

Reasoning and Problem Solving

Step 1: What is Area?

National Curriculum Objectives:

Mathematics Year 4: (4M7b) [Find the area of rectilinear shapes by counting squares](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use the given shape to estimate how many would be needed to cover a square or rectangle.

Expected Use the given shape to estimate how many would be needed to cover a rectilinear shape with up to 6 sides.

Greater Depth Use the given shape in a different orientation to estimate how many would be needed to cover a rectilinear shapes with up to 12 sides.

Questions 2, 5 and 8 (Reasoning)

Developing Explain if the correct shape has been chosen to measure with. Using squares and rectangles.

Expected Explain who has chosen the correct shape to measure with. Using rectilinear shapes with up to 6 sides.

Greater Depth Explain who has chosen the correct shape to measure with. Using complex rectilinear shapes with up to 12 sides.

Questions 3, 6 and 9 (Reasoning)

Developing Explain which is the odd one out. Using squares and rectangles.

Expected Explain which is the odd one out. Using rectilinear shapes with up to 6 sides.

Greater Depth Explain which is the odd one out. Using complex rectilinear shapes with up to 12 sides which include half squares.

More [Year 4 and Year 5 Area and Volume](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

What is Area?

1a. Kate is using square wall tiles to cover the space.



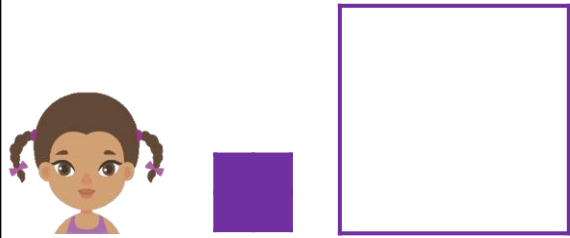
How many wall tiles do you think she will need?



4 PS

What is Area?

1b. Zoe is using square wall tiles to cover the space.



How many wall tiles do you think she will need?



4 PS

2a. Jack is choosing a shape to measure the area of the shape below.



I think I should use a circle to measure the area.

Is he correct? Explain your answer.



4 R

2b. Aisha is choosing a shape to measure the area of the shape below.



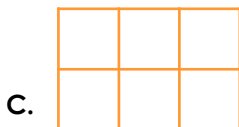
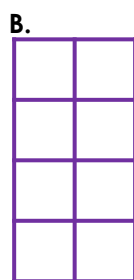
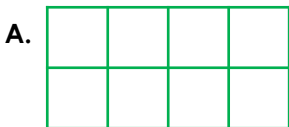
I think I should use a square to measure the area.

Is she correct? Explain your answer.



4 R

3a. Which shape is the odd one out?

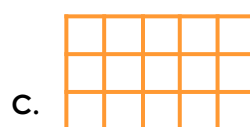
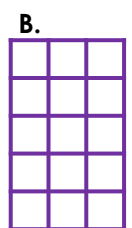
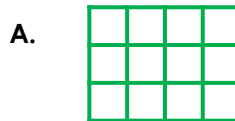


Explain your choice.



4 R

3b. Which shape is the odd one out?



Explain your choice.

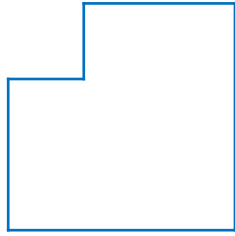


4 R

What is Area?

What is Area?

4a. Aiden is using square carpet tiles to cover the space.



How many carpet tiles do you think he will need?



4 PS

4b. Amy is using square carpet tiles to cover the space.



How many carpet tiles do you think she will need?



4 PS

5a. Keira and Jude are choosing shapes to measure the area of the following shape.



I think we should use a circle to measure the area.

Jude

I think we should use a square to measure the area.



Keira

Who is correct? Explain your answer.



4 R

5b. Lauren and Josh are choosing shapes to measure the area of the following shape.



I think we should use a square to measure the area.

Josh

I think we should use a semi-circle to measure the area.



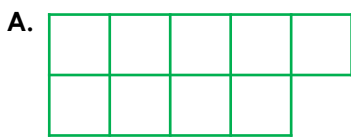
Lauren

Who is correct? Explain your answer.



4 R

6a. Which shape is the odd one out?

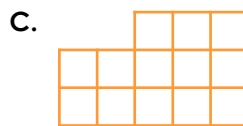
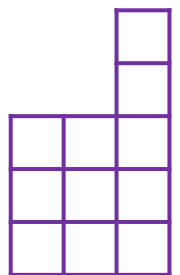
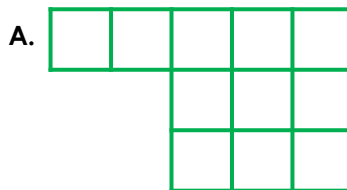


Explain your choice.



4 R

6b. Which shape is the odd one out?



Explain your choice.

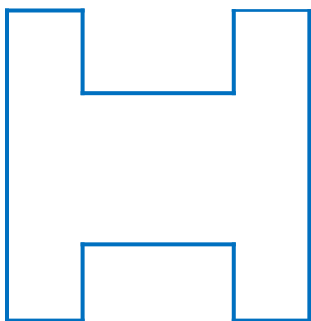


4 R

What is Area?

What is Area?

7a. Jack is using floor tiles to cover the space.

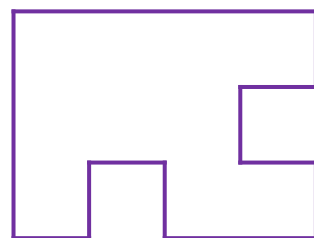


How many floor tiles do you think he will need?



4 PS

7b. Keira is using square carpet tiles to cover the space.



How many carpet tiles do you think she will need?



4 PS

8a. Kate and Jacob are choosing shapes to measure the area of the shape below.



I think we should use a triangle to measure the area.

I think we should use a square to measure the area.



Kate

Who is correct? Explain your answer.



4 R

8b. Maisie and Jude are choosing shapes to measure the area of the following shape.



I think we should use a square to measure the area.

I think we should use an octagon to measure the area.



Maisie

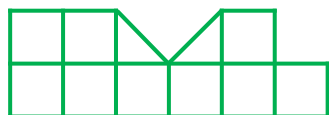
Who is correct? Explain your answer.



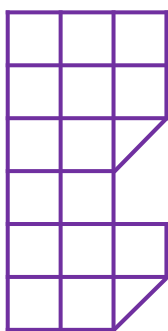
4 R

9a. Which shape is the odd one out?

A.



B.



C.



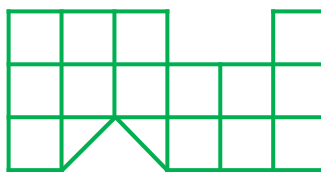
Explain your choice.



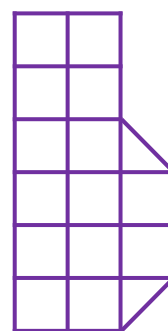
4 R

9b. Which shape is the odd one out?

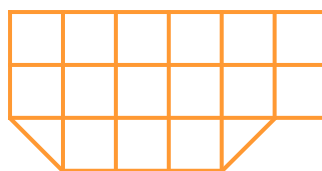
A.



B.



C.



Explain your choice.



4 R

Reasoning and Problem Solving What is Area?

Developing

- 1a. She will need 6 tiles.
- 2a. He is not correct. A circle would not cover the shape completely so there would be gaps.
- 3a. C is the odd one out. A and B are the same shape and size but with different orientations.

Expected

- 4a. He will need 8 tiles.
- 5a. Keira is correct as the square will give an exact measurement. The circle would not cover the shape completely, there would be gaps.
- 6a. B is the odd one out. A & C are the same shape but different sizes and orientations.

Greater Depth

- 7a. He will need 12 tiles.
- 8a. Kate is correct as a square is the most efficient shape to use. A triangle could be used but you would need to keep rotating the triangle so a square is more efficient.
- 9a. B is the odd one out. A & C have the same area, they both contain 10 squares.

Reasoning and Problem Solving What is Area?

Developing

- 1b. She will need 9 tiles.
- 2b. She is correct. A square will cover the shape completely without leaving any gaps.
- 3b. A is the odd one out. B and C are the same shape and size but with different orientations.

Expected

- 4b. She will need 10 tiles.
- 5b. Josh is correct as the square will give an exact measurement. The semi-circle would not cover the shape completely, there would be gaps.
- 6b. C is the odd one out. A & B are the same shape but different sizes and orientations.

Greater Depth

- 7b. She will need 10 tiles.
- 8b. Jude is correct as the square will give an exact measurement. An octagon would not cover the shape completely so there would be gaps.
- 9b. C is the odd one out. A & B have the same area, they both contain 15 squares.