

# Introduction

This series of four photocopiable books will provide an indispensable resource for use with those pupils who find it difficult to keep up with the learning objectives for the majority of pupils in their class or group. Using material written for a lower year group with these pupils can make it difficult to integrate their learning with that of the majority of the class. The material in this book enables you to give work at a lower level of difficulty in daily maths lessons.

You can use this book to provide alternative, and less demanding, tasks for less able pupils during the groupwork phase of the daily maths lesson. The work in each lesson is designed to support whole-class lesson objectives but to address them at a lower level. For the four books, the level of demand is as follows:

<b>Book</b>	<b>Support for children in:</b>	<b>Level of work equivalent to:</b>
1	Year 2–3	Year 1 or Year 2
2	Year 3–4	Year 2
3	Year 4–5	Year 3
4	Year 5–6	Year 4

It is assumed that all the pupils will take part, with support if necessary, in the whole-class introduction to the lesson before tackling the task from this book.

The teacher's notes will guide you in introducing the tasks to the pupils and in effective ways of working. These notes will help you, or a teaching assistant, to support pupils appropriately as they work.

Each task is supported by photocopiable pupil material in the form of activity sheets and, where appropriate, resource sheets that illustrate the steps to follow in completing a task. These are intended to provide additional support for the pupil, or, in some cases are to be used by a learning-support assistant where this is more appropriate. It is likely that pupils will need help in reading the instructions on the sheets. You may wish to cut the pupil sheets up or to add further examples of a particular type of task to meet the needs of individual pupils.

In addition to the photocopiable material, pupils will need ready access to aids such as number lines, hundred squares and counters.

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<i>Focus</i>	<i>Resources</i>	<i>Activity</i>	<i>Page</i>
Place value, ordering and rounding	'Understanding thousands'	'Moon population'	1–3
Multiplication and division	'Place value shove'	'Ten times trouble'	4–6
Multiplication and division	'Doubles and halves'	'Half the double trouble'	7–9
Money and 'real-life' problems	'PE equipment'	'Mrs Franklyn goes shopping'	10–12
Addition and subtraction	'Standard addition' 'Standard subtraction'	'Short cuts'	13–16
Fractions and decimals	'Burning biscuits'	'Shape-a-part'	17–20
Fractions and decimals	'Equals the same'	'Freaky fractions'	21–23
Fractions and decimals	'Decimal places'	'Decimal point out'	24–26
Fractions and decimals	'Place your order'	'Over the rainbow'	27–29
Handling data	'Table time'	'Michael's survey'	30–32
Handling data	'Cats and dogs'	'Leaf the plant'	33–35
Handling data	'Penalty shoot-out'	'The netball season'	36–38
Properties of two-dimensional shapes	'Two-dimensional glossary'	'What's my name?'	39–41
Properties of three-dimensional shapes	'Three-dimensional glossary'	'Three-dimensional sort out'	42–44
Reflective symmetry	'Flip over'	'Mirror image'	45–47
Reflective symmetry	'Mirror, mirror'	'Mirror patterns'	48–50
Perimeter and area	'Edges'	'Perimeter'	51–53
Perimeter and area	'Count the squares'	'Amazing areas'	54–56
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Addition and subtraction	'Mental subtraction strategies'	'It's in your mind'	61–64
Properties of numbers	'Rule the world'	'Rules of numbers'	65–67
Properties of numbers	'If at first you don't succeed'	'Trial by numbers'	68–70
Place value, ordering and rounding	'Roundabout'	'Saving the world'	71–74
Understanding multiplication	'Not as hard as it looks'	'George and the kitchens'	75–77
Understanding division	'Division made easy'	'Divide and conquer'	78–81
Money and 'real-life' problems	'Decisions, decisions'	'Shop until you drop'	82–84
Money and 'real-life' problems	'Feeling hungry?'	'It's my party'	85–87
Fractions and decimals	'I want more!'	'Take my order'	88–90
Fractions and decimals	'Decimal convert'	'Alien invasion'	91–93
Shape and space – position and direction	'Position the coordinate'	'Going plotty'	94–96
Shape and space – position and direction		'Cat and mouse'	97–98
Shape and space – position and direction		'Jumbled lines'	99–100

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Length, mass and capacity	'Scale up'	'Do you measure up?'	103–105
Length, mass and capacity	'What measure?'	'A bucketful of measures'	106–108
Length, mass and capacity		'Estimate and measure'	109–110
Mental calculation strategies	'Mental addition'	'Square it up'	111–114
Mental calculation strategies	'Investigating numbers'	'100 square'	115–117
Money and 'real-life' problems	'Money problems'	'At the leisure centre'	118–120
Money and 'real-life' problems	'Swimming lesson'	'Life at the leisure centre'	121–123
Reasoning about numbers		'Three puzzles'	124–125
Properties of numbers	'Remainders'	'Multiple madness'	126–128
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Pencil and paper procedures ( $\times$ and $\div$ )	'Short multiplication'	'Multiplication mayhem'	132–134
Pencil and paper procedures ( $\times$ and $\div$ )	'Short division'	'Division match'	135–137
Money and 'real-life' problems	'Sale prices'	'Discount electrics'	138–140
Money and 'real-life' problems	'Box arithmetic'	'Boxing numbers'	141–143
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Ratio and proportion	'Understanding ratio and proportion'	'Nick and Sam'	147–149
Fractions	'Fractions of numbers'	'Fraction problem solving'	150–152
Fractions	'Fractions of quantities'	'Measuring fractions'	153–155
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Handling data	'Holiday havens'	'Carroll diagram'	159–161
Handling data	'Tennis trouble'	'School trip'	162–165
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Shape and space – angle	'Clocks'	'Turn time'	169–171
Shape and space – angle	'Set squares'	'Shape up'	172–174
Shape and space – angle		'Turn of order'	175–176
Measures, including problems	'Telling time' 'The clock'	'Digital, analogue, words'	177–180
Measures, including problems	'Time taker'	'About time'	181–183
Mental calculation strategies ( $+$ and $-$ )	'Decisions'	'Which method's best?'	184–186
Money and 'real-life' problems		'School's out'	187–188
Properties of numbers		'Funny shapes'	189–190
Properties of numbers		'Odds on evens'	191–192

# Reflective symmetry

## Learning objectives

- Identify lines of symmetry in shapes.
- Draw the reflection of a shape in a mirror line.

## Resources

'Flip over'  
mirrors  
tracing paper

## Activity

'Mirror image'

## Teacher's notes

Pupils will be familiar with the concept of symmetry, however it is worth spending some time revising the terminology and basic concepts. Discuss what happens when you wink in a mirror: how winking with the right eye makes the left eye appear to wink back. Discuss how when you move away from the mirror, the image also moves further back. resource 'Flip over' shows pupils how to use a mirror and a ruler to draw a reflection of a shape in a mirror line. If pupils find the task difficult, they could be given some tracing paper. If they trace the original shape, including the mirror line, and then turn the tracing paper over so that the mirror line is lined up, they will be able to see the mirror image and trace over it. The same process can be used to check if a shape is symmetrical. It is more efficient for pupils to work on activity 'Mirror image' without using tracing paper or mirrors, so encourage them to draw the last two shapes without any aid and then use these resources to check their work and make any changes necessary.

## Follow-up activities

- Pupils could sort shapes into a two-criteria Carroll diagram according to symmetrical properties and whether or not they are regular shapes. Ask pupils to draw a regular shape with two lines of symmetry, or an irregular shape with four lines of symmetry.
- Ask pupils to work in pairs with a pegboard. Use a rubber band to symbolise the mirror line on the board. Pupils take it in turns to place a peg. The other pupil then needs to place a correctly coloured peg in the reflection.
- Ask pupils to look for the symmetrical properties of shapes in the environment, including wallpaper, leaves, flowers, logos and other designs.

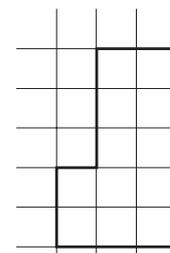
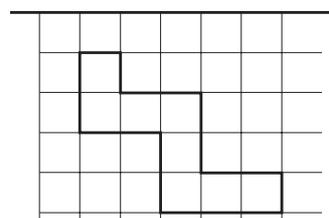
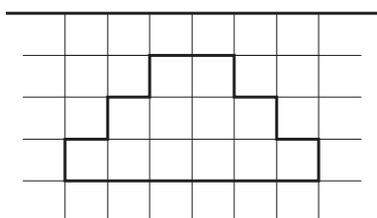
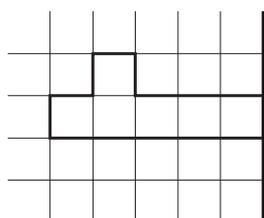
## Answers

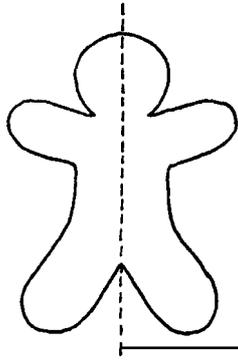
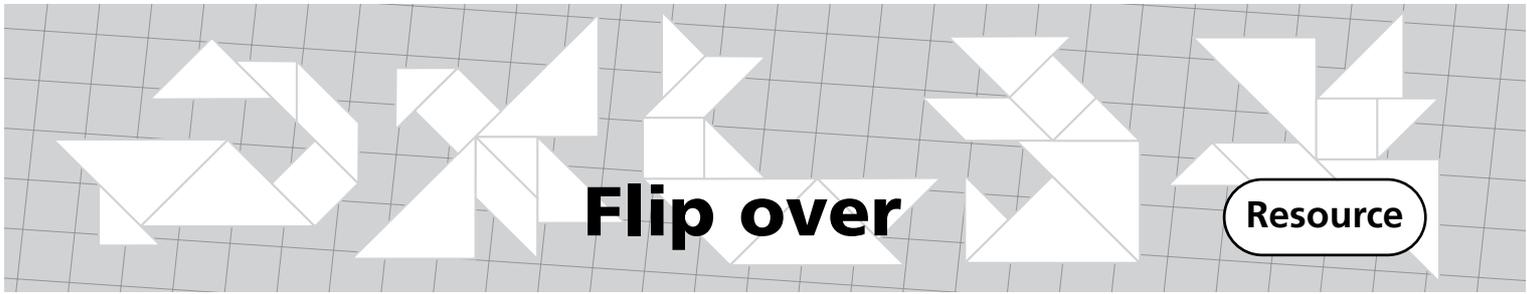
### 'Mirror image'

1. 2

2. 1

3. 4

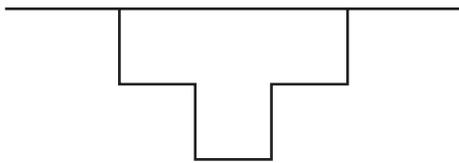




The two halves of this shape are exactly the same, but one side has been flipped over.

It has a **line of symmetry**.

Put a mirror along the line of symmetry. The shape in the mirror looks the same as without the mirror!

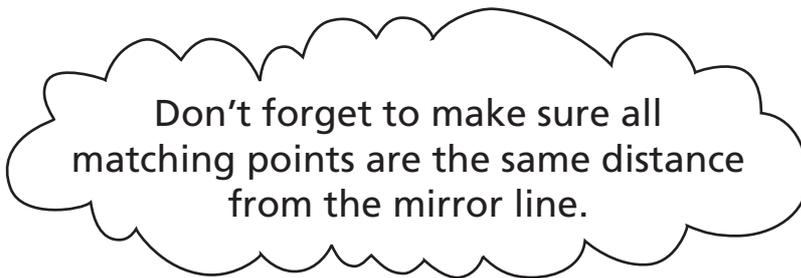


Sketch the reflection of this shape.

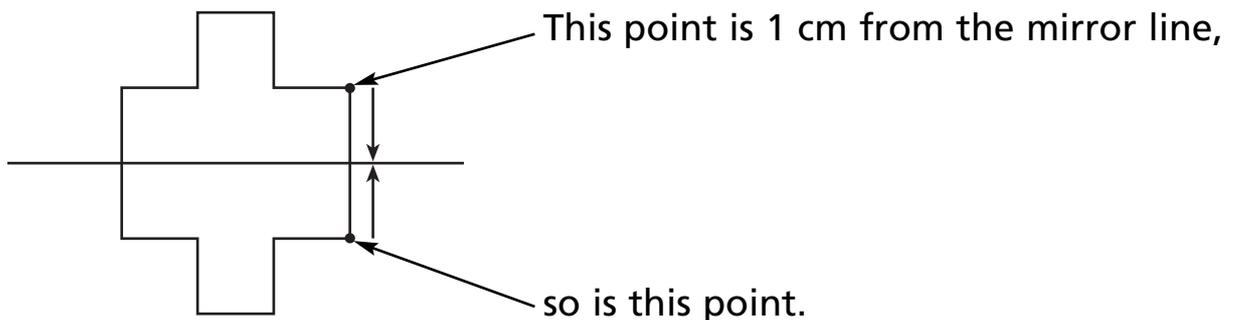
Step 1 What do you **think** will happen?

Step 2 Use a mirror. Look to see what the mirror image looks like.

Step 3 Use a ruler to help you draw the image.



Don't forget to make sure all matching points are the same distance from the mirror line.



Name: \_\_\_\_\_

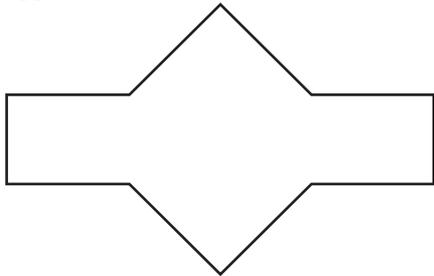
Date: \_\_\_\_\_

# Mirror image

Activity

★ How many lines of symmetry can you find in these shapes?

1.



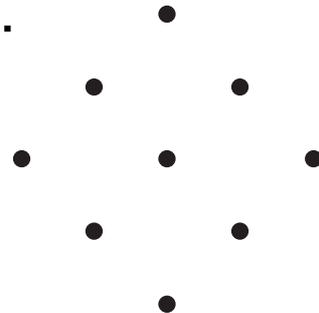
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2.



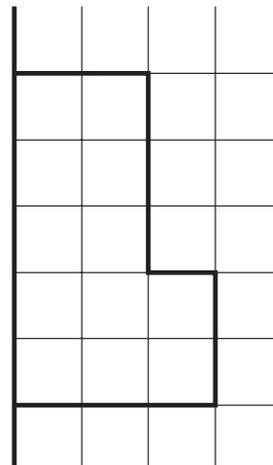
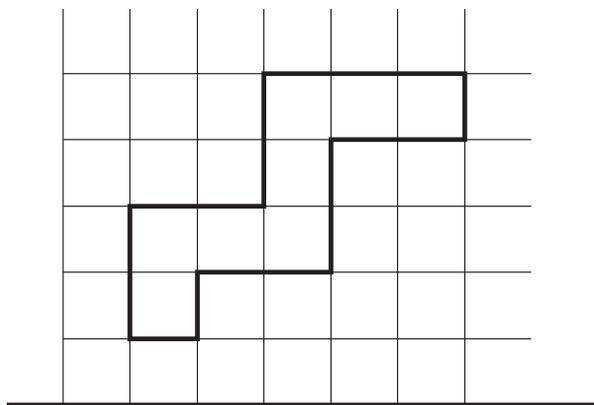
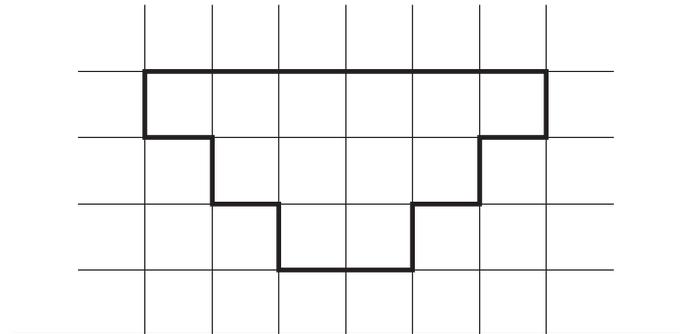
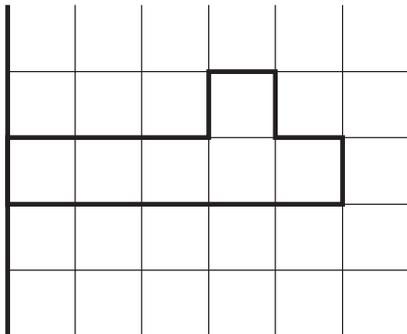
\_\_\_\_\_

3.



\_\_\_\_\_

★ Copy these shapes and sketch the reflections in the mirror lines.



I can find lines of symmetry in shapes.

