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Maths

Entry Level 3, Book 7

GLH 3

Rounding

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.

In this booklet, you will learn about rounding and estimating. Rounding is a way of simplifying numbers to make them easier to understand or work with when an exact number isn't needed, and an approximate answer will do.

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		
5	Fractions		
6	Decimals and Money		
7	Rounding	3	
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

Approximate by rounding numbers less than 1,000 to the nearest 10 or 100.

2

Round amounts of money to the nearest £1 or 10p.



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

Knowledge Test

In the earlier booklets, you completed activities to help you develop your ordering and sequencing skills. Complete the following task to see what you can remember. This will help you with this booklet on rounding.



Task
1

1. Can you rearrange these numbers in order, from smallest to largest?

23, 57, 13, 90, 75, 44, 6, 31, 89

.....

2. Can you rearrange these numbers in order, from largest to smallest?

32, 75, 31, 9, 57, 44, 60, 13, 98

.....

3. Which of these numbers are multiples of ten?

22, 30, 78, 42, 80, 35, 1, 70, 99

.....

4. How would you write the following numbers as digits?

Seventy-five

Forty

Two hundred and eighty-three

Six hundred and four

5. Which number is halfway between forty and sixty?

.....

6. Which number is halfway between fourteen and one hundred and thirty?

.....

7. Which number is halfway between six hundred and one thousand?

.....



Rounding



Here is a quick recap of what rounding is, and how to round.

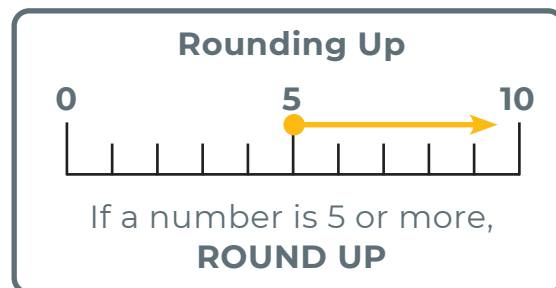
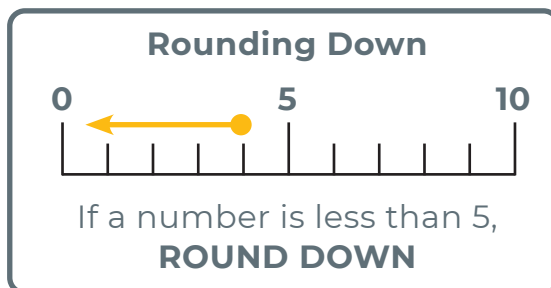
Rounding is making a number simpler to use by giving it an approximate value. We look at what it is almost worth when compared to another value.

Example:

- £19 is almost £20, so we can round it up.
- 67p is almost 70p, so we can round it up.
- 51p is almost 50p, so we round it down.
- Columns run up and down the box and rows go from left to right.

Rounding to the nearest 10

If we are rounding a number to the nearest 10, we look at the value of the ones digit. If the digit is 5 or more we round up. If it is 4 or less, we round down.



Examples:

Round 6 to the nearest 10

- 6 is above 5, so we round up to 10.



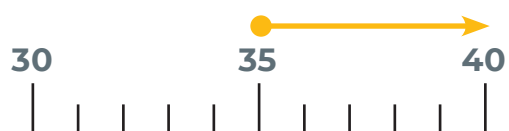
Round 23 to the nearest 10

- We only look at the ones column (which is 3).
- 3 is less than 5, so we round the 23 down to the nearest 10 (which is 20).



Round 35 to the nearest 10

- We only look at the ones column (which is 5).
- 35 is halfway between 30 and 40 but we always round the 5 up to the nearest 10 (which in this case is 40).



Rounding to the Nearest 10



Task
2

Try rounding these numbers to the nearest 10. The first one has been completed for you. Use the information on the previous page to help if you need to.



➤ Rounding and Approximation

Rounding numbers is useful to give us approximations, which are values near to the actual figure. They won't be as accurate as using exact numbers, but they can still be useful to help make workings out easier and quicker to do.

Everyday use could include working out approximations for:



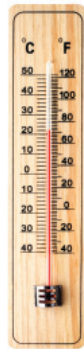
Weight



Time



Money



Temperature



Distance

If you know you need to have 100% accurate results then rounding and approximation should not be used.

For example, when building a car every measurement has to be correct or else it could fall apart!

Rounding and Approximation

The table below shows distances to different towns and cities from Crawley. We can use rounding to help work out the approximate distances. Use the information in the table to answer the questions:

Place	Distance
Newtown	22 km
London	77 km
Maidstone	45 km
Dover	108 km
Coventry	209 km
Birmingham	172 km



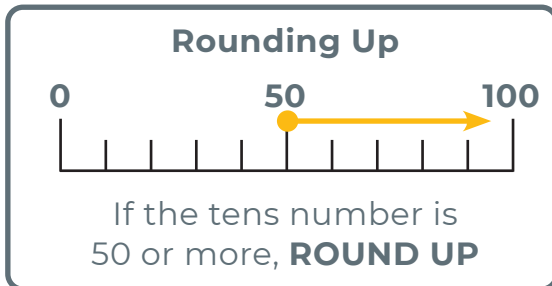
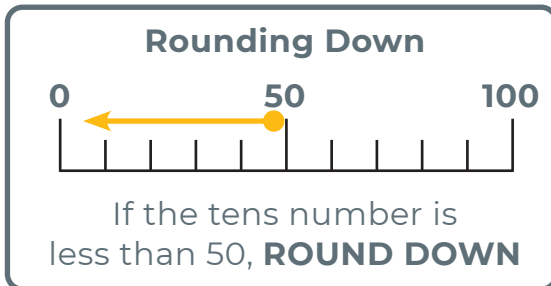
Task
3

1. How far is Maidstone to the nearest 10 km?
2. How far is Newtown to the nearest 10 km?
3. How far is London to the nearest 10 km?
4. How far is Dover to the nearest 10 km?
5. How far is Coventry to the nearest 10 km?
6. If you added together the distances of London to the nearest 10 km and Coventry to the nearest 10 km, what is the approximate total?

Rounding to the Nearest 100

Rounding to the nearest 100

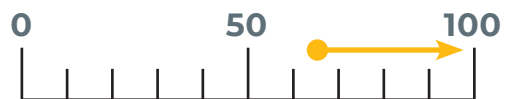
When rounding to the nearest 100, look at the tens column in a number.



Examples:

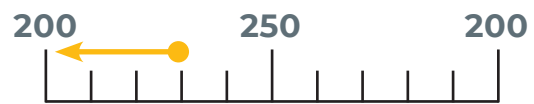
Round 65 to the nearest 100

- We only look at the tens part of 65.
- 60 is above 50, so we round up to 100.



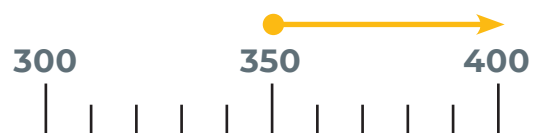
Round 230 to the nearest 100

- We only look at the tens part (which is 30).
- 30 is less than 50, so we round down to the nearest 100 (which is 200).



Round 350 to the nearest 100

- We only look at the tens part (which is 50).
- 50 is halfway between 300 and 400, but we always round up 50 to the nearest 100 (which, in this case, is 400).



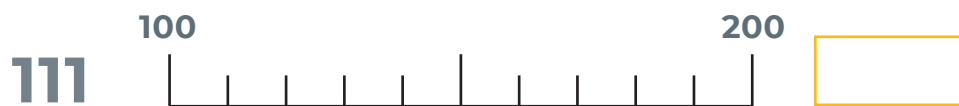
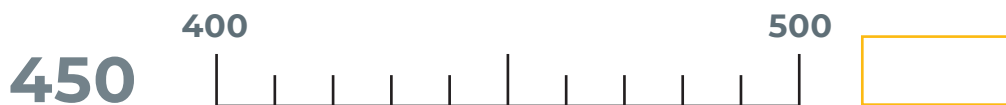
Now Try Rounding These to the Nearest 100



Task
4

Put a dot on the scale to show the value of the number, then round the number and put the answer in the box. **The first 2 already have the answers to help you get started.**

Questions 7, 8 and 9 are a little more challenging as you will need to work out what numbers to place on the scale.



Rounding to the Nearest Hundred



Task
5

- Calculate these sums and write down the answers.
- Then round your answer to the nearest 10.
- Then round your answer to the nearest 100.

Calculation	To the nearest 10	To the nearest 100
Example: $31 + 38 = 69$	70	100
1. $45 + 22 =$		
2. $63 + 28 =$		
3. $78 - 28 =$		
4. $42 - 12 =$		
5. $53 \times 9 =$		
6. $62 \times 5 =$		
7. $82 \times 9 =$		
8. $77 \times 8 =$		
9. $45 \times 7 =$		
10. $58 \div 9 =$		

Recap

So far in this booklet, we have looked at rounding and approximation of numbers to the nearest 10 and nearest 100.

Notes





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.)

Now Try Rounding These

In questions 4, 5 and 6 you will first need to round up or round down the numbers in the questions to the nearest 10. We can do this to work out approximate values.

To make this more challenging, two of the numbers here are not part of the answers. After you have answered all of the questions, there will be two numbers left over that you haven't used.

15

160

7

800

430

20

100

600

1000

900



Task
6

1. What is 765 to the nearest 100?
2. What is 17 to the nearest 10?
3. What is 163 to the nearest 10?
4. Approximately what is 58×9 ?
5. Approximately what is $502 - 74$?
6. **Estimate** $68 \div 9$
7. Round 91 to the nearest 100
8. What is 950 to the nearest 100?
9. What numbers didn't you use?

➤ Rounding Money

Estimating/approximating: Estimating calculations is useful when you don't need to know the exact answer, but you still want to get an idea of what the answer would be.

Example:

You might use estimation when doing your shopping to estimate how much all of the items are going to cost. It is also quicker and easier to round 99p up to £1.00 when adding up items.

Rounding money to the nearest pound is the same as rounding a decimal to the closest whole number. This would give you a slightly higher or lower figure than the actual cost, but it is a more convenient way to handle figures.

Here is an example receipt from a supermarket:

RECEIPT		
WATER	£0.99	➤ £1.00
SANDWICH	£2.99	➤ £3.00
CRISPS	£0.79	➤ £1.00
CHOCOLATE	£0.89	➤ £1.00
TOTAL	£5.66	£6.00 - Estimated Total

When using our rounded values, we can estimate our total bill to be £6.00 (the actual bill is £5.66).

Now Have a Go



Task 7

Work out the actual costs for the receipts. Then write the estimated values next to each receipt, as shown in the example on the last page. You will then be able to work out the estimated total.

RECEIPT		
ORANGE JUICE	£1.99	<input type="text"/>
SALAD	£3.99	<input type="text"/>
CRISPS	£0.89	<input type="text"/>
MINTS	£0.99	<input type="text"/>

Actual Total: _____ Estimated Total: _____

RECEIPT		
TUNA SANDWICH	£2.99	<input type="text"/>
SMOOTHIE	£1.20	<input type="text"/>
CHOCOLATE	£0.99	<input type="text"/>
CRISPS	£0.79	<input type="text"/>

Actual Total: _____ Estimated Total: _____

RECEIPT		
SANDWICH x 2	£1.99	<input type="text"/>
SMOOTHIE	£1.10	<input type="text"/>
WATER	£0.89	<input type="text"/>
CRISPS x 2	£0.89	<input type="text"/>

Actual Total: _____ Estimated Total: _____

Rounding Money

Round to the nearest 10p

Sometimes it makes more sense to round to the nearest 10p rather than £1.00. This will give a more accurate answer yet still be easier than calculating the actual price.

How we round to the nearest 10p

Instead of looking at the first decimal place, we now look at the second. In decimals this represents the hundredths. Remember that 100 pence equals £1.00. It still follows the same rounding rule of:

- 5 or above = round up
- 4 or below = round down

£0.54 = £0.50 This number has been rounded **down**.

£0.55 = £0.60 This number has been rounded **up**.

Look at the examples in the table below to see rounding being used:

RECEIPT	
SANDWICH	£2.49
SMOOTHIE	£1.44
WATER	£0.62
CRISPS	£0.49

	Actual price	To the nearest pound	To the nearest 10p
Sandwich	£2.49	£2	£2.50
Smoothie	£1.44	£1	£1.40
Water	£0.62	£1	£0.60
Crisps	£0.49	£0	£0.50
Total	£5.04	£4	£5.00

As you can see in the table, when rounding to the nearest 10p, we were closer to the actual total price than when rounding to the nearest £1.00.

Round These to the Nearest 10p



Task
8

Ice Cream

87p



.....

Hot Dog

£2.32



.....

Slice of Pizza

£1.85



.....

Coffee

£2.34



.....

**Spaghetti and
Meatballs**

£4.76



.....

Fruit Salad

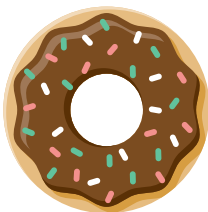
93p



.....

Doughnut

57p



.....

Taco

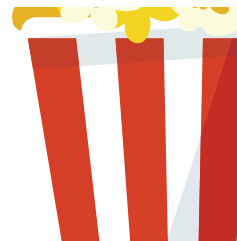
£1.94



.....

Popcorn

£2.46



.....

Round These to the Nearest 10p



Task 9

Estimate the total combined price of all the items to the nearest 10p. Use your rounded prices from the previous page to help you.

It will make it easier if you copy the rounded prices from the previous page into the table before you start to calculate the total.

Item	Rounded price
Ice cream	
Hot dog	
Slice of pizza	
Coffee	
Spaghetti and meatballs	
Fruit salad	
Doughnut	
Taco	
Popcorn	
Estimated total (to the nearest 10p)	



Task 10

Would your answer be closer to the exact amount if you were to round to the nearest £1? Explain your answer.

Other Uses for Rounding

In business, rounding can be used as a quick and easy way to give customers a rough idea of what a product or service will cost.

- Have a go at answering the questions in the boxes below and on the following page.
- Make sure you use your rounding skills to approximate the answers.
- Each question only wants you to provide an estimate, rather than calculating the actual amount.



Nails
(pack of 20)
£2.95



Tin of Paint
£7.99



Plants
£3.67 each



Wooden Planks
£4.80
per metre



Task 11

You are working in a local garden centre. A customer needs an estimate for a wooden garden planter. Each garden planter is made to order from the following items:

- 60 nails
- 2 tins of paint
- 10 metres of wooden planks

Use the prices shown above to give an approximate total for making one garden planter. Show your rounding and how you worked it out.

Other Uses for Rounding



Task
12

The actual total cost of one garden planter is £72.83. The customer wants you to build 5. Approximately how much will this cost? Show your rounding and how you worked it out.



Task
13

The customer wants to fill the 5 planters with 11 plants in each. Approximately how much will this cost in total? Show your rounding and how you worked it out.

Glossary



Approximate	To come near to, to be almost exact or correct; to estimate.
Estimate	To roughly calculate or judge the value, number, quantity, or extent of.

Next Steps

Now you have completed Booklet 7, 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.





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.)

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



