**DATA 1 – STAGE 2**

**OUTCOMES**

A student:

* MA2-1WM - uses appropriate terminology to describe, and symbols to represent, mathematical ideas
* MA2-2WM - selects and uses appropriate mental or written strategies, or technology, to solve problems
* MA2-3WM - checks the accuracy of a statement and explains the reasoning used
* MA2-18SP - selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays, including tables, picture graphs and column graphs

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| **CONTENT** | **Plan** |
| **Identify questions or issues for [categorical variables](http://syllabus.bos.nsw.edu.au/glossary/mat/categorical-variable/?ajax" \t "_blank" \o "Click for more information about 'categorical variables'); identify [data](http://syllabus.bos.nsw.edu.au/glossary/mat/data/?ajax" \t "_blank" \o "Click for more information about 'data') sources and plan methods of data collection and recording (ACMSP068)** |  |
| recognise that data can be collected either by the user or by others | 1 |
| identify possible sources of data collected by others, eg newspapers, government data-collection agencies, sporting agencies, environmental groups http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCTE | 1 |
| pose questions about a matter of interest to obtain information that can be recorded in categories | 2 |
| predict and create a list of categories for efficient data collection in relation to a matter of interest, eg 'Which breakfast cereal is the most popular with members of our class?' http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | Missing |
| identify issues for data collection and refine investigations, eg 'What if some members of our class don't eat cereal?' (Problem Solving) CT | Missing |
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| **Collect data, organise it into categories, and create displays using lists, tables, [picture graphs](http://syllabus.bos.nsw.edu.au/glossary/mat/picture-graphs/?ajax" \t "_blank" \o "Click for more information about 'picture graphs') and simple [column graphs](http://syllabus.bos.nsw.edu.au/glossary/mat/column-graph/?ajax" \t "_blank" \o "Click for more information about 'column graphs'), with and without the use of digital technologies (ACMSP069)** |  |
| collect data and create a list or table to organise the data, eg collect data on the number of each colour of lollies in a packet  http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCT | 1 |
| use computer software to create a table to organise collected data, eg a spreadsheet (Communicating) CT | Missing |
| construct vertical and horizontal column graphs and picture graphs that represent data using [one-to-one correspondence](http://syllabus.bos.nsw.edu.au/glossary/mat/one-to-one-correspondence/?ajax" \t "_blank" \o "Click for more information about 'one-to-one correspondence') | 2 |
| use grid paper to assist in constructing graphs that represent data using one-to-one correspondence (Communicating) | 2 |
| use the terms 'horizontal axis', 'vertical axis' and 'axes' appropriately when referring to column graphs (Communicating) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 3 |
| use graphing software to enter data and create column graphs that represent data (Communicating) CT | Missing |
| mark equal spaces on axes, name and label axes, and choose appropriate titles for column graphs (Communicating) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 3 |
| choose an appropriate picture or symbol for a picture graph and state the key used (Communicating) | 2, 3 |
| **Interpret and compare [data displays](http://syllabus.bos.nsw.edu.au/glossary/mat/data-display/?ajax" \t "_blank" \o "Click for more information about 'data displays') (ACMSP070)** |  |
| describe and interpret information presented in simple tables, column graphs and picture graphs http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | Missing |
| make conclusions about data presented in different data displays, eg 'Football is the most popular sport for students in Year 3 at our school' (Communicating, Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | Missing |
| represent the same data set using more than one type of display and compare the displays | 2, 3 |
| discuss the advantages and/or disadvantages of different representations of the same data (Communicating, Reasoning) CT | 2, 3 |

**DATA 2 – STAGE 2**

**OUTCOMES**

A student:

* MA2-1WM - uses appropriate terminology to describe, and symbols to represent, mathematical ideas
* MA2-2WM - selects and uses appropriate mental or written strategies, or technology, to solve problems
* MA2-3WM - checks the accuracy of a statement and explains the reasoning used
* MA2-18SP - selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays, including tables, picture graphs and column graphs

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| CONTENT | Plan |
| **Select and trial methods for [data](http://syllabus.bos.nsw.edu.au/glossary/mat/data/?ajax" \t "_blank" \o "Click for more information about 'data') collection, including survey questions and recording sheets (ACMSP095)** |  |
| create a survey and related recording sheet, considering the appropriate organisation of categories for data collection | 4 |
| choose effective ways to collect and record data for an investigation, eg creating a survey with a scale of 1 to 5 to indicate preferences (1 = don't like, 2 = like a little, 3 = don't know, 4 = like, 5 = like a lot) (Communicating, Problem Solving) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 4 |
| refine survey questions as necessary after a small trial CT | 4 |
| discuss and decide the most suitable question to investigate a particular matter of interest, eg by narrowing the focus of a question from 'What is the most popular playground game?' to 'What is the most popular playground game among Year 3 students at our school?' (Communicating, Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCT | 5 |
| conduct a survey to collect [categorical](http://syllabus.bos.nsw.edu.au/glossary/mat/categorical-variable/?ajax" \t "_blank" \o "Click for more information about 'categorical') data | 5 |
| after conducting a survey, discuss and determine possible improvements to the questions or recording sheet (Communicating, Reasoning) CT | 5 |
| compare the effectiveness of different methods of collecting and recording data, eg creating categories of playground games and using tally marks, compared to asking open-ended questions such as 'What playground game do you like to play?' CT | Missing |
| discuss the advantages and/or disadvantages of open-ended questions in a survey, compared to questions with predetermined categories (Communicating, Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCT | 5, 6 |

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| **Construct suitable [data displays](http://syllabus.bos.nsw.edu.au/glossary/mat/data-display/?ajax" \t "_blank" \o "Click for more information about 'data displays'), with and without the use of digital technologies, from given or collected data; include tables, [column graphs](http://syllabus.bos.nsw.edu.au/glossary/mat/column-graph/?ajax" \t "_blank" \o "Click for more information about 'column graphs') and [picture graphs](http://syllabus.bos.nsw.edu.au/glossary/mat/picture-graphs/?ajax" \t "_blank" \o "Click for more information about 'picture graphs') where one picture can represent many data values (ACMSP096)** |  |
| represent given or collected categorical data in tables, column graphs and picture graphs, 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 the use of digital technologies | 4 |
| discuss and determine a suitable scale of many-to-one correspondence to draw graphs for large data sets and state the key used, eg http://syllabus.bos.nsw.edu.au/assets/mathematicsk10/images/s2sp003.png = 10 people, if there are 200 data values (Communicating, Reasoning) CT | 4 |
| use grid paper to assist in drawing graphs that represent data using a scale of many-to-one correspondence (Communicating) | 5 |
| use data in a spreadsheet to create column graphs with appropriately labelled axes (Communicating, Problem Solving) CT | 5 |
| mark equal spaces on axes, name and label axes, and choose appropriate titles for graphs (Communicating)http://syllabus.bos.nsw.edu.au/wsimages/cca/l.png | 6 |
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| **Evaluate the effectiveness of different displays in illustrating data features, including variability (ACMSP097)** |  |
| interpret and evaluate the effectiveness of various data displays found in media and in factual texts, where displays represent data using a scale of many-to-one correspondence http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCTCTSCU | 6 |
| identify and discuss misleading representations of data (Communicating, Reasoning) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCTSCU | 6 |
| discuss and compare features of data displays, including considering the number and appropriateness of the categories used, eg a display with only three categories (blue, red, other) for car colour is not likely to be useful (Communicating) http://syllabus.bos.nsw.edu.au/wsimages/cca/l.pngCTU | 4 |
| discuss the advantages and disadvantages of different representations of the same categorical data, eg column graphs compared to picture graphs that represent data using scales of many-to-one correspondence (Communicating) CTU | Missing |