

Divide a 2-digit number by a 1-digit number – flexible partitioning

Notes and guidance

In this small step, children continue to divide a 2-digit number by a 1-digit number. They now begin to look at calculations that involve exchanging between the tens and the ones.

Children use their previous learning on flexible partitioning to support them with this. For example, to calculate $42 \div 3$, they need to identify multiples of 3 that 42 can be partitioned into. Children use their knowledge of times-tables facts to partition the number into multiples of the number they are dividing by. For this example, they can partition 42 into 30 and 12, and then use $30 \div 3 = 10$ and $12 \div 3 = 4$ to find that $42 \div 3 = 14$.

Children can use place value counters to support their understanding and part-whole models to show what calculations have been done.

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 not be confident with their times-table facts, which means they may find it difficult to partition the number into multiples of the number they are dividing by.

Key questions

- How can you flexibly partition _____ so that the tens and ones are both multiples of the number you are dividing by?
- What is _____ shared into _____ equal groups?
- How can the place value counters help you divide _____ by _____?
- How can you use the part-whole model to work out the division?
- What is _____ divided by _____?

Possible sentence stems

- _____ can be partitioned into _____ and _____, as these numbers are both multiples of _____
- _____ divided by _____ is equal to _____

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

- Ron uses place value counters to work out $42 \div 3$

First, he shares the tens into 3 equal groups.

He has 1 ten and 2 ones left over.

Tens	Ones
10	
10	
10	

Ron exchanges the remaining ten for 10 ones.

Then he shares the ones into 3 equal groups.

Tens	Ones
10	1 1 1 1
10	1 1 1 1
10	1 1 1 1

$42 \div 3 = 14$

Use Ron's method to work out the divisions.

$48 \div 3$

$52 \div 4$

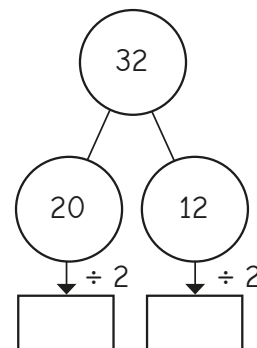
$65 \div 5$

$72 \div 6$

- Use place value counters to divide 54 by 3

What do you notice?

- Annie uses a part-whole model to work out $32 \div 2$



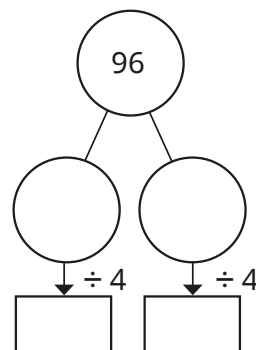
$32 \div 2 = \underline{\quad}$

Why did Annie partition 30 into 20 and 12?

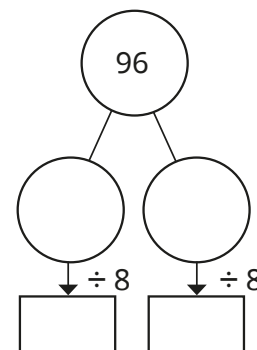
Complete Annie's workings.

- Use part-whole models to work out the divisions.

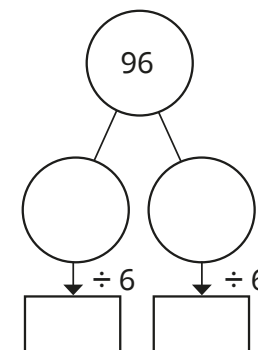
$96 \div 4 = \underline{\quad}$



$96 \div 8 = \underline{\quad}$



$96 \div 6 = \underline{\quad}$



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Reasoning and problem solving

Jack is working out $48 \div 3$



I can partition 48 into 40 and 8 to help me.

Is there a way to improve Jack's method?

partition 48 into 30 and 18, as these are both divisible by 3

Write $<$, $>$ or $=$ to complete the statements.

$$48 \div 4 \quad \bigcirc \quad 45 \div 3$$

$$52 \div 4 \quad \bigcirc \quad 42 \div 3$$

$$54 \div 3 \quad \bigcirc \quad 60 \div 4$$

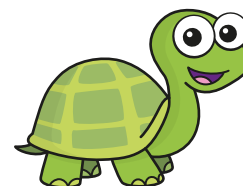
Did you need to work out all of the divisions?

$<$
 $<$
 $>$

Tiny uses the place value chart to work out $54 \div 3$

Tens	Ones
10 10	1 1
10 10	1
10	1

18



The answer is 22

Explain the mistake Tiny has made.

Work out the correct answer.