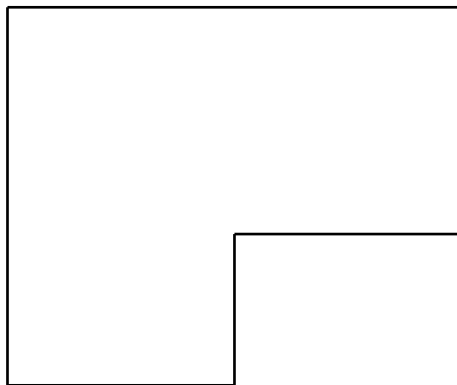


Main task	Foundation/ Higher GCSE and Level 2 Functional Skills students
Suggested uses	1 Independent starter 2 Whole lesson on area, perimeter, percentages and rounding
Must previously cover	Using scale drawings and area for Starter; perimeter for Extension (a); percentages and rounding for Extension (b) If necessary explain the terms 'roll of insulation' and 'skirting board'
Extension	Foundation/ Higher GCSE and Level 2 Functional Skills students

Starter (Worksheet 1)

A builder is putting insulation under the floor of a loft.
 One roll of insulation covers 5.92 m^2 .
 Rolls may be cut and joined.
 Here is the plan view of the loft.



Scale 1 centimetre represents 2 metres

How many rolls of insulation does the builder need?

Answers

Floor measures $10 \times 12 - 4 \times 6 = 96 \text{ m}^2$
 $96 \div 5.92 = 16.2(\dots)$ rolls
 He needs to buy 17 rolls

Links to Level 2 Skills Standards

Skills standard		Evidence
Ra	Understands problem and starts to access it	Measures dimensions on plan
Rb	Identifies the problem and decides on methods to use	Uses given scale
Rc	Chooses mathematics to find a solution	Works out area of loft
Aa	Uses mathematics to find a solution	Divides to find number of rolls
Ib	Draws conclusions and gives justifications	Rounds to a whole number of rolls

Links to GCSE

Assessment Objectives			GCSE 4360			GCSE 4365	Linked Pair Pilot Methods and Applications			
AO1	AO2	AO3	Unit 1	Unit 2	Unit 3	Linear	M1	A1	M2	A2
	✓				G3.1 G4.1	G3.1 G4.1				G10 G15

Extension (Worksheet 2)

- (a) The builder wants to put skirting board around the walls of the loft. Skirting board can be bought in two lengths, 2.4 metres or 3 metres. It is made from oak or veneer. Skirting board is not needed across the 1-metre doorway (not shown on the plan).

	Oak	Veneer
2.4 m	£24.99	£13.99
4.4 m	£32.99	£18.99

How much more does it cost to use oak skirting board instead of veneer for this loft?

- (b) The loft conversion costs £25 750. The builder charges 2% deposit which he rounds to the nearest £100. The final payment is 20% of the cost which is rounded to the nearest £100. The rest of the cost is paid in five equal payments.

How much is each of the five payments?

Answers

- (a) $10 + 12 + 6 + 6 + 4 + 6 - 1 = 43$ m
 $43 \div 2.4 = 17.9(\dots) = 18$ lengths
 $43 \div 4.4 = 9.7(\dots) = 10$ lengths

Difference between oak and veneer prices: 2.4 m is $24.99 - 13.99 = \text{£}11$ a length
 4.4 m is $32.99 - 18.99 = \text{£}14$ a length

Using the 2.4 m, oak costs $18 \times 11 = \text{£}88$ more
 Using the 4.4 m, oak costs $10 \times 14 = \text{£}140$ more

- (b) $0.02 \times 25\,750 = \text{£}515 = \text{£}500$ to the nearest $\text{£}100$
 $0.2 \times 25\,750 = \text{£}5150 = \text{£}5200$ to the nearest $\text{£}100$

$25\,750 - (500 + 5200) = \text{£}20\,050$
 $20\,050 \div 5 = \text{£}4010$

Each payment is $\text{£}4010$.

Links to Level 2 Skills Standards

Extension a	Ra	Understands problem and starts to access it	Works out perimeter
	Rc	Chooses the mathematics needed to find a solution	Calculates number of 2.4 m lengths
	Rc	Chooses the mathematics needed to find a solution	Calculates number of 4.4 m lengths
	Rb	Identifies the problem and decides on methods to use	Works out difference between oak and veneer
	Aa	Uses mathematics to find a solution	Finds the amount extra for using oak
Extension b	Ra	Understands problem and starts to access it	Works out 2% of cost and 20% of cost
	Aa	Uses mathematics to find a solution	Rounds both figures to nearest $\text{£}100$
	Rc	Chooses the mathematics needed to find a solution	Subtracts their deposit and final payment from cost
	Aa	Uses mathematics to find a solution	Calculates each payment

Links to GCSE

	Assessment Objectives			GCSE 4360			GCSE 4365	Linked Pair Pilot Methods and Applications			
	AO1	AO2	AO3	Unit 1	Unit 2	Unit 3	Linear	M1	A1	M2	A2
Extension a		✓				G3.1 G4.1	G3.1 G4.1				G10 G15
Extension b		✓				N1.4 N2.7	N1.4 N2.7		N3 N7		