

# Spotlight 5: a learning check

Assumes that the commutative law holds for division also, for example assuming that  $15 \div 3 = 5$ , so  $3 \div 15 = 5$

## Opportunity for: discussing and explaining

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## Fractions in the bin

Time 15–20 minutes

### Resources

- Two or more players
- Counters or rewards
- *Fractions in the bin game board* (Resource sheet 40)
- *Fractions in the bin game cards* (Resource sheet 41)

### Check: does the child use key vocabulary?

- |                 |                              |
|-----------------|------------------------------|
| other way round | divided by                   |
| array           | count back                   |
| multiplied by   | divided into groups of three |

## Teaching activity

Note: Resource sheet 41 needs to be turned to landscape format to match these instructions.

The top three rows of cards go with the pictures and there is one blank card that you can use to challenge a child to write another card.

The cards in the fourth row are reverses of the arrays, for example  $9 \times 2$  isn't a picture of the top picture on the board unless you view it from the side so that it becomes nine rows of two, nine two times, or nine multiplied by two. You might want to keep these cards for when children are more confident.

None of the cards in the fifth row matches any of the pictures, so again, you might want to keep these for later.

'We are going to play a game, **Fractions in the bin**, with cards on this board. Some of the cards go with the pictures on the board and some don't. So  $2 \times 9$  would go with this picture, but  $9 \div 18$  won't go with that picture so it goes in the bin.'

Put out just the cards you want to play with (probably just the first three rows at first) face up on the table, and a board for each pair of players. Give players a moment to look at the pictures and to count rows, and so on.

### How to play

1. Each player starts with two rewards.
2. They take turns to take one card, read it carefully and place it near the right picture. If everyone agrees that they are right, they win a reward.
3. If they are wrong, they can think again about it and try to put it in the right place. If they are still wrong, they have to give one of their rewards back!
4. If a card doesn't match any of the pictures, this card is put in the bin. The player will win a reward if they are right that it doesn't match a picture.
5. The winner is the player with the most rewards at the end.

### Variations

- Each child has their own game board and a set of cards (maybe five each). A timer is set and they try to put their cards in the right places as quickly as they can. When they have placed them all, a note is taken of the time and, the next time they do the activity, they race themselves to see if they can do it faster. For every wrongly placed card, ten seconds is added to their time!
- The players make their own game board of pictures and their own set of about ten cards, right ones and wrong ones. They could include written questions such as 'How many twos make eighteen?' They then swap sets of cards and race to put them in the right place. (This needs close supervision to make sure that the cards and pictures make sense!)

**? Explain to me how you knew that picture matched that card.**

**? Why does that card go in the bin?**

**? Can you read that card and tell me what picture it makes in your head?**

### 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;
- understand that division calculations give a different answer if the numbers are reversed;
- write a division calculation that links with a multiplication calculation;
- understand that multiplication number sentences can be reversed and still give the same answer.