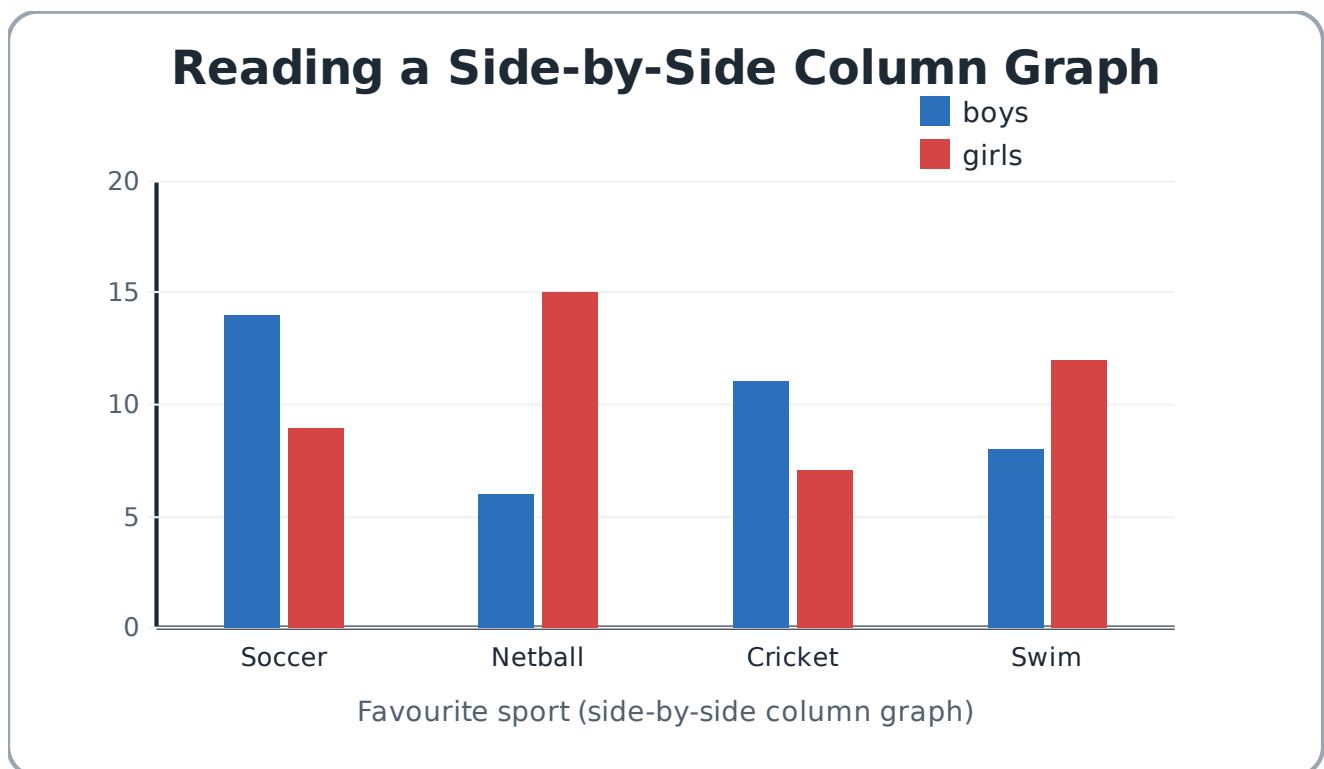


Statistics: Interpreting Displays & Running a Data Investigation

Explicit teaching — I Do (~15 min)

Spans *WA6MPSS1–SS3*, including a capstone investigation; plan as a 2–3 lesson sub-sequence.

1. Interpreting displays [WA6MPSS1](#)



A side-by-side column graph compares two groups.

Model reading the graph, and define [mode](#) (most frequent), [range](#) (max – min), and [shape](#) (where data clusters, spreads or gaps).

2. Features that influence an audience [WA6MPSS2](#)

Show two graphs of the same data — one with a truncated (non-zero) axis that exaggerates differences. Discuss how scale, colour and labels can mislead.

3. The investigation cycle [WA6MPSS3](#)

The steps. Pose a question → plan and collect data accurately → represent it (line graph / side-by-side columns) → interpret and communicate, describing reasons for variation.

Guided practice — We Do (~20 min)

1. **Read together.** Interpret a side-by-side column graph as a class; find the mode and range and describe the shape.
2. **Spot the spin.** Compare a fair and a misleading version of the same data; list the features that change the impression.
3. **Plan an investigation.** Co-design a class question (e.g. "How do screen-time hours differ across the week?"), agree how to collect data accurately and consistently, and choose an appropriate display.

Independent practice — You Do (~15 min, extends across the sub-sequence)

Investigation task:

- pose a statistical question about a real-world context;
- collect (or use provided) continuous and discrete data, ensuring accuracy and consistency;
- represent it with a suitable display (line graph and/or side-by-side column graph);
- interpret findings: state mode, range and shape, and describe reasons for variation;
- reflect: could the display mislead? How is it fair?

Exit ticket. Give the mode and range of: 4, 7, 7, 9, 12. Name one way a column graph could mislead a reader.

Teacher notes

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Curriculum links: WA6MPSS1, WA6MPSS2, WA6MPSS3 (SS3 is a capstone — coverage *mastered*). Final lesson of the unit.

Materials: sample data sets, graph paper or spreadsheet, examples of misleading graphs, an investigation planning sheet.

Suggested split

- **SS1** reading displays + mode/range/shape; **SS2** critiquing misleading displays; **SS3** the full data investigation (best as a rich assessment task).

Common misconceptions

- Confusing mode with mean or median.
- Calculating range as just the largest value.
- Reading side-by-side columns as a single series.
- Trusting a graph without checking the axis.

Assessment: WA6MPSS3 is ideal evidence for a unit assessment — assess the whole investigation cycle.

Approaches

INQUIRY-BASED · INQUIRY-BASED DATA INVESTIGATION APPROACH

Inquiry-based data investigation approach

Run the lesson as an authentic, end-to-end data investigation that students own.

Student-chosen question. Students pick a question that matters to them (canteen choices, bedtimes, commute methods) and collect real data from the class or school.

Spreadsheet power. Use a spreadsheet to enter data and generate side-by-side column graphs and line graphs, freeing time for interpretation over hand-plotting.

Statistical detective station. Students examine real or teacher-made misleading media graphs and rewrite them fairly — directly targeting WA6MPSS2.

Data-story presentation. Each group communicates findings, names mode/range/shape, and explains variation — assessing the full WA6MPSS3 cycle.

Cross-Curricular & Digital: Real Data, Real Stories

This approach connects statistics to science, geography and sport, and uses digital tools to collect and graph real data — ideal for learners motivated by authentic questions and technology.

Science link — weather watch. Students record the daily maximum temperature for a week (or use a weather website), enter it in a spreadsheet, and auto-generate a line graph to describe the trend, just like the worksheet graph.

Health/PE link — class fitness. Groups measure a simple metric (e.g. how many star jumps in 30 seconds), pool the data, and calculate the mean, median, mode and range, then discuss which average best represents the class.

Digital surveys. Students build a quick online form (favourite sport, pets, screen time), share it with the class, and watch responses graph themselves in real time, then choose the clearest display.

Media-literacy hunt. Students find a real graph in a news article or advertisement and judge whether it is fair or misleading, presenting their verdict with reasons.

Why it works. Collecting and graphing their own data — and critiquing graphs from the real world — turns statistics from a set of procedures into a tool for answering questions and spotting when numbers are being used to deceive.