

# Reasoning and Problem Solving

## Step 2: Reflection

### Teaching Note:

Some of the questions included in this resource will not print correctly in black and white, but will print in greyscale.

### National Curriculum Objectives:

Mathematics Year 5: (5P2) [Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed](#)

### Differentiation:

Questions 1, 4 and 7 (Reasoning)

**Developing** Decide whether a statement is correct and explain why when reflecting shapes using vertical and horizontal mirror lines. Regular polygons with up to 4 sides.

**Expected** Decide whether a statement is correct and explain why when reflecting shapes using vertical and horizontal mirror lines. Regular polygons with up to 6 sides.

**Greater Depth** Decide whether a statement is correct and explain why when reflecting shapes using vertical, horizontal and diagonal mirror lines. No grid included with irregular shapes with up to 8 sides.

Questions 2, 5 and 8 (Problem Solving)

**Developing** Draw the missing mirror line to make the reflection correct when reflecting shapes using vertical and horizontal mirror lines. Regular polygons with up to 4 sides.

**Expected** Draw the missing mirror line to make the reflection correct when reflecting shapes using vertical and horizontal mirror lines. Regular polygons with up to 6 sides.

**Greater Depth** Draw the missing mirror line to make the reflection correct when reflecting shapes using vertical, horizontal and diagonal mirror lines. No grid included with irregular shapes with up to 8 sides.

Questions 3, 6 and 9 (Problem Solving)

**Developing** Identify mistakes in a reflection of a pattern using vertical and horizontal mirror lines. Pattern includes two different coloured squares.

**Expected** Identify mistakes in a reflection of a pattern using vertical and horizontal mirror lines. Pattern includes up to 3 different coloured squares.

**Greater Depth** Identify mistakes in a reflection of a pattern using vertical, horizontal and diagonal mirror lines. Pattern includes coloured squares and half squares.

More [Year 5 Position and Direction](#) resources.

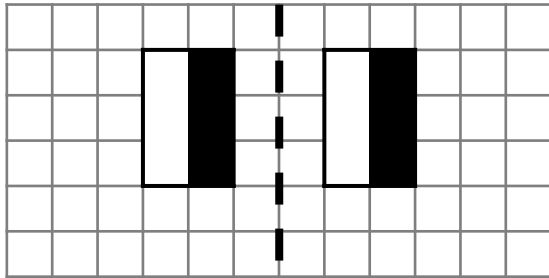
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## Reflection

1a. Cameron has reflected a shape.



I've reflected by making sure the white part is always on the left of the black part.



Do you agree? Explain your answer.



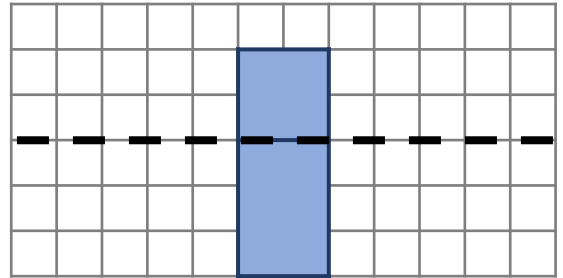
R

## Reflection

1b. Sara has reflected a shape.



I've reflected by making sure the shapes touch at the mirror line.

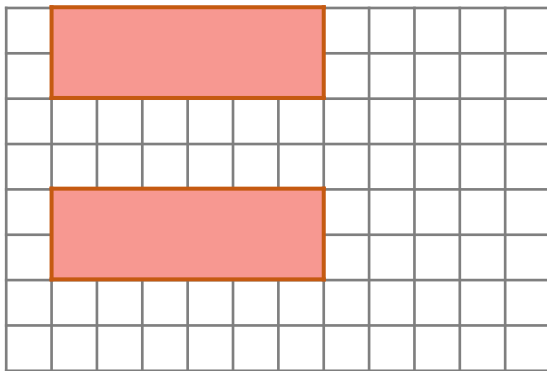


Do you agree? Explain your answer.



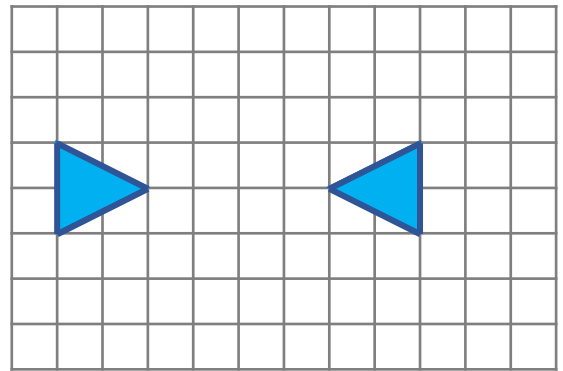
R

2a. Draw the mirror line so that the reflection is accurate.



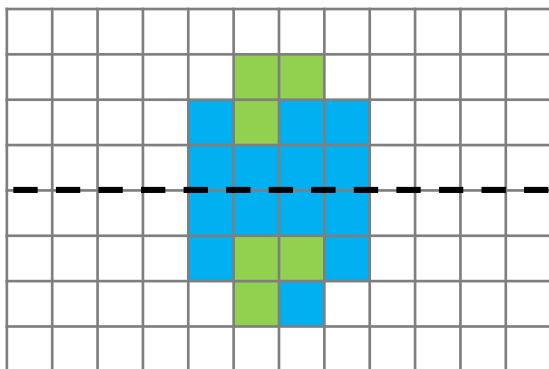
PS

2b. Draw the mirror line so that the reflection is accurate.



PS

3a. Put a cross on the mistakes in the reflection below.

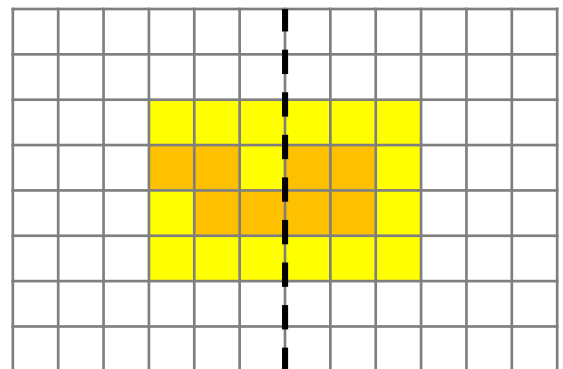


reflection



PS

3b. Put a cross on the mistakes in the reflection below.



reflection



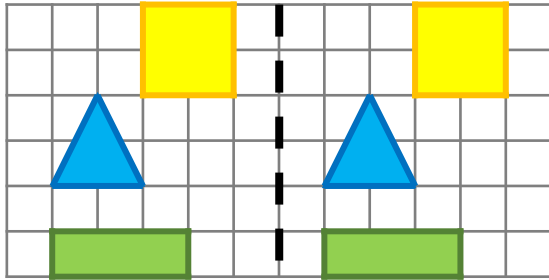
PS

## Reflection

4a. Raj has reflected three shapes.



I've reflected by copying the shapes on the other side of the mirror line.



Do you agree? Explain your answer.



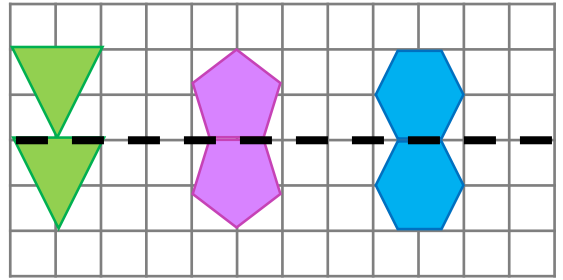
R

## Reflection

4b. Sonny has reflected three shapes.



I've reflected by making sure the shapes touch at the mirror line.

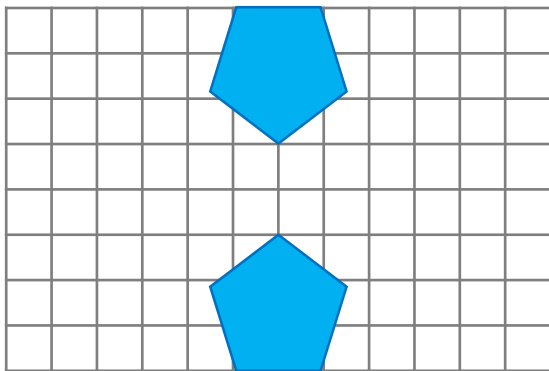


Do you agree? Explain your answer.



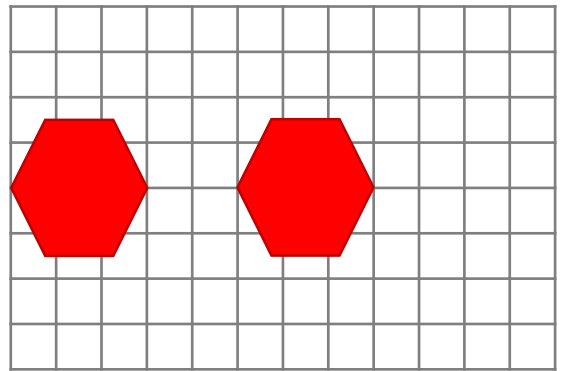
R

5a. Draw the mirror line so that the reflection is accurate.



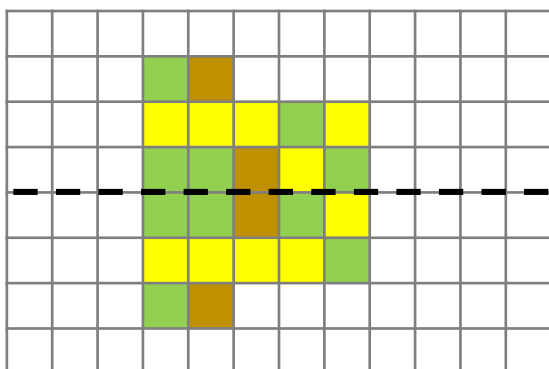
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5b. Draw the mirror line so that the reflection is accurate.



PS

6a. Put a cross on the mistakes in the reflection below.

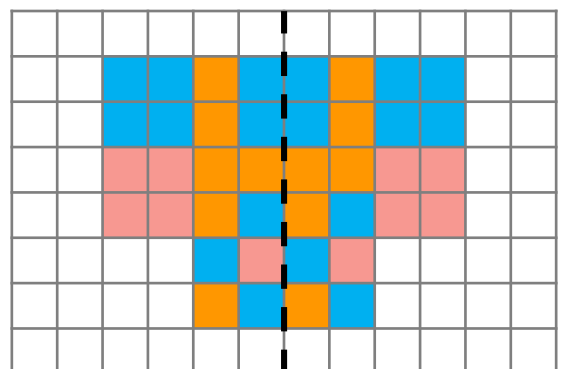


reflection



PS

6b. Put a cross on the mistakes in the reflection below.



reflection



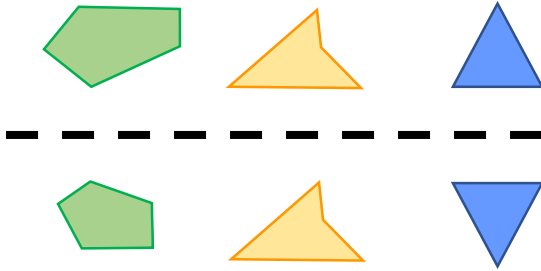
PS

## Reflection

7a. Sasha has reflected three shapes.



I've reflected by making sure I have left the same size space between my shape and the mirror line.



Do you agree? Explain your answer.



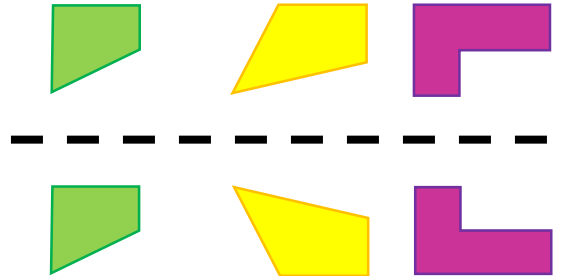
R

## Reflection

7b. Maya has reflected three shapes.



I've reflected by making sure the shapes are exactly the same size.

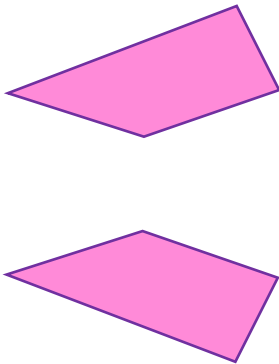


Do you agree? Explain your answer.



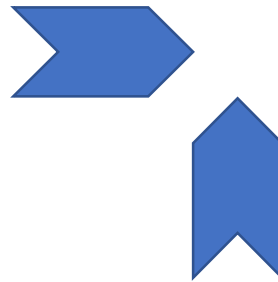
R

8a. Draw the mirror line so that the reflection is accurate.



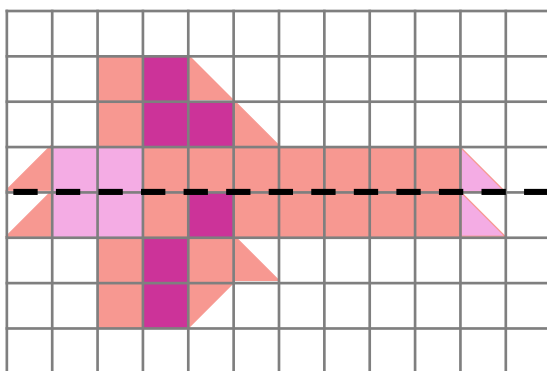
PS

8b. Draw the mirror line so that the reflection is accurate.



PS

9a. Put a cross on the mistakes in the reflection below.

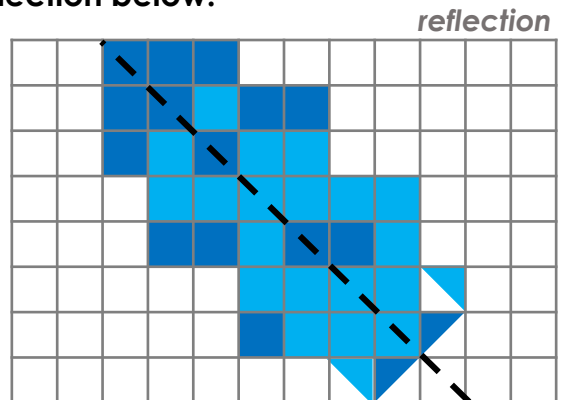


reflection



PS

9b. Put a cross on the mistakes in the reflection below.



reflection

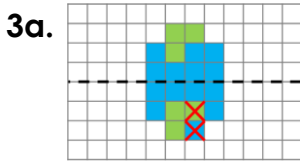
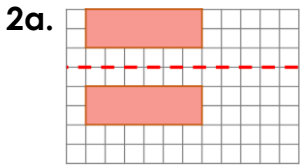


PS

# Reasoning and Problem Solving Reflection

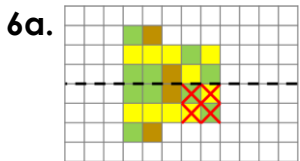
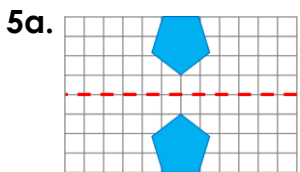
## Developing

1a. Cameron is incorrect. If the shape is reflected, the colours will be the opposite way round.



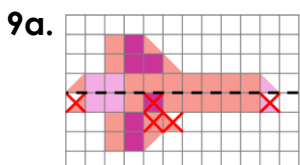
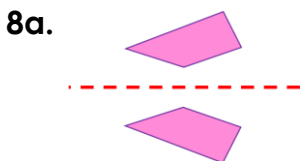
## Expected

4a. Raj is incorrect. The position of the reflected shapes must be the same distance from the mirror line. Raj has moved his shapes to the other side of the mirror line at different distances.



## Greater Depth

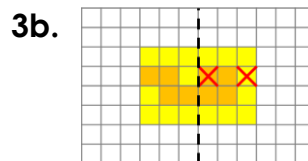
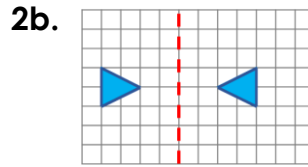
7a. Sasha's reasoning is partly correct. It is important to leave the same amount of space between the mirror line and the reflected shape. However, the pentagons are different sizes and quadrilaterals have been moved instead of reflected.



# Reasoning and Problem Solving Reflection

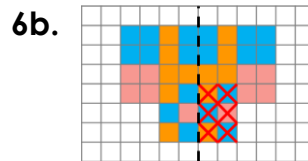
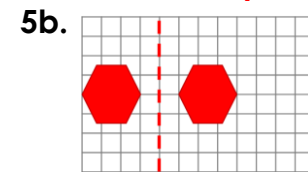
## Developing

1b. Sara's reasoning is correct, but the reflection she has drawn is incorrect as the heights of the shapes are different.



## Expected

4b. Sonny is partly correct. The reflection should touch the mirror line if the original shape also does this. However, Sonny has reflected the triangle incorrectly. He has moved the shape instead of reflecting.



## Greater Depth

7b. Maya's reasoning is partly correct. It is important that the reflected shape is the same size as the original. However, she has not reflected all the shapes. The trapezium has only been moved.

