Make 20

Children use coins and number shapes to make a total of 20.

Skills practised:

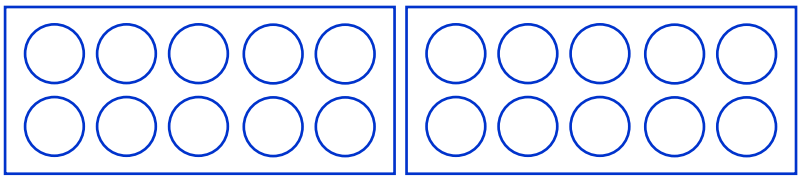
- Recognising the value of each coin
- Adding single-digit numbers to numbers up to 19

***Conjecture**: There is more than one way to make 20 using coins/number shapes.*

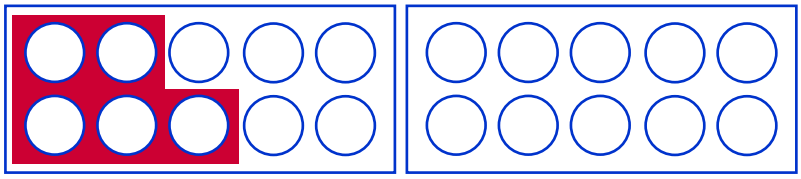
What to do:

Children work in pairs.
Each pair working on this problem needs a pot of several 1p, 2p and 5p coins, only two 10p coins, and number shapes for 1, 2, 5 and 10 (e.g. Numicon™).

1. Each child places two 10s shapes end to end on a piece of paper and draws round them.



2. They take it in turns to take a coin from the pot and exchange it for a number shape with the same value, e.g. take a 5p coin and swap for a 5 shape.
They place this shape on their outline of 20.



3. They carry on doing this, until one person EXACTLY fills their outline.
4. This person wins a point. They score an extra point if they can write the matching addition. The other person carries on so that they fill their outline, and also score one point if they can write the matching addition.

Are the additions the same or different? Can children find a different way to cover their outline with 1, 2, 5 and 10 shapes?

5. Repeat the game but this time pennies are banned!

CHALLENGE: Can children play the game with the coins hidden in a feely bag rather than visible in a pot?

Aims:

- To use reasoning to fill the outline, beginning to plan ahead
- To understand that there are many different solutions to some mathematical questions
- To begin to understand 'how many more to make...?'

Minimum number of calculations expected

10

Make 20

1. Place two 10s shapes end to end on a piece of paper. Draw round them.

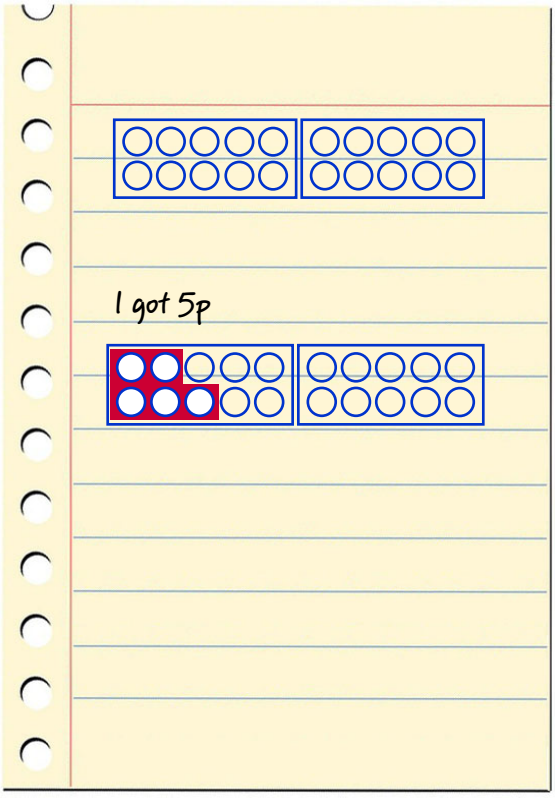
2. Take it in turns to take a coin from the pot and swap it for a number shape with the same value. Place the shape on your outline of 20.

3. Carry on, until one of your outlines is EXACTLY full. Score a point.
Score an extra point if you can write the matching addition.

4. Your partner carries on until they fill their outline. They also score one point if they can write the matching addition.

   Are the additions the same or different?
   Can you find a different way to cover your outline with 1, 2, 5 and 10 shapes?

5. Play again but this time pennies are banned!



Challenge

Try playing the game with the coins hidden in a feely bag.