an even number is created. When an additional even number is added, an even number is created.
8) You may encourage children to try find 3 numbers for 10 first and then 100. They should notice that this combination will not work and explain that when even and even numbers are added, an even number is created. When an additional odd number is added this makes an odd number. As both 100 and 10 are even numbers, this will not work.

BRICKWORK Mathematics

Purple Activity

LO: I use my knowledge of number bonds when adding.

Explore adding different blocks together to make the value of the digit in the ones place zero. Explore other combinations where the digit in the tens, hundreds or thousands place can also be a zero.

63	1500	16
148	1037	76
24	55	37
25	17	206
1945	976	45

BRICKWORK Mathematics

Green Practise

LO: I use my knowledge of number bonds when adding.

Add the blocks together in each question.

1) 7 13 29

2) 19 6 15 11

3) 25 46 75 32

4) 49 21 51

5) 110 94 90

6) 63 12 45

7) 351 157 210

8) 1003 2013 27

Challenge: Explain your working out and strategies to a friend. Compare your working out for each question.

BRICKWORK Mathematics

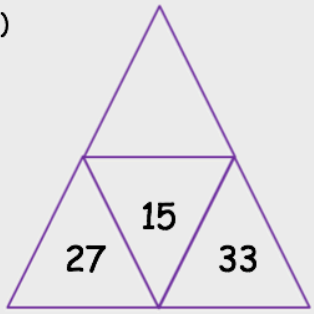
Yellow Activity

LO: I can use my number bonds to mentally add amounts.

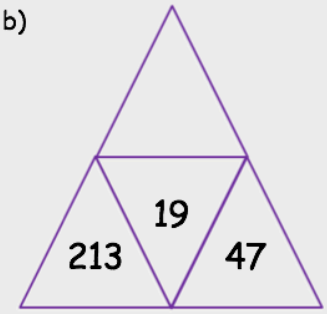
Fill in the missing triangles and squares.

1)The bottom triangles are added together to find the answer to the top triangle.

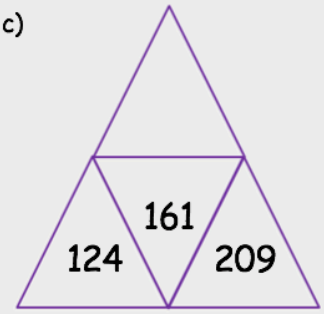
a)



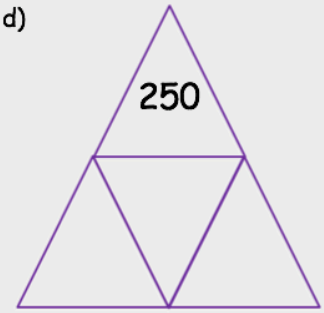
b)



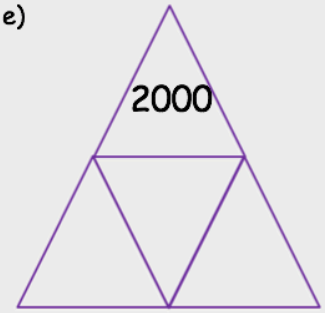
c)



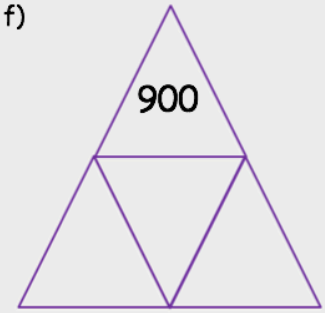
d)



e)

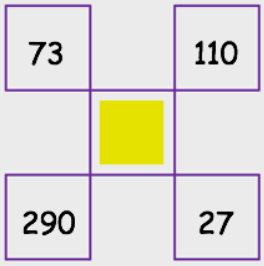


f)

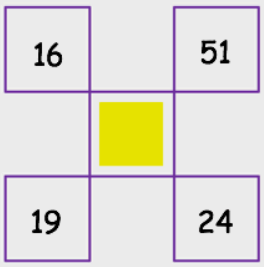


2)Add the outside squares to find the answer in the centre.

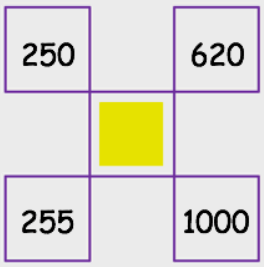
a)



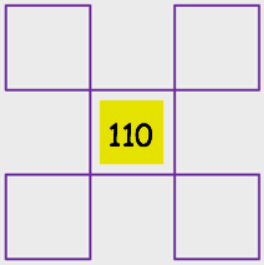
b)



c)



d)



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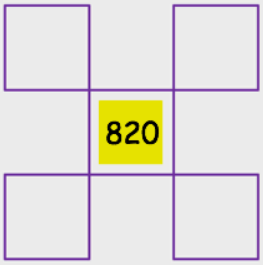
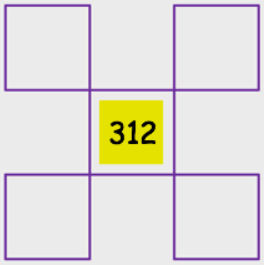


f)



BRICKWORK Mathematics

Mastery

Investigation

Making 10 and 100.

Explore different ways 10 and 100 can be made by adding different amounts together.

Find answers for each of the questions below.

Purple blocks must contain odd numbers and **green blocks must contain even numbers.**

1) 

2) 

3) 

4) 

5) 

6) 

7) 

8) 

Challenge: What if you add 4 odd digits? What do you notice?