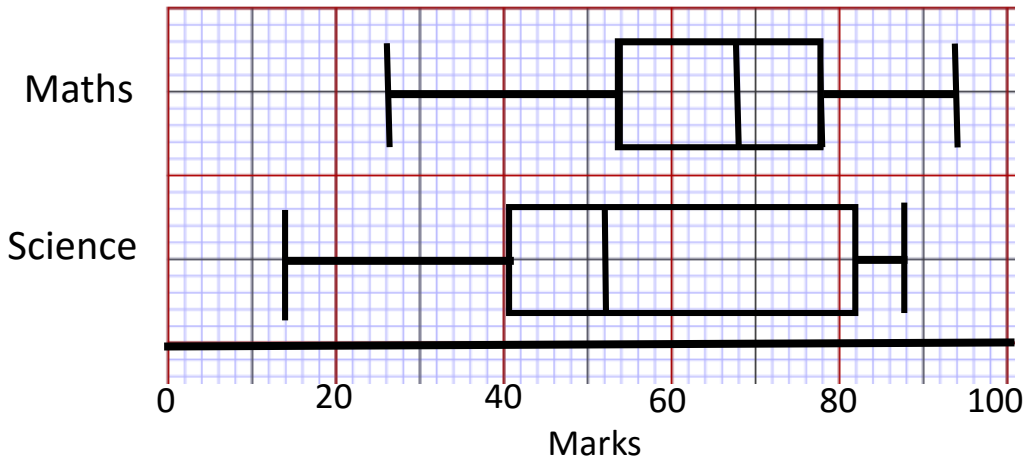


Box Plots

The box plots show student results in Maths and Science test scores.



1. What is the lowest mark in the Science test?

/1

2. Compare the distribution of the marks in the Maths test and marks in the Science test.

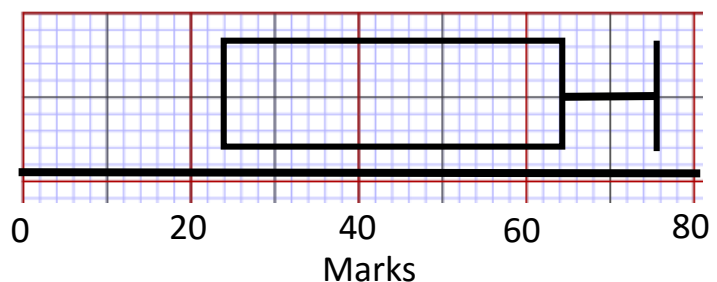
- i. _____
- ii. _____

/2

3. Explain why the interquartile range may be a better measure of spread than the range.

/1

	Mark
Minimum Mark	16
Lower Quartile	24
Median	44
Upper Quartile	
Maximum Mark	76



The incomplete box plot and table show some information about some marks.

4. Use the information in the table to complete the box plot.

/2

5. Use the information in the box plot to complete the table

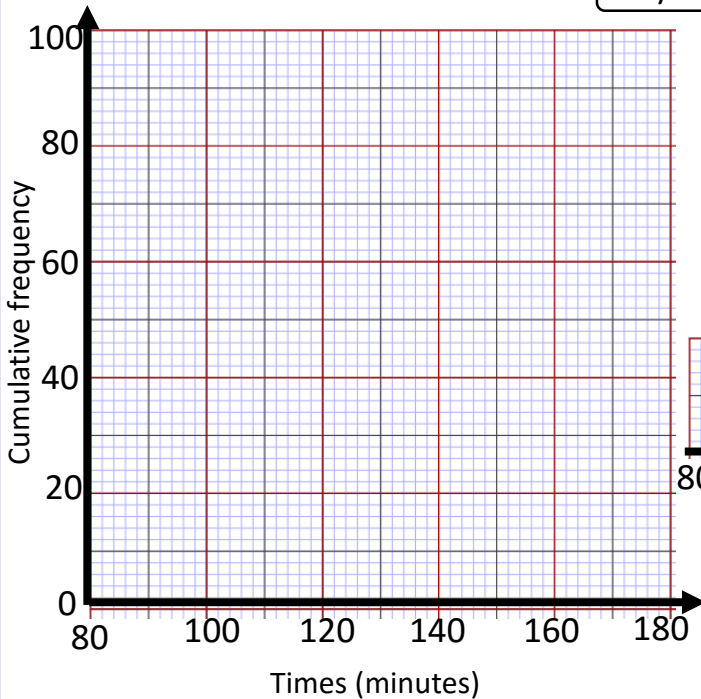
/1



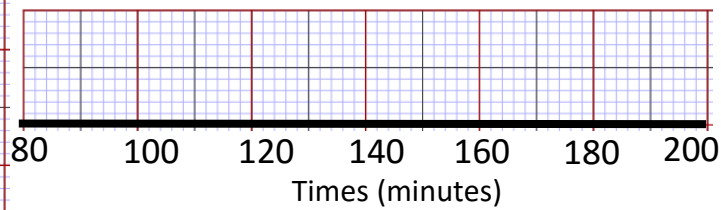
The frequency distribution shows the times taken by runners in 'The Great North Run'.

Time (t minutes)	Frequency
$80 < t \leq 100$	12
$100 < t \leq 120$	16
$120 < t \leq 140$	24
$140 < t \leq 160$	32
$160 < t \leq 180$	16

6. Draw a cumulative frequency diagram for this data. /3

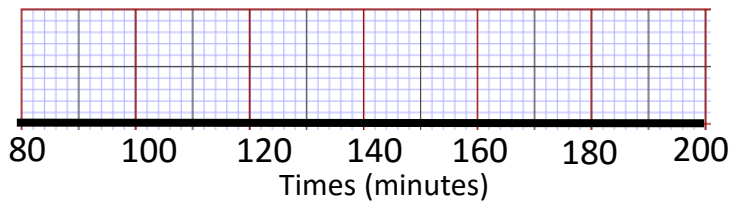


7. Using the cumulative frequency diagram draw a box plot for this data.



/3

8. Draw a box plot for the previous years 'Great North Run' times. The minimum time the course was completed in was 82 minutes and the range of times was 98 minutes. The median time is double the minimum time, with the Interquartile range being 48 and the upper quartile time at 176.



/3

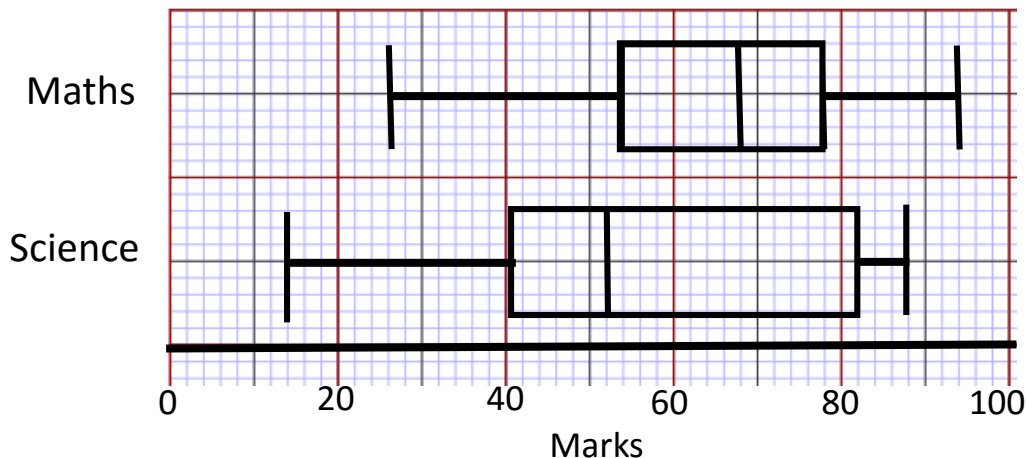
Skill	Questions	Score	Available Marks
Accurately draw a box plot.	4,7,8		8
Interpret a box plot.	1,3,5		3
Draw a cumulative frequency diagram.	6		3
Make comparisons between data using box plots.	2		2
	Total Marks		16

Answers

Box Plots



The box plots show student results in Maths and Science test scores.



1. What is the lowest mark in the Science test? **14 Marks**

/1

2. Compare the distribution of the marks in the Maths test and marks in the Science test.

i. **Median** Maths has a median score of 68 marks whereas Science has a median score of 52. This means on average students score higher in Maths than science.

ii. **IQR** Maths has a IQR of $78-54=24$, where as Science has an IQR of $82-40=42$. This means the results on the test are more consistent in Maths

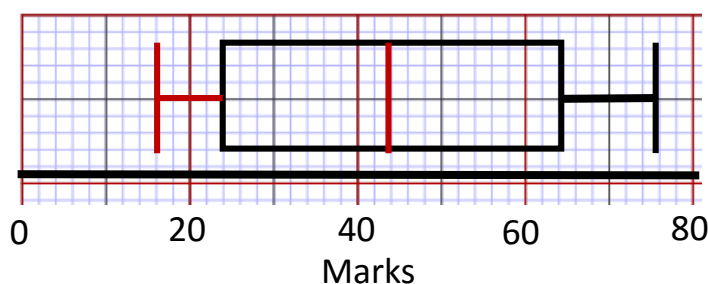
/2

3. Explain why the interquartile range may be a better measure of spread than the range.

The interquartile range gets rid of any extreme values and anomalies, it only deals with the middle 50% of the data.

/1

	Mark
Minimum Mark	16
Lower Quartile	24
Median	44
Upper Quartile	64
Maximum Mark	76



The incomplete box plot and table show some information about some marks.

4. Use the information in the table to complete the box plot.

/2

5. Use the information in the box plot to complete the table

/1

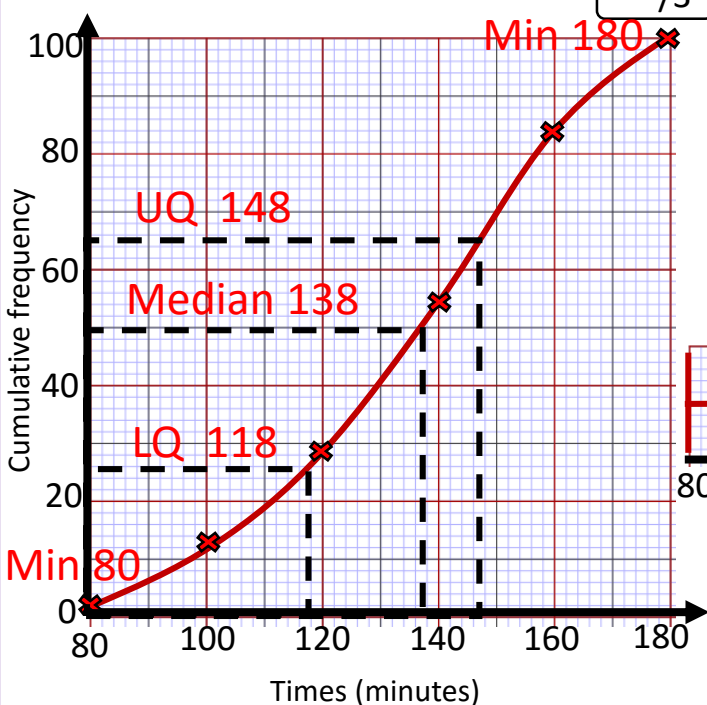
Answers



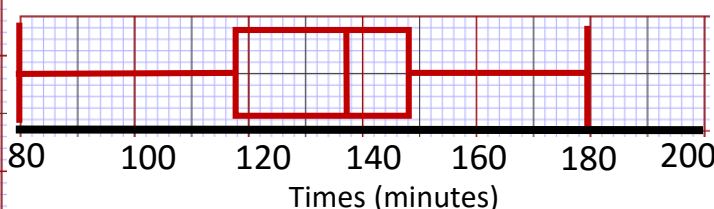
The frequency distribution shows the times taken by runners in 'The Great North Run'.

Time (t minutes)	Frequency
$80 < t \leq 100$	12
$100 < t \leq 120$	16
$120 < t \leq 140$	24
$140 < t \leq 160$	32
$160 < t \leq 180$	16

6. Draw a cumulative frequency diagram for this data.



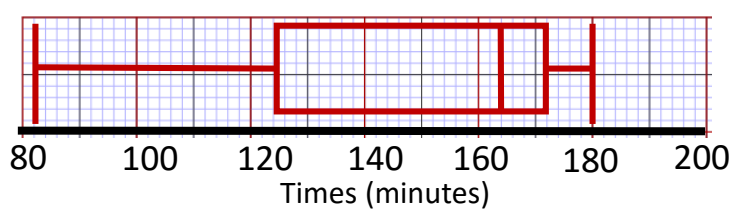
7. Using the cumulative frequency diagram draw a box plot for this data.



/3

8. Draw a box plot for the previous years 'Great North Run' times. The minimum time the course was completed in was 82 minutes and the range of times was 98 minutes. The median time is double the minimum time, with the Interquartile range being 48 and the upper quartile time at 172.

	Mark
Minimum Mark	82
Lower Quartile	124
Median	164
Upper Quartile	172
Maximum Mark	180



/3

Skill	Questions	Score	Available Marks
Accurately draw a box plot.	4,7,8		8
Interpret a box plot.	1,3,5		3
Draw a cumulative frequency diagram.	6		3
Make comparisons between data using box plots.	2		2
	Total Marks		16