Spotlight 5: a learning check

Does not use knowledge of doubles to find half of a number; for example, continues to find half by sharing using a 'one for you' approach and cannot apply knowledge of doubles

Opportunity for: discussing and explaining

Doubles and halves game

Time 10–20 minutes

Resources
Check: does the child use key vocabulary?

half	doubling
halving	opposite
double	undoes

- At least one other child
- One or two sets of number cards 1–20 but take out 11, 13, 15, 17, 19 (Resource sheets 1 and 2)
- Paper and pen to keep score
- Cubes, number lines or bead strings

Teaching activity

'Today we are going to play **Doubles and halves**, so that you will become really good at remembering how to double and halve.'

Lay the number cards face up on the table. If you have space for two sets it will make the game a little longer; two sets will be needed for three or more players.

The aim of the game is to score the highest total.

How to play

'If you choose carefully, you can get a really high score if you pick up pairs of cards that are doubles and halves of each other. So if you want to pick up 5, you can pick up 10 as well because it is double five.'

1. Players take it in turns to pick up two cards (or just one) of their choice that are doubles and halves of each other, for example 2 and 4.

2. They must explain why they have chosen those numbers – but if they say the wrong thing, they must put the cards back on the table!

   Players can use number lines, or other means, to show why their cards make a 'trick'.

   If they say correctly why the cards make a trick (e.g. 'five is half of ten'), these two cards then make a trick and the player puts the trick in front of them.

3. Other players then take a turn, putting each trick on the table until all the cards are used, or no more tricks can be made. (You might want to play so that when there are just a few cards left, everyone takes only one card at a time.)

4. Everyone helps everyone else to find their score. Scoring is as follows:

Two cards that are double and half of each other score 20.
A trick of three cards, for example 5, 10 and 20, scores 30.
A trick of four cards, for example 2, 4, 8 and 16, scores 40.

5. Keep the score carefully and play another round. Add each new score to make a running total and see if anyone can score over 200.

> If a child seems not to be managing the game, play alongside them, or ask all the players to play with a partner. Use cubes, a number line or bead strings where support is needed.

? **Why did you choose that number? Can you explain why those numbers make a trick?**

Variations

● Pairs can cooperate to make the longest tricks they can. Use a set of cards for each pair.

↑ ● Extend the game to use other number cards, for example to 30. Put the 15 number card back in, but take out 21, 23, 27, 29.

↑ ● Sometimes play with all the numbers left in.

? **When we leave all the numbers in, why do some numbers never get used for a trick?**

? **Can you continue with this halving sequence? 66, 33 … You can use a calculator.**

? **What was the smallest number you got to? Will you get to a negative number eventually?** *(No.)*

Learning outcomes

By the end of this set of activities, children should be able to:

● tackle related learning tasks with increased motivation and confidence;

● use and understand connected mathematical vocabulary;

● use knowledge of doubles to find half of a number;

● use a range of strategies for halving in real-life situations;

● begin to halve and double confidently, and know some by heart.