

Coins in my pockets

Children use clues, and trial and improvement to find different combinations of coins with a total of 20p.

Skills practised:

- Adding 1p, 2p, 5p and 10p coins

Conjecture: *We can find at least one way of making 20p using 1p, 2p, 5p and 10p coins.*

What to do:

Children work in pairs.

Each pair will need a copy of the special coat (see resource with child sheets) and also some 1p, 2p, 5p and 10p coins (use real money).

Explain the following problem to children:

1. I have three pockets in my special coat.
2. I have 1p, 2p, 5p and 10p coins – at least 1 of each.
3. Your job is to guess what coins I have in each pocket!
4. Say that children will have clues to help them to work out which coins are in the pockets.

- Every pocket has at least one coin in it
- No pocket has more than 3 coins
- In one pocket all the coins are the same
- One pocket has three different coins
- I have 20p in all!



Set a new but related problem:

5. *I do not have a 10p coin but I still have 20p.
All the clues are still true.
What coins are in my pockets this time?*

CHALLENGE: How many ways are there of arranging 1p, 2p, 5p and 10p coins in the three pockets so that all the clues are true?

Aims:

- To use clues to find a solution to a logic puzzle
- To use trial and improvement to find different combinations

Minimum number of calculations expected

10

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1. I have a problem. Can you help me solve it?

- I have three pockets in my special coat.
- I have 1p, 2p, 5p and 10p coins – at least 1 of each.

Can you guess what coins I have in each pocket?
Here are some clues to help you work it out.



- Every pocket has at least one coin in it
- No pocket has more than 3 coins
- In one pocket all the coins are the same
- One pocket has three different coins
- I have 20p in all!

2. Can you help me solve another problem?

- I do not have a 10p coin but I still have 20p.

If all the clues are still true, what coins are in my pockets this time?

Challenge

How many ways are there of arranging 1p, 2p, 5p and 10p coins in the three pockets so that all the clues are true?

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