

Diving into Mastery



Long Division 2

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:



Diving



Deeper



Deepest

These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Aim

- Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.

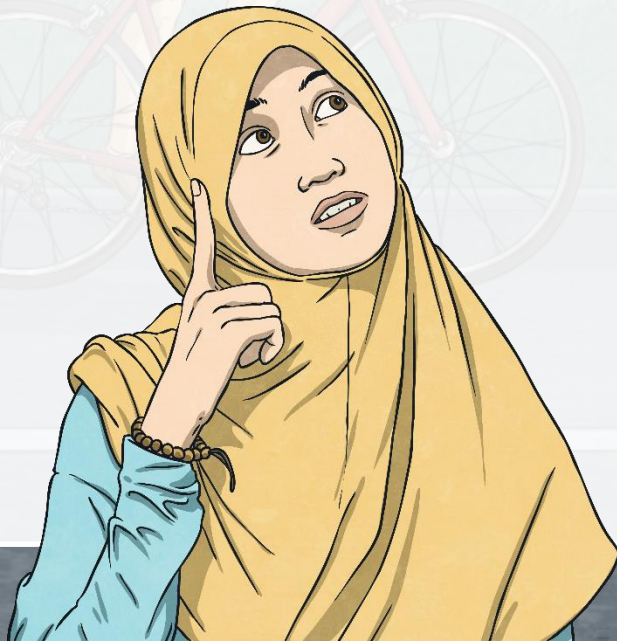


Use your knowledge of multiples to help you solve this long division calculation:

$$1968 \div 16 = 123$$



		0	1	2	3
1	6	1	9	6	8



Long Division 2

Diving

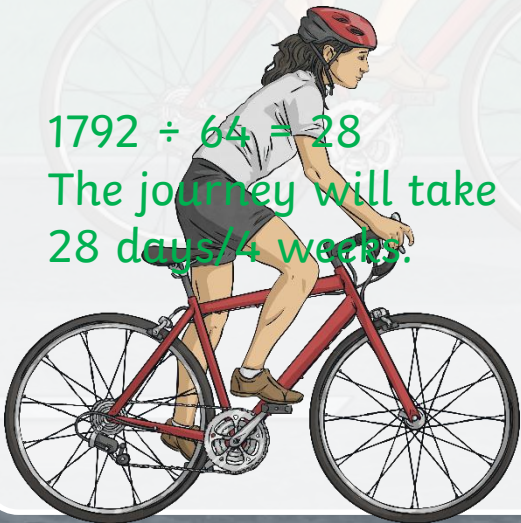


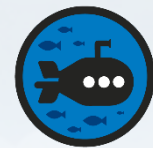
A cyclist is planning out the journey time for her sponsored cycle. She must cycle 1792km. She is able to travel 64km each day on her bike. How many weeks will it take for her to travel the entire distance?



$1792 \div 64 = 28$
 The journey will take
 28 days/4 weeks.

		0	0	2	8
6	4	1	7	9	2





Aron is looking at this division statement:

$$1560 \div 24$$



		0	0	6	
2	4	1	5	6	8

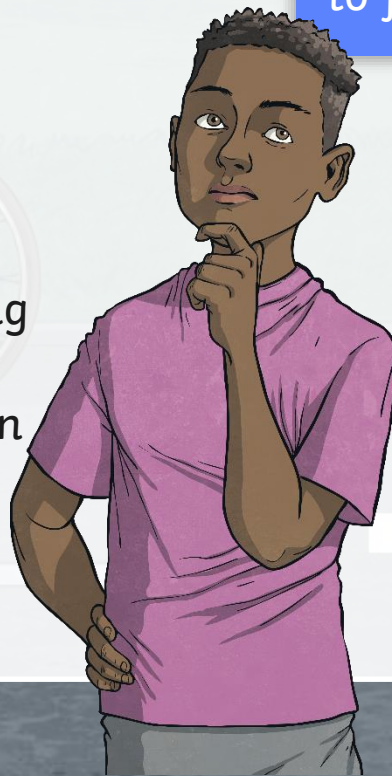
He has solved the problem using long division but says that he cannot complete the calculation as it will leave a remainder.

Aron has made a mistake.

Can you identify his mistake and complete the calculation to find the correct answer?

Aron has made a mistake when listing the multiples of 24 because 40 is not a multiple of 24. This should be 48.

The correct answer should be 65.





$$3600 \div 45 = 80$$

Harnam thinks that she can use this division statement to find the answer to:

$$3780 \div 45 = \boxed{84}$$



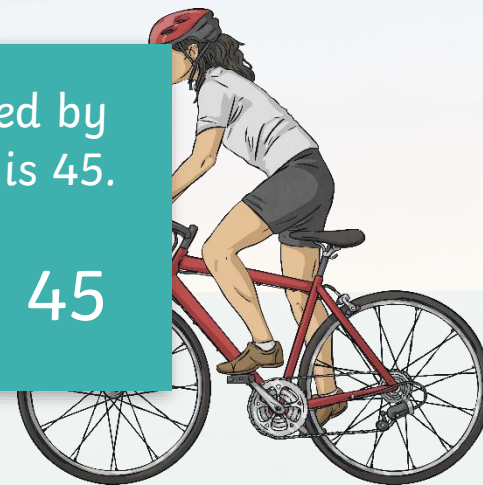
Harnam is correct.

Because the dividend in the second calculation is exactly 180 more than the dividend in the first calculation, she knows the quotient will be exactly 4 more groups of 45 greater ($4 \times 45 = 180$) giving the answer of 84.



When a four-digit number is divided by this two-digit number, the answer is 45.

$$\square \square \square \square \div \square \square = 45$$



What are the greatest possible numbers that could be used to complete this division statement?

$$4455 \div 99 = 45$$

What are the smallest possible numbers that could be used to complete this division statement?

$$1035 \div 23 = 45$$



Can you work out the missing numbers in this calculation using the clues?

$$\text{A} \div \text{B} = 26$$

A is greater than 2000 and less than 2250

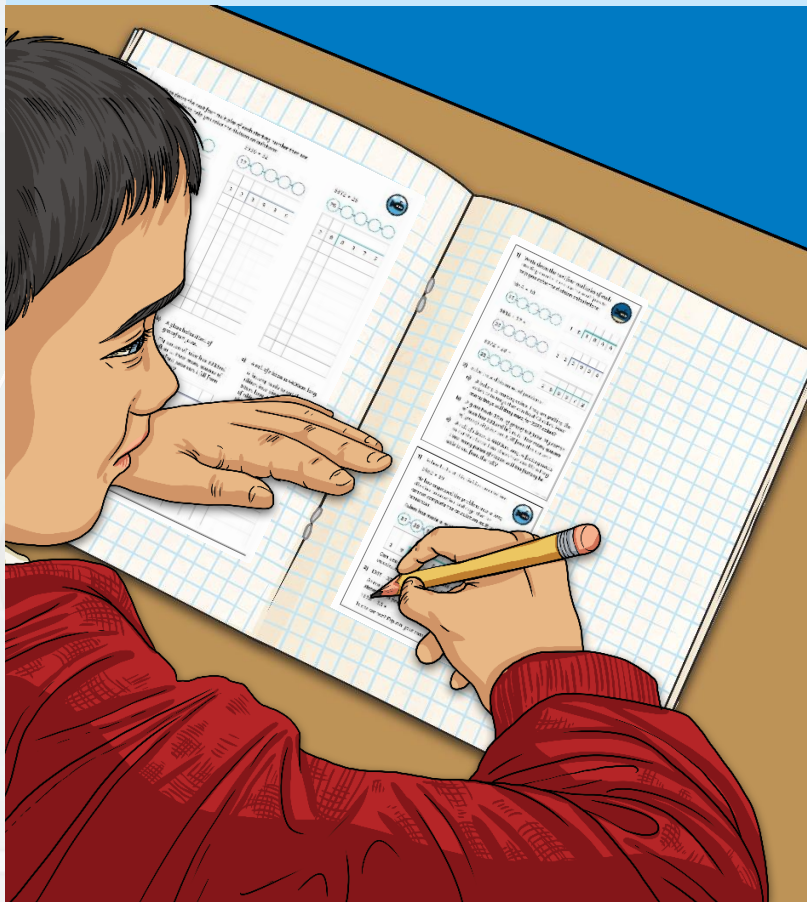
B is a two-digit number.

A	B
2002	77
2028	78
2054	79
2080	80
2106	81
2132	82
2158	83
2184	84
2210	85
2236	86



Long Division 2

Dive in by completing your own activity!



1) Write down the next four multiples starting number then use the multiples to help you solve the division calculation:

$1044 \div 18 =$

18 ○ ○ ○ ○ ○ 1

$3936 \div 32 =$

32 ○ ○ ○ ○ ○ 3

$6372 \div 28 =$

28 ○ ○ ○ ○ ○ 2

2) Solve these division word problems:

- a) A bakery is making cakes. The cakes onto trays that can hold many trays will they need for
- b) A glass holds 85ml of grapefruit juice has 3315ml left in it. How many glasses of grapefruit juice can I fill from
- c) A roll of ribbon is 4400cm long to cut the ribbon into pieces that are 55cm long. How many pieces of ribbon will the factory be able to cut from the roll?

1) Ruben looks at this division calculation $1482 \div 19$

He has organised the problem into a long division calculation and says that he cannot complete the calculation as there is a remainder.

Ruben has made a mistake.

$19 \overline{) 38 \ 57 \ 76 \ 95}$

	0	0	5
1	9	1	4

Can you identify his mistake and explain how to find the correct answer?

2) $1055 \div 35 = 31$

Selma thinks that she can use this statement to find the answer to: $1120 \div 35 =$ Is she correct? Explain your reasoning.

1) Write down the next four multiples of each starting number then use the multiples to help you solve the division calculation:

$1044 \div 18 =$

18 ○ ○ ○ ○ ○

$3936 \div 32 =$

32 ○ ○ ○ ○ ○

$6372 \div 28 =$

28 ○ ○ ○ ○ ○

1	8	1	0	4	4

3	2	3	9	3	6

2	8	8	3	7	2

2) Solve these division word problems:

- a) A bakery is making cakes. They are putting the cakes onto trays that can hold 46 cakes. How many trays will they need for 2592 cakes?
- b) A glass holds 85ml of grapefruit juice. My carton of juice has 3315ml left in it. How many glasses of grapefruit juice can I fill from this carton?
- c) A roll of ribbon is 4400cm long. A factory needs to cut the ribbon into pieces that are 55cm long. How many pieces of ribbon will the factory be able to cut from the roll?

Need Planning to Complement this Resource?

National Curriculum Aim

Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.

Creepy Calculations
548 ÷ 29 =

548 ÷ 29 = 27 with no remainder. How could we check our answer?

Monster Maths

Long Division Reasoning 1a
Finally, let's check our answer with the information and long-division in the question to make sure we have covered the question fully:

Long Division Reasoning 2b
Working with a partner, use your reasoning skills to solve the second question on your Long Division Talk Partner Activity Sheet.

Long Division Reasoning

Talk Partner Long Division

