Summer Block 2

Money

White Rose MATHS

Small steps

Step 1	Write money using decimals
Step 2	Convert between pounds and pence
Step 3	Compare amounts of money
Step 4	Estimate with money
Step 5	Calculate with money
Step 6	Solve problems with money

Write money using decimals

Notes and guidance

Children have previously explored the values of coins and notes, and added and subtracted amounts of money within the same denomination. In Year 3, amounts of money in pounds and pence were presented as, for example, "£4 and 25p". In this small step, children are introduced to decimal notation for the first time, for example £4.25. The focus of the step is the ability to write a given amount in decimal notation and to represent amounts that are given in decimal notation.

Children explore the use of pounds and pence notation and develop the understanding that the digits following the decimal point represent part of a pound. They should link to their earlier learning that £1 = 100p and 1 whole = 100 hundredths.

Converting between pounds and pence is covered in the next step.

Things to look out for

- Children may omit zeros, for example writing both £2 and 50p and £2 and 5p as £2.5
- Unfamiliarity with the use of the pound and pence notation may lead to incorrect notation, such as £4.25p or 4.25p

Key questions

- How many pounds are there?
  How many pence are there?
- How many pence are there in £1?
  How many hundredths are there in 1 one?
- How do you write the amount as a decimal?
- How do you write £_____ and _____p as a decimal?
- How do you write £2 and 50p/£2 and 5p in decimal form?
- What is the same and what is different about the ways of writing the amount of money? Which is easier to understand?

Possible sentence stems

- There are _____ pence in £1

  There are _____ hundredths in 1 one.
- _____ pounds and _____ pence = £_____._____

National Curriculum links

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

Write money using decimals

Key learning

- Complete the sentences to show how much money is in each box.

There is _____ pounds.

There is _____ pence.

There is £_____ and _____p.

There is £_____._____

- How much money is there?

  Write your answer as a decimal.

- Draw coins or notes to show each amount.
  - £2.43
  - £6.95
  - £12.59
  - £0.87

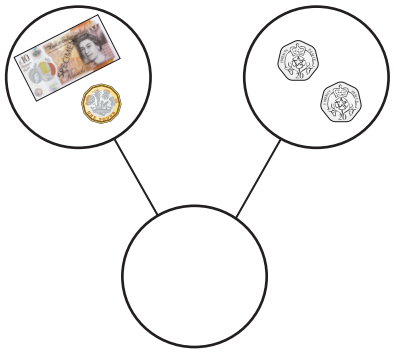
  Compare answers with a partner.

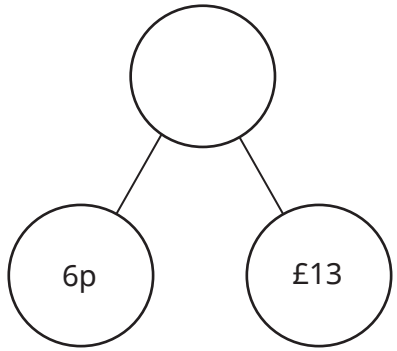
- How much money is there?

  Write the amounts as decimals.

  What is the same? What is different?

- Complete the part-whole models.





- Dani has £3

  Nijah has 75p

  Huan has £2 and 20p

  How much money do they have altogether?

  Write your answer as a decimal.

Write money using decimals

Reasoning and problem solving

Tiny has three £1 coins, four 10p coins and one 5p coin.

Tiny writes the total amount of money as 3.45p.

Is Tiny correct?

Explain your answer.

No

Filip has an amount of money less than £10

- He only has £1 and 10p coins.
- He has an odd number of 10p coins.
- He has twice as many £1 coins as 10p coins.

How much money could Filip have?

£2.10 or £6.30

Scott has these coins.

He picks three coins at a time.

Decide if the statements are true or false.

He can make a total that has a final digit of 2	False
He can make an odd number of pence.	True
He can make an amount greater than £4.50	True
He can make a total that is less than £1.20	True

Explain your answers to a partner.

Convert between pounds and pence

Notes and guidance

In this small step, children move from reading and writing money using decimal notation to converting between different types of notation and between different units of money.

Children use the fact that £1 = 100p to convert from pounds and pence in decimal notation to pence, and vice versa. They could use a part-whole model to express the total amount partitioned into pounds and pence and then convert each of the pounds to 100 pence. They should also be confident in converting amounts less than one pound, especially noting the difference between, for example, £0.80 and £0.08. This is also a good opportunity to reinforce the value of each coin and how its value can be written in decimal form.

This step provides a foundation for comparing amounts of money expressed in different formats.

Things to look out for

- Children may make errors with placeholders, for example thinking £4.20 is equal to 42 pence.
- Children may make errors with place value, for example writing 425p as £42.5 or £0.425
- Children may use the pound and pence notation incorrectly, for example £425p, £4.25p or 4.25p.

Key questions

- How many pounds are there?
- How many pence are there?
- How many pence are there in £1/£2/£10?
- How do you write 343p using a pound sign?
- How can you partition the amount into pounds and pence?
- How can you convert the amounts into pounds and pence?

Possible sentence stems

- There are _____ pence in _____ pounds.
- _____ pence = _____ pounds and _____ pence = £_____._____
- £_____._____ = _____ pounds and _____ pence = _____ pence

National Curriculum links

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

Convert between pounds and pence

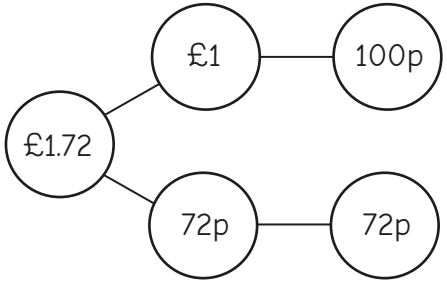
Key learning

- Use the fact to help you work out the missing numbers.

£1 = 100p

  - £2 = _____p
  - £6 = _____p
  - £_____ = 300p

- Eva converts £1.72 into pence by partitioning.



£1.72 = 172p

Use Eva's method to write the amounts in pence.

£1.48 £2.37 £6.45 £10.12 £8.02

- Max converts 415p into pounds and pence as a decimal.

415p = 400p + 15p
= £4 and 15p
= £4.15

Use Max's method to convert the amounts to pounds and pence as decimals.

185p 340p 240p 204p 959p

- Match the equal amounts.

£5.70 £0.75 £5.07 £0.57 £7.50

750p 570p 57p 507p 75p

- Which amount is 2 pounds more than £3.46?

£3.48 £3.66 £5.46 £23.46

Which amount is 2 pence more than £3.46?

£3.48 £3.66 £5.46 £23.46

- Annie has £4.23

She buys a sticker for 20p.

How much money does she have left?

Write your answer in pence only.

Convert between pounds and pence

Reasoning and problem solving

Whitney, Jo and Teddy are converting 1206p into pounds.

1206p = £12.6

Whitney

1206p = £12.06

Jo

1206p = £120.6

Teddy

Who is correct?

What have the other children done wrong?

Jo

Is the statement true or false?

> When writing money in decimal notation, there are always two digits after the decimal point.

Explain your answer.

True

Mo has four different coins.

How much money could Mo have?

Write the amounts in decimal form.

Convert your amounts to pence.

Compare answers with a partner.

multiple possible answers, e.g.
£2.13, 213p
£1.65, 165p

Compare amounts of money

Notes and guidance

In this small step, children use the fact that £1 = 100p to compare amounts of money.

Children begin by comparing amounts represented in the same format, for example 4,562p and 3,750p or £45.62 and £37.50, and make their choices based on their knowledge of place value. They then compare amounts written in different formats, using their learning from the previous two steps to convert to a common format. Discuss the range of possible formats children can choose between and which they find easier to compare. The physical or pictorial representation of notes and coins, as well as number lines, can support children's visualisation and understanding of place value.

Once children are comfortable comparing two amounts in different formats they can begin to order a set of amounts.

Things to look out for

- Children may need reminding of the meaning of "ascending" and "descending".
- Children may ignore the units and only consider the numbers, for example 347p > £18 or £4.26 < 5p.
- Children may make mistakes when converting amounts given in different formats.

Key questions

- What is the value of each digit in the number?
- What place value column is the _____ in?
- How many pounds and pence are there?
- Which digit tells you which amount is greater?
- What amount could go in between these amounts?
- What does "ascending"/"descending" mean?
- Are the amounts in the same units? Why does this matter?

Possible sentence stems

- There are _____ pounds and _____ pence.

  This is greater/less than _____ pounds and _____ pence.
- To convert from _____ to _____, I need to ...

National Curriculum links

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

Compare amounts of money

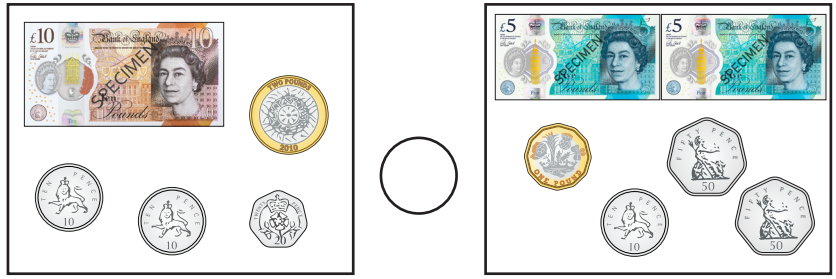
Key learning

- Two classes save their pennies for a year.
  - Class A saves 3,589 pennies.
  - Class B saves 3,859 pennies.

  Which class saves the most money?

  Explain your answer to a partner.

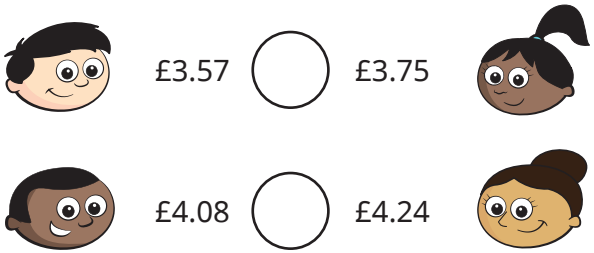
- Write <, > or = to compare the amounts.



  Compare methods with a partner.

- Four children spend money in a shop.

  Write <, > or = to compare how much the children spend.



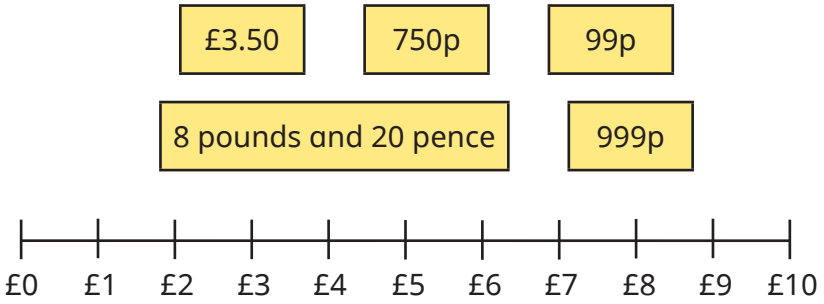
- Write the amounts as pence, then compare using <, > or =.

  6,209p ◯ £60.09 £0.54 ◯ 54p

  Write the amounts as pounds, then compare using <, > or =.

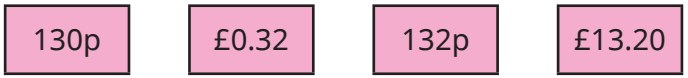
  62p ◯ £6.02 £5,010 ◯ 5,010p

- Estimate the position of each amount on the number line.

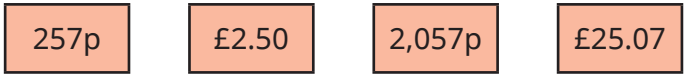


  Order the amounts, starting with the greatest amount.

- Write the amounts in ascending order.



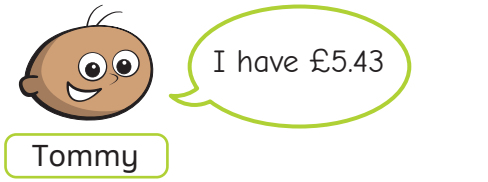
  Write the amounts in descending order.



Compare amounts of money

Reasoning and problem solving

Tommy, Alex and Jack each have some money.



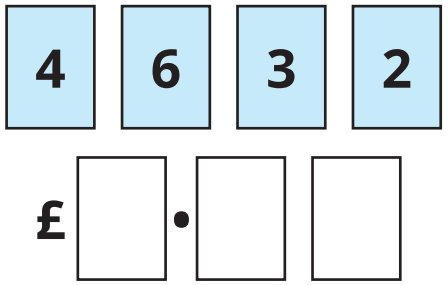
What is the least amount of money that Jack could have?

What is the greatest amount of money that Jack could have?

£5.35 or 535p

£5.42 or 542p

Tom uses the digit cards to make an amount of money.



He makes a total that is more than £3, but less than £6

Find all the amounts that Tom can make.

Write them in ascending order.

£3.24, £3.26, £3.42, £3.46, £3.62, £3.64, £4.23, £4.26, £4.32, £4.36, £4.62, £4.63

Which is the greater amount of money, three £1 coins or fifteen 20p coins?

Explain your answer.

They are equal.

£3 = 300p

Estimate with money

Notes and guidance

In this small step, children use their previous learning on estimating to estimate with money.

Recap rounding to the nearest 10, covered in Autumn Block 1, and use this to round amounts to the nearest 10p to estimate totals or differences. Although it is beyond Year 4 requirements to formally round numbers with 2 decimal places, children can make estimates for calculations such as £3.99 + £7.02 by considering the number of pence represented in the amounts and how close they are to whole numbers of pounds. Alternatively, they could convert both amounts to pence and revisit rounding to the nearest 100

Number lines are an important representation to support children with estimation. For example, children can position the amount on a number line between the whole numbers of pounds that come before and after the amount they are working with.

Things to look out for

- Children may use the wrong place value column, for example £2.19 is closer to £3 because of the digit 9
- Children may be unsure which whole numbers of pounds the given amount is between.

Key questions

- What is the multiple of 10p before _____p?
  What is the multiple of 10p after _____p?
  Which multiple of 10p is it nearer to?
- What does "estimate" mean?
- What does "approximately" mean?
- What is £_____._____ in pounds and pence?
  Which whole number of pounds is it closer to?
- How can you use a number line to help estimate?

Possible sentence stems

- _____p is closer to _____p than _____p.
- The approximate total cost is _____p + _____p = _____p.
- £_____._____ is closer to £_____ than £_____

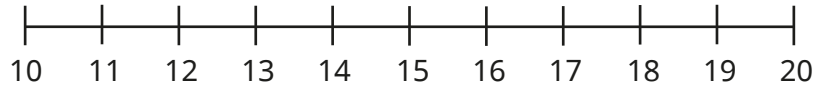
National Curriculum links

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

Estimate with money

Key learning

- Use the number line to work out which multiple of 10p each amount is closer to.



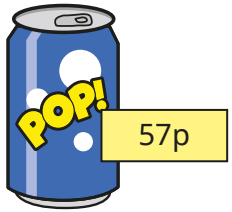
  - 18p is closer to _____p than _____p.
  - 14p is closer to _____p than _____p.

- Round the amounts to the nearest 10p.

47p	32p	89p	64p	75p	142p

How else can 142p be written?

- Dani buys a chocolate bar and a drink.

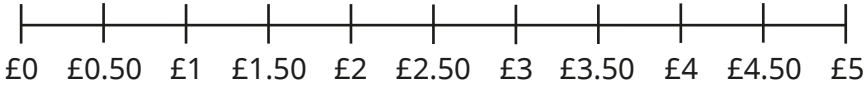


Estimate the total cost of the chocolate bar and the drink.

Will the actual total cost be more or less than your estimate?

- Estimate the position of each amount on the number line.

£3.20	£2.70	£1.86	90p	490p



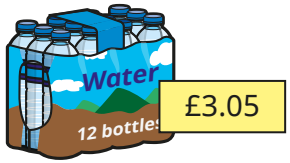
Complete the sentence for each amount.

£_____._____ is closer to £_____ than £_____

- Amir is estimating the total of £3.96 and £2.05

How did Amir make his estimates?

- Estimate the total cost of the water and the eggs.



Estimate with money

Reasoning and problem solving

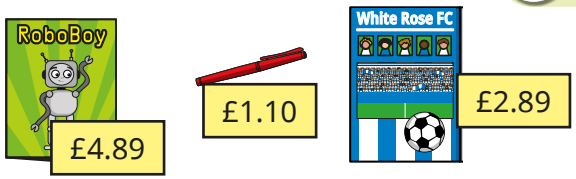
Tiny is rounding money.

Do you agree with Tiny?

Explain your answer.

No

Scott has 775p.



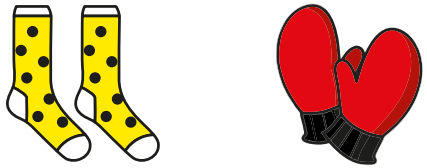
Use estimation to show that Scott cannot afford to buy all three items.

Which items can he afford?

£5 + £1 + £3 = £9

Scott only has £7.75, which is less than £9

Max buys some socks and mittens.

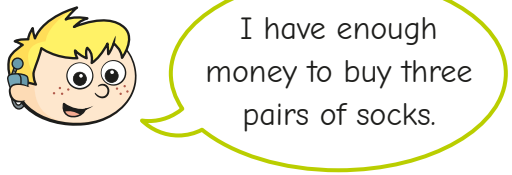


He estimates how much he will spend.

£4 + £5 = £9

What could the actual price of the socks and mittens be?

Max has £12



Do you agree with Max?

Explain your answer.

socks: between £3.50 and £4.49

mittens: between £4.50 and £5.49

It depends on the actual price of the socks.

Calculate with money

Notes and guidance

In Year 3, children learnt to add and subtract money. In this small step, they extend their learning to include multiplying and dividing with money, which is developed further in the next step.

Although children are not expected to formally add and subtract decimals in Year 4, informal methods such as partitioning and number lines can be used to support them when calculating with money. A part-whole model allows them to partition an amount into pounds and pence and then add the pounds and pence separately. A number line is a useful representation for children to count on, or to count back, in order to calculate the difference between two amounts.

Encourage children to use their estimating skills from the previous step to check their answers.

Things to look out for

- Children may not exchange 100p for £1 when adding the pounds and pence separately, for example £3.40 + £4.80 = £7.120
- When subtracting the pence separately, children may always subtract the smaller amount from the larger amount instead of exchanging from the pounds when necessary, for example £4.20 – £1.50 = £3.30

Key questions

- How many pounds are there altogether?
- How many pence are there altogether?
- How can you use partitioning to help with the calculation?
- How can a number line help you to add/subtract the amounts?
- Are you going to count on or count back on the number line? Does it matter which method you use?
- Do you need to exchange any pounds for pence?
- How can you use estimation to check your calculation?

Possible sentence stems

- I can partition £_____._____ into _____ pounds and _____ pence.
- _____ pounds +/– _____ pounds = _____ pounds and _____ pence +/– _____ pence = _____ pence, so the total/difference is _____ pounds and _____ pence.

National Curriculum links

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

Calculate with money

Key learning

- Complete the workings to find the total cost of a hat and a scarf.

£2 + £3 = £_____

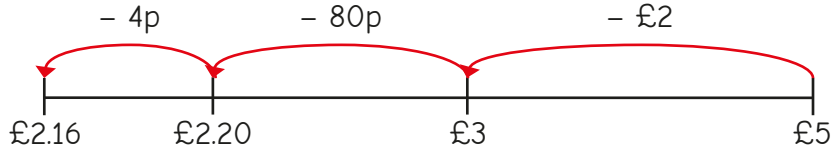
45p + 25p = _____p

£_____ + _____p = £_____._____

Use this method to work out the cost of:

- a pair of mittens and a hat
- a scarf and a pair of mittens

- Nijah uses a number line to work out £5 – £2.84

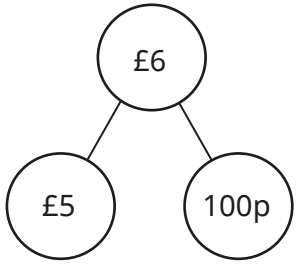


£5 – £2.84 = £2.16

Use Nijah's method to work out the subtractions.

£5 – £3.24	£10 – £6.47	£8.56 – £7.21	£9.53 – £2.46

- Esther uses partitioning to work out £6 – £3.26



£5 – £3 = £2
100p – 26p = 74p
£6 – £3.26 = £2.74

Use Esther's method to work out the subtractions.

£5 – £1.89	£10 – £8.43	£6 – £2.75	£9 – £2.46

- Huan pays for a bag with £7

He gets this change.

How much does the bag cost?

- Work out the calculations.
  - £20 × 3 = £_____
  - 40p × 4 = _____p
  - 5p × 12 = _____p
  - 80p ÷ 2 = _____p
  - 40p ÷ 4 = _____p
  - £1 ÷ 5 = _____p

- Four children share £1.20 equally between them.

How much do they each get?

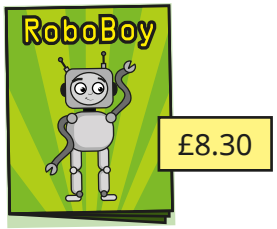
Calculate with money

Reasoning and problem solving

Eva has £10

Has she got enough to buy a book and a teddy?

Explain your answer.



£8.30

£3.60

£1.75

What combinations of items could Eva buy with £10?

No

teddy and boat

2 teddies and boat

3 teddies and boat

2, 3, 4 or 5 teddies

2 boats

Tiny is working out £12.50 – £6.80 by partitioning into pounds and pence.

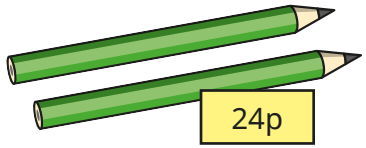
£12 – £6 = £6
80p – 50p = 30p
£12.50 – £6.80 = £6.30

What mistake has Tiny made?

What is the correct answer?

£5.70

Two pencils cost 24p.



24p

Mo has £1

How many pencils can he buy?

8

Solve problems with money

Notes and guidance

In this small step, children apply their calculating skills with money to solve problems using all four operations in real-life contexts, including multi-step problems. At this stage, children are not expected to use formal methods to calculate with decimals, but they could use methods such as partitioning for addition and subtraction, as explored in the previous step.

Children draw on their knowledge from earlier steps to help them to convert between amounts of money expressed in different formats, and to use decimal notation accurately. Bar models, part-whole models and number lines are all useful ways to represent the calculations. Place value charts and counters could also be used, particularly when children need to make exchanges between pounds and pence.

Things to look out for

- Children may need support to identify the correct operation(s).
- Children may need further support when they are required to convert between amounts of money expressed in different formats.
- Children may not see that they can exchange 100p for £1 or £1 for 100p to support them when calculating.

Key questions

- How many pounds are there? How many pence are there?
- Is it helpful to partition the amount into pounds and pence?
- Do you need to make an exchange between the pounds and pence?
- How could you use estimation to check your calculation?
- How could you use a number line/bar model to represent the calculation?
- Which operation do you need to use to answer the question?

Possible sentence stems

- To convert from pounds and pence to just pence, I need to ...
- To convert from pence to pounds and pence, I need to ...
- First I need to ...

  Then I need to ...

National Curriculum links

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

Solve problems with money

Key learning

- Sam buys an apple for 24p and a pear for 39p.

  She pays with a £1 coin.

  How much change does she get?

- The table shows the prices of train tickets.

Tickets	Peak	Off-peak
Adult	£8	£6
Child	£5.30	£4.20

  Work out the cost for:

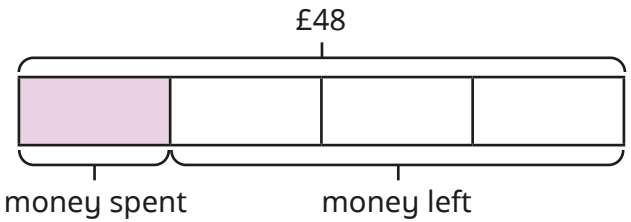
  - one child and one adult at peak time
  - one adult and two children at off-peak time

- Ron has £48

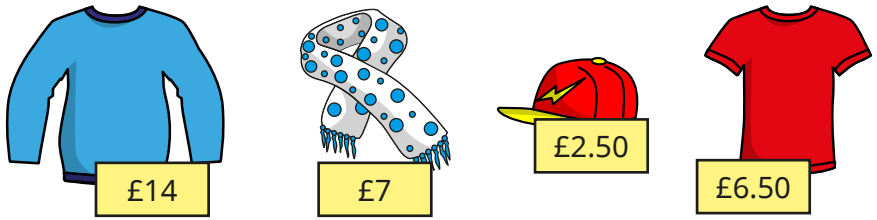
  He spends one quarter of his money.

  How much money does he have left?

  Use the bar model to help you.



- The clothes are put in a half-price sale.



  What is the new cost of each item?

  Teddy buys one of each item in the sale.

  How much does Teddy spend?

  Work out the total cost of three caps and two scarves in the sale.

- Whitney has £4.50, Mo has £3.65 and Brett has £3.85

  They put their money together, then share it out equally.

  How much money do they each have now?

- Jo is buying sweets that cost 7p each.

  She has 97p.

  How many sweets can she buy?

  How much money does she have left?

Solve problems with money

Reasoning and problem solving

Tommy has 20p more than Sam.

Sam has twice as much money as Alex.

Altogether, the children have £5.20

How much money does Tommy have?

£2.20

Mrs Smith spends £100 on books for her class.

Book prices

Hardback	£8
Paperback	£4

How many hardback and paperback books could she have bought?

Is there more than one possible answer?

multiple possible answers, e.g.

0 HB and 25 PB

2 HB and 21 PB

12 HB and 1 PB

Dora buys lunch.

Use the information to complete Dora's receipt.

- The sandwich costs £2.15 more than the crisps.
- The orange juice is the same price as the total price of the crisps and banana.
- The banana is half the price of the crisps.

Receipt	
Sandwich	
Orange juice	
Crisps	60p
Banana	
Total	

sandwich: £2.75

orange juice: 90p

banana: 30p

total: £4.55