

Main task	Foundation GCSE and Level 1 Functional Skills students
Suggested uses	1 Independent starter 2 Whole lesson frequency tables, equivalent fractions and/or comparing proportions
Must previously cover	Tally charts and frequency tables, equivalent fractions
Extension	Foundation GCSE and Level 1 Functional Skills students or Higher GCSE and Level 2 Functional Skills students (with structure removed from starter)

Starter (Worksheet 1)

A college wants to start language classes for retired people during the day. The college asks 20 retired people which language they want to study. They choose French (F), German (G), Italian (I) or Spanish (S).

F F G S S F S F I F
I S F F F G G F F G

- (a) Complete the frequency table for the results.

Language	Tally	Frequency
French		
German		
Italian		
Spanish		
Total		20

- (b) At the moment the college runs evening language classes. People go to one 1-hour language class each week. This is the timetable.

	Monday	Tuesday	Wednesday	Thursday	Friday
7pm – 8pm	German	French	Spanish	French	Italian
8pm – 9pm	French	Italian	French	Spanish	French

Should the college offer a similar timetable during the day for retired people?

Answers

(a)

Tally	Frequency
	10
	4
	2
	4

- (b) No. In the evening $\frac{1}{2}$ (or 50% or 5 out of 10) of the classes are for French, $\frac{1}{10}$ (or 10% or 1 out of 10) are for German, $\frac{1}{5}$ (or 20% or 2 out of 10) are for Italian and $\frac{1}{5}$ (or 20% or 2 out of 10) are for Spanish.

However, out of the retired people that were asked $\frac{1}{2}$ (or 50% or 10 out of 20) chose French, $\frac{1}{5}$ (or 20% or 4 out of 20) chose German, $\frac{1}{10}$ (or 10% or 2 out of 20) chose Italian and $\frac{1}{5}$ (or 20% or 4 out of 20) chose Spanish.

So, the college should offer (one) more German and (one) fewer Italian classes during the day.

Links to Level 1 Skills Standards

		Skills standard	Evidence
(a)	Rc	Chooses mathematics to find a solution	Completes one row of frequency table with tally and total
	Aa	Uses mathematics to find a solution	Completes frequency table
	Ab	Checking	Checks total from their tallies makes 20
(b)	Ra	Understands problem and starts to access it	Converts numbers for one language into a comparable form e.g. finds fraction or percentage or proportion of both types of students for French
	Rb	Identifies the problem and decides on methods to use	Finds a comparable form for numbers for each language
	Aa	Uses mathematics to find a solution	Uses correct comparable forms for each language
	I	Draws conclusions and gives justifications	Reaches appropriate conclusion by comparing fractions (or percentages or proportions)

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)	✓			S3.2			S3.2		S12		
(b)		✓		N2.1 N2.5 S4.4			N2.1 N2.5 S4.4		A1 A5 S10		

Extension (Worksheet 2)

- The French teacher cannot teach during the day on Friday.
- The German teacher can only teach on Monday or Tuesday after 2pm.
- The Italian teacher can only teach during the day on Tuesday or Friday.
- The Spanish teacher can only teach during the day on Tuesday and Friday.

Plan a suitable daytime timetable.
Take the list of constraints into account.

	Monday	Tuesday	Wednesday	Thursday	Friday
1pm – 2pm					
2pm – 3pm					

Answer

The timetable should have 5F, 2G, 2S and 1I with no F on Friday and both G at 2pm on Monday and Tuesday.

For example,

	M	T	W	Th	F
1pm –	F	S	F	F	I
2pm –	G	G	F	F	S

Links to Level 1/ 2 Skills Standards

	Skills standard		Evidence
Extension	Rb	Identifies the problem and decides on methods to use	Satisfies at least two criteria in their timetable
	Ia	Interprets solutions to multistage problems	Satisfies all given criteria in their timetable
	Ab	Checking	Checks have 5 French, 2 German, 2 Spanish and 1 Italian in completed timetable

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			✓	N2.7 S3.1			N2.7 S3.1		N5 S8		