Divide a 2-digit number by a 1-digit number – with remainders

Notes and guidance

In this small step, children continue to divide a 2-digit number by a 1-digit number. They apply their knowledge from the previous small steps and also make links between division and repeated subtraction, building on earlier learning.

Children look at calculations that may involve exchanging between the tens and ones, and that have a remainder. This will be the first time children have encountered remainders, so they will need to be explicitly taught the notation, for example 43 ÷ 3 = 14 remainder 1 or 14 r1

Practical equipment, such as lolly sticks and place value counters, can be used to support children's understanding.

Things to look out for

- Children may be used to working out a calculation starting with the ones column, as this is what they have done with addition, subtraction and multiplication.

- Children may miscount when using repeated subtraction.

- Children may end up with a remainder that is greater than the number they are dividing by and need support to complete the calculation.

Key questions

- Do you need to exchange any tens for ones?

- Is there a remainder?

- How can place value counters help you divide _____ by _____?

- How do you know _____ divided by _____ will have a remainder?

- Can a remainder ever be greater than the number you are dividing by?

Possible sentence stems

- There are _____ groups of _____

  There are _____ remaining.

  So _____ ÷ _____ = _____ r_____

National Curriculum links

- Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods

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Key learning

- Esther has 13 lolly sticks.

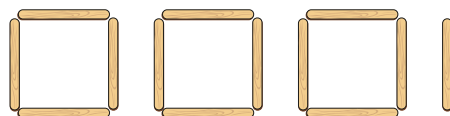 She uses them to make squares.

  Complete the sentences.

  There are _____ lolly sticks.
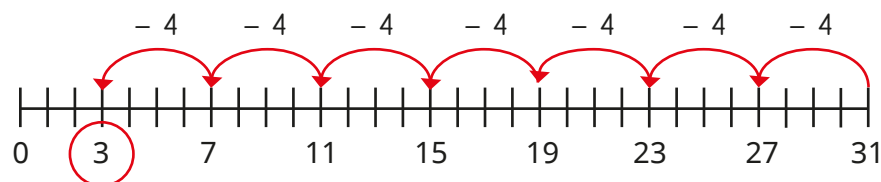
  There are _____ groups of 4

  There is _____ lolly stick remaining.

  13 ÷ 4 = _____ remainder _____

  Esther can make _____ squares.

- Tommy uses repeated subtraction to work out 31 ÷ 4

  31 ÷ 4 = 7 r3

  Use Tommy's method to work out 38 ÷ 3

- Alex uses place value counters to work out 94 ÷ 4

  First, she shares the tens into 4 equal groups.

  She needs to exchange the remaining ten for 10 ones.

  Alex shares as many of the ones as possible into 4 equal groups.

  94 ÷ 4 = 23 r2

  Use Alex's method to work out the divisions.

  | 76 ÷ 3 | 62 ÷ 5 | 58 ÷ 4 | 83 ÷ 6 |

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Reasoning and problem solving

Which division is the odd one out?

64 ÷ 8	77 ÷ 4
49 ÷ 6	65 ÷ 3

How do you know?

various possible answers, e.g. 64 ÷ 8, as it is the only calculation without a remainder

Tiny uses place value counters to work out 68 ÷ 3

Tens	Ones
10 10	1
10 10	1
10 10	1

1 1 1 1 1

Tiny's answer is 21 r5

What mistake has Tiny made?

Work out the correct answer.

22 r2

Teddy has some buttons.

- There are more than 30, but fewer than 50
- Teddy shares the buttons equally into 5 bowls. There is 1 button left over.
- Teddy shares the buttons equally into 4 bowls. There are no buttons left over.

How many buttons has Teddy got?

36

Dora and Tom are planting bulbs.

They have 76 bulbs altogether.

Dora plants her bulbs in rows of 8 and has 4 left over.

Tom plants his bulbs in rows of 10 and has 2 left over.

How many bulbs do they each have?

Dora: 44

Tom: 32