

Unit 12

Money

Mastery Expert tip! “Children have only just formally been introduced to the decimal point in the previous unit so spend time introducing these key concepts. I recreated a lot of shopping scenes in class, with plenty of £-p price tags, and encouraged children to add mentally and find the change!”

Don't forget to watch the Unit 12 video!

WHY THIS UNIT IS IMPORTANT

This unit is the first time children are introduced to the £-p notation. Children will learn that the decimal point separates the pounds from the pence. They will round money to the nearest 10p and £1 to help them estimate total costs and will start to add and subtract simple amounts of money, but without needing to formally add decimals. Children will know already that 100p is equal to £1 and will use this knowledge to help them with their addition. They will go on to multiply and divide amounts of money and solve word problems about money.

WHERE THIS UNIT FITS

- Unit 11: Decimals (2)
- **Unit 12: Money**
- Unit 13: Time

Children have already worked with money and been formally introduced to decimals. Now they will learn how to write about money using £-p. Children should already be confident in knowing that 100p is equal to £1 and should be able to work out how much money is shown in notes and coins.

Before they start this unit, it is expected that children:

- know how to convert between pounds and pence
- can round amounts to the nearest 10 and 100
- can use a variety of methods to count amounts of money.

ASSESSING MASTERY

By the end of the unit, children will be able to record money using the £-p notation. They will understand that the decimal point separates pounds and pence. They will know how to convert between pounds and pence and vice versa. They will be able to write money such as 3p in £s. Children will round amounts to the nearest 10p and £1 to help them estimate totals. They will compare and order amounts of money to work out the cheapest and most expensive items. Finally, children will solve money problems involving four rules of numbers.

COMMON MISCONCEPTIONS	STRENGTHENING UNDERSTANDING	GOING DEEPER
Children incorrectly write amounts of money when they have money less than £1. For example, children write 30p as £0.3 and 3p as £0.30.	Encourage children to think of the difference between amounts such as £3, 30p and 3p. Link their knowledge on number with tenths and hundredths as decimals. Use a place value table to help children find the correct place for each digit.	Explore the minimum number of coins children need to make particular amounts or ask how many ways they can make this amount. For example, find all the ways of making 50p using their times-table knowledge.
Children think that more coins equals a greater amount of money.	Children should make amounts using pennies. For example, to show that 50p is greater than $8 \times 5p$ coins, ask children to select the correct number of pennies for each amount and compare.	Explore what it means to find an under and over estimate. Ask children why, when adding amounts of money, it might be useful to overestimate if they have just £20 to spend.

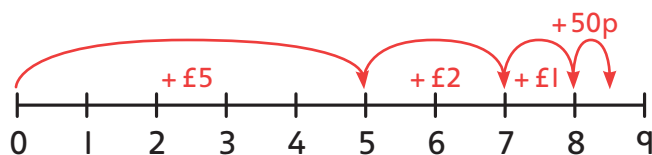
Unit 12: Money

WAYS OF WORKING

Introduce the unit using whole class discussion. Use simple amounts of money to give children examples of ordering, rounding and what it means to have change. Ask children which of Flo's words they are familiar with and use terminology in sentences about money.

STRUCTURES AND REPRESENTATIONS

Number lines: These are used to add amounts. Children will benefit from seeing the addition and jumps of money using this model.



Column addition and subtraction: Adding and subtracting amounts of money using the column method allows children to use familiar methods to work with money.

$$46p + 85p = \square \quad 500 - 179 = \square$$

T	O
4	6
+	8 5
<hr/>	

H	T	O
5	0	0
-	1	7 9
<hr/>		

KEY LANGUAGE

There is some key language that children will need to know as part of the learning in this unit.

- notes
- coins
- pounds (£)
- pence (p)
- add (+)
- subtract (-)
- change
- round to the nearest
- order
- greater than (>)
- less than (<)
- cheaper
- more expensive
- estimate
- over estimate
- under estimate
- total

Unit 12 Money



In this unit we will ...

- ✦ Write money in pounds and pence, using a decimal point
- ✦ Order, add and subtract amounts of money
- ✦ Round money to the nearest 10p or nearest £1
- ✦ Find change
- ✦ Solve simple word problems involving money

Do you know how to work out how much money there is? Remember to add the pounds first and then the pence.



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We will need some maths words. Do you know what they all mean?

notes	coins	pounds (£)	pence (p)
add	subtract	change	
round to the nearest	order		
greater than (>)	less than (<)		
cheaper	more expensive	estimate	
over estimate	under estimate		
total	notation		

We need to be able to add and subtract using column methods.

$$56p + 89p = 145p$$

$$145p = \text{£}1 \text{ and } 45p$$

	H	T	O
	5	6	
+	8	9	
	1	4	5
	1		



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Pounds and pence

Learning focus

In this lesson, children will add pence, breaking the pound boundary, and pounds and pence. Children will write totals as pence, pounds and pence, and using a decimal point.

Small steps

- Previous step: Problem solving – decimals
- **This step: Pounds and pence**
- Next step: Pounds, tenths and hundredths

NATIONAL CURRICULUM LINKS

Year 4 Measurement – Money

- Estimate, compare and calculate different measures, including money in pounds and pence.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.

ASSESSING MASTERY

Children will understand that there are 100p in £1 and will explore various ways of making a pound and other totals by adding a range of coins together. Children will be confident writing totals in pence, pounds and pence, and with a decimal point.

COMMON MISCONCEPTIONS

When recording amounts, children may not be clear where and when to use the signs £, p and . Ask:

- *What does the £ sign represent? What does the p sign represent? Where should £ be used? Where should p be used?*

STRENGTHENING UNDERSTANDING

Strengthen understanding by providing children with physical coins to move around, pair up and count. A number line or hundredths grid will help children with addition. Hundredths grids are particularly useful to show reaching £1 and breaking the boundary.

GOING DEEPER

Challenge children to find a range of methods or come up with a variety of ways to make a given total.

KEY LANGUAGE

In lesson: pence (p), pounds (£), decimal point

Other language to be used by the teacher: coins, total, altogether, one hundred, multiples

STRUCTURES AND REPRESENTATIONS

part-whole models

RESOURCES

Optional: plastic coins, crayons



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

Before you teach

- Do children recognise British coins and notes?
- Do children know how much each coin and note is worth?
- Do children know basic equivalence (ten 10p coins make £1, two 5p coins make 10p)?

Discover

WAYS OF WORKING Pair work

ASK

- Question 1 a): *What coins does Bella have? How are you going to find the total? Could you make the coins easier to count?*
- Question 1 b): *What does 'pounds' mean? How will the total look different in pounds and pence?*

IN FOCUS In questions 1 a) and 1 b), children must recognise the value of each coin and add them together correctly. Question 1 b) will highlight whether children know there is 100p in £1 and whether they understand and can use the pound sign and decimal point.

PRACTICAL TIPS Recreate the **Discover** scene of Bella counting her pounds and pence. Give children plastic coins matching the coins Bella has.

ANSWERS

Question 1 a): Bella has 236p.

Question 1 b): £2 and 36p or £2.36
Bella has £2.36.

Pounds and pence

Discover



- How much money does Bella have in pence?
- How much money does Bella have in pounds and pence?

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Key 1p 2p 5p 10p 20p 50p £1 £2

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Share

WAYS OF WORKING Whole class teacher led

ASK

- Question 1 a): *What coins could you use to make 100p? Are there different ways to make 100p? What coins are left over? How can you count these left-over coins?*
- Question 1 b): *How many pence are there in £1? If 100p is £1, how many pounds will 200p be? How do you write £2? Where does the pound sign go?*
- Question 1 b): *What units do you use for the 36? Why is the 36 in pence and not pounds? What does the decimal point tell you? Do you need the £ sign when using a decimal point? Do you need the p sign when using a decimal point?*

IN FOCUS Ensure children understand that there are 100p in £1, and therefore 200p is equivalent to £2. Explain that the 36p remains pence because it is less than 100p and you can only exchange for one pound at 100p. Using a decimal point ensures children understand that it comes after the whole pounds.

Share



I circled coins which made 100p.

a) $50p + 50p = 100p$



$20p + 20p + 20p + 10p + 10p + 10p + 10p = 100p$



$10p + 10p + 5p + 5p + 2p + 2p + 1p + 1p = 36p$



$100p + 100p + 36p = 236p$

Bella has 236p.

Remember, 100p is equal to £1.

- b) There is 200 pence, so that makes 2 pounds.

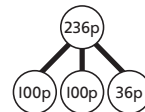
There is 36 pence left over.

That makes £2 and 36p.

Bella has £2.36.



We use a decimal point to separate the whole pounds from the pence.



£5 £10 £20 £50

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Think together

WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1: Can you make Lexi's coins easier to count by making pounds? How many pounds are there? How many coins are left that do not make one pound? What is the total of these coins in pence?
- Question 2: How many pounds can you make? How many coins are left over? Will the left-over coins be pounds or pence? What is the total of these coins?
- Question 3: What is the total value of Danny's coins? What is the total value of Emma's coins? How can you compare amounts of coins?

IN FOCUS Question 3 gives children the opportunity to explore equivalence. Discuss ways to compare the amounts – converting all into pence or all into pounds.

STRENGTHEN Children may find it beneficial having plastic coins available to move around and group into 100s or other amounts. In order to group coins to make 100p, children may find it helpful to use a hundredths grid. Encourage children to use number bonds to 10 or use the larger coins first to help them make 100p.

DEEPEEN Challenge children to find alternative ways of making 100p and to explain which way was the most efficient and why.

ASSESSMENT CHECKPOINT Check to see if children can find totals of a range of coins and whether they can write amounts in pence, pounds and pence, and pounds. Do children know when it is appropriate to use the '£', 'p' and '.' signs and why? Do they know that 100p and £1 are equivalent and can they find an efficient way to make 100p given a range of coins?

ANSWERS

- Question 1 a): Lexi has 324 pence.
 Question 1 b): Lexi has 3 pounds and 24 pence.
 Question 1 c): £3.24
 Question 2: There is £4.17 in the purse.
 Question 3: Danny is incorrect. Danny and Emma have the same amount because $10 \times 10p = £1$. Danny has more coins than Emma, but each of Danny's coins is worth less than Emma's coin.

Think together

1 Lexi is counting her money.



- a) How much money does Lexi have in pence?
 Lexi has pence.
- b) How much money does Lexi have in pounds and pence?
 Lexi has pounds and pence.
- c) Show this using the pound sign and a decimal point.
 £

We are writing the amount in pounds and do not use a p.



2 How much money is in the purse?



There is £ in the purse.

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Key 1p 2p 5p 10p 20p 50p £1 £2

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3 Emma and Danny are comparing how much money they have.

CHALLENGE



I have more money than you because I have ten coins and you only have one.



Emma



Danny

Do you agree with Danny?

Explain why.

I wonder how many 10p pieces make a pound. This will help me work out how much Emma has.



£5 £10 £20 £50

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Practice

WAYS OF WORKING Independent thinking

IN FOCUS Question 6 focuses on equivalence. Children must convert amounts from pence to pounds and vice versa. Children are expected to convert both ways so will need to think carefully whether they are dividing or multiplying by 100.

STRENGTHEN Children need to keep a running total when completing question 3. To help children keep track of the amount, encourage the use of a hundredths grid or number line. Encourage children to make the whole pounds first and regularly add up their notes and coins so far. To complete questions 5 to 7, children might need to use plastic coins or draw coins, circle amounts to 100p or £1, or used coloured crayons to pair up bonds to 100.

DEEPEN For question 1, ask children to find different ways of making 100p using the given coins and then to explain which is the most efficient method and why. Deepen understanding of question 3 by asking children to investigate different ways to make the given amounts.

ASSESSMENT CHECKPOINT Assess whether children can add pounds and amounts under 100p together. Children should be secure in their knowledge that 100p makes £1 and should be able to choose suitable coins to make a given amount.

ANSWERS Answers for the Practice part of the lesson appear in the separate Practice and Reflect answer guide.

Pounds and pence

1 How much money is in each box?
Write each amount in pence. Add the 100s first.

a) pence

b) pence

c) pence

2 How much money is in each box?
Write each amount in pounds and pence.

a) pounds
 pence

b) pounds
 pence

c) pounds
 pence

3 a) Circle £8.72. b) Circle £12.18.

4 Complete the part-whole models.

a)

b)

c)

d)

5 Write the totals in pounds and pence.

a) £1 + 50p + 20p + 20p + 5p + 2p = £

b) £1 + £1 + 50p + 50p + 5p + 1p = £

c) 20p + £1 + 50p + 10p + 50p + 10p = £

Reflect

WAYS OF WORKING Independent thinking

IN FOCUS This section gives children a final chance to reflect on the three different ways to record amounts. Children will be able to use the images to work out one way of writing the total, then use their knowledge of multiplying or dividing by 100 to convert. The question also requires children to use their knowledge of the '£', 'p' and '.' signs.

ASSESSMENT CHECKPOINT Children should now be aware of the three different ways of recording amounts and be able to convert from pence to pounds and from pounds to pence. Do children have an efficient method for grouping coins? Can they use appropriate signs correctly?

ANSWERS Answers for the Reflect part of the lesson appear in the separate Practice and Reflect answer guide.

After the lesson

- Can children add coins and record the total in pence, pounds and pence, and pounds?
- Do children know how and when to use '£', 'p' and '.'?
- Can children divide and multiply by 100 to convert from pence to pounds and vice versa?

6 Complete the following equivalents.

a) 258p = £ f) £8.95 = p

b) 370p = £ g) p = £2.09

c) 408p = £ h) p = £2.90

d) 1,257p = £ i) £11.15 = p

e) £1.18 = p j) £9 = p

7 Four boxes contain different amounts of money.

- Box A contains 300p.
- Box B contains 10 times as much as Box A.
- Box C contains 10p more than Box A.
- Box D contains 100p less than Box B.

How much money is in each box?

Write your answers in pounds.

Box A = £ Box B = £ Box C = £ Box D = £

Reflect

Describe three ways you can write how much money is here in total.

Pounds, tenths and hundredths

Learning focus

In this lesson, children will focus on the place value of coins and amounts when recording in pounds. Children will make links between fractions of a pound and converting to decimals with two decimal places.

Small steps

- Previous step: Pounds and pence
- **This step: Pounds, tenths and hundredths**
- Next step: Ordering amounts of money

NATIONAL CURRICULUM LINKS

Year 4 Measurement – Money

- Estimate, compare and calculate different measures, including money in pounds and pence.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.

ASSESSING MASTERY

Children can count and write totals in pounds to two decimal places. Children understand that pence are made up of tenths and hundredths and can identify and record tenths and hundredths in totals they work out. They can explain the difference between each place value column in an amount and what each column is worth.

COMMON MISCONCEPTIONS

Children may not see the importance of 0 as a place holder and may incorrectly write amounts. Ask:

- *Have you remembered to use 0 as a place holder? Why is this important?*

STRENGTHENING UNDERSTANDING

Provide children with tens strips, hundredths grids and plastic coins to help them identify tenths and hundredths. To help children to identify which digit is the tenth or the hundredth, they may benefit from writing the amounts on a place value grid.

GOING DEEPER

To deepen understanding, ask children to explore and explain the relationships between pounds, tenths and hundredths. Ask children to look for different ways to make amounts, looking at how tenths and hundredths could be made using different coins.

KEY LANGUAGE

In lesson: pence (p), pounds (£), equal

Other language to be used by the teacher: amount, total, price, decimal point, tenth, hundredth, fraction

STRUCTURES AND REPRESENTATIONS

hundredths grids, tens strip

RESOURCES

Optional: plastic coins



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

Before you teach

- Do children have an effective strategy for counting coins and finding totals?
- Can children record totals in pence, pounds and pence, and pounds?
- Do children know there is 100p in £1?

Discover

WAYS OF WORKING Pair work

ASK

- Question 1 a): *What coins does Emma have? How many 1p coins does Emma have? What coins does Danny have? How many 10p coins does Danny have? Did you need to count each coin individually?*
- Question 1 b): *Where are the coins showing heads on Emma's grid? Did you need to count each coin individually? Was there a quicker way? How many of Danny's coins are showing heads? How much are these coins worth altogether?*

IN FOCUS In question 1 a), remind children that 100p is equal to £1 so they do not need to count each individual penny. Similarly, do children remember that ten 10p coins make £1? Question 1 b) highlights children's understanding of place value and whether they are aware of pounds, tenths and hundredths when recording amounts.

PRACTICAL TIPS Provide children with a hundredths grid filled with 1p coins and a tens strip filled with 10p coins. Images of Emma's filled hundredths grid and Danny's filled tens strip may also be useful.

ANSWERS

Question 1 a): Emma has 100p, which equals £1. Danny also has 100p, which equals £1.

Question 1 b): Emma has £0.43 showing heads. Danny has £0.70 showing heads.

Share

WAYS OF WORKING Whole class teacher led

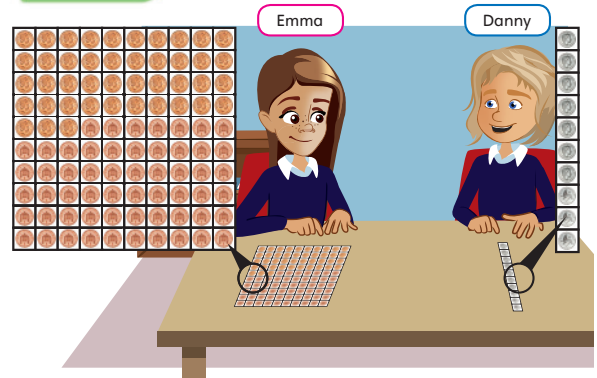
ASK

- Question 1 a): *What do you know about 100 pennies? How are you going to record Emma's amount? What will be the quickest way to find the total of Danny's coins? How are you going to record Danny's amount?*
- Question 1 b): *How can you work out how many coins there are showing heads? What is the worth of forty-three 1p coins? How do you record that in pounds? Are there any pounds? How much is there in pence?*
- Question 1 b): *How many coins on Danny's grid are showing heads? What is the worth of seven 10p coins? How do you record this in pounds? What goes before the decimal point? What goes after the decimal point?*

IN FOCUS For question 1 a), discuss the layout of both grids and how this can help children work out the totals for Emma and Danny. To work out the total of coins showing heads in question 1 b), children may need to count the coins individually. Some children could be encouraged to use the layout of the hundredths grid – there are four full rows plus three, therefore 43 coins showing heads.

Pounds, tenths and hundredths

Discover



- 1 a) How much money does Emma have?
How much money does Danny have?
- b) How much money shows heads for Emma?
Give the answer in pounds.
How much money shows heads for Danny?
Give the answer in pounds.

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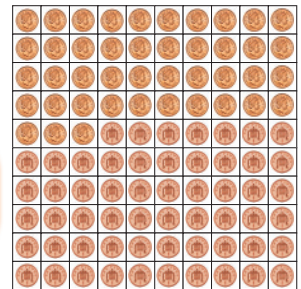
Key 1p 2p 5p 10p 20p 50p £1 £2

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Share

- a) Emma has 100 1p coins.
 $100 \times 1p = 100p$
100 pence is equal to £1.
Emma has £1.

1p is $\frac{1}{100}$ of £1. If the £1 is the whole, then 1p is a hundredth of the whole.



- Danny has 10 10p coins.
 $10 \times 10p = 100p$
100 pence is equal to £1.
Danny also has £1.

10p is $\frac{1}{10}$ of £1. If the £1 is the whole, then 10p is a tenth of the whole.



They have different numbers of coins but the same amount of money.



£5 £10 £20 £50

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Think together

WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1: How many 1p or 10p coins are there? How can you count the number of coins on the grids? What is the worth of the 1p or 10p coins on the grid? How can you write the amount of coins as a fraction? What would these fractions look like as decimals? Where will the decimal points go?
- Question 2: What coins are in each box? Are there any pounds? How many pounds? How much is there in pence? How many tenths? How many hundredths? What will they look like as decimals?
- Question 3 b): If $\frac{1}{100}$ is 1p, how much will $\frac{17}{100}$ be? How will you write this in pounds? Are there any whole pounds?
- Question 3 c): What coins will be used for $\frac{9}{100}$? How much is this equivalent to? If Mo loses this amount, what will the calculation be? How can you find the answer?

IN FOCUS Question 2 requires children to find totals and write them correctly to two decimal places. Encouraging children to think carefully about the tenths and hundredths in terms of how many 10p coins and 1p coins they could have will aid them in correctly writing the amounts using decimal points.

STRENGTHEN For question 1 a), have coins available for children so they can get the relevant amount and count how many tens they can make. To help with writing the pence after the decimal point in question 2, children may want to write the pence fractions to help with writing them correctly as decimals. When completing question 3, children may need to use coins and make the given amounts on hundredths grids or tens strips.

DEEPEN For question 1 a), encourage children to find multiple strategies for working out how much money is on the grid. For questions 1 b) and 2, ask children to show each amount as tenths or hundredths with hundred squares and tens strips. Deepen understanding further by encouraging children to mentally convert the fractions into amounts, using their knowledge of 1p coins and hundredths and 10p coins and tenths in question 3.

ASSESSMENT CHECKPOINT Children should now be able to correctly write tenths and hundredths as a decimal and know that $\frac{1}{100}$ of £1 is 1p and that $\frac{1}{10}$ of £1 is 10p. Ensure children can use this knowledge to convert fractions into decimals or amounts.

ANSWERS

- Question 1 a): There is £0.55.
 Question 1 b): There is £0.30.
 Question 2: There is £3.30 in box A.
 There is £3.03 in box B.
 There is £0.03 in box C.
 There is £0.36 in box D.
 Question 3 a): Aki has £0.30.
 Question 3 b): Lexi has £0.17.
 Question 3 c): Mo has £0.91.

- b) There are 43 1p coins showing heads.
 This is $\frac{43}{100}$.
 $\frac{43}{100} = 0.43$
 Emma has £0.43 showing heads.
 There are 7 10p coins showing heads. This is $\frac{7}{10}$.
 Danny has £0.70 showing heads.

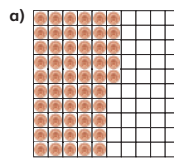
Remember, the decimal point separates the pounds from the pence.



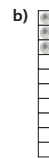
We do not write Danny's money as £0.7. Seven 10p coins are equal to 70 pence. So we write it as £0.70 (0 pounds and 70 pence).

Think together

- 1 How much money in pounds is shown on each grid?



There are 1p coins.
 This is equal to .
 There is £ .



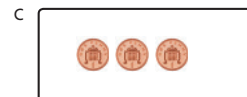
There are 10p coins.
 This is equal to .
 There is £ .

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Key 1p 2p 5p 10p 20p 50p £1 £2

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- 2 How much money in pounds is there in each box?



There is £ in box A. There is £ in box C.
 There is £ in box B. There is £ in box D.

- 3 a) Aki has three-tenths of £1.
 How much money does Aki have?
 b) Lexi has $\frac{17}{100}$ of £1.
 How much money does Lexi have?
 c) Mo has £1. He loses $\frac{9}{100}$ of £1.
 How much money does Mo have left?



I remember that 10p is $\frac{1}{10}$ of £1 and 1p is $\frac{1}{100}$ of £1.



£5 £10 £20 £50

→ Practice book 4C p32

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Practice

WAYS OF WORKING Independent thinking

IN FOCUS Question 6 a) allows children to see the relationships between tenths and hundredths and see how this changes the place value and how they record amounts. Question 6 b) requires children to use their prior knowledge of fractions to convert $\frac{3}{5}$ into tenths. Children may need prompting in order to realise they need to make the fraction into tenths or hundredths of £1.

STRENGTHEN Before starting to work out question 3, encourage children to look for any coins that could be used together to make tenths. Provide hundredths grids, tens strips and plastic coins so children can accurately record the pence after the decimal point. Initially, children may need to work out the tenths first, followed by the hundredths.

DEEPEN Encourage children to find different ways to make the same amounts in question 4 and identify how many tenths and hundredths there are for each version.

ASSESSMENT CHECKPOINT Children should now be able to add coins together and identify whole pounds, tenths and hundredths in the amount to record the total correctly in pounds. Assess whether children can choose appropriate coins to make given pounds, tenths and hundredths. Do children understand the link between tenths and hundredths?

ANSWERS Answers for the **Practice** part of the lesson appear in the separate **Practice and Reflect answer guide**.

Reflect

WAYS OF WORKING Independent thinking

IN FOCUS This question will highlight children's understanding of tenths and hundredths and how they relate to pence. Children should identify that both amounts have the same number of pounds but different tenths and hundredths.

ASSESSMENT CHECKPOINT Assess children's explanations of the difference in tenths and hundredths. Can children identify that the amounts have the same number of whole pounds but a different number of tenths and hundredths?

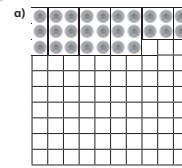
ANSWERS Answers for the **Reflect** part of the lesson appear in the separate **Practice and Reflect answer guide**.

After the lesson

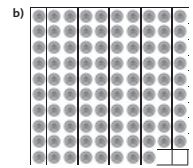
- Do children recognise pence as tenths and hundredths?
- Can children record amounts correctly, thinking about the tenths and hundredths?
- Can children discuss the value of each digit in a given amount?

Pounds, tenths and hundredths

1 How much money is shown?



p = £



p = £

How did you work out your answer to part b)?

2 How much money is here?



p = £



p = £

32

PUPIL PRACTICE BOOK 4C PAGE 32

3 How much money is in each box?

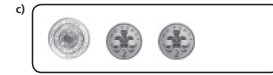
Write your answer in pounds.



£



£



£

4 a) Circle £0.27.



b) Circle £1.30.



c) Circle £1.03.



33

PUPIL PRACTICE BOOK 4C PAGE 33

5 Aki has some money in his hand.

Aki writes this as £4.3.

Is Aki correct? If not, explain his mistake.



6 a) Complete the table. Write your answers in pence.

$\frac{3}{10}$ of £1	$\frac{3}{100}$ of £1	$\frac{73}{100}$ of £1	$\frac{5}{10}$ of £1	$\frac{90}{100}$ of £1
30p				

CHALLENGE

b) Amal buys a stamp. It costs him $\frac{2}{5}$ of £1.

If he pays with £1, how much change does he get?

Amal gets £ change.

Reflect

What is the same and what is different about £1.30 and £1.03?

• _____

• _____

• _____

34

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Ordering amounts of money

Learning focus

In this lesson, children will identify and put in order the most and least expensive items and amounts of money. Children will convert prices and amounts in a variety of notations into a common unit.

Small steps

- Previous step: Pounds, tenths and hundredths
- **This step: Ordering amounts of money**
- Next step: Rounding money

NATIONAL CURRICULUM LINKS

Year 4 Measurement – Money

- Estimate, compare and calculate different measures, including money in pounds and pence.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.

ASSESSING MASTERY

Children can convert a mixture of notations into a common unit and identify the most and least expensive item and the greatest and least amount of money. Children can order prices and amounts from greatest to least and from least to greatest.

COMMON MISCONCEPTIONS

When converting notations, children may mix up whether they are multiplying by 100 or dividing by 100 and so misidentify which is the most or least. Ask:

- *What calculation do you need to use? How do you know who has the most? How do you know who has the least?*

STRENGTHENING UNDERSTANDING

Having access to plastic coins so that children can make amounts, try different combinations of coins and visually compare what is the same and what is different about amounts, may make it easier for children to compare. When ordering totals, encourage children to set amounts out on a number line to make the order very visual.

GOING DEEPER

Encourage children to work between units rather than converting every amount into a common notation. Question children about their decisions, discussing their understanding of worth and order and giving explanations using correct mathematical vocabulary linked to ordering money.

KEY LANGUAGE

In lesson: convert, most, greatest, least, more than (>), less than (<), order

Other language to be used by the teacher: price, total, amount, units, common, ascending, descending

STRUCTURES AND REPRESENTATIONS

number lines

RESOURCES

Optional: plastic coins, place value grid



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

Before you teach

- Can children read prices and amounts in various notations?
- Can children convert between units?
- Do children understand vocabulary linked to ordering?

Discover

WAYS OF WORKING Pair work

ASK

- Question 1 a): *What does least and most expensive mean? Are you starting with the largest or smallest price? Are the prices recorded in the same way?*
- Question 1 b): *How much does each item cost? How much does Isla have to spend? Which items cost less than £5? What are you looking for in each price?*

IN FOCUS In question 1 a), children may look at the amount of pounds in each item and mentally use their knowledge of 100p = £1 to order the items. Some children may convert all of the prices into pounds or pence so that they can compare the items more easily.

PRACTICAL TIPS Set up the shop scenario using toys and price tags and provide children with a variety of plastic coins and notes.

ANSWERS

Question 1 a): Notepad, pack of pencils, football, teddy bear, computer game and musical keyboard

Question 1 b): Isla could buy the football, the pack of pencils or the notepad.

Ordering amounts of money

Discover



Isla

- Put the items in order from least to most expensive.
- Which items could Isla buy with the money she has?

48

Key 1p 2p 5p 10p 20p 50p £1 £2

PUPIL TEXTBOOK 4C PAGE 48

Share

WAYS OF WORKING Whole class teacher led

ASK

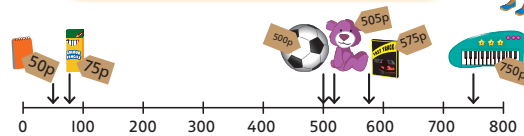
- Question 1 a): *Are these items priced in the same units? Can you convert them into the same units? How do you convert from pence to pounds? How do you write prices in pounds? How do you convert from pounds to pence? How do you write prices in pence?*
- Question 1 b): *What is this note worth in pounds? What is this note worth in pence? Which items are less than £5 or 500p? Which items are the same as £5 or 500p? Which items are more than £5 or 500p?*

IN FOCUS In question 1 b), some children may want to convert the £5 into pence and others may want to convert the items in pence into pounds. Discuss why both of these options would be possible and whether one is more efficient than the other. Encourage children to then explain why certain items can be eliminated.

Share

- Convert the amounts to pence.

To order the items, I converted them to the same notation and then put them on a number line.



The items in order from least to most expensive are: notepad, pack of pencils, football, teddy bear, computer game and musical keyboard.

- Isla has a £5 note.



Isla could buy any items that cost 5 pounds or 500 pence or less.

So she could buy the football, because that is exactly £5, or she could buy the pencils and notepad.



$75p < 500p$ $£0.50 < £5$

She could not buy the teddy bear as it costs more than 500p.

$505p > 500p$

£5 £10 £20 £50

49

PUPIL TEXTBOOK 4C PAGE 49

Think together

WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1: What are the prices of each of the items? What does cheapest mean? What does most expensive mean?
- Question 2: How much are Isla's coins worth altogether? How do you write Isla's amount in pounds? How do you write Isla's amount in pence? Which items couldn't Isla buy?
- Question 3: How much money does each child have? Why would Max think he has the most because he has a note? Why would Richard think he has the most because he has the most coins?

IN FOCUS Question 3 will highlight children's understanding of a coin or note's worth, while highlighting possible misconceptions such as the bigger the coin, the more you have, or the more coins you have, the larger the amount.

STRENGTHEN For question 1, encourage children to make prices with coins and notes in order to identify and compare how many pounds or pence each item costs. To strengthen understanding of question 2, encourage children to write down the coins Isla has in pounds and then in pence. Children could also use individual coins to buy certain items, for example using the £1 for the comic or car.

DEEPEN Deepen understanding of question 2 by asking children what combinations of items Isla could buy with £5. Children could also calculate how much extra she would need if she wanted to buy all the items. Additionally, when looking at the misconceptions for question 3, ask children to use examples of coins and notes to prove the misconceptions are incorrect.

ASSESSMENT CHECKPOINT Children should now be able to identify the most and least expensive by converting into the same notation and correctly order prices following set criteria. Ensure children can identify which items are more than, less than or the same as the total given. Children should also recognise common misconceptions related to money and be able to explain why the misconceptions are incorrect.

ANSWERS

- Question 1 a): The cheapest item on the shelf is the comic.
 Question 1 b): The most expensive item on the shelf is the train set.
 Question 1 c): Comic, car, DVD, rag doll, train set.
 Question 1 d): Train set, rag doll, DVD, car, comic.
 Question 2: Alex has £6.50. She could buy the comic, the rag doll, the car or the DVD.
 Question 3: Max is assuming he has the most because he has a note. Max is not taking into consideration that the other children could have coins that equal more than his note. Richard thinks he has the most because he has the most coins. Richard is correct on this occasion, but other children could have fewer coins that are worth more than Richard's.

Unit 12: Money, Lesson 3

Think together

1

59 pence £5.99 £0.99 9 pounds 95 pence 595p

59 pence

0 £1 £2 £3 £4 £5 £6 £7 £8 £9 £10

- Which is the cheapest item on the shelf?
The cheapest item on the shelf is _____.
- Which is the most expensive item on the shelf?
The most expensive item on the shelf is _____.
- Order the items from the least to the most expensive.
- Now order the items from the most expensive to the least expensive.

2 Alex has these coins.

Which of the toys could Alex buy?
Alex could buy _____.

50 Key 1p 2p 5p 10p 20p 50p £1 £2

PUPIL TEXTBOOK 4C PAGE 50

Unit 12: Money, Lesson 3

CHALLENGE

3

Kate Amelia Richard Max

Kate, Amelia, Richard and Max are comparing how much money they have.

Max: I have the most money as I have a £5 note.

Richard: No, I have the most money as I have the greatest number of coins.

Richard: I will put the numbers in order and see if either of them are correct.

Richard: I think one of them might be right, but it is not for the right reason.

What mistakes have Max and Richard made?

£5 £10 £20 £50

Practice book 4C p35

PUPIL TEXTBOOK 4C PAGE 51

Practice

WAYS OF WORKING Independent thinking

IN FOCUS Question 1 allows children to convert or compare mentally using their secure knowledge of $100p = £1$. Children can show their understanding of the language and what a total is worth by explaining how they know which is the most or least expensive.

STRENGTHEN Encourage children to convert different amounts into the same units or to make them using plastic coins. Children may also find it beneficial to set amounts out on a number line in order to compare.

DEEPEN Deepen understanding of question 7 by asking children to explain how they knew which money bag belonged to which child after reading the clues. Children could also explain why specific money bags could not belong to other children based on the clues given. Ask children to write different clues that would reveal whose money bag was whose.

ASSESSMENT CHECKPOINT Children should have an understanding of the vocabulary 'most and least expensive' and be able to identify the most or least expensive from a list of totals and justify their choice. They should also be able to identify amounts greater than, less than, or equal to a given amount and to order prices to specific criteria.

ANSWERS Answers for the **Practice** part of the lesson appear in the separate **Practice and Reflect answer guide**.

Ordering amounts of money

1 a) Circle the least expensive item.



Explain how you know.

b) Circle the most expensive item.



Explain how you worked this out.

2 Circle all the items you could buy with a £5 note.



3 Complete each statement with a $<$, $>$, or $=$ sign.

- a) 72p 50p £2 £8
 72p 500p £2 200p
 72p 5p £2 £2.05
 72p £5 £2 195p

- b) Seven pounds eighty pence £7.09
 £5.99 six pounds

4 Put these amounts in order from the least to the greatest.

- a) £5.25 255 pence £2.05 £0.25

- b) £0.84 408 pence £8.40 4 pounds eighty pence £8.04

5 Put these amounts in order from the greatest to the least.

- a) 98 pence eight pounds ninety pence £0.89 £0.99

- b) 1 pound 1 pence £0.01 11 pounds £1.11 110 pence

Reflect

WAYS OF WORKING Independent thinking

IN FOCUS In this part of the lesson, children reflect on their knowledge of place value, conversions and the inequality signs.

ASSESSMENT CHECKPOINT Children should identify that Isla is incorrectly showing £3 as 3p in the statement and be able to explain that £3 is 300p, which is larger than 257p, or that 257p is £2.57, which is less than £3.

ANSWERS Answers for the **Reflect** part of the lesson appear in the separate **Practice and Reflect answer guide**.

After the lesson

- Can children identify and order amounts according to given criteria?
- Can children use the inequality signs to compare amounts?
- Can children identify and discuss common misconceptions related to ordering money?

6 Use these digits to make the statements true.

- a) $£4.75 > £4.\square2$ c) $£475 > £4\square5$
 b) $£47.50 < £4\square.50$ d) $£0.47 < £0.\square2$

7 Use the clues to match the child to the correct money bag. **CHALLENGE**



- Clues:
- Amelia has the greatest amount of money.
 - Richard and Isla have the same amount of pounds.
 - Richard has more money than Isla.

Reflect

Isla says '257 pence is greater than 3 pounds as $257 > 3$ '.

Do you agree with Isla? Explain why or why not.

Rounding money

Learning focus

In this lesson, children will round amounts of money to the nearest 10p and £1 using number lines. Children will explore the difference between given amounts and multiples of 10 and 100 in order to round correctly.

Small steps

- Previous step: Ordering amounts of money
- **This step: Rounding money**
- Next step: Using rounding to estimate money

NATIONAL CURRICULUM LINKS

Year 4 Measurement – Money

- Estimate, compare and calculate different measures, including money in pounds and pence.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.

ASSESSING MASTERY

Children can round to the nearest 10p and £1, use number lines to identify multiples of 10 and 100 and explain how they know a number rounds to a certain multiple. Children can identify prices that would round to a given multiple from a given list.

COMMON MISCONCEPTIONS

Children may not be confident about which digit to look at when deciding which way to round. Ask:

- *If you are rounding to the nearest 10p, which digit should you look at? If you are rounding to the nearest £1, which digit should you look at?*

STRENGTHENING UNDERSTANDING

Having a variety of completed, partially completed and blank number lines available may help children who are not confident working with digits alone. Place value grids can also give children a clearer visual representation of which digit will change when rounding and therefore which digit determines how the number changes.

GOING DEEPER

Ask children to create a rounding rule that focuses on the digits in each column. Encourage children who show a good understanding of multiples of 10 and 100 and rounding to the nearest 10p or £1 to round to other amounts and adapt the rule they previously created. Children could create their own problems that require the rounded amount to be in the middle of a number line.

KEY LANGUAGE

In lesson: round to the nearest, closer, between

Other language to be used by the teacher: far, estimate, difference, multiple, tens numbers, hundreds numbers

STRUCTURES AND REPRESENTATIONS

number lines

RESOURCES

Optional: plastic coins



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

Before you teach

- Can children explain any rules they know for rounding?
- Do children know the multiples of 10 and multiples of 100?
- Can children accurately place numbers on a number line?

Discover

WAYS OF WORKING Pair work

ASK

- Question 1 a): What does 'round' mean? If rounding to the nearest 10p, which digits will you need to look at?
- Question 1 b): If rounding to the nearest £1, which digits will you need to look at? Why do you need to think about multiples of 100 when rounding to the nearest pound?

IN FOCUS Question 1 highlight children's understanding of rounding and multiples of 10 or 100. Question 1 b) will give a good indication of children's prior understanding of rounding, whether they know why we round numbers and if they can link this knowledge to money.

PRACTICAL TIPS Recreate the jumble sale with the same items and price tags. Create a large number line in the classroom for children to stand holding whiteboards for multiples of 10s and 100s and the given amounts.

ANSWERS

Question 1 a): The magazine (27p) rounded to the nearest 10p is 30p, the train (£4.32) rounded to the nearest 10p is £4.30 and the plane (£5.95) rounded to the nearest 10p is £6.

Question 1 b): The magazine rounds to £0 to the nearest pound, the train rounds to £4 to the nearest pound and the plane rounds to £6 to the nearest pound. Ebo and Zac might be rounding the prices to estimate how much the items cost altogether, quickly work out the difference between the prices of items or to estimate how much change they would get back.

Share

WAYS OF WORKING Whole class teacher led

ASK

- Question 1 a): Can you show the multiples of 10 on a number line? Where would the price go on your number line? Which multiple of 10 is the price closest to? What is the difference between the price and each multiple of 10?
- Question 1 b): Can you show the multiples of 100 on a number line? Which multiple of 100 is each price closest to? What is the difference between each price and each multiple of 100?
- Question 1 b): How does rounding make it easier to work with money?

IN FOCUS Model identifying the multiples of 10 or 100 on either side of the chosen price and writing these multiples on a number line. Encourage children to discuss and justify where the price would go on the number line. Work out the difference between the price and each multiple and identify which multiple the price is closest to. Children may begin to see patterns relating to the ones digit and whether they round up or down.

Rounding money

Discover



- 1 a) Round each number to the nearest 10p.
 b) Round each number to the nearest pound.
 Why might Ebo and Zac be rounding their numbers?

52

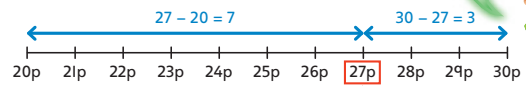
Key 1p 2p 5p 10p 20p 50p £1 £2

PUPIL TEXTBOOK 4C PAGE 52

Share

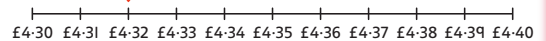
- a) 27p lies between 20p and 30p.

I notice that the difference between 27 and 20 is 7 and the difference between 27 and 30 is 3.



27p is closer to 30p than 20p.
 So 27p rounded to the nearest 10p is 30p.

£4.32 lies between £4.30 and £4.40.



£4.32 rounded to the nearest 10p is £4.30.

£5.95 lies between £5.90 and £6.00.



£5.95 rounded to the nearest 10p is £6.

What about £5.95? It is in the middle. I think I round up to £6.00.

Maths has a rule: when a number is in the middle, we round up.

£5 £10 £20 £50

53

PUPIL TEXTBOOK 4C PAGE 53

Think together

WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1: Which digits do you need to look at? Can you show the multiples of 10 or 100 on a number line? What would half way be? Which multiple is the price closest to?
- Question 2: Do you need to think about multiples of 10 or 100 when you round? How do multiples of 10 and 100 link to rounding to the nearest 10p or £1?
- Question 3: Which multiples need to be on either end of the number line if £3 is the answer when rounded to the nearest 10p? Which multiples need to be on either end of the number line if £3 is the answer when rounded the nearest £1? Which half of the number lines will round to £3?

IN FOCUS Question 3 gives children the opportunity to approach rounding in a different way. Children must think about which hundredth digits would round to £3 and which tenth digits would round to £3.

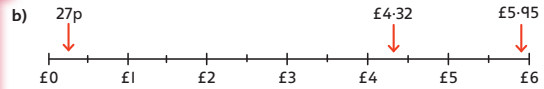
STRENGTHEN Encourage children to mark increments of 1 or 10 on number lines to help them work out the differences between the prices and the multiples. For question 3, children may find it easier to round each price to the nearest 10p and £1 and then look for those that have £3 as an answer.

DEEPEN Deepen understanding of questions 1 and 2 by asking children to identify what the hundredths would need to be to round to the other multiple of 10 and what the tenth would need to be to round to the other multiple of 100.

ASSESSMENT CHECKPOINT Assess whether children know which digits to focus on to work out which multiple they should round to. Children should be confident rounding to the nearest 10p and £1 using a number line.

ANSWERS

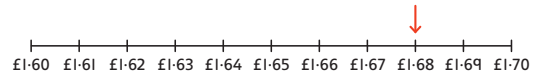
- Question 1 a): £1.68 rounded to the nearest 10 pence is £1.70.
- Question 1 b): £1.68 rounded to the nearest pound is £2.00.
- Question 2 a): £3.25 rounded to the nearest 10 pence is £3.30.
- Question 2 b): £3.25 rounded to the nearest pound is £3.00.
- Question 3: £3.04 and £2.99 round to £3 to the nearest 10p and pound.



27p rounds to £0 to the nearest pound.
 £4.32 rounds to £4 to the nearest pound.
 £5.95 rounds to £6 to the nearest pound.
 Ebo and Zac might be rounding a number to the nearest 10p or pound to work out a quick estimate of the total cost or to estimate the difference between two amounts.

Think together

- 1 a) Round £1.68 to the nearest 10 pence.



£1.68 rounded to the nearest 10 pence is £ .

- b) Round £1.68 to the nearest pound.



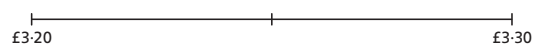
£1.68 rounded to the nearest pound is £ .

54

Key 1p 2p 5p 10p 20p 50p £1 £2

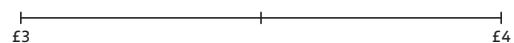
PUPIL TEXTBOOK 4C PAGE 54

- 2 a) Round £3.25 to the nearest ten pence.



£3.25 rounded to the nearest ten pence is £ .

- b) Round £3.25 to the nearest pound.



£3.25 rounded to the nearest pound is £ .

- 3 Which of the following round to £3 when rounded to both the nearest 10p and nearest pound?

£3.49 £3.04 £3.14
 £2.87 £2.25 £2.99



I will work out which numbers round to £3 to the nearest £1 first. Then I will check which ones round to £3 to the nearest 10p.

I think there is a better way.



£5 £10 £20 £50

→ Practice book 4C p38

55

PUPIL TEXTBOOK 4C PAGE 55

Practice

WAYS OF WORKING Independent thinking

IN FOCUS For question 3, children need to identify which digit tells them whether to round up or down, using the rule 1 to 4 rounds down and 5 to 9 rounds up. For question 4, children must think about which tenth digits would round to £5. For question 5, encourage children to think about the boundaries for rounding to £2.50 to the nearest 10p and all of the prices within that boundary.

STRENGTHEN As the number lines in question 1 reduce in markings and labels, encourage children to work through set steps for each answer. As question 1 d) is more open-ended, children may benefit from a 'check list' of steps to complete based on previous questions, which can also be used for question 2.

DEEPEN Deepen understanding of question 3 by asking children to add another column to the table and round the prices to the nearest 50p. As well, once question 6 is completed, ask children to investigate how many other prices they can find that are the same but round to different criteria.

THINK DIFFERENTLY Question 5 prompts children to explore the relationship between rounding and the possible price of an item. This question lends itself to the multiple being rounded to be labelled in the middle of a number line rather than at either end.

ASSESSMENT CHECKPOINT Assess whether children can correctly label information on a number line to aid rounding to 10 or 100. Can children work out and list possible prices when given a price rounded to the nearest 10p or £1?

ANSWERS Answers for the Practice part of the lesson appear in the separate Practice and Reflect answer guide.

Unit 12: Money, Lesson 4 → Textbook 4C p52

Rounding money

1 Round each of the following amounts to the nearest pound.

a) £1.89

£1.89 rounded to the nearest pound is £ .

b) £3.27

£3.27 rounded to the nearest pound is £ .

c) £9.50

£9.50 rounded to the nearest pound is £ .

d) rounded to the nearest pound is £ .

38

PUPIL PRACTICE BOOK 4C PAGE 38

Unit 12: Money, Lesson 4

2 Round each of the following numbers to the nearest 10p.

a) £2.38

£2.38 rounded to the nearest 10p is £ .

b) £0.75

£0.75 rounded to the nearest 10p is £ .

3 Complete the table to show the rounded values.

Item	Price rounded to the nearest £1	Price rounded to the nearest 10p
£1.95		
£8.24		
£3.50		

4 £4.95 £5.49 £5.92 £4.22 £5.50

Circle the items that round to £5 to the nearest £1.

39

PUPIL PRACTICE BOOK 4C PAGE 39

Reflect

WAYS OF WORKING Independent thinking

IN FOCUS Children should be able to use their newly gained knowledge to create steps or rules for rounding to the nearest 10p or £1.

ASSESSMENT CHECKPOINT Assess whether children can provide a coherent set of steps or rules to follow when rounding. Do children know how to round £3.89 to the nearest 10p and £1? Have they explained these clearly?

ANSWERS Answers for the Reflect part of the lesson appear in the separate Practice and Reflect answer guide.

After the lesson

- Can children correctly round to the nearest 10p or £1?
- Can children give possible answers for rounding to a given multiple?
- Can children explain how to round to the nearest 10p or £1?

Unit 12: Money, Lesson 4

5 Ebo buys a cold drink. The price rounded to the nearest 10 pence is £2.50. How much could Ebo have paid for his drink? Write down all the possible answers.

6 Zac: The price of my baseball cap when rounded to the nearest 10 pence is £4.50. Ebo: The price of my baseball cap when rounded to the nearest pound is £4.

Could Zac and Ebo have paid the same price for their baseball caps? Justify your answer.

Reflect

Explain how to round £3.89 to the nearest £1 and the nearest 10p.

40

PUPIL PRACTICE BOOK 4C PAGE 40

Using rounding to estimate money

Learning focus

In this lesson, children will round amounts to estimate totals, look at differences between prices and work out how much money remains. Children will explore over and under estimates depending on how prices were rounded.

Small steps

- Previous step: Rounding money
- **This step: Using rounding to estimate money**
- Next step: Problem solving – pounds and pence

NATIONAL CURRICULUM LINKS

Year 4 Measurement – Money

Estimate, compare and calculate different measures, including money in pounds and pence.

ASSESSING MASTERY

Children can confidently round amounts to the nearest 10p or £1, use estimated amounts to work out totals, find the difference between prices and determine if there is enough money to purchase given items. Children can also find possible prices for items that have been rounded to the nearest 10p or £1 and determine if an estimate is an over or under estimation.

COMMON MISCONCEPTIONS

Children may not understand that after rounding and calculating, the answer is not exact. Ask:

- *If rounding gives you an estimate, how can you find the exact answer?*

STRENGTHENING UNDERSTANDING

Providing children with a range of number lines with various scaffolds and place value grids will support any children who are still not confident rounding. When calculating with rounded amounts, children may benefit from using a blank number line, a number track of multiples of 10p or 100p or having the money to manipulate. Also getting children to make the exact price and the rounded price with play money will give them a good visual that, when rounding, they are working with a little more or a little less than the exact answer.

GOING DEEPER

With each question answered, some children may be able to calculate the exact amount and work out the difference between the exact answer and their estimated answer. Some children may also be able to work out where the difference came from.

KEY LANGUAGE

In lesson: round, nearest, estimate, **over estimate**, **under estimate**, 10p, £1, total, most, least

Other language to be used by the teacher: closest, approximately, different, more, less, left

STRUCTURES AND REPRESENTATIONS

number lines

RESOURCES

Optional: plastic coins



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

Before you teach

- Are children confident rounding to the nearest 10p and £1?
- Do children know what estimate means?
- Can children confidently add multiples of 10 and 100?

Discover

WAYS OF WORKING Pair work

ASK

- Question 1 a): Which digit do you need to look at to determine whether you round up or down?
- Question 1 b): Which hundredth digits round up and down to 70? Which is the highest price rounded to £1.70? Which is the lowest price rounded to £1.70?

IN FOCUS

Question 1 b) requires children to work out all of the possible prices that could be rounded to £1.70. Children will need to look at the prices as a whole when looking for the greatest and smallest prices rather than just the hundredth or tenth digit.

PRACTICAL TIPS

Set up the supermarket scene with corresponding items and prices. Provide children with £1 notes and 10p coins to help them find totals once prices have been rounded.

ANSWERS

Question 1 a): The milk, oranges and bread round to £1 to the nearest pound.

The chocolate rounds to £2 to the nearest pound.

The cereal rounds to £4 to the nearest pound.

An estimate for the total cost of the items in the trolley is £9.

Question 1 b): The cost of the eggs has been rounded to the nearest 10p.

The most the eggs could cost is £1.74. The least the eggs could cost is £1.65.

Share

WAYS OF WORKING Whole class teacher led

ASK

- Question 1 a): Which multiples are either side of each of the prices? Which multiple is each price closest to? How can you use the rounded prices to find an approximate total? Why is the total going to be an estimate and not exact?
- Question 1 b): How much would the eggs be if rounded to the nearest pound? What is the first number that could be rounded up to £1.70? What is the last number that could be rounded down to £1.70? What are the possible prices within this range?

IN FOCUS

For question 1 a), encourage children to explain how they knew to round the price up or down. Discuss what sort of calculation would be needed to find the total. Encourage children to compare adding the exact prices and adding multiples of 100p, then discuss which is quicker. In question 1 b), the rounded price is in the middle of the number line. Some children may be able to mentally work out all of the possible prices of the eggs, while others may feel more confident recording possibilities on a number line.

Using rounding to estimate money

Discover

Let's try to work out an estimate for the total cost of what we need.

I have rounded the price of the eggs. They cost about £1.70.



- a) Round each item in the trolley to the nearest pound to estimate the total cost.
- b) What do you think Jen has rounded the price of the eggs to the nearest? What is the most the eggs could cost? What is the least they could cost?

56

Key 1p 2p 5p 10p 20p 50p £1 £2

PUPIL TEXTBOOK 4C PAGE 56

Share



a) I made a table to write my results. The rounded numbers are in the last column. I then added these up.

	89p		£1
	£1.19		£1
	£1.45		£1
	£2.10		£2
	£3.98		£4

$£1 + £1 + £1 + £2 + £4 = £9$

An estimate of the total cost is £9.

- b) The most the eggs could cost is £1.74. The least the eggs could cost is £1.65.

I think Jen has rounded to the nearest 10p. I drew a number line and highlighted the section that would round to £1.70.



£5 £10 £20 £50

57

PUPIL TEXTBOOK 4C PAGE 57

Think together

WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1: Which digits could change when rounding to the nearest 10p? How can you use the number line to help you work out the difference between the items?
- Question 2 a): How can you work out which multiple of 100p the items will round to? What sort of a calculation do you need to do to find the total cost?
- Question 2 c): If you round more of your prices up, how will that affect the total? Did you round all of the items the same way? Will your rounded total be more or less than the exact amount?
- Question 3 a and b): What do you need to do with the rounded prices to find the totals? How are you going to add these rounded prices?

IN FOCUS In question 3, children investigate the efficiency and accuracy of rounding to estimate. Discuss which form of rounding is quicker and more accurate, and why this is.

STRENGTHEN For question 2 c), encourage children to note how many prices they rounded up and how many they rounded down in order to work out whether their approximate total is an over or under estimate. This will give children a clear idea of whether they added or took away from the exact prices.

DEEPEN For questions 2 b) and c), ask children to calculate the exact cost and conclude how good their estimate was. Children could also round to the nearest 10p and estimate the total.

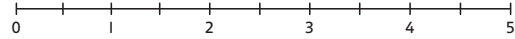
ASSESSMENT CHECKPOINT Children should now be able to round to the nearest £1 or 10p and be able to identify why an estimated answer is an over or under estimate. They should also be able to explain why rounding to the nearest £1 could be less accurate than rounding to the nearest 10p.

ANSWERS

- Question 1: £1.45 rounds to £1.50 to the nearest 10p.
 £3.98 rounds to £4.00 to the nearest 10p.
 The cereal costs about £2.50 more than the loaf of bread.
- Question 2 a): The bunch of grapes rounds to £2.
 The jar of sweets rounds to £3.
 The orange juice rounds to £2.
 The estimated total cost is £7.
- Question 2 b): The answer is a fairly good estimate. However, all of the items have been rounded down, so the exact cost will be higher than the estimation.
- Question 2 c): It is an under estimation because the costs were rounded down.
- Question 3 a): The butter rounds to £5.
 The potatoes round to £2.
 The crisps round to £1.
 An estimate for the total cost is £8.
- Question 3 b): The butter rounds to £4.80.
 The potatoes round to £1.90.
 The crisps round to £0.90 to the nearest 10p.
 An estimate for the total cost is £7.60.
 Adding multiples of 100 is quicker.
 Adding multiples of 10 is more accurate.

Think together

- 1 Estimate how much more a box of cereal costs than a loaf of bread.
 £1.45 rounds to £ to the nearest 10p.
 £3.98 rounds to £ to the nearest 10p.



The cereal costs about £ more than the loaf of bread.

- 2 Here are some more items Toshi and Jen want to buy.



- Round each item to the nearest £1 to estimate the total cost.
- Is your answer a good estimate? Explain your answer to your partner.
- Do you think your answer is an over estimate or under estimate? Why?

An **over estimate** is where you think it is more than the actual total. An **under estimate** is where it is less than the actual total.



58

Key 1p 2p 5p 10p 20p 50p £1 £2

PUPIL TEXTBOOK 4C PAGE 58

- 3 Look at the receipt.



Receipt

Butter	£4.75
Potatoes	£1.89
Crisps	£0.87

Find an estimate of the total by:

- Rounding each item to the nearest £1.
- Rounding each item to the nearest 10p.

Which estimate was quicker?

Which do you think is more accurate?

I wonder if rounding to the nearest £1 can ever be as accurate as rounding to the nearest 10p.

I remembered to add the pounds and pence separately when I added the costs.



£5 £10 £20 £50

→ Practice book 4C p41

59

PUPIL TEXTBOOK 4C PAGE 59

Practice

WAYS OF WORKING Independent thinking

IN FOCUS In question 4, ensure children understand that Holly is rounding to the nearest pound, therefore they need to think about what tenths would round up or down to £7.

STRENGTHEN Encourage the use of a number line to help children accurately add pounds and pence. Support children with questions 1 c) and 3 by encouraging them to record whether they rounded each item up or down in order to assess the accuracy of their estimation. Similarly, for question 6, encourage children to work through the stages of rounding. This will make it clearer why Lexi doesn't have enough money for all the items.

DEEPEN Deepen understanding of question 6 by asking children to create all possibilities of the items Lexi could buy with £20 and explain why certain groups of items can and cannot be purchased when rounding and estimating the total. As well, challenge children to work out the exact cost of all the items and then find out how much extra Lexi would need to buy them all.

THINK DIFFERENTLY Question 5 allows children to use what they have learnt over previous lessons to help them find an approximate answer. Children need to make decisions about what they are going to round to and how accurate this will make their answer.

ASSESSMENT CHECKPOINT Responses to question 6 will identify whether children are confident identifying whether an approximate total will be an over or under estimate. Do children recognise that how prices are rounded will affect the total?

ANSWERS Answers for the **Practice** part of the lesson appear in the separate **Practice and Reflect answer guide**.

Reflect

WAYS OF WORKING Pair work

IN FOCUS This question allows children to explore why the skills covered in the lesson are useful and reasons why they may not always be helpful.

ASSESSMENT CHECKPOINT Children's answer to this section will highlight whether they truly understand rounding to estimate money or whether they have just learnt the procedure behind it. Can children explain why rounding to the nearest pound is useful? Can children explain why rounding to the nearest pound is not always useful?

ANSWERS Answers for the **Reflect** part of the lesson appear in the separate **Practice and Reflect answer guide**.

After the lesson

- Do children know that estimated prices will not be exact?
- Can children recognise an over or under estimation and explain why it has occurred?
- Do children understand when it is appropriate and useful to round to estimate money?

Unit 12: Money, Lesson 5

→ **Textbook 4C p56**

Using rounding to estimate money

1 Bella buys the following items for her dog.

a) Round each item to the nearest £1 to find an estimate of the total cost.

£1.56 rounded to the nearest £1 is £ .

£4.12 rounded to the nearest £1 is £ .

£ + £ = £ .

An estimate of the total cost is £ .

b) Round each item to the nearest 10p to find an estimate of the total cost.

£1.56 rounded to the nearest 10p is £ .

£4.12 rounded to the nearest 10p is £ .

Add the pounds £ + £ = £ .

Add the pence p + p = p .

So £ and p = £ .

An estimate of the total cost is £ .

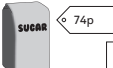

c) Which estimate is most accurate? Why?

41

PUPIL PRACTICE BOOK 4C PAGE 41




Unit 12: Money, Lesson 5

2 Estimate the total cost by rounding each item to the nearest 10p.

An estimate of the total cost is £ .

3 Max buys these items.

Max wants to estimate the total cost. He rounds each number to the nearest £1. Does Max have an over or under estimate for the total cost? Use workings to explain your answer.

4 What is the greatest amount of money Holly could have in her purse? The greatest amount of money Holly could have in her purse is £ .

When I round the money in my purse to the nearest £1, I get £7.

Holly

42

PUPIL PRACTICE BOOK 4C PAGE 42

Unit 12: Money, Lesson 5

5 Sofia wants to buy a car costing £7,959. She has saved £1,875. Estimate how much more money Sofia needs to save.

I estimate Sofia needs to save £ .

6 Lexi has £20. She wants to buy some items with these costs. She rounds each price to the nearest £1. 'I estimate the total to be £19, so I have enough money.' Why might Lexi not be correct?

Reflect

Andy wants to work out the total cost of four objects. He rounds each price to the nearest £1. Write down one advantage and one disadvantage of Andy's method.

• _____

• _____

43

PUPIL PRACTICE BOOK 4C PAGE 43

Problem solving – pounds and pence

Learning focus

In this lesson, children will solve problems involving pounds and pence. They will solve addition and subtraction problems and work out change.

Small steps

- Previous step: Using rounding to estimate money
- **This step: Problem solving – pounds and pence**
- Next step: Problem solving – multiplication and division

NATIONAL CURRICULUM LINKS

Year 4 Measurement – Money

Estimate, compare and calculate different measures, including money in pounds and pence.

ASSESSING MASTERY

Children can find totals of coins and amounts by partitioning into pounds and pence. They can use a number line to find the difference and can work out change. Children can look at the structure of problems and identify multiple steps, relevant information and what given information fits into a pictorial representation and a calculation.

COMMON MISCONCEPTIONS

Children may not understand why they are recombining pounds and pence when finding totals. Ask:

- *Look at the pounds and pence answer individually. Why can they not be the final answers? How can you come to the final answer?*

STRENGTHENING UNDERSTANDING

Using plastic coins to find totals helps children to identify the pounds and pence within amounts and add like amounts together more easily. Having coins available to place in the jumps on the number lines will also benefit understanding of totalling up the jumps. Showing children calculations and problems as pictorial representations such as bar models or part-whole models allows children to examine and become familiar with the structure of questions, see what information is needed and understand the best method for finding it.

GOING DEEPER

Expose children to a variety of methods for adding and subtracting with money and investigate the suitability of certain methods for certain questions. Encourage children to create rules or guidance for when to use specific methods and ask them to explain and discuss their choices for and against methods depending on the numbers given or the structure of the question.

KEY LANGUAGE

In lesson: change, total, add, pounds, pence

Other language to be used by the teacher: count, altogether, partition, recombine, subtract, find the difference, nearest 10p, nearest £1

STRUCTURES AND REPRESENTATIONS

number lines, bar models

RESOURCES

Optional: plastic coins



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

Before you teach

- Do children recognise and understand vocabulary linked to addition and subtraction?
- Do children have strategies for addition and subtraction?
- Do children know what change is?

Discover

WAYS OF WORKING Pair work

ASK

- Question 1 a): How much does each item cost? What are you going to do to find the total cost? What sort of calculation will you use to find the total cost? What method are you going to use to add?
- Question 1 b): How much did Alex spend? What is change? Why does Alex need some? What sort of calculation is finding change? What method are you going to use to subtract?

IN FOCUS In question 1 b), ensure children understand the concept of change and that they are required to subtract. Some children may take away and others might find the difference. Watching children find the answers for questions 1 a) and 1 b) will give a good indication of their current understanding, confidence and strategies for adding and subtracting money.

PRACTICAL TIPS Place the items and corresponding price tags to match **Discover** at the front of the classroom and place a bowl of coins on each table in the classroom for children to use throughout the lesson.

ANSWERS

Question 1 a): Alex could use: a 20p coin for the book; 50p, 20p and 5p coins for the CD; 50p and two 20p coins for the t-shirt. Alex spends £1·85 in total.

Question 1 b): Alex gets £8·15 change.

Share

WAYS OF WORKING Whole class teacher led

ASK

- Question 1 a): What do you need to do with the coins Alex could have used? How are you going to add them together? Could you have also used the prices to work out how much Alex spends? Which method is the most efficient?
- Question 1 b): What did Alex pay with? Where does that amount go in your calculation? What method are you going to use to work out Alex's change? Are there any other methods for working out change?

IN FOCUS Discuss children's various methods for adding and subtracting money as well as the vocabulary used in each question and how it gives an idea of what calculation is needed. In question 1 a), children are required to add coins together to make the prices of the items, then use these coins to find the total cost. Some children may choose to add the coins together to find the total cost, whereas others may add the prices of the items.

Problem solving – pounds and pence

Discover



Alex Holly Jamie

- 1 a) Alex buys a book, a CD and a t-shirt.
Work out how much Alex spends by thinking about the different coins she could have used.
- b) Alex pays for her items with a £10 note.
Work out how much change Alex gets.

60 Key 1p 2p 5p 10p 20p 50p £1 £2

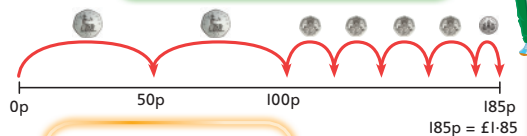
PUPIL TEXTBOOK 4C PAGE 60

Share

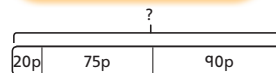
a) These are the coins Alex could have used to buy the different items.



I used a number line to add up the coins.



I worked it out in a different way. I used a bar model and column addition.

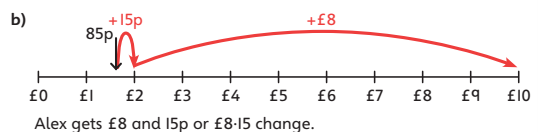


Alex spends £1·85 in total.

H	T	O
9	0	
7	5	
+	2	0
1	8	5

1	8	5

185p = £1·85



£5 £10 £20 £50

PUPIL TEXTBOOK 4C PAGE 61

Think together

WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1: What sort of a calculation is total? Would it be easier to partition the prices into pounds and pence? How do you recombine the pounds and pence for your final answer?
- Question 2: What sort of a calculation is change? Where does that amount go in your calculation? How do you get to £3 on the number line? How do you get from £3 to £10 on the number line? How do you combine these two amounts?
- Question 3: Are the questions asking you to do the same thing? Which words in each question tell you what sort of a calculation it is? Where would the information you have been given go in a calculation?

IN FOCUS In question 2, discuss with children why they are counting up to find an answer, even though finding change is a subtraction calculation. Question 3 explores the structure of subtraction questions and how the context can affect what method is most efficient.

STRENGTHEN To help partition the prices into pounds and pence for question 1, encourage children to make the amounts out of plastic coins. This will make it easier for children to see how many pounds or pence are in each price. In question 2, children could place or draw coins onto the number line. This will also help them add the amounts together from the jumps.

DEEPEN Deepen understanding of question 2 by encouraging children to find as many different ways to make the change using notes and coins as possible. Then, ask children to explain what makes the problems different in question 3.

ASSESSMENT CHECKPOINT Assess children's strategies for problem solving. Can children link totals or change to the correct mathematical calculations? Do children understand why partitioning into pounds and pence makes it easier to add? Can children recombine the pounds and pence?

ANSWERS

- Question 1 a): The total cost is £4.95.
 Question 1 b): The total cost is £4.15.
 Question 2: Zac will receive £7.65 change.
 Question 3: For example: Both questions are discussing change. The first question is a straight-forward calculation ($£5 - £2.68 = \underline{\quad}$), but the second is a missing number calculation ($£5 - \underline{\quad} = £3.46$).

Think together

1 a) What is the total cost of these items?



£1.60 £3.35

£1.60 = £ and p £3.35 = £ and p

Add up the pounds. £ + £ = £

Add up the pence. p + p = p

£ and p = £

The total cost is £ .

b) Work out the total cost of these items.



£2.40 £1.75

£2.40 = £ and p £1.75 = £ and p

Add up the pounds. £ + £ = £

Add up the pence. p + p = p = £ and p

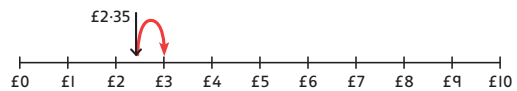
The total cost is £ .

62

Key 1p 2p 5p 10p 20p 50p £1 £2

PUPIL TEXTBOOK 4C PAGE 62

2 Zac spends £2.35. He pays with a £10 note.
How much change will he receive?



Zac will receive £ change.

3



Ambika

Ambika spends £2.68. She pays with a £5 note. How much change does Ambika receive?



Bella

Bella buys some items. She pays with a £5 note. She gets £3.46 change. How much does she spend?



What is the same and what is different about the two questions?



I think the methods are similar, but the question is not the same.

I am going to draw a bar model to help me work out the answer to each question.



£5 £10 £20 £50

→ Practice book 4C p44

63

PUPIL TEXTBOOK 4C PAGE 63

Practice

WAYS OF WORKING Independent thinking

IN FOCUS In question 1, children partition pounds and pence to find totals. Ensure children understand that question 1 c) requires them to partition the amounts found in questions 1 a) and 1 b) again and work out the total.

STRENGTHEN Provide plastic coins to pile up in pounds and pence to help children to partition and add together. Having the coins may allow children to spot any bonds to 100 and exchange coins for £1 coins. As well, blank number lines will help with addition and subtraction.

DEEPEN Deepen understanding by changing the information in question 6 slightly – Lexi could have a different amount of money, she may wish to buy more than one of each item, the change cannot contain any £1 coins, and so on. Challenge children to explore how this affects their current answer.

ASSESSMENT CHECKPOINT Ensure children can use appropriate methods to find totals and change. Children should now be confident partitioning and recombining amounts into pounds and pence in multi-step problems.

ANSWERS Answers for the **Practice** part of the lesson appear in the separate **Practice and Reflect answer guide**.

Reflect

WAYS OF WORKING Independent thinking

IN FOCUS In this question, the information is not given in the order that children will need to use it. Children should demonstrate their understanding of adding amounts to find totals and work out change.

ASSESSMENT CHECKPOINT This question requires children to use different methods within one problem and will therefore show how secure they are with each individual method. Do children know which numbers need to be used in which calculation? Do children know what order the calculations need to be done in?

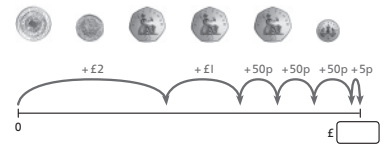
ANSWERS Answers for the **Reflect** part of the lesson appear in the separate **Practice and Reflect answer guide**.

After the lesson

- Can children find the total of coins and prices by partitioning into pounds and pence?
- Can the children decide on suitable jumps on a number line to count up or work out change?
- Can children move between methods within one problem or question?

Problem solving – pounds and pence

1 a) How much money does Max have?



b) How much money does Olivia have?



Olivia has £ and p.

c) How much money do Max and Olivia have altogether?

Add up the pounds. £ + £ = £

Add up the pence. p + p = p

£ and p = £

Max and Olivia have £ in total.

2 Jamilla buys the following items for lunch.

How much does she spend in total?

£2.45 = £2 and p

£1.59 = £1 and p



3 Work out the totals.

a) £2.48 + £30.08 =

b) 72p and £4.95 =

4 Reena spends £2.85 on a large birthday balloon.

She pays with a £5 note.

How much change does she get from £5?



Reena gets £ change.

5 Max spends £6.35. How much change would he get from a £10 note?

6 Lexi buys a DVD and a basketball using a £20 note and a £5 note.

What is the minimum number of coins she will get in her change?



Reflect

Prove Richard will get some change from a £5 note if he buys 3 items costing £2.55, 70p and £1.68.

• _____

• _____

• _____

Problem solving – multiplication and division

Learning focus

In this lesson, children will solve money problems with multiplication and division using the part-whole model.

Small steps

- Previous step: Problem solving – pounds and pence
- **This step: Problem solving – multiplication and division**
- Next step: Solving two-step problems

NATIONAL CURRICULUM LINKS

Year 4 Measurement – Money

- Estimate, compare and calculate different measures, including money in pounds and pence.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.

ASSESSING MASTERY

Children can multiply and divide amounts of money and prices by partitioning numbers using the part-whole model. Children can see how some methods are more suited to certain calculations or problems and can identify key language and structure of problems in order to create suitable pictorial representations and calculations.

COMMON MISCONCEPTIONS

To help children with partitioning, encourage the use of plastic coins to split amounts up into pounds and pence. Ask:

- *Where will you put the pounds? Where will you put the pence?*

STRENGTHENING UNDERSTANDING

Using plastic coins or pictorial representations alongside abstract calculations will help children understand what is happening when multiplying and dividing. It will allow them to spot patterns and trends they can use and apply in the future. Place value counters or base 10 equipment can also help children split numbers into parts that are easier to divide. Getting children to write out multiplication tables may also help them spot facts they can use and therefore split numbers accordingly.

GOING DEEPER

To give children a deeper understanding of multiplication and division with money, ask children to explore the use and benefits of different methods. This will encourage children to be flexible with their working and enable them to better understand which methods to choose and when and why to choose them.

KEY LANGUAGE

In lesson: divide, multiply, each, per item, pounds (£1), pence (p)

Other language to be used by the teacher: total, amount, price, more, each, partition, parts, whole

STRUCTURES AND REPRESENTATIONS

part-whole models, number lines, bar models

RESOURCES

Optional: plastic coins



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

Before you teach

- Do children recognise and understand language related to multiplication and division?
- Do children have an understanding of what happens to a number when they multiply and divide?
- Do children currently have any methods for multiplication and division?

Discover

WAYS OF WORKING Pair work

ASK

- Question 1 a): *Is there a bag containing 57 party poppers? How do you know how many bags would be needed for 57 party poppers? What calculation will tell you how much three bags cost?*
- Question 1 b): *What calculation would you need to do to find the cost of one bouncy ball? How could you check the answer for one bouncy ball?*

IN FOCUS For question 1 a), children could complete all steps with repeated addition or with multiplication. Discuss the different methods with children and which one they think is a suitable way to find the answer. Question 1 b) requires children to divide. Watching how children divide £1.26 by 3 will highlight their current understanding and methods they are comfortable with.

PRACTICAL TIPS Provide children with items from **Discover**, matching price tags and a variety of plastic notes and coins for children to make amounts and practically multiply, share or group.

ANSWERS

Question 1 a): Amal needs to buy 3 bags of party poppers. The total cost of 3 bags of party poppers is £7.50.

Question 1 b): $£1.26 (126p) \div 3 = £0.42 (42p)$
One bouncy ball costs 42p.

Share

WAYS OF WORKING Whole class teacher led

ASK

- Question 1 a): *How does the example work out the number of bags needed? Now you know how many bags you need, how will you work out the cost? How can you use the cost of one bag to work out the total cost?*
- Question 1 b): *What do you need to do to find the price of one bouncy ball? What methods did you use to divide? How did converting the amount into pence help with the part-whole method? Why has 126 been split into 120 and 6?*

IN FOCUS For question 1 a), discuss counting in 20s to work out the amount of bags needed, referring children to the number line. Introduce children to the part-whole method for multiplication. To solve question 1 b), encourage children to feedback their ideas and the methods for finding the cost of one bouncy ball. Using the part-whole model for division, explain why the number has been split up in the way it has.

Problem solving – multiplication and division

Discover



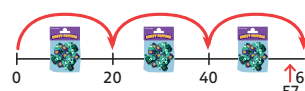
- 1 a) Amal needs 57 party poppers.
How many bags of party poppers does he need to buy?
How much does it cost Amal to buy the bags?
- b) The cost of three bouncy balls is £1.26.
How much does one bouncy ball cost?

64 Key 1p 2p 5p 10p 20p 50p £1 £2

PUPIL TEXTBOOK 4C PAGE 64

Share

- a) One bag contains 20 party poppers.
Amal needs 57 party poppers.



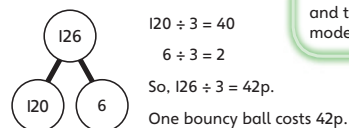
I will count up in 20s until I get to 57. I can tell from the number line that Amal cannot buy 57 exactly.

Amal needs to buy 3 bags of party poppers. Each bag costs £2.50.



$£2 \times 3 = £6$ $50p \times 3 = £1.50$
 $£6 + £1.50 = £7.50$
The total cost of 3 bags of party poppers is £7.50.

- b) $£1.26 = 126$ pence



I changed the price to pence and then used a part-whole model to help me divide.

£5 £10 £20 £50

PUPIL TEXTBOOK 4C PAGE 65

Think together

WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1 a): What calculation do you need to get the price of 6 bags of yo-yos? What is £4.12 made up of?
- Question 1 b): What will you need to do to find the answer? Why can't this amount be split into pounds and pence and each part multiplied? What method is more appropriate?
- Question 2: How is this different from question 1 b)? What do you need to do with £4.55 to find the cost of one puzzle? What methods do you know for division?
- Question 3: What do you notice about the number of pounds for the number of packets of rice? What does this tell you roughly about each packet?

IN FOCUS Question 1 b) alerts children to the fact that the part-whole method is not always suitable. Discuss why $4 \times 97p$ does not lend itself to partitioning into pounds and pence. Question 3 a) encourages children to make links and reason about the cost and number of items without completing a calculation. For question 3 b), ask children why they created their calculations.

STRENGTHEN In questions 1 a) and 2, encourage children to make amounts in the part-whole model with coins and find answers using repeated addition or long multiplication. Strengthen understanding of question 3 a) by encouraging children to make the total for the rice, decide how coins could be shared and then consider what the coins left over suggest about the price of each pack.

DEEPEN Deepen understanding of question 1 b) by asking children to explore different methods for multiplying by 4 such as double and double again. Extend question 3 a) by encouraging children to use the given information to make statements about other amounts and prices using the sentence starter 'If I know ...'.

ASSESSMENT CHECKPOINT Assess whether children are confident multiplying and dividing pounds and pence. They should be able to recognise when a question requires a multiplication and when a question requires a division, and be able to use the most efficient method for each one.

ANSWERS

- Question 1 a): 6 bags of yo-yos cost £24.72.
 Question 1 b): 4 packs of pencils cost £3.88.
 Question 2: Each jigsaw puzzle costs 91p.
 Question 3 a): There are 5 packets of rice and the total is over £6, so each packet will cost more than £1 because the pounds could be shared and there would still be £1 leftover, plus the 30p.
 Question 3 b): 1 tin of beans costs 37p.
 1 bread roll costs 42p.
 1 packet of rice costs £1.26.

Think together

- 1 Amal is buying some more items.
 a) How much do 6 bags of yo-yos cost?



$$6 \times £4 = \square \quad 6 \times 12p = \square$$

$$£\square \text{ and } \square p = £\square$$

6 bags of yo-yos cost £ \square .

- b) How much do 4 packs of pencils cost?



$$4 \times 97p = \square p$$

$$\square p = £\square$$

4 packs of pencils cost £ \square .

66

Key 1p 2p 5p 10p 20p 50p £1 £2

PUPIL TEXTBOOK 4C PAGE 66

- 2 Jen buys 5 jigsaw puzzles.
 The total cost is £4.55.
 How much does each jigsaw puzzle cost?
 $£4.55 = \square p$
 $\square p \div 5 = \square p$
 Each jigsaw puzzle costs $\square p$.

- 3 Sofia goes shopping. Here is part of her receipt.

Receipt	
4 tins of beans	£1.48
2 bread rolls	£0.84
5 packets of rice	£6.30

- a) How do you know a packet of rice costs more than £1 without doing the division?
 b) How much does one of each item cost?



I wonder why you did not use 140 and 8.



£5 £10 £20 £50

Practice book 4C p47

67

PUPIL TEXTBOOK 4C PAGE 67

Practice

WAYS OF WORKING Independent thinking

IN FOCUS For question 5, encourage children to use the part-whole method but they may need some support splitting the number effectively. Question 7 encompasses multiplication and division so ensure children read the problem carefully in order to identify which information relates to which calculation.

STRENGTHEN As question 7 is a multi-step problem with two different types of calculation, children may find it useful to highlight or colour code related information. Children may also benefit from using bar models to set the information out clearly.

DEEPEN Encourage children to create word problems for calculations or conclude why certain methods were chosen for each type of multiplication. For question 4, ask children to suggest reasons why 172 has been split into 160 and 12, or find alternative ways to split 172. Deepen understanding of question 7 by changing the information in the problem and asking children to solve it again. Double the amount of burgers needed, create a half-price sale on the bread buns, and so on.

THINK DIFFERENTLY Question 6 is a division question set out as a fraction. Children will need to use their knowledge of solving fractions or make the connection to division and continue with methods practised within this lesson.

ASSESSMENT CHECKPOINT Do children recognise problems that require them to multiply and problems that require them to divide? Can children partition prices into pounds and pence? Do children recognise the link between fractions and methods for division?

ANSWERS Answers for the **Practice** part of the lesson appear in the separate **Practice and Reflect answer guide**.

Reflect

WAYS OF WORKING Independent thinking

IN FOCUS Children here must establish what the question is asking them to do and in what order the calculations must be done. Encourage children to make the numbers or calculations as efficient as possible (making the amount £8 then subtracting 8p, double the amount three times, etc.). Ensure there is enough time given to compare methods.

ASSESSMENT CHECKPOINT Assess whether children can identify what sort of calculation is required and if they can use the information given in the correct way. Do children have any strategies to make the numbers or calculations easier to work with? Can children discuss their method and explain the choices they made?

ANSWERS Answers for the **Reflect** part of the lesson appear in the separate **Practice and Reflect answer guide**.

After the lesson


- Do children have methods for multiplying and dividing money?
- Can children identify and work through a series of steps in multi-step problems?
- Can children recognise why one method might be better than another for a specific calculation?

Textbook 4C p64 Unit 12: Money, Lesson 7

Problem solving – multiplication and division

1 A glass of milk costs £1.26.
How much do 3 glasses of milk cost?

$3 \times \text{£}1 = \square$ $3 \times 26\text{p} = \square$
 $\text{£}\square$ and $\square\text{p} = \text{£}\square$
 3 glasses of milk cost $\text{£}\square$.



2 Work out the following multiplications.
Write your answers in pounds.

a) $48\text{p} \times 7$ b) $5 \times 92\text{p}$

$$\begin{array}{r} 48 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 92 \\ \times 5 \\ \hline \end{array}$$

$48 \times 7 = \square\text{p}$ $5 \times 92\text{p} = \square\text{p}$
 $\square\text{p} = \text{£}\square$ $\square\text{p} = \text{£}\square$

47

PUPIL PRACTICE BOOK 4C PAGE 47

Unit 12: Money, Lesson 7

3 Work out the following calculations.

a) $\text{£}3.18 \times 6 = \text{£}\square$ b) $5 \times \text{£}7.49 = \text{£}\square$

4 a) 4 scones cost 172p in total.
How much does 1 scone cost?

$160\text{p} \div 4 = \square\text{p}$ $12\text{p} \div 4 = \square\text{p}$
 $\square\text{p} + \square\text{p} = \square\text{p}$
 A scone costs $\square\text{p}$.

b) 4 rulers cost £1.72 in total.
How much does 1 ruler cost?
1 ruler costs $\text{£}\square$.

5 Work out the following divisions.

a) $\text{£}2.76 \div 3 = \square$

b) $\text{£}2.76 \div 2 = \square$

48

PUPIL PRACTICE BOOK 4C PAGE 48

Unit 12: Money, Lesson 7

6 Find $\frac{2}{3}$ of £9.72.

$\frac{2}{3}$ of £9.72 = $\text{£}\square$

7 Toshi is hosting a barbeque.
He needs 12 burgers and 12 bread buns.

- Toshi knows that 3 burgers cost £4.62.
- He also knows that 5 bread buns cost £1.20.

How much does it cost him in total to buy the burgers and buns?

The total cost is $\text{£}\square$.

Reflect

A book costs £7.99. How could you work out the cost of 8 books?
Did your partner work it out the same?

49

PUPIL PRACTICE BOOK 4C PAGE 49

Solving two-step problems

Learning focus

In this lesson, children will use their knowledge of money to solve problems. They will use different strategies to solve two-step word problems.

Small steps

- Previous step: Problem solving – multiplication and division
- **This step: Solving two-step problems**
- Next step: Problem solving – money

NATIONAL CURRICULUM LINKS

Year 4 Measurement – Money

- Estimate, compare and calculate different measures, including money in pounds and pence.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.

ASSESSING MASTERY

Children can use their knowledge of the four operations to apply strategies and methods to two-step problems. They recognise key information, problem structure and visual representations, and can link them to the correct operation. Children can apply previously learnt methods and break down two-step problems into smaller, manageable steps.

COMMON MISCONCEPTIONS

Children may not complete all steps of the problem and so get an incorrect answer. Ask:

- *Look back at the problem. Have you completed every step?*

STRENGTHENING UNDERSTANDING

Bar models are extremely beneficial when solving problems. Setting information out in a bar model helps children to make links and recognise the operations required. Ensuring plastic coins are available for children to use will also strengthen understanding. Using money alongside abstract calculations helps children to understand what is happening in each step.

GOING DEEPER

Children can really explore the concept of being flexible with their working in this lesson. Children have been exposed to a range of methods and they can apply these accordingly within the problems they are presented with. Having time to explore the idea of flexibility will allow children to come up with some 'rules' about when to use certain methods.

KEY LANGUAGE

In lesson: method, multiply, divide, add

Other language to be used by the teacher: problem, key information, structure, calculation, subtraction, find the difference, steps, bar model

STRUCTURES AND REPRESENTATIONS

bar models

RESOURCES

Optional: plastic coins



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

Before you teach

- Can children find the difference between prices and work out change?
- Can children multiply and divide coins, prices and amounts?
- Can children solve two-step problems involving money?

Discover

WAYS OF WORKING Pair work

ASK

- Question 1 a): How can you work out the cost of 5 apples? How can you work out the cost of 5 oranges? What do you need to do with the totals to work out an overall price for the apples and oranges? How do you record this amount?
- Question 1 b): Was your method quick and efficient? Would Holly be able to use your method for every sale? What other methods could have been used? Which methods are the quickest? Which methods are the most efficient?

IN FOCUS Question 1 b) gives children the opportunity to explore different possible methods. Encourage children to share the steps and methods they used and discuss the advantages and disadvantages of each method. Ask children whether these methods would be quick and efficient for Holly, a busy greengrocer, to use all day.

PRACTICAL TIPS Recreate **Discover** by displaying the fruit and vegetables with prices tags and giving children access to plastic coins.

ANSWERS

Question 1 a): The total cost of 5 apples and 5 oranges is £2.50.

Question 1 b): Holly quickly worked out the total by adding the cost of 1 apple and 1 orange together, then multiplying by 5.

Share

WAYS OF WORKING Whole class teacher led

ASK

- Question 1 a): What do you need to do to work out the price of 5 apples, then 5 oranges? How could you make the numbers easier to multiply? How can you partition 26 and 24? Can you use any answers from the previous calculations? How can you make these numbers easier to add?
- Question 1 b): What method did you use? Did anybody use a different method? Which method was quicker? Could the method Holly uses depend on what the prices are?

IN FOCUS For question 1 a), discuss the information children currently have and what the question requires them to do with it. Children should identify the different stages they need to work through and the best starting point. Show children the calculations in a bar model, with plastic coins alongside to aid their understanding. Record each multiplication step alongside the bar model or plastic coins and remind children about the importance of recombining the pounds and pence. Emphasise the importance of adding the two prices together as a final step.

Solving two-step problems

Discover



- 1 Luis wants to buy 5 apples and 5 oranges.
- Luis has started to work out the total cost. Complete his method.
 - How do you think Holly worked out the total cost so quickly?

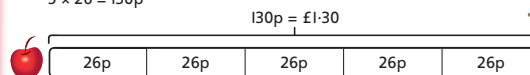
68 **Key** 1p 2p 5p 10p 20p 50p £1 £2

PUPIL TEXTBOOK 4C PAGE 68

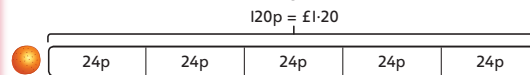
Share

- a) Multiply to work out the cost of 5 apples.
- $$5 \times 20p = 100p$$
- $$5 \times 6p = 30p$$
- $$5 \times 26 = 130p$$

I worked out the cost of the apples and oranges and then added them.



Now work out the cost of 5 oranges.



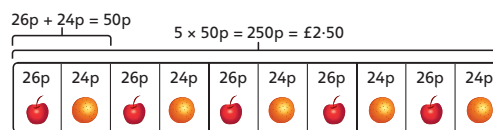
Add the cost of the apples and oranges.

$$130p + 120p = 250p = £2.50$$

The total cost is £2.50.

To multiply 26 by 5, I first multiplied by 10 and then divided by 2.

- b) Holly may have worked out the total cost of 1 apple and 1 orange and then multiplied by 5.



£5 £10 £20 £50

PUPIL TEXTBOOK 4C PAGE 69

Think together

WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1: Do you know the individual price of anything? How could you work out the cost of the 2 bananas? If you know the cost of 2 bananas, can you work out the cost of 1 banana?
- Question 2: What do you know the prices of? How can you work out the prices of types or pieces of fruit? How can you use the price of a mango to find the price of a pineapple?
- Question 3: How does Luis know 1 mango and 1 pear costs 60p? Is he correct? Whose method has Luis used? Why has he multiplied by 5? Does this method work if there is an unequal amount of each item?

IN FOCUS In question 2, encourage children to think back to earlier lessons and use an appropriate method (counting up) for finding the difference, rather than just subtracting one amount from the other. Question 3 gives children the opportunity to see possible misconceptions and mistakes that could be made when using this method.

STRENGTHEN For question 1, encourage children to look carefully at the bar model in order to visualise the problem. For questions 1 to 3, creating the amounts with coins and putting them alongside the fruit may help children see the difference. Pairing the fruit up should allow children to see that multiplying by 5 does not work as there are not 5 pieces of each fruit.

DEEPEN Deepen understanding of question 1 by encouraging children to use the bar model to work out the cost of other items, such as 3 apples and 2 bananas, double the amount of apples, and so on. As well, once children have spotted Luis's mistake in question 3, encourage them to explore ways to make that method fit the calculation given, such as adding 1 mango and 1 pear, then multiplying by 4, then adding on 2 extra mangos.

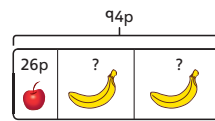
ASSESSMENT CHECKPOINT Can children use information in a problem to decide on the steps needed to solve that problem and the correct numbers to use in the calculations they create?

ANSWERS

- Question 1: A banana costs 34p.
- Question 2: A pineapple costs £1 and 19p.
- Question 3 a): Luis cannot add one of each item together and multiply by 5, because there are not 5 pieces of each fruit. The price Luis has worked out is the cost for 5 mangoes and 5 pears, rather than 6 mangoes and 4 pears.
- Question 3 b): The correct answer is £3.04. Luis will need to multiply $32p \times 6$ for the mangoes, then multiply $28p \times 4$ for the pears. He should then add the two prices together.

Think together

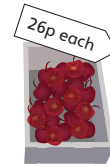
- 1 The cost of 1 apple and 2 bananas is 94p. Work out the cost of 1 banana.



$$94p - 26p = \square$$

$$\square \div 2 = \square$$

A banana costs \square p.



- 2 A pineapple and 2 mangoes costs £1 and 83p. A pineapple and 1 mango costs £1 and 51p. How much does a pineapple cost?



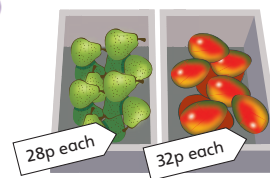
A pineapple costs £ \square and \square p.

70

Key 1p 2p 5p 10p 20p 50p £1 £2

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3



Luis works out the total cost of 6 mangoes and 4 pears.

$$\text{Mango} + \text{Pear} = 60p \quad 5 \times 60p = 300p$$

$$300p = \text{£}3.00$$

- a) Explain the mistake Luis has made.
b) Work out the correct answer.
Explain your method.

I do not think I can do the same as I did earlier.

I think I can use the same method as there are still 10 items.



£5 £10 £20 £50

→ Practice book 4C p50

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PUPIL TEXTBOOK 4C PAGE 71

Practice

WAYS OF WORKING Independent thinking

IN FOCUS Question 5 requires children to multiply and divide. The problem is less structured so children will need to link the relevant numbers to the correct operation and work out what numbers they need to work with and when.

STRENGTHEN Using plastic coins for questions 1 to 4 will give children a visual representation of what is happening at each step of the calculations. Using the coins will also highlight the similarities between the methods. For questions 2 and 4, children may benefit from drawing and making a bar model. Children should look back at the steps in question 1 to check they are working through the method correctly. For question 3, to find out whether Lexi has enough money, children could use a number line, hundredths grid or place value chart to compare the total with the money Lexi has.

DEEPEN After solving question 2, encourage children to use the information given to work out different combinations of items. Similarly, in question 3, challenge children to find a variety of combinations Lexi could buy with her £2. Children could also work out any change and the coins given for the change.

ASSESSMENT CHECKPOINT Assess whether children can complete the same calculation using different methods. Can children discuss and explain why they prefer one method over another?

ANSWERS Answers for the Practice part of the lesson appear in the separate Practice and Reflect answer guide.

Reflect

WAYS OF WORKING Independent thinking

IN FOCUS This Reflect allows children to self-assess their learning journey within this lesson. Children can identify strengths and weakness and possibly set themselves targets.

ASSESSMENT CHECKPOINT Children's answers to this section will further help you decide whether to add extra support. Can children reflect on the strategies and methods they have learnt and practised? Can children identify areas for development and articulate what they found difficult?

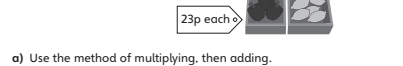
ANSWERS Answers for the Reflect part of the lesson appear in the separate Practice and Reflect answer guide.

After the lesson

- Can children use key vocabulary and visual representations to recognise when to use specific calculations?
- Can children break a problem down into small steps?
- Can children use multiple methods within one problem?

Solving two-step problems

1 Work out the total cost of buying 4 lemons and 4 peppers.




a) Use the method of multiplying, then adding.

$4 \times 17\text{p} = \square \text{p}$ $4 \times 23\text{p} = \square \text{p}$

$\square \text{p} + \square \text{p} = \square \text{p} = \text{£} \square$

The total cost is $\text{£} \square$.

b) Use the method of adding, then multiplying.



$\square \text{p} + \square \text{p} = \square \text{p}$

$4 \times \square \text{p} = \square \text{p} = \text{£} \square$

The total cost is $\text{£} \square$.

c) Which method did you find easier? Why?

2 A pack of stickers costs 80p. A pencil costs 45p.

Tom buys 3 packs of stickers and 1 pencil.

How much does Tom spend?

Tom spends $\text{£} \square$.

3 There are some items for sale in a shop.



Lexi has £2 to spend.

She wants to buy a ruler, 2 pens and a giant paperclip.

Does she have enough money? Explain your answer.

4 Work out the total cost of buying a carrot and an onion.



The total cost of buying a carrot and onion is $\square \text{p}$.

5 A toy train and football cost £18 in total.

A toy train and 2 footballs cost £25 in total.

What is the cost of a football?

The football costs $\text{£} \square$.

Reflect

Which problem did you find the most challenging?

How did you find a solution?

Problem solving – money

Learning focus

In this lesson, children will use previously learnt strategies and methods to solve multi-step problems.

Small steps

- Previous step: Solving two-step problems
- **This step: Problem solving – money**
- Next step: Units of time (1)

NATIONAL CURRICULUM LINKS

Year 4 Measurement – Money

- Estimate, compare and calculate different measures, including money in pounds and pence.
- Solve simple measure and money problems involving fractions and decimals to two decimal places.

ASSESSING MASTERY

Children can identify small steps within a larger problem, picking out key information or using the structure of the problem to work out what mathematical calculation is needed. Children can use previously learnt methods and strategies to find answers and use their working out to agree or disagree with statements.

COMMON MISCONCEPTIONS

Multi-step problems can cause confusion. Encourage children to mark up or highlight key information in the problem. Ask:

- *What information do you have? What information do you need to find the answer? How can you find this information?*

STRENGTHENING UNDERSTANDING

Using a range of bar models, part-whole models and number lines helps children visualise the amounts, make links and recognise the operations required. Using plastic coins to represent money and items or pictures to represent items will help strengthen understanding. Used against abstract calculations, coins and items help children to understand what is happening in each step.

GOING DEEPER

Children can explore a range of methods and structures in this lesson, allowing them to develop more flexibility with their working and apply the methods they feel are most suitable for each problem they are presented with. Building on the amount of flexibility enables children to independently develop their own 'rules' about when to use certain methods.

KEY LANGUAGE

In lesson: multiply, divide, explain, add, greater than (>)

Other language to be used by the teacher: problem, small steps, parts, key information, structure, calculate, subtract, find the difference, prove, less than (<)

STRUCTURES AND REPRESENTATIONS

bar models, part-whole models, number lines

RESOURCES

Optional: plastic coins



In the eTextbook of this lesson, you will find interactive links to a selection of teaching tools.

Before you teach

- Can children solve addition, subtraction, multiplication and division calculations related to money?
- Can children move between methods?
- Can children break problems down into manageable steps?

Discover

WAYS OF WORKING Pair work

ASK

- Question 1 a): *What does cheapest mean? What prices do you know? How can you work out the cost of 3 single buns?*
- Question 1 b): *What does 'best deal' mean? How else could Max buy 6 buns? How can you work out the cost of two packs of 3? How can you work out the cost of 6 individual buns?*

IN FOCUS Question 1 a): requires children to multiply prices then compare amounts. Which option children choose for Kate to buy will highlight their understanding of the word 'cheapest' and what an amount is worth. In question 1 b) children need to find the three possibilities for purchasing 6 buns, multiply the relevant prices and compare them to decide whether Max could have paid less for the same items.

PRACTICAL TIPS Display the food items to re-enact the stall in the **Discover** image. Have plastic coins available for children to use.

ANSWERS

Question 1 a): It is cheaper for Kate to buy the pack of 3 buns.

Question 1 b): Buying two packs of 3 buns is the best deal.

Problem solving – money

Discover



- 1 a) Kate wants to buy 3 buns at the cheapest price. Should she buy a pack of buns for £1.50 or 3 single buns for 65p each?
- b) Max buys one pack of 6 buns for £3.50. Is this the best deal?

72

Key 1p 2p 5p 10p 20p 50p £1 £2

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Share

WAYS OF WORKING Whole class teacher led

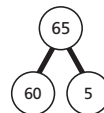
ASK

- Question 1 a): *How can you make 65 easier to multiply? How could you partition 65? What do you need to do with your partitioned answers? What do you need to do with the prices for a 3-pack and 3 single buns?*
- Question 1 b): *How will you know if Max got the best deal? Was there a cheaper option? Was the pack of 6 the most expensive?*

IN FOCUS For question 1 b), discuss what 'best deal' means and ask children to give ideas of other ways Max could buy 6 buns. Children should identify what sort of a calculation this would be and offer their methods. For Max's other option, show children 2 packs of 3 buns and discuss the easiest way to find the cost. Once the class has the cost of all 3 options, discuss whether buying the 6-pack was the best deal.

Share

- a) An individual bun costs 65p.



$$3 \times 60p = 180p$$

$$3 \times 5p = 15p$$

$$180p + 15p = 195p = \text{£}1.95$$

A bag of 3 buns costs £1.50.

£1.95 > £1.50 so it is cheaper for Kate to buy the pack of 3 buns.

I worked out the cost of 3 single buns by multiplying.

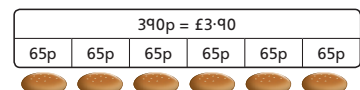
I worked out the cost of 1 bun by dividing 150p by 3. This was 50p per bun, which is cheaper than 65p.

- b) Max could buy 6 single buns instead of a 6-pack of buns.

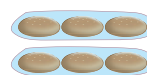
$$6 \times 60p = 360p$$

$$6 \times 5p = 30p$$

$$6 \times 65p = 390p$$



Or Max could buy 2 packs of 3 buns.



The cost of 2 packs of 3 buns is £3. This is cheaper than £3.50.

Max could have got a better deal.

£5 £10 £20 £50

73

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Think together

WAYS OF WORKING Whole class teacher led (I do, We do, You do)

ASK

- Question 1: What method will you use to work out the price of three goes? What multiplication facts can you use to help you work out 3×60 ? What else do you need to work out to answer the question?
- Question 2: What is the first thing you need to work out? What calculation will help you work out how much Bella spent? What is the second part of the problem asking you to solve?
- Question 3: How can you compare 4 cookies and 6 cookies? How could you work out the cost of 1 cookie from each bag? What can you see about the prices of the single cookies? Does this mean that Lee is correct or incorrect?

IN FOCUS For question 1, encourage children to identify the two parts to the problem – finding the total Kate spent, then the change she would receive. To answer question 2 a), children must use a ‘find the difference’ method. To solve question 2 b), children need to use the answer to 2 a) and divide it by 10.

STRENGTHEN When using the number line in question 1, some children may find it easier to record the coins in the jumps as well as the number. For question 2 a), encourage children to use plastic coins to make £6.60 and then investigate what other coins they need to reach £10. For question 2 b), encourage children to set the information out in a bar model as it will make the need to divide more obvious. To aid children in recognising the division element of question 3, encourage children to show the information in a bar model.

DEEPEN Once children have worked out Kate’s change in question 1, encourage them to calculate how many more goes on hook-a-duck Kate could afford. In question 2, challenge children to use the information they have worked out to reason about other amounts. For example, ‘If 10 tickets cost £3.40, I know that 5 tickets would cost £1.70’ or ‘If I know 1 ticket costs 34p and 10 tickets cost £3.40, I know that 11 tickets would cost £3.74’.

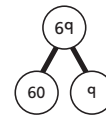
ASSESSMENT CHECKPOINT Assess whether children recognise each step in a multi-step problem. Can children link information to the correct operation? Can children use appropriate methods and strategies to find answers?

ANSWERS

- Question 1: Kate receives £2.93 change from £5.
 Question 2 a): Bella spent £3.40 on 10 raffle tickets.
 Question 2 b): $£3.40 \div 10 = 34p$. Each raffle ticket costs 34p.
 Question 3: Lee is incorrect.
 $£2.40 \div 4 = 60p$
 $£3.36 \div 6 = 56p$
 The price per cookie in the bag of 6 is cheaper than in the bag of 4.

Think together

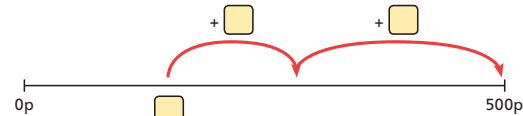
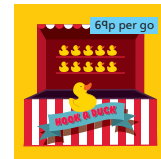
- 1 Kate has three goes on the hook-a-duck stall. How much change does she get from £5?



$$3 \times 60p = \square p$$

$$3 \times 9p = \square p$$

$$3 \times 69p = \square p$$



Kate receives £ change from £5.

- 2 Bella buys 10 raffle tickets. She gets £6.60 change from £10.
- How much did Bella spend on raffle tickets?
 - How much does each raffle ticket cost?

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Key 1p 2p 5p 10p 20p 50p £1 £2

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3

Deal 1: bag of 4 cookies for £2.40

Deal 2: bag of 6 cookies for £3.36

CHALLENGE

I think the bag of 4 cookies is the best deal.



Lee

Is Lee correct?
Explain your method.

I worked out the cost of 1 cookie from each bag.

I worked out the cost of 12 cookies from each bag.



£5 £10 £20 £50

Practice book 4C p53

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Practice

WAYS OF WORKING Independent thinking

IN FOCUS Question 1 requires children to multiply an amount, then find the change using a 'find the difference' method. For question 2 a), children need find the difference to work out how much Max spent. Questions 3 and 4 require children to solve calculations with multiplication and division, then compare their answers to find the cheapest options.

STRENGTHEN For questions 1 and 2, using plastic coins and creating bar models will show children the amounts and required calculations more clearly. For questions 3 and 4, prompt children to work out both calculations before making any claims. A bar model will highlight the division element of question 6.

DEEPEN Before finding the exact answer to question 5, challenge children to create a list of solutions that would not be possible and give reasons why.

THINK DIFFERENTLY Question 5 assesses children's understanding of place value and ability to add.

ASSESSMENT CHECKPOINT Assess whether children can identify what operations are necessary and break a problem up into more manageable steps. Can children use answers from previous questions or earlier parts of the problem to find answers? Can children prove or disprove theories using information they have worked out?

ANSWERS Answers for the **Practice** part of the lesson appear in the separate **Practice and Reflect answer guide**.

Reflect

WAYS OF WORKING Independent thinking

IN FOCUS This question is open-ended and children can give a wide range of answers as long as they can explain their reasons and back up their thinking. Children need to realise that for a pack to be cheaper, they need to charge less than $55p \times 4$.

ASSESSMENT CHECKPOINT The question will highlight children's understanding of comparative language. Do children understand that cheaper means a lower price? Can children work out the cost of 4 single bread rolls by multiplying? Can children clearly explain why they have chosen a lower price than the answer they calculated?

ANSWERS Answers for the **Reflect** part of the lesson appear in the separate **Practice and Reflect answer guide**.

After the lesson

- Can children break a problem up into small steps?
- Can children use their information to reason?
- Can children explain and use working out to agree or disagree with theories?


Problem solving – money

1 An ice-lolly costs 84p.
Andy buys 5 ice-lollies.
He pays with a £5 note.
How much change does Andy get?
Andy gets £ change.

2 Max buys 8 bars of chocolate.
He pays with a £10 note.
Max receives £3.52 change.
a) Explain how you know a bar of chocolate costs less than £1.

b) How much does one bar of chocolate cost?
A bar of chocolate costs £ .

Remember, you need to change the amount into pence first.



3 Is it cheaper to pay for 6 throws for £1.20 or 6 throws at 25p per throw?
It is cheaper to _____
because _____

6 throws for £1.20 or 25 pence a throw.

4 Sofia can travel to work using two taxi companies.

POWER CABS £3 first km and then 40p for each km after	AI CARS 70p for each km travelled
--	--

Sofia wants to travel 9 km to work.
Which taxi company is the least expensive for Sofia's journey?
Show your working.

The least expensive taxi company for Sofia is _____.

5 £2. + £ .75 = £8.42

Work out the missing numbers.

6 Amelia wants to buy 5 buns. Buy 4, get 5th bun free. **CHALLENGE**
Amelia says it is cheaper to buy the bag of buns because each bun costs 50p. 60p each
Is Amelia correct? £2.50

Reflect

A single bread roll costs 55p.
It is cheaper to buy a pack of 4 bread rolls than to buy 4 single rolls.
How much would you charge for the 4 pack of rolls? Explain why.

• _____

• _____

• _____

End of unit check

Don't forget the **Power Maths** unit assessment grid on p26.

WAYS OF WORKING Group work adult led

IN FOCUS

- Question **1** assesses whether children can find how much money is shown. Encourage children to count in pounds and pence separately. Children should give their answer in terms of £s. In question **2**, children are asked to write an amount that is less than £1 in £s to check their understanding of what is one of the most difficult concepts in this unit.
- In question **4**, children are given the amount of change and asked to work out a cost. Show children that working out the change if they are given the amount something costs is the same as working out the amount something costs if they are given the amount of change. This can be shown by counting on using a number line or bar model.
- In the SATS-style questions, children use their knowledge of multiplication and division to solve problems. In question **8**, children first need to find the cost of the pear by noticing that on the top line there is an extra pear. They can then use the cost of the pear to work out the cost of the apple.

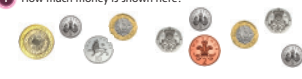
ANSWERS AND COMMENTARY

Children who have mastered the concepts in this unit will be able to record money using the £-p notation, understand that a decimal point separates pounds and pence and will know how to convert between pounds and pence. They will be able to round amounts to the nearest 10p and £1 to help them estimate totals, they will be able to compare amounts of money and to order them to work out the cheapest and most expensive items and they will be able to solve multi-step money problems.

Unit 12: Money


End of unit check

1 How much money is shown here?




A £10 B £71 C £3.67 D £4.67

2 What is this amount in pounds?



A £3 B £0.30 C £0.3 D £0.03

3 Which item is the most expensive?



76 Key 1p 2p 5p 10p 20p 50p £1 £2

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Unit 12: Money

4 Adam buys a cup of tea with a £5 note. He receives £3.15 change. How much did the cup of tea cost?

A £1.85 B £2.15 C £2.85 D £3.15

5 Which of the following amounts does not round to £8 to the nearest £1?


A £7.50 B £7.90 C £8.04 D £8.50

6 What do you get if you add together £1.34 and 72p?

A £1.96 B £2.06 C £73.34 D You cannot add them together.

7 A pencil costs 17p. Max buys 9 pencils for his friends. He pays with a £5 note. How much change does Max get?

8 How much does an apple cost?



77 Practice book 4C p56

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Q	A	WRONG ANSWERS AND MISCONCEPTIONS	STRENGTHENING UNDERSTANDING
1	D	A suggests children have just counted the number of coins. C suggests children think that the £2 is the same as £1.	Encourage children to use coins and notes to help them count out the amounts. A number line can be used to help children find the total of some coins and notes given. Children should be told to start with the greatest notes or coins first. For adding and subtracting amounts of money, children may use coins and place value equipment alongside the abstract calculation. Encourage children to convert amounts to pence before adding and then convert back to pounds at the end.
2	D	A suggests children have just put £s in front. C suggests children have not written the correct notation.	
3	A	D suggests children think that £12.50 is less than £12.43, because 43 is greater than 5.	
4	A	C suggests children have added £2 to make £5, then added 85p and so make £6 in total.	
5	D	Children may think that £8.50 rounds to £8 to the nearest £1.	
6	B	C suggests children forgot to use the decimal point.	
7	£3.47	Children may forget that they then need to subtract 17×9 from £5 to find the change.	
8	35p	Children may divide the price by the number of fruit without considering the pear and apples cost different amounts.	

My journal

WAYS OF WORKING Independent thinking

ANSWERS AND COMMENTARY The answer is £2.06. This activity asks children to add two amounts of money. The question raises the issues that children cannot add together decimals at this moment. Children should be confident with changing these amounts to pence and then using column addition or other methods to add two 3-digit numbers. Once children have added the amounts, remind them about the final step. It is important children convert their final answer to pounds. Some children may want to explore the method of adding the pounds first and then adding the pence.

Power check

WAYS OF WORKING Independent thinking

ASK

- Do you feel confident finding how much money is shown in notes and coins?
- Can you write amounts of money in pounds using £-p?
- Can you confidently round amounts of money to the nearest 10p and £1 and understand when it might be useful to do this?
- Do you feel confident when adding and subtracting amounts of money?
- Can you find change by counting on or subtracting?

Power puzzle

WAYS OF WORKING Independent thinking

IN FOCUS This final activity brings together children's work on problem solving with their knowledge of money. Encourage children to extract the relevant information. For the first problem, children have been given a bar model. Ask children to explain why the bar model represents the situation. *What do you know the total is? How many parts do you have altogether? What do you know about each part? How can you find the value of each part?*

For each of the subsequent problems, encourage children to draw similar bar models to help them determine the steps they need to take to solve the problem. The problems get increasingly more complicated.

ANSWERS AND COMMENTARY

- 1 : A toaster costs £24. A kettle costs £48.
- 2 : The radio costs £85.
- 3 : A pair of speakers costs £51.
A pair of headphones costs £17.
A camera costs £87.

After the unit

- Can children convert between pounds and pence?
- Can children round money to the nearest 10p and £1?
- Can children compare and order amounts of money?

End of unit check

My journal

Ebo wants to add £1.34 and 72p.

Lexi says, 'You cannot add these amounts as they are different units.'

Mo says, 'Lexi is right and we do not know how to add decimals yet.'

Explain to Ebo how he could add these amounts.

Keywords:

pounds, pence, convert, add

Power check

How do you feel about your work in this unit?



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Power puzzle

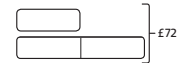
- 1 A kettle costs twice as much as a toaster.

The toaster and kettle cost £72 in total.

How much does each item cost?

A toaster costs £ .

A kettle costs £ .



- 2 A laptop costs 5 times as much as a radio.

The laptop is £340 more than the radio.

How much does the radio cost?

The radio costs £ .

- 3 A pair of speakers costs three times as much as a pair of headphones.
A camera costs £36 more than the pair of speakers.

The total cost of the three items is £155.

How much does each item cost?

A pair of speakers costs £ .

A pair of headphones costs £ .

A camera costs £ .

Can you put all the objects in order, starting with the least expensive?



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Strengthen and Deepen activities for this unit can be found in the *Power Maths* online subscription.