Reasoning and Problem Solving
Step 6: Symmetric Figures

National Curriculum Objectives:

Mathematics Year 4: (4G2b) Identify lines of symmetry in 2-D shapes presented in different orientations
Mathematics Year 4: (4G2c) Complete a simple symmetric figure with respect to a specific line of symmetry

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Determine how many squares are needed to complete a horizontal or vertical symmetrical pattern. Line of symmetry always falls on the grid line, patterns use no more than 8 squares and are arranged in a solid formation.
Expected Determine how many squares are needed to complete a horizontal or vertical symmetrical pattern. Line of symmetry falls on or between grid lines, patterns use no more than 12 squares and are arranged in a random formation close to the mirror line.
Greater Depth Determine how many squares are needed to complete a horizontal, vertical or diagonal symmetrical pattern. Line of symmetry falls on or between grid lines, patterns use no more than 12 squares and use the whole grid.

Questions 2, 5 and 8 (Problem Solving)
Developing Add a number of squares to complete a horizontal or vertical symmetrical pattern. Line of symmetry always falls on the grid line, patterns use no more than 8 squares and are arranged in a solid formation.
Expected Add a number of squares to complete a horizontal or vertical symmetrical pattern. Line of symmetry falls on or between grid lines, patterns use no more than 12 squares and are arranged in a random formation close to the mirror line.
Greater Depth Add a number of squares to complete a horizontal, vertical or diagonal symmetrical pattern. Line of symmetry falls on or between grid lines, patterns use no more than 12 squares and use the whole grid.

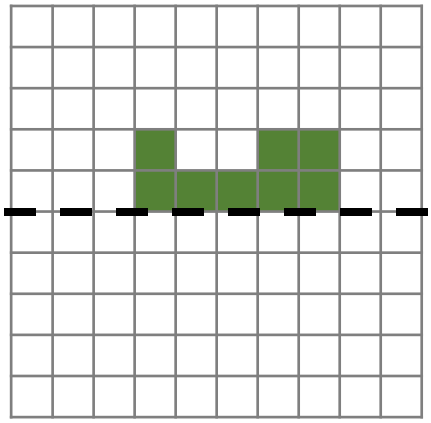
Questions 3, 6 and 9 (Reasoning)
Developing Find and explain which pattern is the odd one out. Line of symmetry always falls on the grid line, patterns use no more than 8 squares and are arranged in a solid formation.
Expected Find and explain which pattern is the odd one out. Line of symmetry falls on or between grid lines, patterns use no more than 12 squares and are arranged in a random formation close to the mirror line.
Greater Depth Find and explain which pattern is the odd one out. Add a number of squares to complete a horizontal, vertical or diagonal symmetrical pattern. Line of symmetry falls on or between grid lines, patterns use no more than 12 squares and use the whole grid.

More Year 4 Properties of Shapes resources.

Did you like this resource? Don't forget to review it on our website.

Symmetric Figures

1a. What is the smallest number of squares that need to be filled so that this pattern has a horizontal line of symmetry?

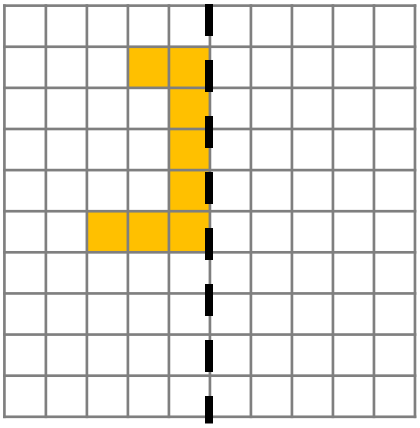


D

PS

Symmetric Figures

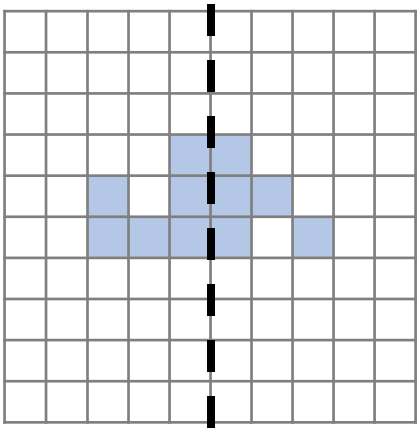
1b. What is the smallest number of squares that need to be filled so that this pattern has a vertical line of symmetry?



D

PS

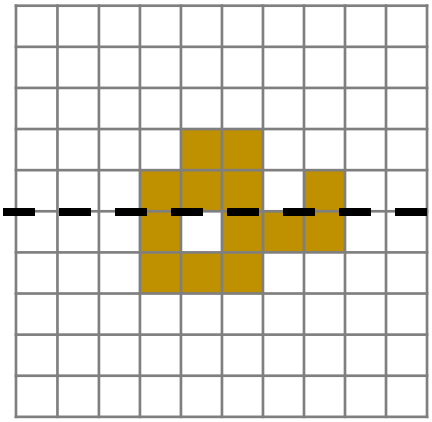
2a. Add 3 squares to the pattern below so that it has a vertical line of symmetry.



D

PS

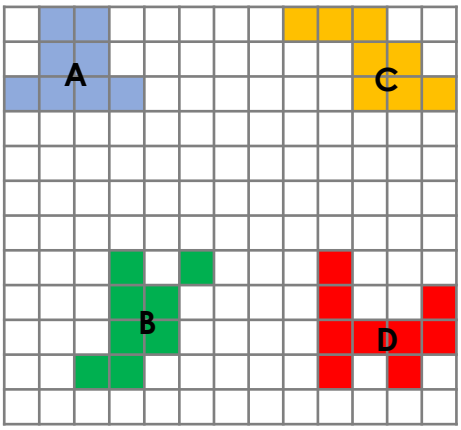
2b. Add 3 squares to the pattern below so that it has a horizontal line of symmetry.



D

PS

3a. Spot the odd one out.

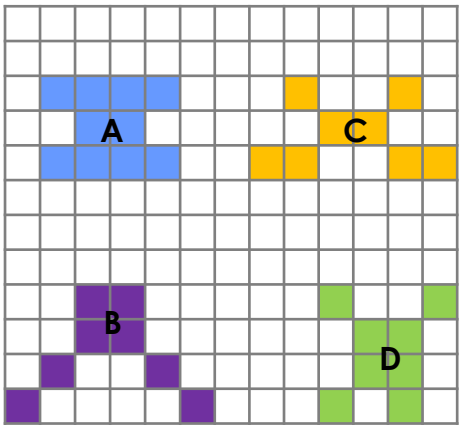


D

Explain your choice.

R

3b. Spot the odd one out.



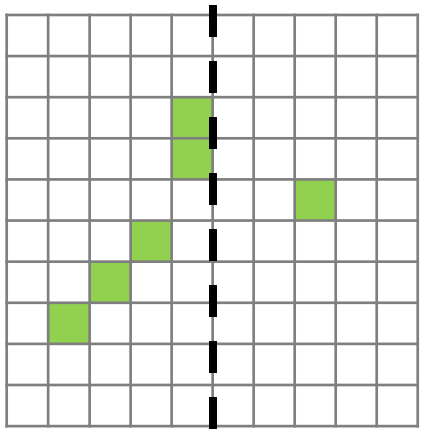
D

Explain your choice.

R

Symmetric Figures

4a. What is the smallest number of squares that need to be filled so that this pattern has a vertical line of symmetry?

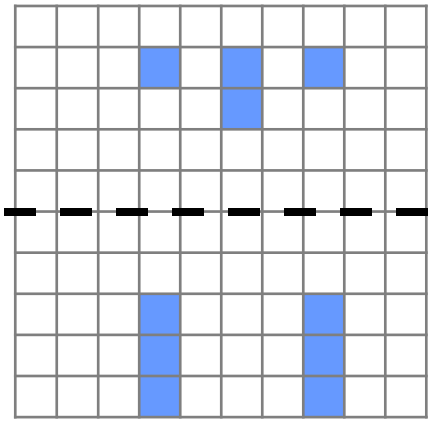


E

PS

Symmetric Figures

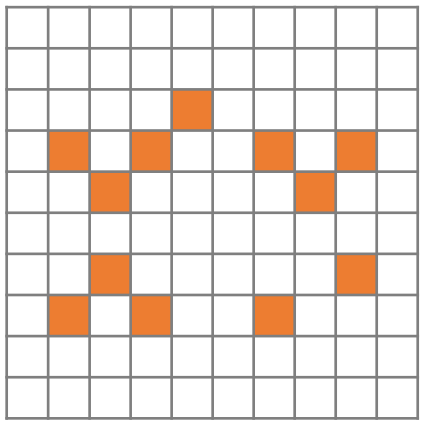
4b. What is the smallest number of squares that need to be filled so that this pattern has a horizontal line of symmetry?



E

PS

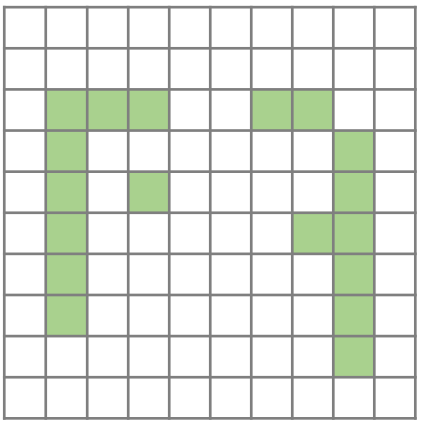
5a. Add 4 squares to the pattern below so that it has a vertical line of symmetry.



E

PS

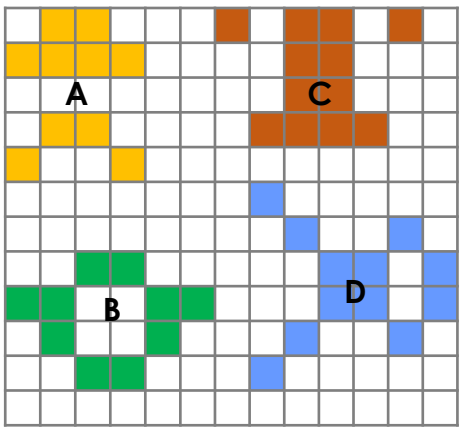
5b. Add 4 squares to the pattern below so that it has a vertical line of symmetry.



E

PS

6a. Spot the odd one out.

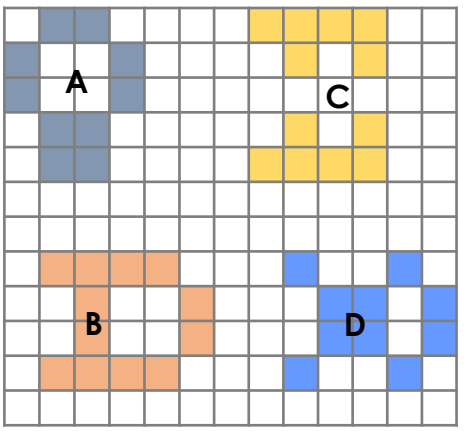


E

Explain your choice.

R

6b. Spot the odd one out.



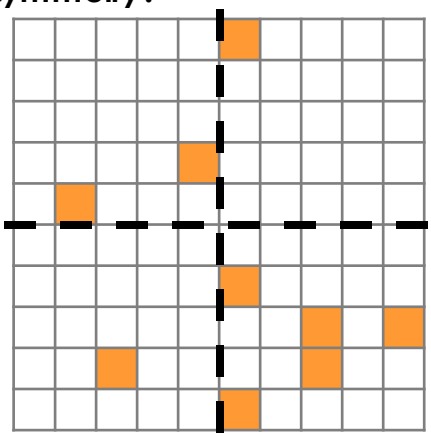
E

Explain your choice.

R

Symmetric Figures

7a. What is the smallest number of squares that need to be filled so that this pattern has a vertical and a horizontal line of symmetry?

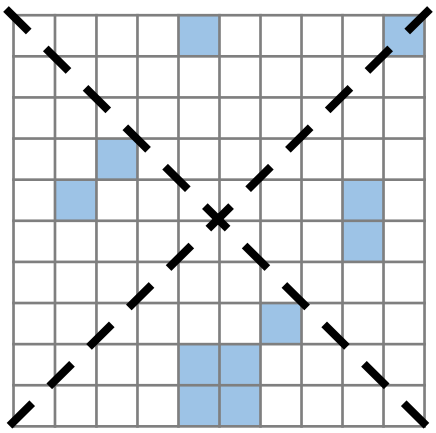


GD

PS

Symmetric Figures

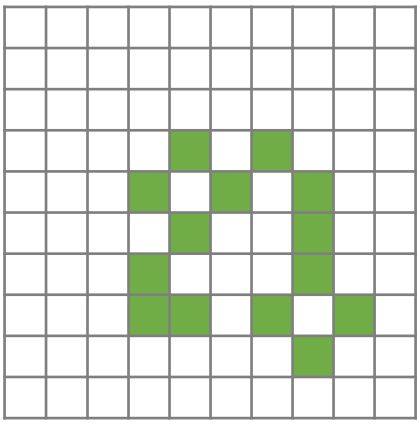
7b. What is the smallest number of squares that need to be filled so that this pattern two diagonal lines of symmetry?



GD

PS

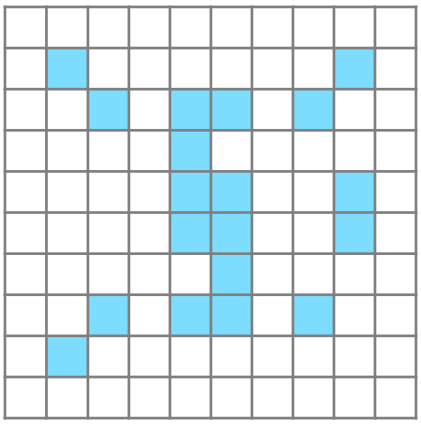
8a. Add 2 squares to the pattern below so that it has a diagonal line of symmetry.



GD

PS

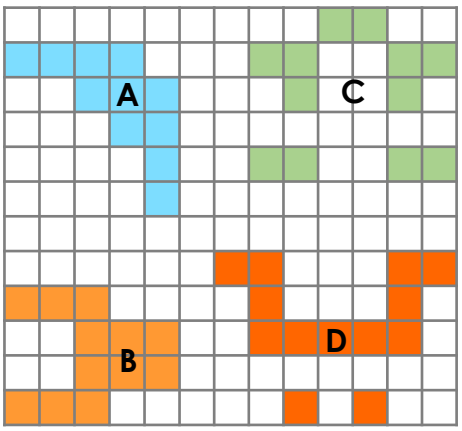
8b. Add 5 squares to the pattern below so that it has a vertical and horizontal line of symmetry.



GD

PS

9a. Spot the odd one out.

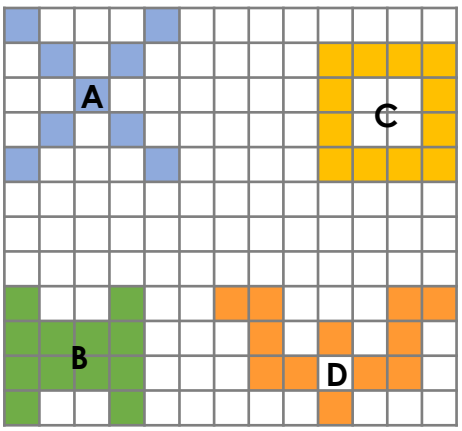


GD

Explain your choice.

R

9b. Spot the odd one out.



GD

Explain your choice.

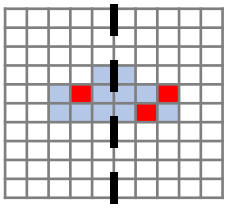
R

Reasoning and Problem Solving
Symmetric Figures

Developing

1a. 8 squares.

2a.

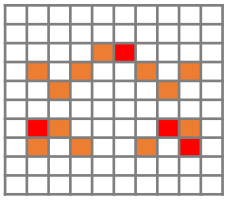


3a. Example answer: A because it is the only pattern with a line of symmetry. All the others are not symmetrical.

Expected

4a. 6 squares.

5a.

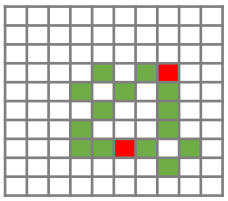


6a. Example answer: D because it is the only pattern with a horizontal line of symmetry.

Greater Depth

7a. 15 squares.

8a.



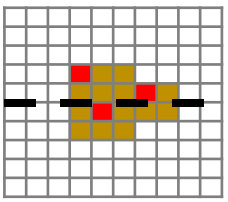
9a. Example answer: A because it is the only pattern with a diagonal line of symmetry.

Reasoning and Problem Solving
Symmetric Figures

Developing

1b. 8 squares.

2b.

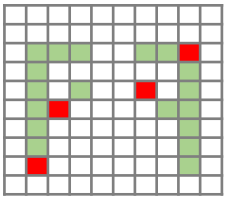


3b. Example answer: D because it is the only pattern that is not symmetrical. All the other patterns have a line of symmetry.

Expected

4b. 6 squares.

5b.

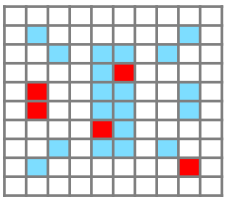


6b. Example answer: A because it is the only pattern with a vertical line of symmetry.

Greater Depth

7b. 13 squares.

8b.



9b. Example answer: D because it is the only pattern with only 1 line of symmetry.