

Diving into Mastery



Long Division 3



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.



Long Division 3

Diving



Use your knowledge of multiples to help you solve these division questions:

$$785 \div 25 = 31r10$$

$$417 \div 13 = 32r1$$

		0	3	1	r10
2	5	7	8	5	
	-	7	5		
			3	5	
	-		2	5	
			1	0	

		0	3	2	r1
1	3	4	1	7	
	-	3	9		
			2	7	
	-		2	6	
				1	



Long Division 3

Diving



Solve this division word problem. Think carefully about the effect the remainder will have on your final answer.

A school is buying paints to use in the classroom. A box contains 14 bottles of paint. The school needs 438 bottles of paint. How many boxes do they need to buy?



		0	3	1	r4
1	4	4	3	8	
	-	4	2		
			1	8	
	-		1	4	
				4	

32 boxes of paint are needed.
10 bottles of paint will be left over.

Long Division 3

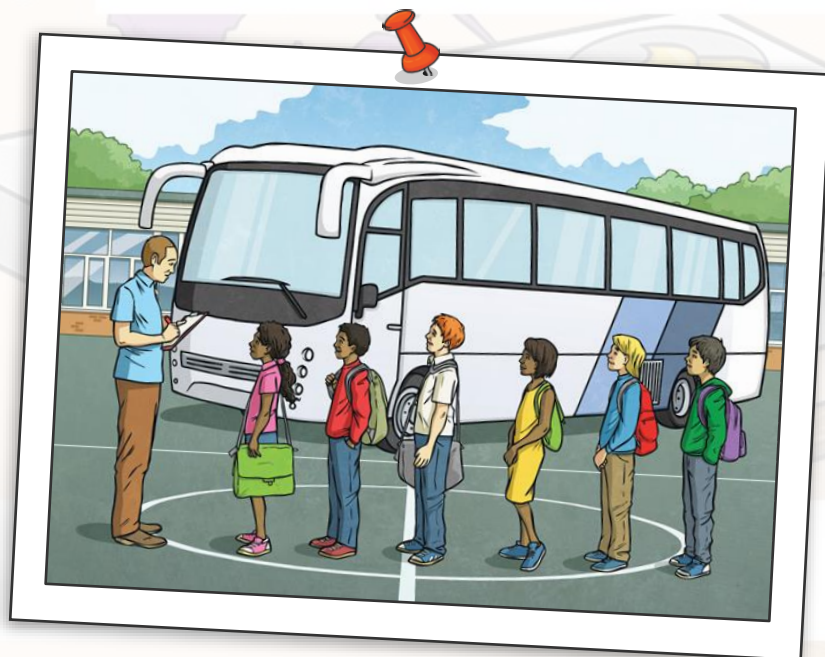
Diving



Solve this division word problem. Think carefully about the effect the remainder will have on your final answer.

A coach can carry 36 children. How many coaches will a school need to take 450 pupils and 24 members of staff on a trip?

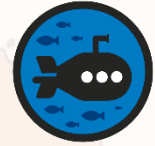
14 coaches
are needed.
There will be
30 spare seats.



		0	1	3	r6
3	6	4	7	4	
-		3	6		
		1	1	4	
-		1	0	8	
				6	

Long Division 3

Deeper



Three children have been asked to reorganise the school library.

There are 573 books to put on the shelves. They have been told that each shelf can have up to 35 books on it.

I think that we will need 17 shelves to hold all of the books.

I think that we will need 18 shelves to hold all of the books.

Can you explain who is right?
Will any books be left over when they have filled all the shelves?



I think that we will need 16 shelves to hold all of the books.

Tomak is right. They will need 17 shelves. 16 shelves will be full and the last shelf will have 13 books on it.



Look at these division calculations and decide if the statements are true or false. Explain your reasoning.

Two of these numbers will divide by 25 without leaving a remainder.

False. Only one of the numbers is divisible by 25.

One of these numbers will give a remainder that is even.

False. Both calculations that result in a remainder have remainders that are even.

$$347 \div 25 =$$

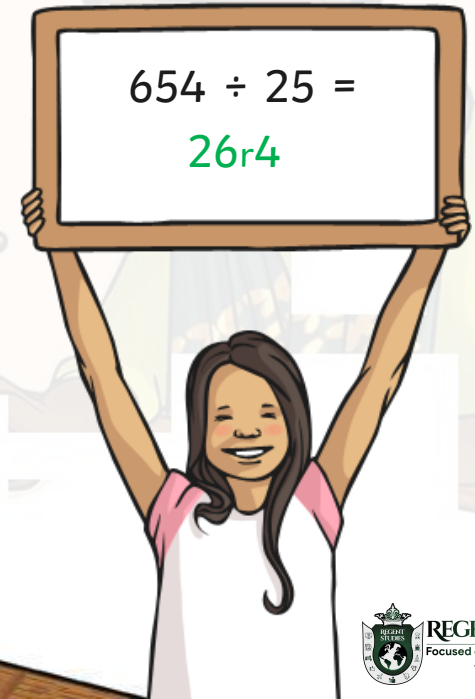
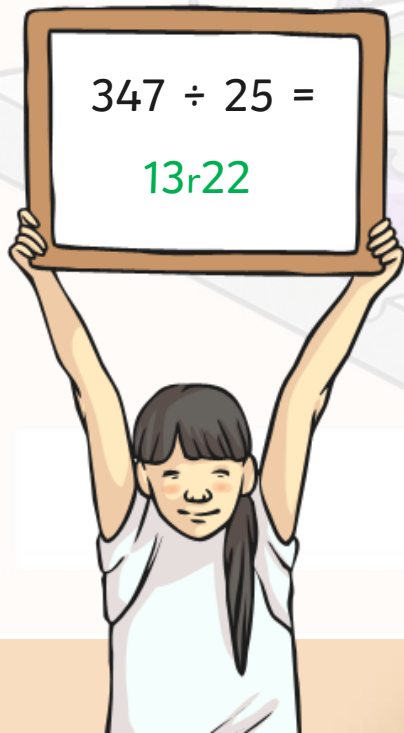
$$13r22$$

$$950 \div 25 =$$

$$38$$

$$654 \div 25 =$$

$$26r4$$



Long Division 3

Deepest



Investigate finding a number which could match each of these statements. Can you find every possible answer?

My number is greater than 100 and less than 160. If I divide this three-digit number by 14, the remainder is 5.

Accept: 117, 131, 145 and 159.

My number is between 400 and 500. When I divide it by 22, the remainder is 11.

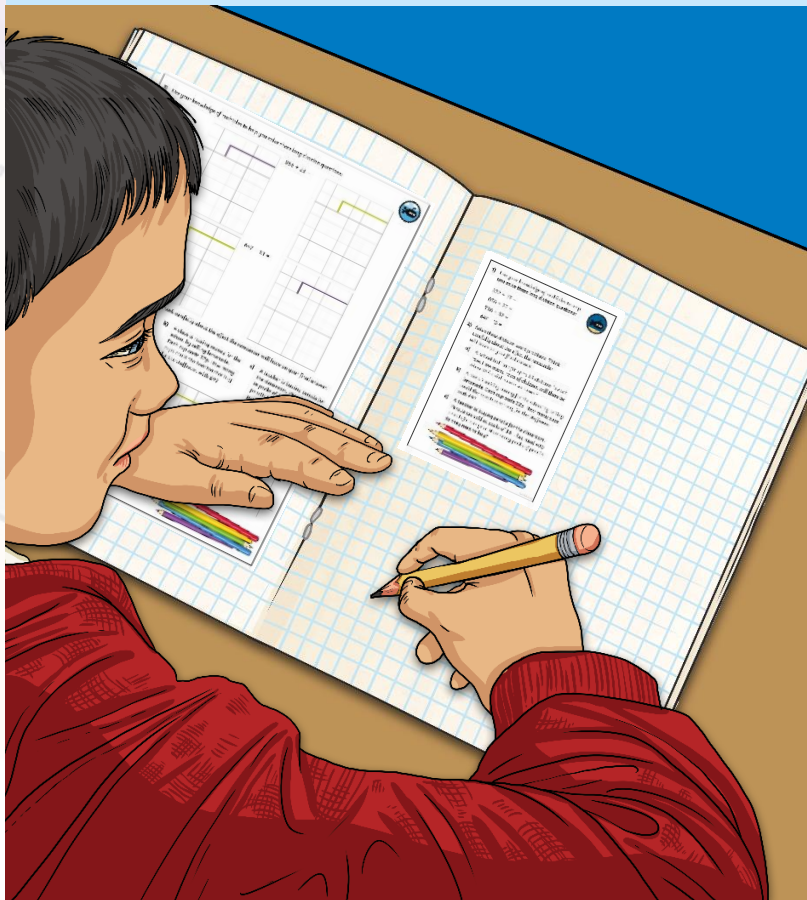
Accept: 429, 451, 473 and 495.

This number is between 400 and 600. If I divide it by 32, the remainder is 4.

Accept: 420, 452, 484, 516, 548 and 580.

Long Division 3

Dive in by completing your own activity!



1) Use your knowledge of multiples to help you solve these long division questions:

$$\begin{array}{r} 372 \div 17 = \\ 856 \div 23 = \\ 738 \div 32 = \\ 647 \div 13 = \end{array}$$

2) Solve these division word problems carefully about the effect the remainder will have on your final answer.

- A school hall can fit up to 18 children in each row. How many rows of children will there be when 364 children are sat down?
- A class is raising money for the school by selling lemonade. Each cup costs 32p. How many cups could the headteacher buy for with £9?
- A teacher is buying pencils for the classroom. Pencils are sold in packs of 16. They need 490 pencils for the year. How many packs do they need to buy?



1) Use your knowledge of multiples to help you solve these long division questions:

$$372 \div 17 =$$

$$856 \div 23 =$$

$$738 \div 32 =$$

$$647 \div 13 =$$

2) Solve these division word problems. Think carefully about the effect the remainder will have on your final answer:

- A school hall can fit up to 18 children in each row. How many rows of children will there be when 364 children are sat down?
- A class is raising money for the school by selling lemonade. Each cup costs 32p. How many cups could the headteacher buy for the staffroom with £9?
- A teacher is buying pencils for the classroom. Pencils are sold in packs of 16. They need 490 pencils for the year. How many packs do they need to buy?



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.

This screenshot shows a math resource page with three main sections: 'Long Vines', 'Jungle Division', and 'Slithering Snake'. 'Long Vines' includes a diagram of a vine and a text box explaining the relationship between the number being divided and the divisor. 'Jungle Division' features a large play button icon and a grid for long division. 'Slithering Snake' contains a snake illustration and a division problem: $2280m \div 3 =$. Below these sections are several worksheets, including 'Extra Challenge', 'Jungle Division', and 'Jungle Division'.

This screenshot shows a math resource page with three main sections: 'Creepy Calculations', 'Monster Maths', and 'Ready, Steady, Explain'. 'Creepy Calculations' includes a cartoon character and a division problem: $648 \div 24 =$. 'Monster Maths' features a large play button icon and a grid for long division. 'Ready, Steady, Explain' contains a cartoon illustration of a house and a division problem: $4072 \div 12 =$. Below these sections are several worksheets, including 'Blank', 'Monster Maths', and 'Monster Maths'.

