**DATA 1 – STAGE 3**

**OUTCOMES**

A student:

* MA3-1WM - describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
* MA3-3WM - gives a valid reason for supporting one possible solution over another
* MA3-18SP - uses appropriate methods to collect data and constructs, interprets and evaluates data displays, including dot plots, line graphs and two-way tables

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| **CONTENT** | **plan** |
| **Pose questions and collect [categorical](http://syllabus.bos.nsw.edu.au/glossary/mat/categorical-variable/?ajax" \t "_blank" \o "Click for more information about 'categorical') or [numerical data](http://syllabus.bos.nsw.edu.au/glossary/mat/numerical-data/?ajax" \t "_blank" \o "Click for more information about 'numerical data') by observation or survey (ACMSP118)** |  |
| pose and refine questions to construct a survey to obtain categorical and numerical data about a matter of interest | 1 |
| collect categorical and numerical data through observation or by conducting surveys, eg observe the number of a particular type of insect in one square metre of the playground over time E | 2 |
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| **Construct displays, including [column graphs](http://syllabus.bos.nsw.edu.au/glossary/mat/column-graph/?ajax" \t "_blank" \o "Click for more information about 'column graphs'), [dot plots](http://syllabus.bos.nsw.edu.au/glossary/mat/dot-plot/?ajax" \t "_blank" \o "Click for more information about 'dot plots') and tables, appropriate for [data](http://syllabus.bos.nsw.edu.au/glossary/mat/data/?ajax" \t "_blank" \o "Click for more information about 'data') type, with and without the use of digital technologies (ACMSP119)** |  |
| tabulate collected [data](http://syllabus.bos.nsw.edu.au/glossary/mat/data/?ajax" \t "_blank" \o "Click for more information about 'data'), including numerical data, with and without the use of digital technologies such as spreadsheets CT | 1 |
| construct column / line graphs of numerical data using a scale of [many-to-one correspondence](http://syllabus.bos.nsw.edu.au/glossary/mat/many-to-one-correspondence/?ajax" \t "_blank" \o "Click for more information about 'many-to-one correspondence'), with and without digital technologies | 2,3 |
| name and label the horizontal and vertical axes when constructing graphs (Communicating) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 2 |
| choose an appropriate title to describe the data represented in a [data display](http://syllabus.bos.nsw.edu.au/glossary/mat/data-display/?ajax" \t "_blank" \o "Click for more information about 'data display') (Communicating) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 1, 2, 3 |
| determine an appropriate scale of many-to-one correspondence to represent the data in a data display (Reasoning) | Missing |
| mark equal spaces on the axes when constructing graphs, and use the scale to label the markers (Communicating) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 2, 3 |
| construct dot plots for numerical data, eg the number of siblings of each student in the class CT | 1 |
| consider the data type to determine and draw the most appropriate display(s), such as column graphs, dot plots and line graphs | 3 |
| discuss and justify the choice of data display used (Communicating, Reasoning) CT | 3 |
| recognise that line graphs are used to represent data that demonstrates continuous change, eg hourly temperature (Communicating)  | Missing |
| recognise which types of data display are most appropriate to represent categorical data (Communicating) | Missing |
| **Describe and interpret different data sets in context (ACMSP120)** |  |
| interpret line graphs using the scales on the axes http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 3 |
| describe and interpret data presented in tables, dot plots, column graphs and line graphs, eg 'The graph shows that the heights of all children in the class are between 125 cm and 154 cm' http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 1, 2 |
| determine the total number of data values represented in dot plots and column graphs, eg find the number of students in the class from a display representing the heights of all children in the class (Problem Solving, Reasoning) | 1, 2 |
| identify and describe relationships that can be observed in data displays, eg 'There are four times as many children in Year 5 whose favourite food is noodles compared to children whose favourite food is chicken' (Communicating, Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 1, 2, 3 |
| use information presented in data displays to aid decision making, eg decide how many of each soft drink to buy for a school fundraising activity by collecting and graphing data about favourite soft drinks for the year group or school (Reasoning) CT | 3 |

**DATA 2 – STAGE 3**

**OUTCOMES**

A student:

* MA3-1WM - describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions
* MA3-3WM - gives a valid reason for supporting one possible solution over another
* MA3-18SP - uses appropriate methods to collect data and constructs, interprets and evaluates data displays, including dot plots, line graphs and two-way tables

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| **CONTENT** | **plan** |
| **Interpret and compare a range of [data displays](http://syllabus.bos.nsw.edu.au/glossary/mat/data-display/?ajax" \t "_blank" \o "Click for more information about 'data displays'), including [side-by-side column graphs](http://syllabus.bos.nsw.edu.au/glossary/mat/side-by-side-column-graph/?ajax" \t "_blank" \o "Click for more information about 'side-by-side column graphs') for two [categorical variables](http://syllabus.bos.nsw.edu.au/glossary/mat/categorical-variable/?ajax" \t "_blank" \o "Click for more information about 'categorical variables')(ACMSP147)** |  |
| interpret [data](http://syllabus.bos.nsw.edu.au/glossary/mat/data/?ajax" \t "_blank" \o "Click for more information about 'data') presented in [two-way tables](http://syllabus.bos.nsw.edu.au/glossary/mat/two-way-table/?ajax" \t "_blank" \o "Click for more information about 'two-way tables') http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 5 |
| create a two-way table to organise data involving two categorical variables, eg  | 5 |
| interpret side-by-side column graphs for two categorical variables, eg favourite television show of students in Year 1 compared to that of students in Year 6 http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 5 |
| interpret and compare different displays of the same data set to determine the most appropriate display for the data set | 4 |
| compare the effectiveness of different student-created data displays (Communicating) | 4 |
| discuss the advantages and disadvantages of different representations of the same data (Communicating) CTU | 5 |
| explain which display is the most appropriate for interpretation of a particular data set (Communicating, Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCT | 6 |
| compare representations of the same data set in a side-by-side column graph and in a two-way table (Reasoning) CT | 6 |

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| **Interpret [secondary data](http://syllabus.bos.nsw.edu.au/glossary/mat/secondary-data-set/?ajax" \t "_blank" \o "Click for more information about 'secondary data') presented in digital media and elsewhere (ACMSP148)** |  |
| interpret data representations found in digital media and in factual texts http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCT | Missing |
| interpret tables and graphs from the media and online sources, eg data about different sports teams (Reasoning) CTCT | 4 |
| identify and describe conclusions that can be drawn from a particular representation of data (Communicating, Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 4 |
| critically evaluate data representations found in digital media and related claims http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCTCTSCU | 6 |
| discuss the messages that those who created a particular data representation might have wanted to convey (Communicating) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCTSCU | 6 |
| identify sources of possible bias in representations of data in the media by discussing various influences on data collection and representation, eg who created or paid for the data collection, whether the representation is part of an advertisement (Communicating, Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCTSCU | 6 |
| identify misleading representations of data in the media, eg broken axes, graphics that are not drawn to scale (Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCTCTSCU | 6 |