Main task	Foundation GCSE and Level 2 Functional Skills students
Suggested uses	1 Independent starter 2 Whole lesson on proportions, comparing data using mean/ median and range
Must previously cover	Comparing proportions using percentages or fractions; calculating mean/ median and range of sets of discrete data
Extension	Foundation GCSE and Level 2 Functional Skills students

Starter (Worksheet 1)

Ten girls and six boys take part in a typing test.
The table shows how accurate their typing is and the time they take to complete the test.

Student	Accuracy (%)	Time (seconds)
Girl 1	94	28
Girl 2	91	26
Girl 3	88	23
Girl 4	82	25
Girl 5	98	29
Girl 6	94	24
Girl 7	98	27
Girl 8	86	24
Girl 9	80	22
Girl 10	92	26

Student	Accuracy (%)	Time (seconds)
Boy 1	85	24
Boy 2	92	28
Boy 3	81	27
Boy 4	97	30
Boy 5	96	27
Boy 6	84	22

(a) Sally says

'It is important to be as accurate as possible.'

Which student is the most accurate in the test?

(b) Jon says

'It is important to be as fast as possible.'

Which student is the fastest in the test?

(c) Compare the proportions of boys and girls who are at least 90% accurate.

Answers

(a) Girl 7 (Girls 5 and 7 were the most accurate but Girl 7 was faster)

(b) Boy 6 (Boy 6 and Girl 9 were the fastest but Boy 6 was more accurate)

(c) There were 6 girls and 3 boys.
That's 60% ($\frac{6}{10}$ or $\frac{3}{5}$) of girls and 50% ($\frac{3}{6}$ or $\frac{1}{2}$) of boys.
Proportionally more girls were at least 90% accurate.

Links to Level 2 Skills Standards

	Skills standard		Evidence
(a)	Ra	Understands problem and starts to access it	Identifies Girl 5 and/ or Girl 7 as being most accurate
	Ib	Draws conclusions and gives justifications	Selects Girl 7 as fastest of the two
(b)	Ra	Understands problem and starts to access it	Identifies Boy 6 and/ or Girl 9 as being fastest
	Ib	Draws conclusions and gives justifications	Selects Boy 6 as most accurate of the two
(c)	Ra	Understands problem and starts to access it	States 6 boys and 3 girls fit criteria
	Rc	Chooses the mathematics needed to find a solution	Writes proportion of girls and proportion of boys as fraction or percentage
	Ib	Draws conclusions and gives justifications	Makes comparative statement based on their 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)	✓			S2.5			S2.5		S7		
(b)	✓			S2.5			S2.5		S7		
(c)		✓		N2.5			N2.5		N5		

Extension (Worksheet 2)

(a) Compare
the times taken by the boys who were at least 90% accurate
with
the times taken by the girls who were at least 90% accurate.

(b) Compare
the accuracy of the boys who took less than 25 seconds
with
the accuracy of the girls who took less than 25 seconds.

Answers

(a) On average girls are faster but the boys' times were more consistent.

	Mean	Median	Range
Girls	(28 + 26 + 29 + 24 + 27 + 26) ÷ 6 = 26.6(...)	26.5	29 – 24 = 5
Boys	(28 + 30 + 27) ÷ 3 = 28.3(...)	28	30 – 27 = 3

(b) On average the girls are more accurate but the boys' accuracy was more consistent.

	Mean	Median	Range
Girls	(88 + 94 + 86 + 80) ÷ 4 = 87%	87%	94 – 80 = 14
Boys	(85 + 84) ÷ 2 = 84.5%	84.5%	85 – 84 = 1

Links to Level 2 Skills Standards

	Skills standard		Evidence
Extension a	Ra	Understands problem and starts to access it	Lists times taken by boys and girls that take < 25 seconds
	Rc	Chooses the mathematics needed to find a solution	Shows method for finding mean or median for selected boys and girls
	Aa	Uses mathematics to find a solution	Calculates mean or median for both
	Aa	Uses mathematics to find a solution	Calculates range for both
	Ib	Draws conclusions and gives justifications	Makes comparative statement about average and/or spread
Extension b	Ra	Understands problem and starts to access it	Lists times taken by boys and girls that are 90% accurate
	Rc	Chooses the mathematics needed to find a solution	Shows method for finding mean or median for selected boys and girls
	Aa	Uses mathematics to find a solution	Calculates mean or median for both
	Aa	Uses mathematics to find a solution	Calculates range for both
	Ib	Draws conclusions and gives justifications	Makes comparative statement about average and/or spread

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		✓		S3.3 S4.4			S3.3 S4.4		S15 S10		
Extension b		✓		S3.3 S4.4			S3.3 S4.4		S15 S10		