

Compare Box Plots Fairly with CSSI



Key idea



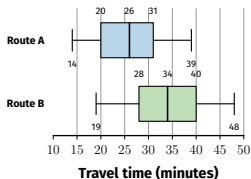
CSSI means **Centre, Shape, Spread, Interesting features**. Use context and values.

Start fairly



Use one scale. Compare both groups, not isolated extremes.

Two routes, one scale



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

C = Compare Centre



Key idea



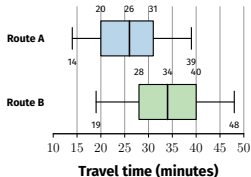
Compare **medians** to describe typical values. State the direction and size of the difference.

Travel times



Route A's median is 26 min: 8 min lower than Route B's 34 min.

Median against median



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S = Compare Spread and Consistency



Key idea



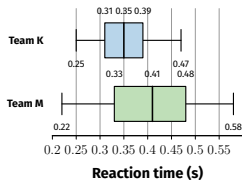
Smaller IQR means the middle 50% is more tightly grouped, so it is more consistent.

Reaction times



K: IQR = 0.08 s. M: IQR = 0.15 s. K is more consistent.

IQR is the box width



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S = Compare Shape Carefully



Key idea



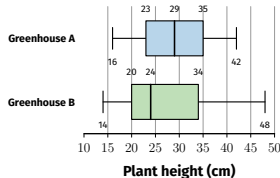
Use median position, box sections, and whiskers. Say **suggests** because a box plot summarises.

Plant heights



A is roughly symmetric.
B's longer upper side suggests a right tail.

Look across all four intervals



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I = Similarities, Differences, Overlap



Key idea



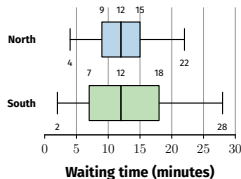
Overlap shows shared possible values, not identical distributions.

Queue times



Both medians are 12 min.
IQRs: South 11 min, North 6 min.
Ranges overlap; spread differs.

Overlap is only one feature



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Write a Complete CSSI Comparison



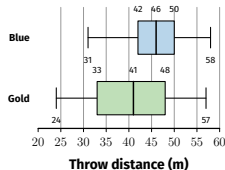
Sports performance



Blue has the higher median: 46 m versus 41 m. Blue is more consistent: IQR 8 m versus 15 m. Gold suggests a longer lower tail. Both maxima are about 58 m; ranges overlap.

Check: both groups, context, CSSI, evidence.

Evidence for every sentence



Common mistake

Higher median = higher typical value. Smaller IQR = more consistency. These claims differ.

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