

# Reasoning and Problem Solving

## Length and Perimeter Consolidation – Year 4

### National Curriculum Objectives

Mathematics Year 4: (4M7a) [Measure and calculate the perimeter of a rectilinear figure \(including squares\) in centimetres and metres](#)

Mathematics Year 4: (4M5) [Convert between different units of measure \[for example, kilometre to metre; hour to minute\]](#)

### About This Resource

This resource is aimed at Year 4 Expected and has been designed to give children the opportunity to consolidate the skills they have learned in Autumn Block 3 – Measurement: Length and Perimeter.

The questions are based on a selection of the same ‘small steps’ that are addressed in the block, but are presented in a different way so children can work through the pack independently and demonstrate their understanding and skills.

### Small Steps

Kilometres

Perimeter on a grid

Perimeter of a rectangle

Perimeter of rectilinear shapes

More [Year 4 Length and Perimeter](#) resources

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Farmers Allen, Biggs and Cogsworth all live along Countryside Lane. Farmer Allen lives 2,000m away from Farmer Biggs and Farmer Biggs lives 4,000m away from Farmer Cogsworth.



1. A cheeky fox has made his den on Allen's farm. On Monday, the fox snuck under Allen's gate and into Farmer Biggs' chicken coop for a disco. He then tunnelled his way from Biggs' farm to Cogsworth's rabbit hutch for a party. How many kilometres long is the tunnel?

2. On Tuesday, the cheeky fox let all Farmer Allen's sheep out of their enclosure and they raced to Farmer Biggs' and back again. How many kilometres did they race?

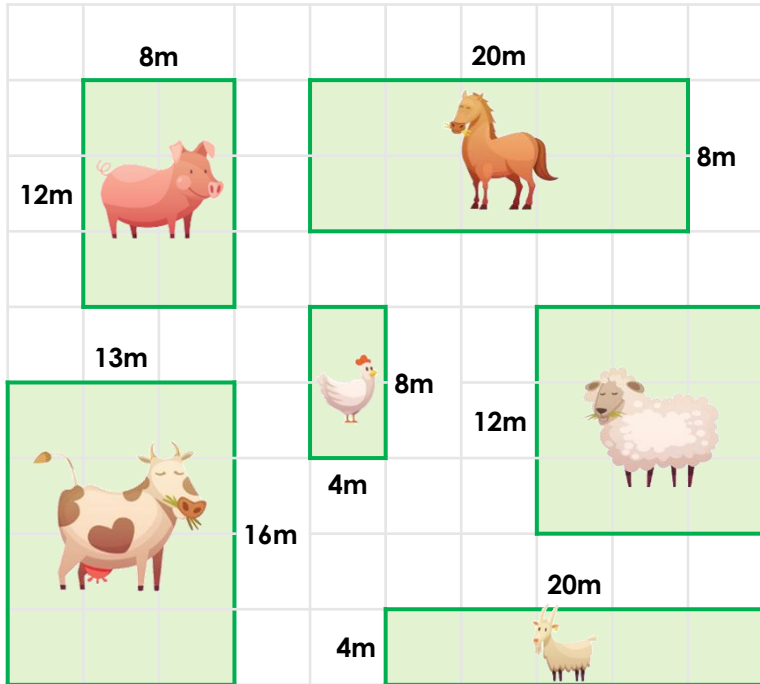
3. On Wednesday, the farmers decided enough was enough. "My chickens haven't laid any eggs since last week! The animals are tired all day because they run wild at night with that pesky fox!" groaned Farmer Biggs. "We need to secure our farms!" Frustrated, Farmer Allen drove his tractor straight down Countryside Lane to Cogsworth's farm. He stopped to pick Farmer Biggs up on the way, and dropped him off on the way home. How many kilometres did he have to drive to get there and home again?

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4. Farmer Allen has suggested the farmers should build taller fences around each of their animal enclosures.



Find the perimeter of each animal's enclosure on Farmer Allen's farm.



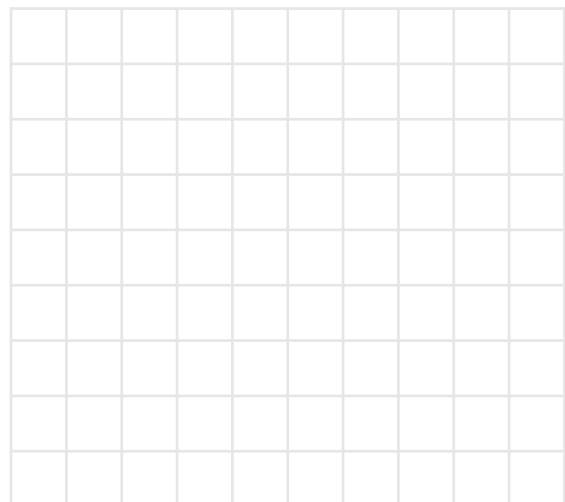
Animal	Perimeter of Enclosure
Horses	
Pigs	
Cows	
Sheep	
Goats	
Chickens	

5. Which animal's enclosure will take the most fencing? Why?

6. Which two enclosures have the same perimeter?

7. Farmer Allen is thinking of adding turkeys to his farm, but they will need their own enclosure. He wants the perimeter to be 30 metres. Each square on the planning grid is one metre squared.

Draw a possibility for the perimeter of the new enclosure on the grid.



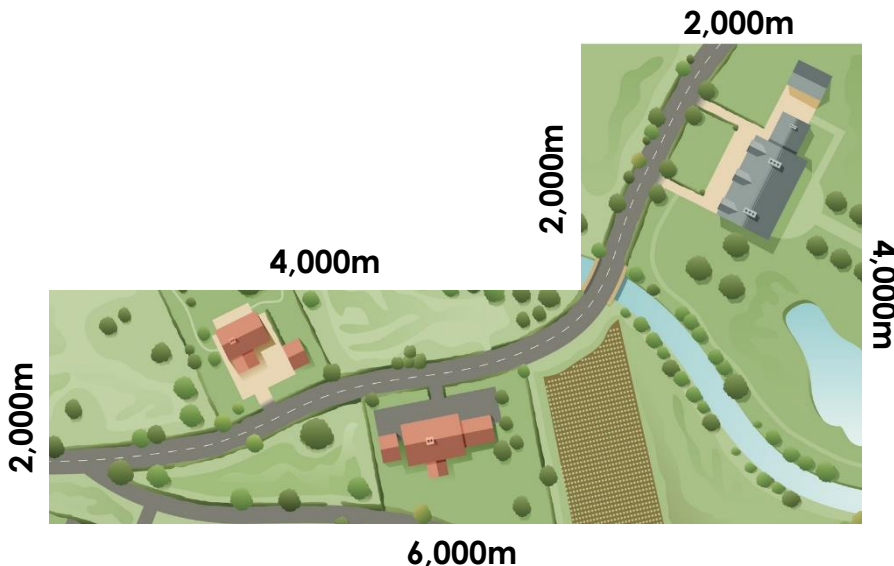
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8. Farmer Biggs has suggested each farmer build a fence around their own farm. He knows the length of his fence must be 14m longer than the width. The width is between 24 and 32m. What could the perimeter of his farm be?



9. Just to be safe, Farmer Biggs would like to build a fence around his barn as well. The perimeter of the barn is 72m. The length of the barn is half of the width. What are the measurements?

10. Farmer Cogsworth, in an incredible attempt at farm security, has suggested they build a giant fence around ALL the farms. What is the perimeter of his proposed fence in kilometres?



11. Consider each farmer's proposed fix to the fox problem. Which of the solutions will work? Why or why not?

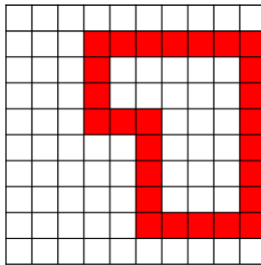
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1.  $6,000\text{m} = 6\text{km}$
2.  $4,000\text{m} = 4\text{km}$
3.  $6000\text{m} + 6000\text{m} = 12,000\text{m} = 12\text{km}$

4.

Animal	Perimeter of Enclosure
Horses	56m
Pigs	40m
Cows	58m
Sheep	48m
Goats	48m
Chickens	24m

5. The cows enclosure will take the most fencing because it has the longest perimeter.
6. The sheep and goats enclosures have the same perimeter: 48m.
7. Various answers, for example:



8.  $24 + 24 + 38 + 38 = 124\text{m}$   
 $26 + 26 + 40 + 40 = 132\text{m}$   
 $28 + 28 + 42 + 42 = 140\text{m}$   
 $30 + 30 + 44 + 44 = 148\text{m}$   
 $32 + 32 + 46 + 46 = 156\text{m}$   
 $25 + 25 + 39 + 39 = 128\text{m}$   
 $27 + 27 + 41 + 41 = 136\text{m}$   
 $29 + 29 + 43 + 43 = 144\text{m}$   
 $31 + 31 + 45 + 45 = 152\text{m}$

9. The barn is 12m long and 24m wide.  
 $12 + 12 + 24 + 24 = 72\text{m}$

10.  $6\text{km} + 4\text{km} + 2\text{km} + 2\text{km} + 4\text{km} + 2\text{km} = 20\text{km}$

11. Any thoughtful answer accepted, but it should be noted that it is unlikely that any of the solutions will work because the fox digs tunnels under fences, no matter how long or how tall they are!