Reasoning and Problem Solving
Step 3: Short Division

National Curriculum Objectives:

Mathematics Year 6: (6C7b) Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Use short division to divide a 3 or 4-digit numbers by 1-digit,with up to 1 exchange, in order to identify the odd one out and explain why. Whole number answers.
Expected Use short division to divide 4-digit numbers by 1 or 2-digits, with up to 2 exchanges, in order to identify the odd one out and explain why. Some use of remainders.
Greater Depth Use short division to divide 4-digit numbers by any 2-digit number, with multiple exchanges, in order to identify the odd one out and explain why. Answers to include remainders.

Questions 2, 5 and 8 (Reasoning)
Developing Identify and explain mistakes when using short division to divide 3 or 4-digit numbers by 1-digit with up to 1 exchange. Whole number answers.
Expected Identify and explain mistakes when using short division to divide 4-digit numbers by 1 or 2-digits, with up to 2 exchanges. Some use of remainders.
Greater Depth Identify and explain mistakes when using short division to divide 4-digits by any 2-digit number. Answers to include remainders.

Questions 3, 6 and 9 (Problem Solving)
Developing Use two digit cards to complete the short division of 3 or 4-digit number by 1-digit with up to 1 exchange. Whole number answers.
Expected Use three digit cards to complete the short division of 4-digit numbers by 1 or 2-digits with up to 2 exchanges. Some use of remainders.
Greater Depth From a range of number cards, identify two missing digits to complete the short division of a 4-digit number by any 2-digit number. Answers to include remainders.

More Year 6 Four Operations resources.

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Short Division

1a. Identify the odd one out.

A. $4 \overline{)6\ 4\ 4}$

C. $3 \overline{)4\ 8\ 9}$

B. $6 \overline{)9\ 6\ 6}$

D. $5 \overline{)8\ 0\ 5}$

Explain why.

D

R

1b. Identify the odd one out.

A. $7 \overline{)8\ 4\ 7}$

C. $6 \overline{)7\ 2\ 6}$

B. $5 \overline{)6\ 5\ 5}$

D. $8 \overline{)9\ 6\ 8}$

Explain why.

D

R

2a. Mason knows he has made a mistake in the calculation below.

$$6 \overline{)7\ 8\ 0\ 6}\quad 1\ 1\ 0\ 1$$

Find and explain his error. What should the correct answer be?

D

R

2b. Asha knows she has made a mistake in the calculation below.

$$3 \overline{)6\ 7\ {}^{1}2\ 9}\quad 2\ 2\ 0\ 3$$

Find and explain her error. What should the correct answer be?

D

R

3a. Use the digit cards to complete the calculation.

$$7 \overline{)9\ 1\ 7\ \square}\quad 1\ \square\ 1\ 1$$

7 3

D

PS

3b. Use the digit cards to complete the calculation.

$$4 \overline{)9\ \square\ 8}\quad 2\ 4\ \square$$

6 2

D

PS

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Short Division

4a. Identify the odd one out.

A. 4,050 ÷ 9 = ☐

B. 4,950 ÷ 11 = ☐

C. 5,402 ÷ 12 = ☐

D. 1,350 ÷ 3 = ☐

Explain why.

E R

Short Division

4b. Identify the odd one out.

A. 2,247 ÷ 7 = ☐

B. 4,484 ÷ 14 = ☐

C. 2,568 ÷ 8 = ☐

D. 1,605 ÷ 5 = ☐

Explain why.

E R

5a. Martha knows she has made a mistake in the calculation below.

		0	2	0	2	r8
1	8	3	$^{3}6$	4	$^{4}5$	

Find and explain her error. What should the correct answer be?

E R

5b. Stan knows he has made a mistake in the calculation below.

		0	3	0	3
1	6	5	$^{5}4$	4	$^{4}8$

Find and explain his error. What should the correct answer be?

E R

6a. Use the digit cards to complete the calculation.

		0	2	0	4	r ☐
1	4	2	☐	5	☐	

1 8 7

E PS

6b. Use the digit cards to complete the calculation.

		0	3	☐	☐	r8
1	1	☐	9	6	8	

0 3 6

E PS

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Short Division

7a. Identify the odd one out.

A. 7,084 ÷ 22 = ☐

B. 9,982 ÷ 31 = ☐

C. 8,372 ÷ 26 = ☐

D. 9,044 ÷ 28 = ☐

Explain why.

GD

r

Short Division

7b. Identify the odd one out.

A. 5,148 ÷ 33 = ☐

B. 7,590 ÷ 46 = ☐

C. 5,928 ÷ 38 = ☐

D. 4,524 ÷ 29 = ☐

Explain why.

GD

r

8a. Tia knows she has made a mistake in the calculation below.

		0	1	0	9	r3	2
3	6	4	$^{3}9$	$^{3}5$	$^{35}6$		

Find and explain her error. What should the correct answer be?

GD

r

8b. Albie knows he has made a mistake in the calculation below.

		0	0	3	3	r2
4	2	1	$^{1}3$	$^{13}7$	$^{12}8$	

Find and explain his error. What should the correct answer be?

GD

r

9a. Use two digit cards to complete the calculation.

		0	1	6	☐	r3	0
5	1	8	☐	9	4		

2 4 7 3

GD

PS

9b. Use two digit cards to complete the calculation.

		0	0	7	☐	r9
3	9	2	☐	9	5	

4 6 8 5

GD

PS

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Reasoning and Problem Solving
Short Division

Developing

1a. C is the odd one out (489 ÷ 3) as this equals 163. All of the rest equal 161.

2a. When calculating 7 thousands ÷ 6 Mason has recorded 1 but has forgotten to include his remainder 1. The correct answer should be 1,301.

3a.

	1	3	1	1
7	9	1	7	7

Expected

4a. C is the odd one out (5,402 ÷ 12) as this equals 450 r2. All of the rest equal 450.

5a. When calculating the remainder Martha has miscounted. The correct answer should be 202 r9.

6a.

		0	2	0	4	r1
1	4	2	8	5	7	

Greater Depth

7a. D is the odd one out (9,044 ÷ 28) as this equals 323. All of the rest equal 322.

8a. When calculating 4 thousands ÷ 36, Tia mistakenly carried a 3 over to the 9 instead of a 4. The correct answer should be 137 r24.

9a.

		0	1	6	4	r3	0
5	1	8	3	9	4		

Reasoning and Problem Solving
Short Division

Developing

1b. B is the odd one out (655 ÷ 5) as this equals 131. All of the rest equal 121.

2b. When calculating the tens ÷ 3 Asha has forgotten to include the hundred that was exchanged. The correct answer should be 2,243.

3b.

	2	4	2
4	9	6	8

Expected

4b. B is the odd one out (4,484 ÷ 14) as this equals 320 r4. All of the rest equal 321.

5b. When calculating 54 hundreds ÷ 16, Stan recorded it as 3 but forgot to record the reminder of 6. The correct answer should be 340 r8.

6b.

		0	3	6	0	r8
1	1	3	9	6	8	

Greater Depth

7b. B is the odd one out (7,590 ÷ 46) as this equals 165. All of the rest equal 156.

8b. When calculating the tens, Albie mistakenly carried a 12 over to the 8 instead of an 11. The correct answer should be 32 r34.

9b.

		0	0	7	4	r9
3	9	2	8	9	5	

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