

# Reasoning and Problem Solving

## Step 1: Recognising Coins

### Teaching Note:

We recommend using real coins to support this step.

### National Curriculum Objectives:

Mathematics Year 1: (1M3) [Recognise and know the value of different denominations of coins and notes](#)

### Differentiation:

Questions 1, 4 and 7 (Reasoning)

**Developing** Explain if a statement is correct when finding the possible coins that make a given total, using up to 2 coins.

**Expected** Explain if a statement is correct when finding the possible coins that make a given total, using up to 3 coins.

**Greater Depth** Explain if a statement is correct when finding the possible coins that make a given total, using up to 4 coins.

Questions 2, 5 and 8 (Problem Solving)

**Developing** Complete the table (up to four missing parts). Includes the shape, colour and value of coins.

**Expected** Complete the table (up to five missing parts). Includes the shape, colour and value of coins, as well as equivalent values.

**Greater Depth** Complete the table (up to eight missing parts). Includes the shape, colour and value of coins, as well as equivalent values.

Questions 3, 6 and 9 (Problem Solving)

**Developing** Find a way of making an amount of money using 2 coins.

**Expected** Find all of the possible ways to make an amount of money using up to 3 coins.

**Greater Depth** Find all of the possible ways to make an amount of money using up to 4 coins.

More [Year 1 Money](#) resources.

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## Recognising Coins

1a. Sam has two coins in his pocket. They total 4p.

His friend Kate says,



Sam must have a 3p coin and a 1p coin.

Is she correct? Explain your answer.



R

## Recognising Coins

1b. Alix has two coins in her pocket. They total £4.

Her friend Ferhan says,






Alix must have two £1 coins.

Is he correct? Explain your answer.



R




2a. Complete the table.

Coin	Value	Number of sides	Colour
	2p	1	
			
		12	silver and gold



PS

2b. Complete the table.

Coin	Value	Number of sides	Colour
	5p		silver
			silver
	£2	1	



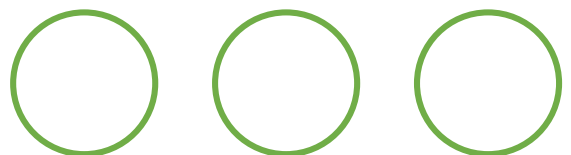
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3a. Make 4p using these coins. Use two coins.



PS

3b. Make 30p using these coins. Use three coins.



PS

## Recognising Coins

4a. Jerome has two coins in his pocket. They total 60p.

His friend Harry says,



Jerome must have a 1p coin and a 5p coin.

Is he correct? Explain your answer.



R

## Recognising Coins

4b. Phillis has three coins in her pocket. They total £5.

Her friend Mikey says,







Phillis must have a £2 coin and two £1 coins.

Is he correct? Explain your answer.



R

5a. Complete the table.

Coin	Value	Number of sides	Equivalent value in 1ps
		1	
		1	
	2p		



PS

5b. Complete the table.

Coin	Value	Colour	Equivalent value in 10ps
	50p		
		silver	
	£1		



PS

6a. Make 15p in as many different ways as you can using these coins. Use three coins or less.



PS

6b. Make 22p in as many different ways as you can using these coins. Use three coins or less.



PS

## Recognising Coins

7a. Henry has coins in his pocket that total 70p. They all have seven sides.

His friend Lucile says,



Henry could have 3  
20p coins and a  
10p coin.

Is she correct? Explain your answer.



R

## Recognising Coins

7b. Jemima has coins in her pocket that total 25p. They are all silver.

Her friend Jack says,







Jemima could  
have a 20p coin,  
two 2p coins and  
1p coin.

Is he correct? Explain your answer.



R



8a. Complete the table.

Coin	Value	Colour	Equivalent value in 5ps
		silver	
			
			 



PS

8b. Complete the table.

Coin	Value	Number of sides	Equivalent value in 50ps
			
	£2	1	
			



PS

9a. Make 23p in as many different ways as you can using these coins. Use four coins or less.



PS

9b. Make 17p in as many different ways as you can using these coins. Use four coins or less.



PS

## Reasoning and Problem Solving Recognising Coins

### Developing

1a. No because there is no such thing as a 3p coin. Sam must have two 2p coins.

2a.




Coin	Value	Number of sides	Colour
	2p	1	bronze
	50p	7	silver
	£1	12	silver and gold

3a.  $2p + 2p = 4p$

### Expected

4a. No because 5p and 1p make 6p, not 60p. Jerome must have a 50p and a 10p coin.

5a.

Coin	Value	Number of sides	Equivalent value in 1ps
	10p	1	10 lots of 1p
	5p	1	5 lots of 1p
	2p	1	2 lots of 1p

6a.  $5p + 5p + 5p = 15p$  and  $10p + 5p = 15p$

### Greater Depth

7a. No because a 10p coin does not have 7 sides. Henry could have a 50p coin and a 20p coin.

8a.

Coin	Value	Colour	Equivalent value in 5ps
	20p	silver	4 lots of 5p
	50p	silver	10 lots of 5p
	10p	silver	2 lots of 5p

9b.  $20p + 2p + 1p = 23p$   
 $20p + 1p + 1p + 1p = 23p$   
 $10p + 10p + 2p + 1p = 23p$

## Reasoning and Problem Solving Recognising Coins

### Developing

1b. No because two £1 coins total £2. Alix must have two £2 coins.

2b.

Coin	Value	Number of sides	Colour
	5p	1	silver
	20p	7	silver
	£2	1	silver and gold

3b.  $10p + 10p + 10p = 30p$

### Expected

4b. No because £2, £1 and £1 make £4, not £5. Phillis must have two £2 coins and a £1 coin.

5b.

Coin	Value	Colour	Equivalent value in 10ps
	50p	silver	5 lots of 10p
	20p	silver	
	£1	gold and silver	10 lots of 10p

6b.  $10p + 10p + 2p = 22p$ ,  $20p + 2p = 22p$   
 and  $20p + 1p + 1p = 22p$

### Greater Depth

7b. No because 2p and 1p coins are bronze. Jemima could have a 5p coin and two 10p coins or a 20p coin.

8b.

Coin	Value	Number of sides	Equivalent value in 50ps
	£1	12	2 lots of 50p
	£2	1	4 lots of 50p
	50p	7	1 lot of 50p

9b.  $10p + 5p + 2p = 17p$   
 $5p + 5p + 5p + 2p = 17p$   
 $10p + 5p + 1p + 1p = 17p$