# Multiplication and division problems - arrays

# National Curriculum attainment targets

- Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs

#### Previous related lessons

Unit 3, Week 1, Lessons 2–4; Unit 3, Week 2, Lessons 2–4; Unit 4, Week 1, Lessons 2–4; Unit 6, Week 1, Lessons 2–4; Unit 6, Week 2, Lessons 1–3

#### Prerequisites for learning

Pupils need to:

- recognise and write numbers from zero to 100
- show an increasing understanding of multiplication

#### Vocabulary

zero, nought, five, ten, fifteen  $\dots$  sixty, fives, lots of, groups of, sets of, multiplication, multiplied by, times

#### Future related lessons

Unit 8, Week 1, Lessons 2–4; Unit 10, Week 1, Lessons 2 & 4; Unit 10, Week 2, Lessons 2–4; Unit 12, Week 1, Lessons 2–4

#### Success criteria

#### Pupils can:

- recognise and use the multiplication (×) and equals (=) signs correctly
- recognise multiplication facts for the five times table and write the corresponding multiplication fact for a given situation



# **Getting Started**

- Choose an activity from Number Multiplication and division.
- Choose an activity from Fluency in Number Facts: Y1/Y2 Multiplication and division.

### Teach

#### Resources

mini whiteboard, pen and eraser (per pair)

- Draw an array of six counters on the board, as three columns of two.
- Circling each column of two, say: Here is an array showing three lots of two counters. There are three groups of two.
- Ask: How can we write this as a multiplication fact?
- Encourage children to suggest how the multiplication fact is written.
- Write the fact 3 × 2 = 6 on the board and say: Three lots of two make six altogether. Three times two equals six.
- Say: Remember that multiplication can be done in any order. Ask: Can you find another multiplication fact for this array?
- Encourage children to suggest how the multiplication fact is written  $(2 \times 3 = 6)$  and write this on the board.
- Say: We have found that multiplication and division are related, and if we know a multiplication fact, we can also find a related division fact.
- Now redraw the array to show two columns of three. Circle each column of three.

• Solve problems involving multiplication and division, using arrays

Lesson objective

- Point to the array, and say: Six counters shared equally between two groups. Six shared between two. Ask: How can we write this as a division fact?
  - Encourage children to suggest how the division fact is written.
  - Write the fact 6 ÷ 2 = 3 on the board and say: Six shared between two makes three in each group. Six divided by two is three.
  - Explain to the class that there is another division fact that could describe this array.
  - Ask children for their suggestions and then show how six counters shared between three groups is two in each. Write the division fact  $6 \div 3 = 2$ .
  - Repeat in the same way using arrays that show multiplication and division facts from the two, five and ten times tables.

## Individualised Learning

Refer to Activity 4 from the Learning activities on page 271.

Activity Book 2B: – Page 21: Milk bottle multiplication and division
Resources: red, green, orange, blue, yellow and purple coloured pencils (per child)
Progress Guide 2: – Support, Year 2, Unit 6, Week 2, Lesson 4: Apple arrays

## Plenary

#### Resources

mini whiteboard, pen and eraser (per pair)

- Invite children to share and discuss the work that they have completed during the lesson.
- Draw three arrays on the board showing multiplication and division facts for two, five and ten, e.g.  $3 \times 5$ ,  $6 \times 10$  and  $4 \times 2$ .
- Refer to the first array, and ask children if they can describe the arrangement of counters using a multiplication or division fact.
- Ask children to identify four facts for each array and write these underneath each one.
- Now draw arrays that show the following facts,  $4 \times 3$ ,  $7 \times 4$  and  $3 \times 6$ .
- Support children in interpreting these arrays, e.g. 'Four sets of three makes 12 altogether,' 'Twelve shared between three groups makes four in each group,' etc.
- Although they are not familiar with the 3, 4 and 6 times tables, are children able to also identify the multiplication and division facts for these arrays?