

Reasoning and Problem Solving

Step 2: Representing Numbers

National Curriculum Objectives:

Mathematics Year 2: (2N4) [Identify, represent and estimate numbers using different representations, including the number line](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Make two two-digit numbers using 4 different pieces of Base 10.

Expected Make three two-digit numbers using 5 different pieces of Base 10.

Greater Depth Make as many two-digit numbers as possible using up to eight of a set of resources (Base 10 blocks, Numicon and cubes). Includes 6 possible answers.

Questions 2, 5 and 8 (Reasoning)

Developing Explain whether a two-digit number would appear on two different number lines or not. All intervals are labelled.

Expected Explain whether a two-digit number would appear on two different number lines or not. Some intervals labelled.

Greater Depth Explain whether a two-digit number would appear on two different number lines or not. Intervals unlabelled.

Questions 3, 6 and 9 (Reasoning)

Developing Explain if a statement is correct when visual representations including; Base 10, bead strings and Numicon are used to represent a given number. Representations are arranged in order of size.

Expected Explain if a statement is correct when visual representations including; Base 10, bead strings and Numicon are used to represent a given number.

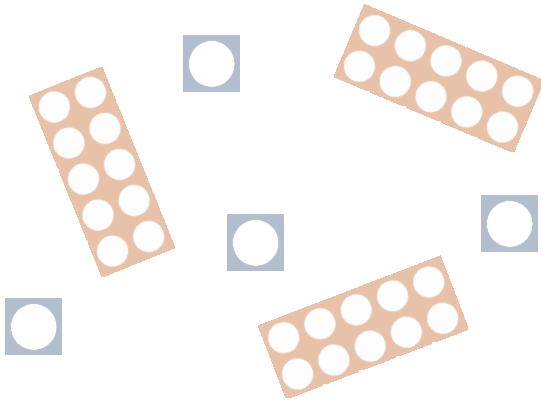
Greater Depth Explain if a statement is correct when visual representations including; Base 10, bead strings, cubes, straws and Numicon are used to represent a given number. Mixed pictorials may be used within the same representation.

More [Year 2 Place Value](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Representing Numbers

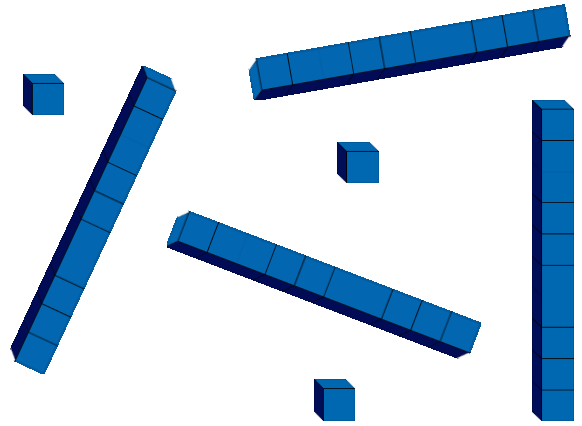
1a. Make two different two-digit numbers using four of these representations each time.



PS

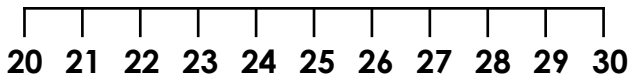
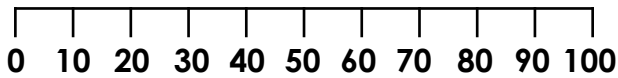
Representing Numbers

1b. Make two different two-digit numbers using four of these representations each time.



PS

2a. Will the number 25 appear in the same place on both of these number lines?

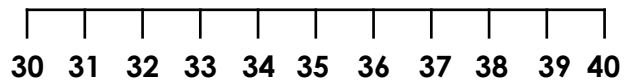
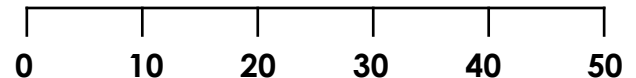


Explain why or why not.



R

2b. Will the number 40 appear in the same place on both of these number lines?



Explain why or why not.

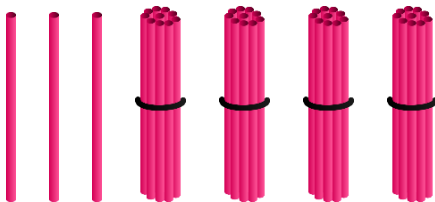


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3a. Lucie says,



I have made the number 44 using pink straws.



Is Lucie correct? Explain why.

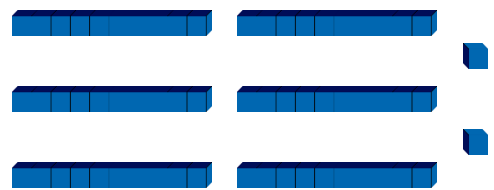


R

3b. Joe says,



I have made the number 62 using Base 10 blocks.



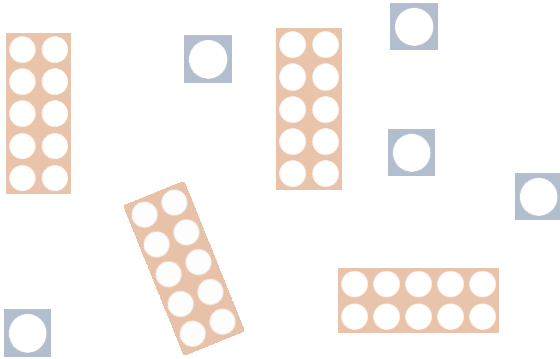
Is Joe correct? Explain why.



R

Representing Numbers

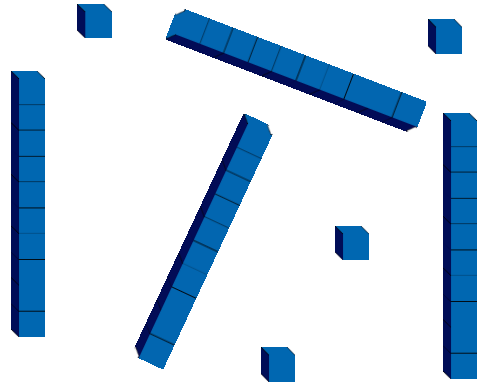
4a. Make three different two-digit numbers using five of these representations each time.



PS

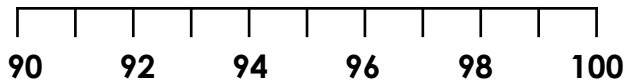
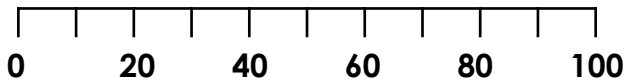
Representing Numbers

4b. Make three different two-digit numbers using five of these representations each time.



PS

5a. Will the number 95 appear in the same place on both of these number lines?

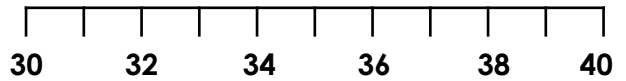
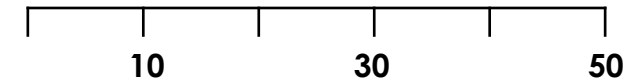


Explain why or why not.



R

5b. Will the number 35 appear in the same place on both of these number lines?



Explain why or why not.

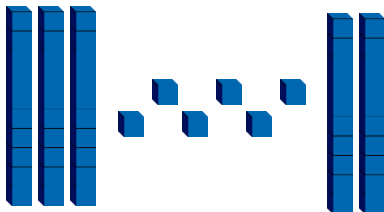


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6a. Sami says,



I have made 65 using Base 10.



Is Sami correct? Explain why.

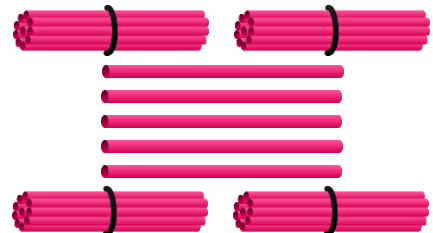


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6b. Serena says,



I have made the number 45 using pink straws.



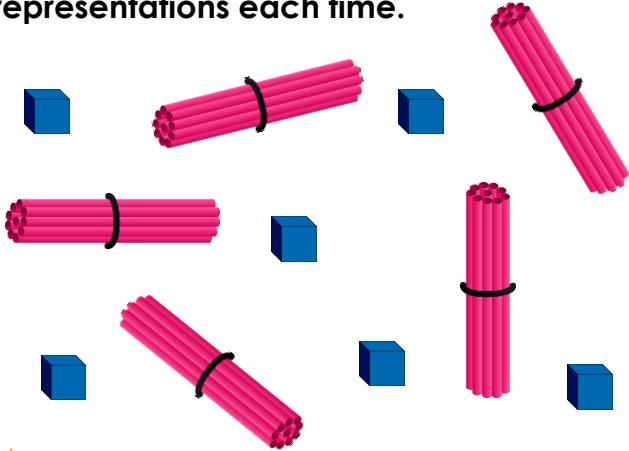
Is Serena correct? Explain why.



R

Representing Numbers

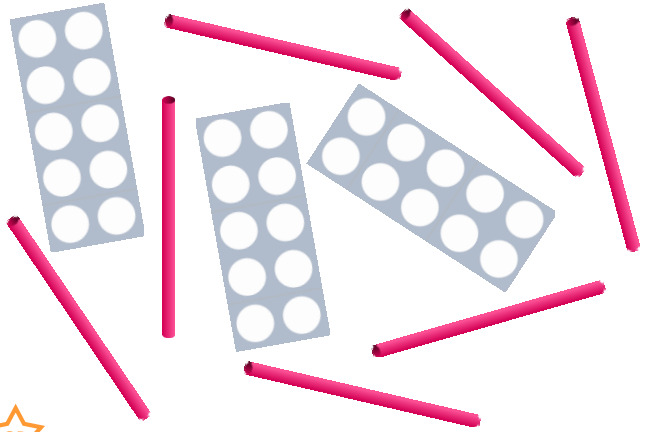
7a. Make as many different two-digit numbers as possible using eight of these representations each time.



PS

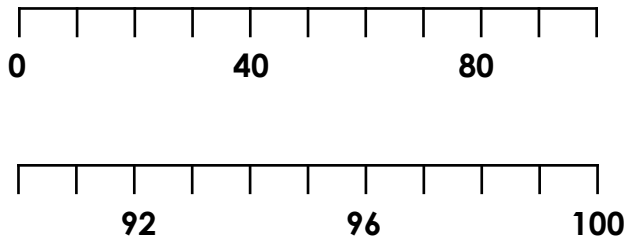
Representing Numbers

7b. Make as many different two-digit numbers as possible using eight of these representations each time.



PS

8a. Will the number 91 appear in the same place on both of these number lines?

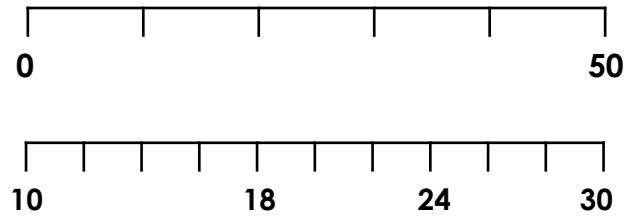


Explain why or why not.



R

8b. Will the number 29 appear in the same place on both of these number lines?



Explain why or why not.

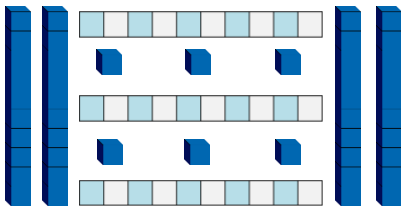


R

9a. Harrison says,



I have used more Base 10 blocks than cubes to make the number 76.



Is Harrison correct? Explain why.

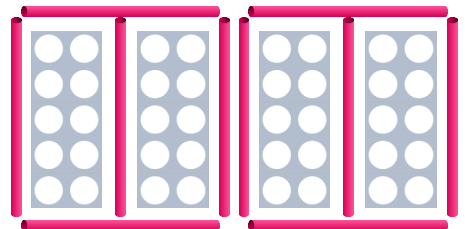


R

9b. Shirley says,



I have used fewer pink straws than Numicon pieces to make the number 50.



Is Shirley correct? Explain why.



R

Reasoning and Problem Solving

Representing Numbers

Developing

1a. Various answers; for example: 13 (one ten and three ones), 22 (two tens and two ones) and 31 (three tens and one one).

2a. No because the number lines have different start and end points. 25 will be placed halfway between 20 and 30 on both number lines.

3a. Lucie is incorrect because four tens combined with three ones makes the number 43.

Expected

4a. Various answers; for example: 14 (one ten and four ones); 23 (two tens and three ones); 32 (three tens and two ones) and 41 (four tens and one one).

5a. No because the number lines have different starting points. 95 will be placed halfway between 90 and 100 on both number lines.

6a. Sami is incorrect because he has made 56 instead of 65. He has used 5 tens and 6 ones in his model which makes 56.

Greater Depth

7a. Various answers; for example: 26 (two tens and six ones), 35 (three tens and five ones), 44 (four tens and four ones) and 53 (five tens and three ones).

8a. No because the number lines have different starting points.

9a. Harrison is correct because he has used four tens and six ones of Base 10 blocks (=46) whereas he used three tens of cubes (=30).

Reasoning and Problem Solving

Representing Numbers

Developing

1b. Various answers; for example: 13 (one ten and three ones), 22 (two tens and two ones), 31 (three tens and three ones) and 40 (four tens).

2b. No because the number lines have different start and end points. 40 is placed halfway between 30 and 50 on the top number line and it is at the far right hand side of the second number line.

3b. Joe is correct because 62 is made up of six tens and two ones, as shown in his model.

Expected

4b. Various answers, for example: 24 (two tens and four ones), 33 (three tens and three ones) and 42 (four tens and two ones).

5b. No because the number lines have different start and end points. 35 will be placed in the middle of 30 and 40 on both lines.

6b. Serena is correct. Serena has used 4 tens (bundles of straw) and 5 ones (single straws) which make the number 45.

Greater Depth

7b. Various answers; for example: 17 (one ten and seven ones), 26 (two tens and six ones) and 35 (three tens and 5 ones).

8b. No because the number lines have different starting and ending points.

9b. Shirley is incorrect because she has used ten single pink straws (=10) and four tens of Numicon (=40). The value of the Numicon pieces is higher but the amount of pink straws is greater.