

Main task	Foundation/Higher GCSE and Level 1/2 Functional Skills students
Suggested uses	1 Independent starter 2 Whole lesson on area and perimeter
Must previously cover	Using scale drawings, area and perimeter
Extension	Foundation/Higher GCSE and Level 1/2 Functional Skills students

Starter (Worksheet)

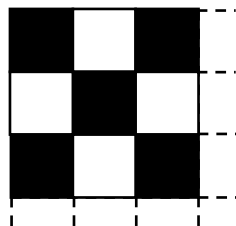
The Taylor family have a new kitchen.
They want to put black tiles and white tiles on the floor.
Each tile measures 50 cm by 50 cm.
Here is a plan view of the area they need to tile.



Scale 1 centimetre represents 50 centimetres

Mr Taylor says

'I think we should use the black tiles and white tiles like this.'



(a) How many black tiles and how many white tiles does this pattern use for the whole kitchen floor?

(b) Here are the costs of black tiles and white tiles.
You cannot split packs.

	Black	White
Pack of five	£17.80	£17.80

Work out the cost of the tiles for the kitchen floor using Mr Taylor's pattern.

Answers

- (a) Floor measures 350 cm by 300 cm
 Use 7 tiles by 6 tiles = 42 tiles in total
 21 black tiles and 21 white tiles
- (b) $21 \div 5 = 4.2$ packs so buy 5 packs of each
 $10 \times \text{£}17.80 = \text{£}178$

Links to Level 2 Skills Standards

		Skills standard	Evidence
a	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 number of tiles along length and width or calculates area of floor and area of a tile
	Aa	Uses mathematics to find a solution	Calculates total number of tiles
	Ia	Interprets solutions to multistage problems	States how many of each colour
b	Rc	Chooses mathematics to find a solution	Works out how many packs of each colour
	Ib	Draws conclusions and gives justifications	Rounds up to find how many packs must be bought
	Aa	Uses mathematics to find a solution	Calculates cost

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
a	✓					G3.1 G4.1	G3.1 G4.1				G10 G15
b		✓				N1.3 N1.14	N1.3 N1.14				N1 N7

Extension (Worksheet)

- 1 Mrs Taylor says
 ‘We should have one row of black tiles around the edge of the kitchen.
 The rest should be white.
 I think our patterns will cost the same.’
- Is Mrs Taylor correct?
 Show how you decide.
- 2 Make up a pattern of your own.
 Work out the cost of your pattern.
 Compare your pattern and cost with somebody else’s.

Answer

Need $7 + 6 + 7 + 6 - 4(\text{corners}) = 22$ black tiles
 $42 - 22 = 20$ white tiles

$22 \div 5 = 4.4 = 5$ packs of black

$20 \div 5 = 4$ packs of white

$9 \times \text{£}17.80 = \text{£}160.20$ so Mrs Taylor is wrong, her pattern is cheaper
 NB You can simply say 9 packs is cheaper than 10

Links to Level 2 Skills Standards

Extension 1	Ra	Understands problem and starts to access it	Works out number of black tiles
	Rc	Chooses the mathematics needed to find a solution	Calculates number of black packs
	lb	Draws conclusions and gives justifications	Rounds up a pack
	Aa	Uses mathematics to find a solution	Works out number of white packs
	lb	Draws conclusions and gives justifications	Makes a comparison

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 1		✓				G4.1 N1.3	G4.1 N1.3				G15 N1