


How much will it cost?

The walls of a house need to be painted with masonry paint.
In this activity you will work out the amount of paint needed and how much it will cost.

The paint is sold in 5 litre tins costing £12.99 each.
Each litre of paint covers 6 m²

<p>Masonry Paint</p> <p>£12.99 for a 5 litre tin Coverage: 6 m² per litre</p>	
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The walls of the house are shown in the elevations on pages 3 and 4.
These are all drawn to a scale of 1:100. This means that each centimetre on the drawing represents 100 centimetres (i.e. 1 metre) on the actual house.

First you need to find the dimensions of each wall and the area that is to be painted.

North Facing Wall

Complete the following table.

Take the measurements you need from the elevation of the North facing wall on page 3.

	Length (m)	Height (m)	Area (m ²)
Whole Wall (including door and windows)			
Large Windows			
Small Window			
Door			

To find the area to be painted, subtract the area of the door and all the windows from the area of the whole wall.

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Area to be painted on the North wall =



East Facing Wall

The area of the whole wall can be found by splitting it into a triangle and a rectangle. Find the area of the rectangle, then the area of the triangle and add them together.

Put your results in the table below.

Complete the table, by finding the area of the window.

	Length (m)	Height (m)	Area (m ²)
Rectangle			
Triangle			
Whole Wall (including door and windows)			
Window			

Subtract the area of the window from the area of the whole wall to find the area to be painted.

Area to be painted on the East wall =

South Facing Wall

Complete the table then find the area to be painted.

	Length (m)	Height (m)	Area (m ²)
Whole Wall (including patio door and windows)			
Patio Door			
Large Windows			
Small Windows			

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Area to be painted on the South wall =

West Facing Wall

Complete the table then find the area to be painted.

	Length (m)	Height (m)	Area (m ²)
Rectangle			
Triangle			
Whole Wall (including door and windows)			
Window			
Door			

Area to be painted on the West wall =

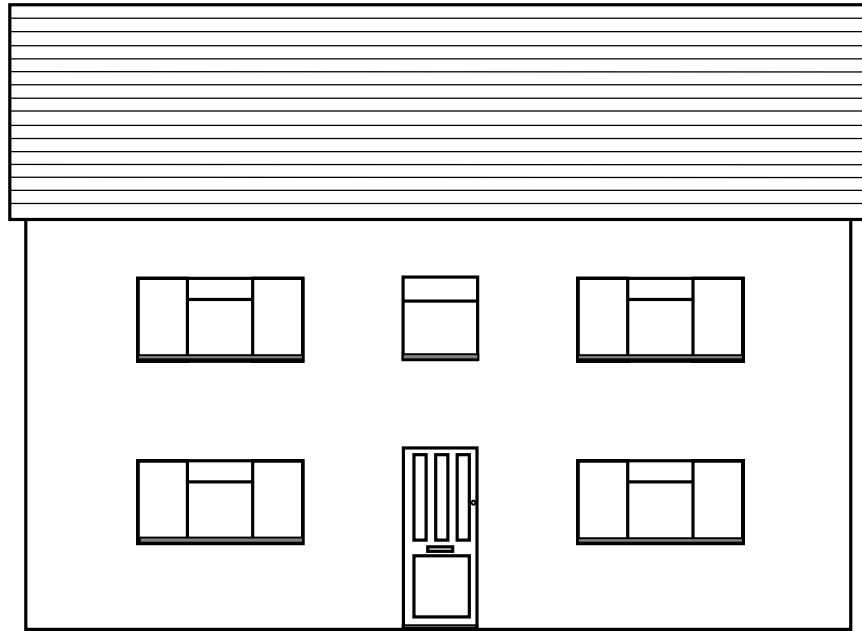
What is the total area to be painted?

How much paint will it take?.....

How many tins of paint will be needed?.....

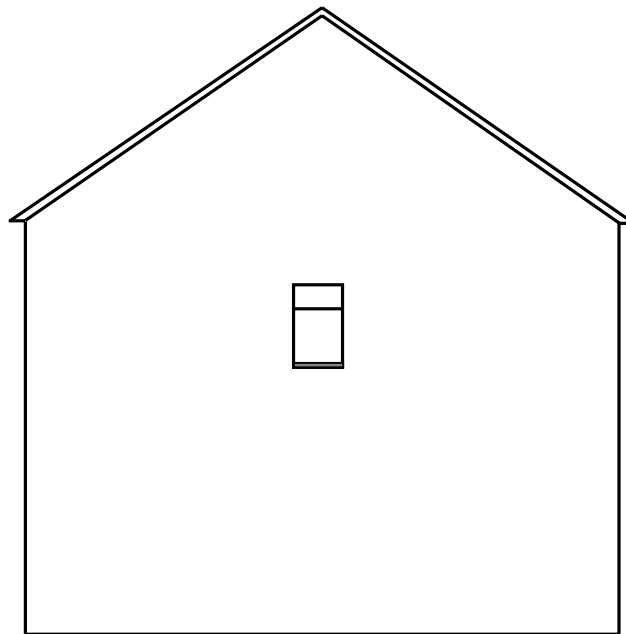
How much will it cost?.....





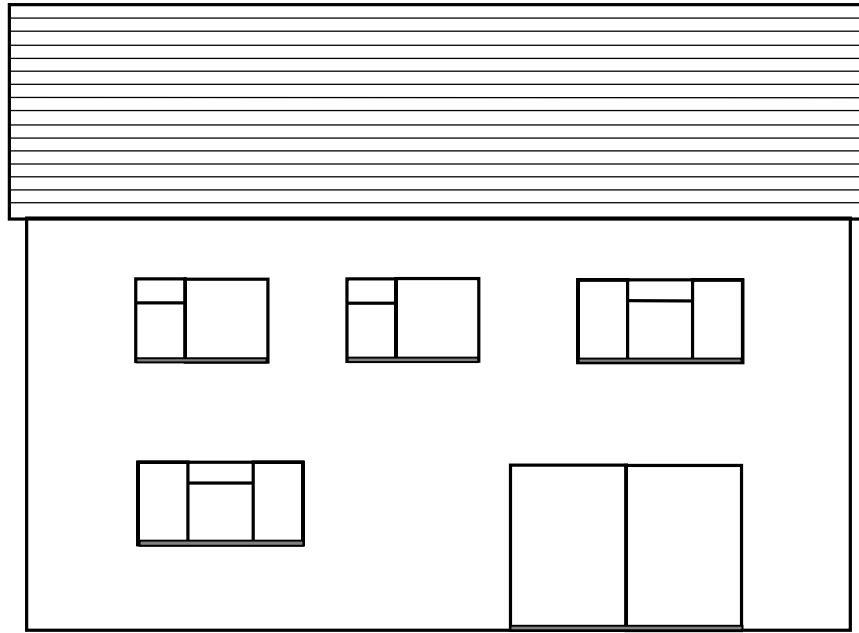
North Facing Wall

Scale 1:100



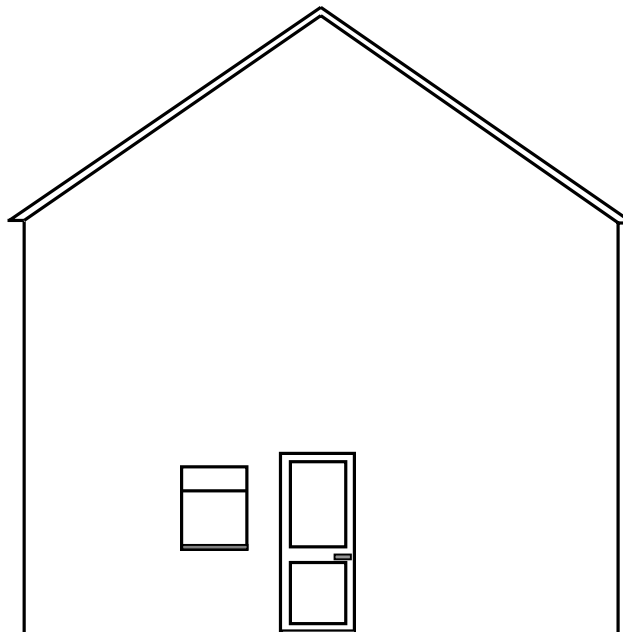
East Facing Wall





South Facing Wall

Scale 1:100



West Facing Wall



Teacher Notes

Unit Foundation Level, Working in 2 and 3 dimensions

Skills used in this activity

- measuring dimensions from scale drawings
- finding areas (rectangles, triangle)
- calculating paint required and cost

Preparation

Students will need a copy of pages 1 to 4, a centimetre ruler, calculator and pen/pencil.

Notes

Before using this activity students will need to be familiar with the term 'elevation' and the formulae for the area of rectangles and triangles. They should be advised to take measurements correct to the nearest 0.1 cm and check all their calculations. You may wish to show students how to find the area required on the first two walls, before leaving them to attempt the rest on their own.

Answers**North Facing Wall**

	Length (m)	Height (m)	Area (m ²)
Whole Wall	10	5	50
Large Windows	2	1	2
Small Window	0.9	1	0.9
Door	0.9	2.2	1.98

$$\begin{aligned} \text{Area to be painted} \\ = 39.12 \text{ m}^2 \end{aligned}$$

East Facing Wall

	Length (m)	Height (m)	Area (m ²)
Rectangle	7.2	5	36
Triangle	7.2	2.6	9.36
Whole Wall			45.36
Window	0.6	1	0.6

$$\begin{aligned} \text{Area to be painted} \\ = 44.76 \text{ m}^2 \end{aligned}$$

South Facing Wall

	Length (m)	Height (m)	Area (m ²)
Whole Wall	10	5	50
Patio Door	2.8	2	5.6
Large Windows	2	1	2
Small Windows	1.6	1	1.6

$$\begin{aligned} \text{Area to be painted} \\ = 37.2 \text{ m}^2 \end{aligned}$$

West Facing Wall

	Length (m)	Height (m)	Area (m ²)
Rectangle	7.2	5	36
Triangle	7.2	2.6	9.36
Whole Wall			45.36
Window	0.8	1	0.8
Door	0.9	2.2	1.98

$$\begin{aligned} \text{Area to be painted} \\ = 42.58 \text{ m}^2 \end{aligned}$$

Total area to be painted = 163.66 m²
No of tins = 6

Amount of paint needed = 27.28 litres
Cost of paint = £77.94

