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Maths

Entry Level 3, Book 4

GLH 3

Division

Name	
Number	
Location	
Date Issued	



➤ Introduction

This booklet is part of your learning programme.

Remember to read carefully and try your best. Don't worry if you get stuck, make a note on the booklet and move on to the next task. Try coming back to it later, see if you can work it out then.

If you are still stuck, remember to make a note at the end of the booklet.

Throughout the booklet, you will see that some words have been printed **blue and bold**. You will find more detailed explanations of each of these words in the 'Glossary' at the back of the booklet.



Glossary is a list of often difficult or specialised words with their definitions, placed at the back of a book. You may also know this as a word bank.

By working through this booklet, you will divide 3-digit numbers by 1-digit and 2-digit numbers.

Being confident in division is an important employability skill and useful in everyday life. Everyday activities such as sharing out money, splitting a bill and managing your money all require you to be able to divide.

What Do the Symbols in this Booklet Mean?



Where you see this symbol, there is a skills practice or activity for you to complete.



Information, explanations and case studies are shown with this icon.



This shows you there is a glossary or word bank with the meaning and correct spelling of key words.



This icon shows where to write comments for your tutor to read.




This symbol lets you know there are some key points to remember.

The Big Picture



You are studying Entry Level 3 Maths, which is taught over 55 Guided Learning Hours (GLH).

The programme covers the units listed below. The unit that you're working on today is ticked.

Booklet		GLH	
1	Place Value and Sequencing		
2	Addition and Subtraction		
3	Multiplication		
4	Division	3	
5	Fractions		
6	Decimals and Money		
7	Rounding		
8	Time		
9	Shape and Space		
10	Measure		
11	Handling Data		
12	Recap and Summary		

Outcomes

These are the outcomes you can achieve by completing the learning activities in this booklet.

1

Divide 3-digit whole numbers by 1-digit whole numbers and express remainders.

2

Divide 3-digit whole numbers by 2-digit whole numbers and express remainders.



Recap



A **recap** is an effective way of helping you to remember and apply what you have learnt. If this is your first booklet, it may help you to think about what you know already about this subject. Can you answer the following questions?



What was the last booklet you completed?



Can you remember what you learnt about?



Can you remember three key points from the booklet?

1

2

3

What is Division?



Division is the process of separating something into equal parts/pieces. It is shown by this symbol:



By cutting this cake, I have divided it into 12 **equal** pieces.



If there are three restaurant staff who have £60 tips in their tip jar at the end of the evening to share, how much does each one get?

First you need to divide the money into three equal parts, like this:

£20 + £20 + £20

So, you can see that each will get £20.

The way we write this is **£60 ÷ 3 = £20**.



How Do We Divide?

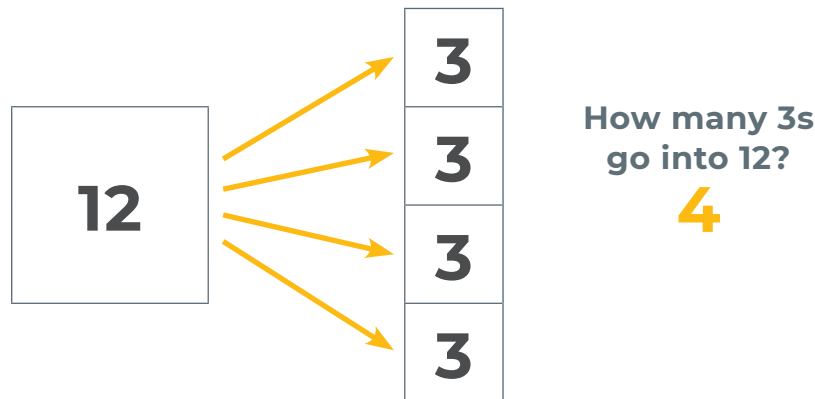
A standard division question looks something like this:

$$12 \div 3 =$$

This question is asking the answer to **twelve divided by three**. This is the same as asking these questions:

- **How many 3s go into 12?**
- **If I split 12 into 3 equal pieces, how much is each piece worth?**

This is as simple as counting up in the 3 times table.



- When writing out a division problem, the number being shared out needs to be the first number written (in the example above this is **12**).
- The number sharing it by needs to be the **last** number written (in the example above this is **3**).
- For **12 ÷ 3**, there are a total of 4 3s in 12, so the answer is 4.



Remember:

- If you have nothing to share, then no one gets anything, so $0 \div 3 = 0$.
- One of your friends wants to share his money with you, but he has none.
- How much will your share be..? **Nothing!**



Now Try These Division Questions



Task
1

1.	$15 \div 5 =$	
2.	$12 \div 2 =$	
3.	$24 \div 4 =$	
4.	$36 \div 6 =$	
5.	$56 \div 8 =$	
6.	$42 \div 7 =$	
7.	$72 \div 9 =$	
8.	$45 \div 3 =$	
9.	$0 \div 8 =$ (If I've got nothing to share between 8 people, how much does each person get?)	
10.	Sam and his 3 friends are taking a taxi to the airport. The fare costs £36. If they split the cost evenly, how much will each person pay?	



Division Shortcuts

Just like when we multiple whole numbers by 10 & 100, we can use a shortcut when we divide whole numbers by 10 & 100. Have a look at this example:

$$60 \div 10 = 6$$

If the number being divided by 10 ends in a zero, all that is required to answer the question is to move both the digits 1 place to the right. This will give us the same answer:

$$6 \div 1 = 6$$

Have a look at these examples, using the table below for guidance:

- **$50 \div 10 = 5$**
Moving every digit 1 place to the right gives us $5 \div 1 = 5$
- **$140 \div 10 = 14$**
Moving every digit 1 place to the right gives us $14 \div 1 = 14$
- **$600 \div 100 = 6$**
Moving every digit 2 places to the right gives us $6 \div 1 = 6$

Hundreds	Tens	Ones	.	Tenths	Hundredths
	5 →	0	.	0 →	0
1 →	4 →	0	.	0 →	0
6 →	0 →	0	.	0 →	0

This is useful to know when working with decimal numbers.

Division Shortcuts



Task 2

Try using the shortcut on the previous page to answer these division questions.

1.	$150 \div 10 =$	
2.	$210 \div 10 =$	
3.	$360 \div 10 =$	
4.	$500 \div 100 =$	
5.	$600 \div 100 =$	

Written Division

Sometimes there are difficult questions that require a written method. For these questions we use the layout in the diagrams shown to the right.

Example:

What is 824 divided by 8?

The number we are going to divide goes at the bottom on the right-hand side.

	8	2	4

The number we are dividing by goes on the left.

8	8	2	4

We can now **start our calculation**. Look at the number we are dividing (824), then divide it by the number shown (8). When dividing, we start from the left. The order of numbers in this example is **8**, then **2**, then **4**.

The first division. How many times does 8 go into 8? The answer goes at the top left (1).

	1		
8	8	2	4

The second division. How many times does 8 go into 2? Zero 8s go into 2, so we put **0** on top and carry the **2**.

	1	0	
8	8	2 ²	4

The third division (but this time we have the carried over 2). How many times does 8 go into 24? The answer is 3.

	1	0	3
8	8	2 ²	4

We now know that $824 \div 8 = 103$

Written Division

Another example:

What is 690 divided by 6?

Step 1:

Put the numbers in the correct layout.

	1	1	5
6	6	9	³ 0

Step 2:

How many 6s go into 6?

1 with nothing left over.

Step 3:

How many 6s go into 9?

1 with 3 left over.

We put the 1 at the top and carry the 3 over.

Step 4:

How many 6s go into 30?

5 with nothing left over.

We now know that $690 \div 6 = 115$

Now Have a Go



Task
3

Use the method from the previous page to answer these questions. Show your working out.

1. $480 \div 5 =$

2. $638 \div 2 =$

This task is continued on the next page.

Now Have a Go



Task
3

3. $704 \div 4 =$

4. $1872 \div 6 =$

5. $792 \div 8 =$

6. $980 \div 7 =$

7. $2700 \div 9 =$

➤ Always Check

Always check you have written out your calculation correctly!

Example:

If there are 24 workers in a factory and each workstation is for 4 people, how many workstations will be needed?

- The correct method of writing this down is $24 \div 4$ (the number of workstations being shared out divided by the number of people at each workstation) = **6 workstations**
- An incorrect method is $4 \div 24 = 0.1666666667$ **workstations** (if written the wrong way round, the answer does not make sense!)

➤ Recap

So far you have looked at:

What division is.	✓
How to divide whole numbers by single whole numbers.	✓
Division shortcuts.	✓
How to set out written divisions.	✓





Notes





Let's keep going

FOLLOW



WWW (What Went Well)

EBI (Even Better If)

Next steps

Learner feedback (Please provide some feedback for your tutor following the comments that you have just made on your work.)

Remainders

Not all division questions end up with a nice whole number. Sometimes there's a little bit left over; this is known as the remainder.

$$193 \div 6 =$$

Example:

Step 1:
Put the numbers in the correct layout

	0	3	2	r1
6	1	9	3	

Step 2:
How many 6s go into 1?
Zero with 1 left over.

Step 3:
How many 6s go into 19?
3, with 1 left over.

Step 4:
How many 6s go into 13?
2, with 1 left over.

$$193 \div 6 = 32r1$$

Because we have no more numbers to carry the 1 over to, this is our remainder. So, we put **r1** next to the answer.



Task
4

Some of these answers have remainders, can you work them out?

1.

2	2	7	9	

2.

9	9	7	6	

3.

5	1	8	5	

4.

4	3	5	7	

Dividing by 2-Digit Numbers

Sometimes you may need to divide by two or more-digit numbers. You can use the exact same method.

$$204 \div 12 =$$

Example:

Step 1:

Put the numbers in the correct layout

		0	1	7	
1	2	2	0	4	

Step 2:

How many 12s go into 2?

Zero with 2 left over.

Step 3:

How many 12s go into 20?

1, with 8 left over.

$$204 \div 12 = 17$$

Step 4:

How many 12s go into 84?

7, with nothing left over.



Task
5

Try dividing with 2 digits. Some of these answers have remainders

1.

1	1	2	3	1	

2.

1	4	8	6	9	

3.

1	3	5	4	8	

4.

	7	2	7	9	

Now Have a Go



Task
6

Now try these questions. Use the methods shown previously to help you. Don't forget to show remainders.

1. $578 \div 2 =$

2. $609 \div 3 =$

3. $796 \div 4 =$

4. $537 \div 8 =$

5. $962 \div 9 =$

6. $486 \div 14 =$

7. $862 \div 13 =$

8. Share 486 deliveries equally between 6 drivers.

9. If you have to pay £480 over 12 months of equal **instalments**, how much will you have to pay each month?

Division in Real Life



Task
7

1. Adam earns £120 for an 8-hour day.
What is his hourly rate of pay?

	8		1	2	0



2. James has £650 to pay for his new TV over 5 equal instalments. How much will each instalment be?

	5		6	5	0



3. His telephone bill is £444 a year.
How much is this each month?

1	2		4	4	4



4. His car **insurance** is £552 a year. He pays in 12 instalments.
What will his monthly payments be?

1	2		5	5	2



3-Digit by 2-Digit Division using Practical Everyday Tasks including Remainders



Task
8

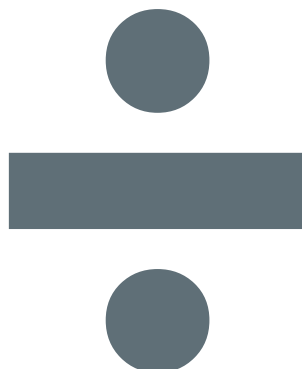
1. I have 726 cupcakes to sell at the fair. The fair lasts for 11 days. I hope to sell an equal amount each day. How many do I want to sell each day?
2. There are 378 bees. They need to be split into 14 hives. How many bees will there be in each hive?
3. You manage an aquarium selling fish. Five hundred and nineteen fish need to be put into 10 pools at an aquarium. How many will go in each pool?
4. There are 847 parcels needing sorting into 7 vans for delivery. Each van should hold equal amounts. How many parcels will be placed in each van for delivery?

3-Digit by 2-Digit Division using Practical Everyday Tasks including Remainders



Task
8

5. There are 964 potatoes in the bags and 4 enormous pans in the kitchen. How many potatoes will the chef put in each?
6. There are 352 paint brushes which need to be put on 11 pegs to be sold. How many paint brushes should go on each peg?
7. A supermarket has 8 shelves for soup and 564 tins which will fit on them. How many tins should they put on each shelf?



Recap

In this section of the booklet you have looked at:

Working out remainders	✓
Dividing 3-digit whole numbers by 2-digit whole numbers	✓
Working out everyday divisions	✓





WWW (What Went Well)

EBI (Even Better If)

Next steps

Learner feedback (Please provide some feedback for your tutor following the comments that you have just made on your work.)

Glossary



Insurance	Insurance is protection from loss. It is an arrangement with a company or government agency that provides a guarantee of compensation for loss, damage, illness, or death in return for payment.
Instalment	Part of a payment.

Next Steps

Now you have completed Booklet 4, please return this to your tutor/trainer.

Your tutor/trainer will mark the work and provide you with some feedback showing what you have done well and suggestions on improvements.

The next booklet will be provided to you.



Have Your Say



We would be interested in your opinion of this booklet.

1. **Was there anything you found easy in this workbook?** Yes No
If you answered yes, what did you find easy?

2. **Was there anything you found hard?** Yes No
If you answered yes, what did you find hard?

3. **Is there anything that you would like your tutor to go over again?** Yes No
If you answered yes, what is this?

4. **If your tutor provided learning aids, did you use them?** Yes No
If you answered yes, how were they useful?

5. **Would you like more support?** Yes No
If you answered yes, one of our Support Staff will get in touch with you.

6. **Do you have any questions?**

7. **What have you learnt from this booklet?**

Notes





 **Notes**



