Reasoning and Problem Solving Step 9: Divide by 8

National Curriculum Objectives:

Mathematics Year 3: (3C6) <u>Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</u>

Mathematics Year 3: (3C7) <u>Write and calculate mathematical statements for multiplication</u> and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Explain whether a statement is true or false using knowledge of dividing by 8. Up to 12 x 8 with pictorial support for each question where each digit is represented.

Expected Explain whether a statement is true or false using knowledge of dividing by 8. Up to 12 x 8 with scaffolding or pictorial support.

Greater Depth Explain whether a statement is true or false using knowledge of dividing by 8. Up to 12 x 8 with use of two representations.

Questions 2, 5 and 8 (Reasoning)

Developing Calculate and prove an answer using knowledge of dividing by 8. Up to 12 x 8 with pictorial support for each question where each digit is represented.

Expected Calculate and prove an answer using knowledge of dividing by 8. Up to 12 x 8 with scaffolding or pictorial support.

Greater Depth Calculate and prove an answer using knowledge of dividing by 8. Up to 12 x 8 with no scaffolding support provided.

Questions 3, 6 and 9 (Problem Solving)

Developing Use clues to identify a number using knowledge of dividing by 8. Up to 12 x 8 with pictorial support for each question where each digit is represented.

Expected Use clues to identify a number using knowledge of dividing by 8. Up to 12 x 8 with scaffolding or pictorial support.

Greater Depth Use clues to identify a number using knowledge of dividing by 8. Up to 12 x 8 with no scaffolding support provided.

More <u>Year 3 Multiplication and Division</u> resources.

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Reasoning and Problem Solving – Divide by 8 – Teaching Information

<u>Divide by 8</u>	Divide by 8
1a. Hamish has used the representation below to calculate 56 ÷ 8.	1b. Bella has used the representation below to calculate 48 ÷ 8.
Is he correct?	Is she correct?
Explain how you know.	Explain how you know.
R	R
2a. Dean shares 24 biscuits onto plates. He puts 8 biscuits on each plate.	2b. Louisa shares 40 sweets into bags. She puts 8 sweets into each bag.
	AN AN
How many plates will Dean have? Prove it.	How many bags will Louisa have? Prove it.
3a. George is thinking of a number between 20 and 38.	3b. Cerys is thinking of a number between 40 and 65.
My number can be divided by 4 and by 8. It is more than 25.	My number can be divided by 4 and by 8. It has an 8 digit in it.
What could George's number be?	What could Cerys' number be?
$ \begin{array}{c} \bullet & \bullet \\ \bullet & \bullet $	$\begin{array}{c} \bullet & \bullet \\ \bullet & \bullet \\$
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Reasoning and Problem Solving – Divide by 8 – Year 3 Developing



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Reasoning and Problem Solving – Divide by 8 – Year 3 Expected



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Reasoning and Problem Solving – Divide by 8 – Year 3 Greater Depth

<u>Reasoning and Problem Solving</u> <u>Divide by 8</u>

Developing

1a. He is incorrect because 56 ÷ 8 = 7.
There should be 7 lots of 8 number pieces or 8 lots of 7 number pieces.
2a. 3 plates because 24 ÷ 8 = 3.
3a. 32

Expected

4a. He is incorrect because 32 ÷ 8 = 4. The bar model should have 8 parts with 4 in each part, or 4 parts with 8 in each part.
5a. 7 pots because 56 ÷ 8 = 7.
6a. 40 or 48

<u>Greater Depth</u>

7a. The part-whole model is incorrect because 72 \div 8 = 9. There should be 8 parts with 9 in each part, or 9 parts with 8 in each part.

8a. 24 or 80 because if you subtract 3 from each of these number you're left with multiple of 7 (21 or 77).
9a. 56 or 88

<u>Reasoning and Problem Solving</u> <u>Divide by 8</u>

Developing

1b. She is incorrect because 48 ÷ 8 = 6.
There should be 6 lots of 8 number pieces or 8 lots of 6 number pieces.
2b. 5 bags because 40 ÷ 8 = 5.
3b. 48

Expected

4b. She is incorrect because 48 ÷ 8 = 6.
The bar model should have 8 parts with 6 in each part, or 6 parts with 8 in each part.
5b. 11 treasure chests 88 ÷ 8 = 11.
6b. 48 or 56

Greater Depth

7b. The bar model is incorrect because 40 \div 8 = 5. The bar model should have 8 parts with 5 in each part, or 5 parts with 8 in each part.

8b. 16, 56 or 96 because one less than each of these numbers is a multiple of 5 (15, 55 or 95). 9b. 24



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Reasoning and Problem Solving – Divide by 8 ANSWERS