



Interpreting data from box and whisker - CSSI

Mana Maths

Box Plots: The Five-Number Summary



Key idea



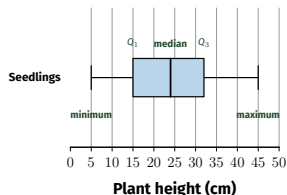
A box plot marks the **minimum**, Q_1 , **median**, Q_3 , and **maximum**.

Four quartile intervals



Each interval contains about 25% of the data. The box contains the middle 50%.

Anatomy of a box plot



= **copy**. No pencil = read or discuss.

Read Values from the Scale



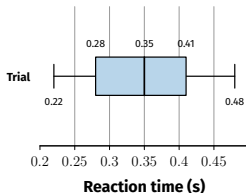
Key idea

Use the numbered scale and units. Estimate between ticks only as accurately as the scale allows.

Reaction time

Five-number summary (s):
(0.22, 0.28, 0.35, 0.41, 0.48).

Read down to the axis



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Range and Interquartile Range



Key idea



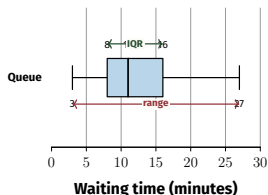
range =
maximum – minimum.
 $\text{IQR} = Q_3 - Q_1$. The IQR
measures the spread of
the middle 50%.

Queue waiting time



Range = $27 - 3 = 24$ min.
 $\text{IQR} = 16 - 8 = 8$ min.

See both spreads



Interpret Centre and Spread



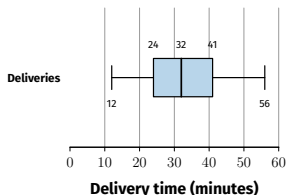
Key idea

The median splits ordered data in half: about 50% lies on each side.

Delivery times

Median = 32 min. The middle 50% spans 24 to 41 min, so IQR = 17 min.

Centre plus middle spread



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Equal Proportions, Unequal Lengths



Key idea



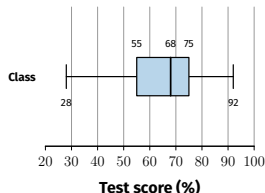
Each quartile interval holds about 25%, even when its numerical length differs.

Test scores



68–75 is concentrated.
Longer lower intervals suggest a left tail.

Same proportion, different width



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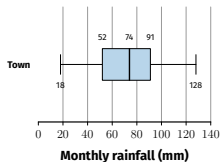
A Complete Interpretation



Rainfall summary

Median = 74 mm. The middle 50% is 52 to 91 mm, so IQR = 39 mm. Range = $128 - 18 = 110$ mm. The longer lower whisker suggests more spread below Q_1 .

Support every claim



Common mistake

The box is the middle 50%, not all data. Median is not mean; longer does not mean more data.