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Maths

Entry Level 3, Book 2

GLH 3

Addition & Subtraction

Name	
Number	
Location	
Date Issued	

E3

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 become confident using different methods for adding and subtracting (take away).

Learning these skills will help you to work out your shopping bills, complete tasks in the workplace and help you with many things in your everyday life.

It will help you with the tasks in this booklet if you know how to count, read, write order and compare numbers up to 1000. This includes 'place value' (hundreds, tens and ones).

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		
2	**Addition and Subtraction**	**3**	✔
3	Multiplication		
4	Division		
5	Fractions		
6	Decimals & Money		
7	Rounding		
8	Time		
9	Shape & 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 Add and subtract (take away) using 3-digit numbers.

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?

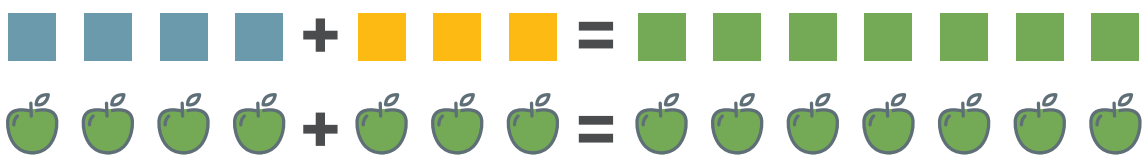1

2

3

Recap – Written Methods to Add Numbers

What is addition?

Addition is the process of calculating the total/sum of two or more numbers or amounts. The symbol for addition is the + sign.
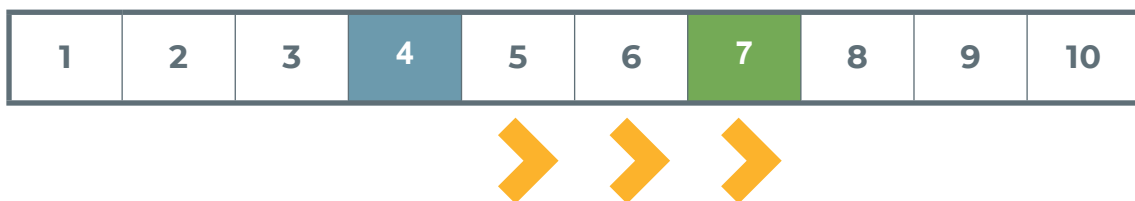
Simple addition

Addition problems are often written like this: 4 + 3 =

But what does this mean?

■ ■ ■ ■ **+** ■ ■ ■ **=** ■ ■ ■ ■ ■ ■ ■

🍏 🍏 🍏 🍏 **+** 🍏 🍏 🍏 **=** 🍏 🍏 🍏 🍏 🍏 🍏 🍏

How do we work it out?

Start at the 4 and move 3 steps forward.

1	2	3	4	5	6	7	8	9	10

> > >

Task 1

Try these addition problems:

1	2	3	4	5	6	7	8	9	10

a. 2 + 6 =			**f.** 6 + 2 =		
b. 3 + 2 =			**g.** 2 + 3 =		
c. 5 + 4 =			**h.** 4 + 5 =		
d. 4 + 1 + 3 =			**i.** 1 + 3 + 4 =		
e. 2 + 6 + 1 =			**j.** 6 + 1 + 2 =		

What do you notice about all these questions and answers?

....

Recap – Written Methods to Add Numbers

All of these sums are the reverse of each other but still have the same answer. It doesn't matter which way around the sum is written, it still gets the same answer.

$$4 + 3 =$$
$$3 + 4 =$$ **7**

$$6 + 2 =$$
$$2 + 6 =$$ **8**

$$3 + 2 =$$
$$2 + 3 =$$ **5**

Recap – What if the Addition is More Difficult?

If the addition is more difficult, we need to line the numbers up like we did in the place value booklet

Example:

What is 24 + 13?

Hundreds (H)	Tens (T)	Ones (O)
	2	4
	1	3

First

$$2 \quad 4$$
$$1 \quad 3 \quad +$$
$$\overline{ \quad 7}$$

4	+	3	=	7

Second

$$2 \quad 4$$
$$1 \quad 3 \quad +$$
$$\overline{3 \quad 7}$$

2	+	1	=	3

After lining up the numbers, start adding the numbers in each column from right to left (4 + 3 first).

$$24 \quad + \quad 13 \quad = \quad 37$$

Recap – What if the Addition is More Difficult?

Try these questions below:

Task 2

John spends £13 in one shop and £36 in the next, how much has he spent altogether?

Items	Price
Socks (pair)	£3
Shirt	£20
Hat	£5

Task 3

John buys a hat, a pair of socks and a shirt. Using the table above, how much did this cost?

Addition with Carrying

When we use numbers that add up to 10 or above, we need to 'carry' numbers over.

Example:

For the sum 27 + 15, start by lining the numbers up

Hundreds (H)	Tens (T)	Ones (O)
	2	7
	1	4

First

T O

2 7

1 5 +

¹ 2

$$7 + 5 = 12$$

Second

T O

2 7

1 5 +

¹4 2

$$2 + 1 + 1 = 4$$

Because the 7 and the 5 add up to a number that is 10 or above, we carry over the 10 into the next column

$$27 + 15 = 42$$

Addition with Carrying

Sometimes we need to 'carry' at the end of the calculation, like below:

84 + 43 =

T	O	
8	4	
4	3	+
	7	

4	+	3	=	**7**

H	T	O	
	8	4	
	4	3	+
1	**2**	**7**	

8	+	4	=	**12**

The 80 and the 40 add up to 120 so the '1' is carried to the hundreds column.

Task 4

Let's try this with 2-digit numbers before we move on to the main topic, adding 3-digit numbers. The squares help you keep the numbers in the right columns.

a.

H	T	O
	3	9
+	2	1

b.

H	T	O
	7	6
+	8	1

c.

H	T	O
	4	9
+	3	8

On the last sums, the column headers (H, T, O) have been removed.

d.

	3	9
+	2	1

e.

	7	6
+	8	1

f.

	4	9
+	3	8

Adding 3-Digit Numbers

We can apply this method to any size number. For example, what is **242 + 183?**

```
  2  4  2          2  4  2
  1  8  3  +       1  8  3  +
_____       _____
        5              ¹2  5
```

2	+	3	=	**5**

8	+	4	=	**12**

```
  2  4  2
  1  8  3
_____
  4  ¹2  5
```

2	+	1	+	1	=	**4**

Task 5

Try these additions with carrying questions below:

The headers have been removedn again. Some of these sums add up to more than a thousand. These continue on the next page.

a.

		1	1	2
+			9	3

b.

		4	2	9
+		1	2	7

c.

		1	2	6
+			3	9

d.

		8	1	9
+		1	3	6

Adding 3-Digit Numbers

e.

		6	3	1
+		7	3	5

f.

		4	8	9
+		7	1	0

g.

		4	5	2
+		9	3	1

Sophie buys a TV for £238 and a stand for £129.
What's the total cost?

Adding 3-Digit Numbers

A sandwich shop records how many of each sandwich they've sold. See the table below. How many have been sold in total?

Sandwich	Quantity
Tuna	157
Chicken	376
Cheese	149

An order comes in for 215 of each flavour sandwich. How many have been sold in total?

Mastery Task

Use the blank squares provided.

a. 123 + 76

b. 765 + 27

c. 897 + 123

d. 654 + 171

e. 139 + 40

f. 219 + 89

g. 192 + 99

h. 728 + 113

i. 93 + 314

j. 112 + 88

k. 43 + 88 + 910

l. 762 + 301 + 977

Notes

Notes

Let's keep going

Feedback

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.)
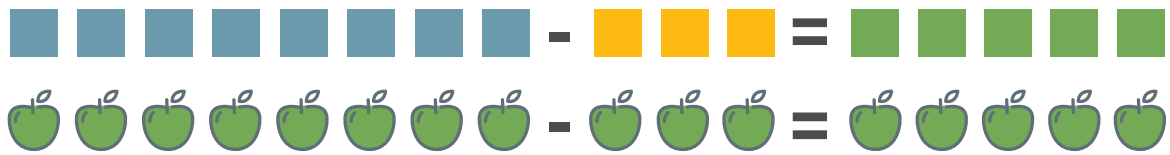
Recap – Written Methods to Subtract Numbers

What is subtraction?

Subtraction is taking one number away from another. The symbol for subtraction is – .
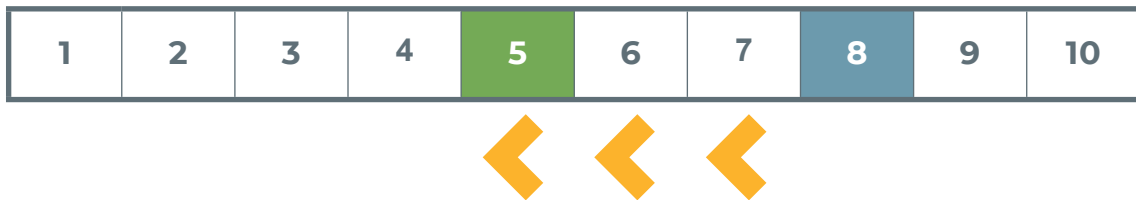
Simple subtraction

Subtraction problems are often written like this 8 - 3 =

But what does this mean?

How do we work it out?

Start at the 8 and move 3 steps backwards.

1	2	3	4	5	6	7	8	9	10

Recap – Written Methods to Subtract Numbers

Try these subtraction problems:

1	2	3	4	5	6	7	8	9	10
a. 6 - 2 =					**f.** 47 - 6 =				
b. 9 - 3 =					**g.** 28 - 5 =				
c. 8 - 7 =					**h.** 99 - 6 - 1 =				
d. 10 - 1 - 3 =					**i.** 76 - 4 =				
e. 23 - 3 =					**j.** 88 - 3 - 3 =				

Note - Unlike with addition, subtraction sums only work in one direction 9 - 6 is not the same as 6 - 9.

It makes the order we write the sum important.
The big number goes on the top of the sum.
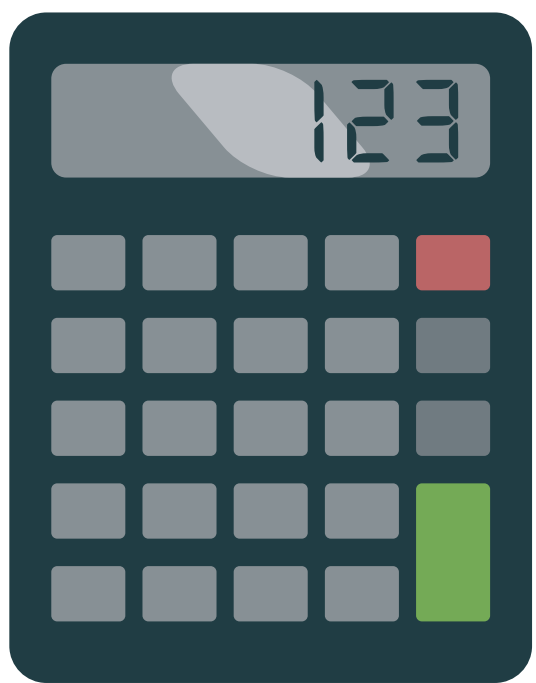
Recap – What if the Subtraction is More Difficult?

If the subtraction is more difficult, we need to line the numbers up like we did in the place value booklet

Example:

What is 34 - 13?

Hundreds (H)	Tens (T)	Ones (O)
	3	4
	1	3

$$3\ 4$$
$$1\ 3\ -$$
$$1$$

$$4 - 3 = 1$$

$$3\ 4$$
$$1\ 3\ -$$
$$2\ 1$$

$$3 - 1 = 2$$

After lining up the numbers, start subtracting the numbers in each column from right to left (4 - 3 first)

Recap – What if the Subtraction is More Difficult?

Try these subtraction questions:

a.

H	T	O
	6	4
-	2	1

b.

H	T	O
	7	5
-	1	1

c.

H	T	O
	9	8
-	3	5

d.

H	T	O
	5	4
-	3	2

If I have £67 and spend £33, how much will I have left?

Subtraction with Borrowing

Look at the below sum, it is a bit different to before.

In the sum **32 - 17**, the digit being subtracted (**7**) is larger than the digit it is being subtracted from (**2**).

Therefore, we must seek help from the top number in the next column (to the left).

Let's do the subtraction: 32 - 17

Place **17** under **32** so that the tens and ones are in the same column.

$$
\begin{array}{cc}
T & O \\
{}^{2}\cancel{3} & {}^{1}2 \\
1 & 7 \quad - \\
\hline
1 & 5 \\
\hline
\end{array}
$$

Start subtracting the ones: **2 - 7**, but because **2** is greater than **7**, you must "borrow" from the next column in the top number.

We borrow **10** from the "**30**" and give it to the **2** in the ones place, to make 12 instead of 2.

But since **10** was taken from the **30** (3 in the 10s place), that leaves only **20** (2 in the 10s place).

Now you can subtract 12 - 7 = 5

Subtract the tens column: 2 - 1 = 1

So, the answer is 32 - 17 = 15

Subtraction with Borrowing

Task
13

Try these questions below:

We'll finish off our recap with some 2-digit calculations before moving onto the main section, subtraction with 3-digit numbers.

a.

	9	2
-	1	3

b.

	2	9
-	2	7

c.

	3	6
-	2	9

d.

	3	6
-	1	9

e.

	8	3
-	1	9

Subtraction with Borrowing and 3-Digit Numbers

We can apply the same skills to subtraction with 3-digit numbers, like the example below: **234 - 41 =**

$$
\begin{array}{ccc}
\text{H} & \text{T} & \text{O} \\
{}^1\cancel{2} & {}^1 3 & 4 \\
 & 4 & 1 \quad - \\
\hline
1 & 9 & 3 \\
\hline
\end{array}
$$

Start subtracting the ones: **4 - 1 = 3**

In the tens column, because the **4** is larger than **3**, you must "borrow" from the next column in the top number.

We borrow **10** from the "**20**" and give it to the **3** in the ones place, to make **13** instead of **3**.

Now you can subtract **13 - 4 = 9**

In the hundreds column, since **10** was taken from the **20** that leaves only **10**.

Subtract the tens column: **1 - 0 = 1**

So, the answer is 234 - 41 = 193

Subtraction with Repeated Borrowing, with 3-Digit Numbers

But what if the number on the left is a zero?

Or what if you borrow and then you need to borrow again?

If we had **100 - 21**, where do we borrow from?

We need to learn how to do repeated borrowing.

You would usually borrow from the left, but when there is a **0**, you need to go to the next number and borrow from there first.

You can then borrow like you normally would, but borrowing from **10** in this case leaves you with **9**.

The example below breaks this up into steps for you:

$$
\begin{array}{ccc}
H & T & O \\
1 & {}^{9}0 & {}^{1}0 \\
  & 2 & 1 & - \\
\hline
  & 7 & 9 \\
\end{array}
$$

Start subtracting the ones column: **0 - 1**. We can't do this, so we need to borrow from the left, but the number in the tens column is a **0** so you need to go to the next number and borrow from there first. We borrow **10** and give it to 0 to make **10**.

Now you can work out **10 - 1 = 9** in the ones column.

The **0** in the tens column becomes **9**, as we made it into **10** and then borrowed **1**.

In the tens column, we now have **9 - 2 = 7**

In the hundreds column, since **90** was taken from the **100** ,that leaves **0**.

So, the answer is 100 - 21 = 79

Subtraction with Repeated Borrowing, with 3-Digit Numbers

Have a go at these subtraction questions:

a.

	H	T	O
	3	4	1
-		2	9

b.

	H	T	O
	4	3	2
-		1	7

c.

	H	T	O
	1	9	1
-		5	3

d.

	H	T	O
	5	4	6
-		1	8

e.

	H	T	O
	1	0	0
-		3	6

f.

	H	T	O
	3	0	3
-		5	4

g.

	H	T	O
	3	0	0
-		5	9

h.

	H	T	O
	4	0	6
-		7	7

Subtraction with Repeated Borrowing, with 3-Digit Numbers

Task 15

A shopkeeper bought 240 iPads and 2 weeks later had sold 148 of them. How many were left unsold?

Task 16

An animal care society tested 356 pets for worms. 127 had them. How many did not?

Task 17

A book has 600 pages. A man has read 95 pages. How many pages are unread?

Mastery Task

Have a go at the questions below. Use the blank squares to write out the sum and work out the answer.

a. 119 - 89

b. 78 - 45

c. 94 - 38

d. 55 - 27

e. 89 - 76

f. 139 - 40

g. 762 - 301

h. 192 - 96

i. 728 - 113

j. 931 - 314

k. 112 - 88 - 9

l. 430 - 68 - 91

Mental Methods of Addition and Subtraction

Being able to add and subtract helps us to make decisions about how much things cost, and how much we can spend as well as with work and jobs around the house.

Being able to use a calculator or write sums out is useful but when we're out and about we sometimes want to do quick **mental maths**.

There are methods that can help you to do this and practising them can make it easier.

Rounding numbers

One of the next topics is Rounding. In this you will learn or further develop your skills in rounding numbers to the nearest 10 and 100.

You can use rounding to help you add numbers in your head. Breaking down numbers can also help you add or subtract in your head.

For example:

Add 42 and 32

- Add up the units, so the 2 and the 2 (= 4)
- Now add up the tens, so 40 and the 30 (= 70)
- Now add them together 4 + 70 = 74

Using the same example, you can break it down like this:

42 + 32

42 + 30 = 72

72 + 2 = 74

When you see your tutor next you will do some mental maths together and can try out any other ways you can think of to make it easier.

Glossary

Digit	• Any of the numbers 1 to 9 • A single digit number has 1 number (1 - 9) • A 2-digit number has 2 numbers (10 - 99) • A 3-digit number has 3 numbers (100 - 999)
Mental Maths	Using different ways to carry out the sums in your head. No pen, paper or calculator!

Next Steps

Now you have completed Booklet 2, 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?**
   If you answered yes, what did you find easy?

   Yes ☐ No ☐

2. **Was there anything you found hard?**
   If you answered yes, what did you find hard?

   Yes ☐ No ☐

3. **Is there anything that you would like your tutor to go over again?**
   If you answered yes, what is this?

   Yes ☐ No ☐

4. **If your tutor provided learning aids, did you use them?**
   If you answered yes, how were they useful?

   Yes ☐ No ☐

5. **Would you like more support?**
   If you answered yes, one of our Support Staff will get in touch with you.

   Yes ☐ No ☐

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

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

Notes

Notes