



Key focus

This LO is an overview across all four common display types – bar graphs, histograms, pie charts, and pictograms – focused entirely on **READING** values and drawing conclusions (comparisons, totals, percentages), not on constructing the displays (that sits in the more granular pie/pictogram and bar/histogram LOs). It also introduces the sample-versus-census distinction as a lead-in to why data is displayed graphically in the first place.

Suggested teaching sequence

1. Introduce sample vs. census: a census surveys every member of a population; a sample surveys part of it. Discuss why a census is often impractical, and why a well-chosen sample can still give a reliable conclusion.
2. Introduce the axis, scale, and key/legend as the common furniture every display shares, then practise reading a single value directly off a bar graph, histogram, pie chart, and pictogram in turn.
3. Establish the bar graph vs. histogram distinction: a bar graph has gaps between bars (discrete/categorical data); a histogram's bars touch (continuous/grouped data).
4. Practise finding a total by adding every bar/class/sector, and the modal class of a histogram (the tallest bar).
5. Practise combining two or more categories or classes (a difference, a partial total, a fraction, or a percentage of the whole).
6. Read a pictogram using its key (units per icon), including estimating from a partial (e.g. half) icon.
7. Discuss which display suits which kind of data (e.g. categorical vs. continuous, part-to-whole vs. exact-value comparison), without introducing sector-angle construction or unequal-class-width reasoning – those stay in the granular sibling LOs.

Core examples to model

- Direct read: a bar graph shows Blue = 9; a histogram shows the 150–160 class has frequency 11.
- Total: add every bar/class, e.g. $6 + 9 + 4 + 5 = 24$ people surveyed.
- Modal class: the tallest histogram bar, e.g. 10–20 minutes with frequency 14.
- Percentage from a pie chart: Walk = 12 of 24 total, so $12/24 = 50\%$.
- Pictogram with a partial icon: 1 icon = 10 books; a half icon adds 5 books to the whole-icon count.

Watch for

- Confusing a bar graph (gaps, discrete categories) with a histogram (touching bars, continuous data).

- Reading the modal class as the class with the highest BOUNDARY number rather than the highest frequency.
- Forgetting to use the pictogram's key (units per icon) and just counting icons as the answer.
- Computing a percentage or fraction against the wrong total (a single category's value instead of the grand total).
- Assuming a census is always better than a sample, without weighing practicality (time, cost, feasibility).

Checks for understanding

- Can students read a single value directly off each of the four display types?
- Can they find a total, a difference, a fraction, or a percentage from a chart's values?
- Can they identify the modal class of a histogram and the most/least common category on a bar graph or pie chart?
- Can they distinguish a bar graph from a histogram, and explain why each suits its kind of data?
- Can they explain the difference between a sample and a census, and when a sample is preferable?