

# Spotlight 5: a learning check

Is muddled about the correspondence between multiplication and division facts, recording, for example:  $3 \times 5 = 15$ , so  $5 \div 15 = 3$

## Opportunity for: discussing and explaining



### Thinking threes

Time 5–15 minutes

#### Resources

- Sets of number cards that go together, i.e. two numbers and their product, for example 3, 4 and 12 (Resource sheets 1, 2 and 3)
- At least one other child
- Cubes
- Number lines

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

- |               |               |
|---------------|---------------|
| multiplied by | steps of      |
| divided by    | change around |
| go together   | undoes        |
| array         | rows          |
| hops of       | columns       |

### Teaching activity

‘We are going to play a game called **Thinking threes**, and you will need to think very carefully to work out which three cards go together to make a trick.’

Lay the cards face up on the table (with the larger number cards together to make the choice of cards easier). Choose cards to suit the child. For a 5-minute game, you just need about eight tricks and a few odd cards.

Possible cards which you might use are:

- |             |             |             |
|-------------|-------------|-------------|
| 2, 4, and 8 | 4, 4 and 16 | 5, 7 and 35 |
| 3, 4 and 12 | 4, 7 and 28 | 4, 8 and 32 |
| 3, 7 and 21 | 3, 9 and 27 |             |

Include a few extra cards, such as a couple of 1s, a 10, another 12 and a 14.

#### How to play

1. Players take turns to choose three cards that go together, for example 10, 2 and 5.
2. Players explain why they chose those cards. For example, ‘I chose those cards because ten divided by five is two.’ (You can add that they must show their three numbers together on a number line or with an array or on a multiplication square.)
3. If everyone agrees that the three cards go together, the player wins that trick. If a player thinks the cards don’t go together, they must say why. They can use any equipment to show why the cards don’t go together and, if they are right, the player who tried to make the trick misses that go and the cards are put back on the table.
4. Play goes on like this until there are only a few cards left.
5. The winner is the player with the most tricks.

### Variations

- Play with the larger-number cards in a bag. These cards are picked at random and the player must find the other two cards to make the trick.
- Play with a dice or spinner that makes one of the numbers, for example, a dice marked 2, 2, 3, 4, 5, 10.
- Play with one complete set of number cards 0 to 30.
- Play as a race. All the cards are put on the table, someone says 'Ready, steady, go' and the children race to make as many tricks as they can. (Don't play this with your best cards! Paper copies are fine.)

### Scoring

Score 10 for every trick that is right.

Score negative 10 for any tricks that are wrong.

**?** Can you explain to me how you knew those three numbers go together?

### 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;
- make two correct multiplication and two correct division number sentences with the same three numbers;
- understand that multiplication calculations can be done the other way around, but division can't (that is, multiplication is commutative but division is not);
- explain or draw their mental images of multiplication and division and understand the connections between these images;
- begin to understand that a division such as  $2 \div 12$  would result in a number smaller than one.