**This Learning Progression begins at Level 1 of the Victorian Curriculum and concludes at Level 10. Six progressions are provided in this span.**

*Description:* This Learning Progression describes how a student becomes increasingly able to recognise and use visual and numerical displays to describe data associated with statistical investigations, and to critically evaluate investigations by others. Making sense of data draws on knowing the concepts and tools that are being used to describe the global features of data. A student understands how these concepts and tools make meaning of data in context, and develops the ability to think critically about any claims, either questioning or confirming them. For example, arguments presented in the media often need to be considered in terms of the supporting data.

*Details of progression provide nuanced and detailed descriptions of student learning – what students can say, do, make or write. Examples of student learning in each step are not hierarchical, nor are they to be used as a checklist.*

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| **Victorian Curriculum Level 1** |  | **Victorian Curriculum Level 10** |
| **One-to-one data displays** The student:* displays information using real objects or photographs
* responds to questions about the information in one-to-one data displays
* interprets general observations made about data represented in one-to-one data displays
* makes comparisons from categorical data displays using relative heights from a common baseline
* draws reasonable conclusions from one-to-one data displays.
 | **Collecting and displaying data** The student:* justifies data collection methods to fit the context
* interprets and uses structural elements in data displays (labels, symbols).
 | **Interpreting data scales** The student:* interprets categorical data using a many-to-one graphical display, as well as simple histograms and stacked dot plots
* explains how data displays can be misleading (whether a scale should start at zero)
* interprets data displayed using a multi-unit scale, reading values between the marked units.
 | **Shape of data displays** The student:* determines and calculates the most appropriate statistic to describe the data
* uses simple descriptive statistics (arithmetic mean or median) as measures to represent typical values of a distribution
* compares the usefulness of different representations of the same data.
 | **Graphical representations of data**The student:* uses graphical representations relevant to the purpose of the collection of the data
* uses features of graphical representations to make predictions
* recognises that continuous variables depicting growth or change often vary over time (growth charts, temperature charts)
* interprets graphs depicting motion such as distance–time graphs
* interprets and describes patterns in graphical representations in real-life situations (roller-coasters, flight trajectory)
* interprets the impact of outliers in data
* determines whether to use data from a sample or a population
* determines what type of sample to use from a population
* makes reasonable statements about a population based on evidence from samples.
 | **Recognising bias** The student:* applies an understanding of distributions to evaluate claims based on data (the larger the sample taken, the more accurate the prediction of the population value is likely to be)
* recognises and explains bias as a possible source of error in media reports of survey data
* justifies criticisms of data sources that include biased statistical elements (inappropriate sampling from populations).
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Student learning in numeracy has links beyond Mathematics in the Victorian Curriculum F–10. Teachers are encouraged to identify links within their teaching and learning plans.