

SYLLABUS RELATIONSHIPS

Stage 4 - Data

Workbook activities relate to outcomes of the NSW Syllabus as follows:

OUTCOME	Workbook Activities
<u>DS4.1 - Data Representation</u> Knowledge and skills. Students learn about:	
<ul style="list-style-type: none"> • drawing and interpreting graphs of the following types: <ul style="list-style-type: none"> - sector graphs - conversion graphs - divided bar graphs - line graphs - step graphs 	2 - 3,4,5,6,7,8,9 3 - 2,3,4,5,6 5 - 2,3,4,5,6,7 6 - 2 7 - 2,3,4,5,6,7,8,9 8 - 1,2,3,4,5,6,7,8,9,10 9 - 4 13 - 1,2,3,4,5,6,7 14 - 1,2,3,4,5,6
<ul style="list-style-type: none"> • choosing appropriate scales on the horizontal and vertical axes when drawing graphs 	2 - 9 3 - 2,4 4 - 8,9 5 - 6,7 6 - 7 8 - 9 10 - 7,8
<ul style="list-style-type: none"> • drawing and interpreting travel graphs, recognising concepts such as change of speed and change of direction 	5 - 3,6 8 - 3 13 - 5
<ul style="list-style-type: none"> • using line graphs for continuous data only 	5 - 1,2,4 8 - 3 14 - 2
<ul style="list-style-type: none"> • reading and interpreting tables, charts and graphs 	1 - 2,3,4,5,6 2 - 8 3 - 6 4 - 2,3,5,9 5 - 1,2,4,5,6,7 6 - 1,2,3,4,5,6,7,8 7 - 7,8,9 8 - 1,2,3,4,5,6,7,8,9,10 9 - 1,2,4 10 - 1,2,5,6 13 - 1,2,3,4,5,6
<ul style="list-style-type: none"> • recognising data as quantitative (either discrete or continuous) or categorical 	1 - 2 3 - 1,5,6 4 - 1,7,8 5 - 1,2 8 - 2,3
<ul style="list-style-type: none"> • using a tally to organise data into a frequency distribution table (class intervals to be given for grouped data) 	1 - 2,3,4 3 - 2 4 - 6,8 10 - 3,7,8 11 - 9
<ul style="list-style-type: none"> • drawing frequency histograms and polygons 	4 - 7,8,9 10 - 2,3,4,5,7,8
<ul style="list-style-type: none"> • drawing and using dot plots 	4 - 2 10 - 1,6,7 11 - 8

OUTCOME	Workbook Activities
<u>DS4.1 - Data Representation</u>	
Knowledge and skills. Students learn about:	
<ul style="list-style-type: none"> drawing and using stem-and-leaf plots 	4 - 3,4,5 10 - 2
<ul style="list-style-type: none"> using the terms 'cluster' and 'outlier' when describing data 	6 - 3,4 7 - 10 10 - 2,6,7
<u>DS4.1 - Data Representation</u>	
Working Mathematically. Students learn to:	
<ul style="list-style-type: none"> choose appropriate forms to display data (<i>Communicating</i>) 	2 - 7,9 4 - 2,3,4,5,6,9 7 - 3,6 8 - 2,3
<ul style="list-style-type: none"> write a story which matches a given travel graph (<i>Communicating</i>) 	13 - 5
<ul style="list-style-type: none"> read and comprehend a variety of data displays used in the media and in other school subject areas (<i>Communicating</i>) 	4 - 9 5 - 4,6,7 6 - 2,3,5,6 8 - 1,4,5,7,8,10 9 - 4,5
<ul style="list-style-type: none"> interpret back-to-back stem-and-leaf plots when comparing data sets (<i>Communicating</i>) 	4 - 5 10 - 2
<ul style="list-style-type: none"> analyse graphical displays to recognise features that may cause a misleading interpretation eg displaced zero, irregular scales (<i>Communicating, Reasoning</i>) 	8 - 1,2,3,4,5,6,7,8,9,10 9 - 4,5
<ul style="list-style-type: none"> compare the strengths and weaknesses of different forms of data display (<i>Reasoning, Communicating</i>) 	2 - 3,4,5,6,7,8,9 4 - 3,4,5,9
<ul style="list-style-type: none"> interpret data displayed in a spreadsheet (<i>Communicating</i>) 	7 - 1, 2,3,4,5,6,7,8,9,10
<ul style="list-style-type: none"> identify when a line graph is appropriate (<i>Communicating</i>) 	5 - 2,4 8 - 3 14 - 2
<ul style="list-style-type: none"> interpret the findings displayed in a graph eg the graph shows that the heights of all children in the class are between 140 cm and 175 cm and that most are in the group 151–155 cm (<i>Communicating</i>) 	2 - 8 3 - 6 4 - 2,3,5,9 5 - 1,2,4,5,6,7 6 - 1,2,3,4,5,6,7,8 7 - 7,8,9 8 - 1,2,3,4,5,6,7,8,9,10 9 - 1,2,4 10 - 1,2,5,6 13 - 1,2,3,4,5,6
<ul style="list-style-type: none"> generate questions from information displayed in graphs (<i>Questioning</i>) 	5 - 5 7 - 6

OUTCOME	Workbook Activities
DS4.2 - Data Analysis and Evaluation Knowledge and skills. Students learn about:	
• formulating key questions to generate data for a problem of interest	12 - 6,8
• refining key questions after a trial	1 - 3 12 - 8
• recognising the differences between a census and a sample	1 - 1 11 - 1
• finding measures of location (mean, mode, median) for small sets of data	1 - 2,3,4 3 - 2,3,4,5,6 4 - 2,3,4,5,6,7,8 8 - 3 9 - 6 10 - 1,5,7,8 11 - 6,9
• using a scientific or graphics calculator to determine the mean of a set of scores	4 - 6
• using measures of location (mean, mode, median) and the range to analyse data that is displayed in a frequency distribution table, stem-and-leaf plot, or dot plot	4 - 2,3,4,5,6,7,8 8 - 3 10 - 1,5,7,8 11 - 6,9
• collecting data using a random process eg numbers from a page in a phone book, or from a random number function on a calculator	11 - 3,4
• making predictions from a sample that may apply to the whole population	11 - 4,5,6,7,8,9
• making predictions from a scatter diagram or graph	5 - 4 6 - 5,6 13 - 2,3,4 14 - 1,3
• using spreadsheets to tabulate and graph data	7- 1, 2,3,4,5,6,7, 8,9,10 10 - 5
• analysing categorical data eg a survey of car colours	2 - 8,9 3 - 2,3,4,5,6 12 - 7,8

DS4.2 - Data Analysis and Evaluation	
Working Mathematically. Students learn to:	
<ul style="list-style-type: none"> work in a group to design and conduct an investigation eg <ul style="list-style-type: none"> decide on an issue decide whether to use a census or sample choose appropriate methods of presenting questions (yes/no, tick a box, a scale of 1 to 5, open-ended, etc) analyse and present the data draw conclusions (<i>Questioning, Reasoning, Applying Strategies, Communicating</i>) 	12 - 1,2,4,5,6,7,8
<ul style="list-style-type: none"> use spreadsheets, databases, statistics packages, or other technology, to analyse collected data, present graphical displays, and discuss ethical issues that may arise from the data (<i>Applying Strategies, Communicating, Reflecting</i>) 	7- 1,2,3,4,5,6,7, 8,9,10 12 - 3,7,8
<ul style="list-style-type: none"> consider the size of the sample when making predictions about the population (<i>Applying Strategies</i>) 	11 - 2,4,5,8,9
<ul style="list-style-type: none"> compare two sets of data by finding the mean, mode and/or median, and range of both sets (<i>Applying Strategies</i>) 	4 - 5,9 10 - 2,8
<ul style="list-style-type: none"> recognise that summary statistics may vary from sample to sample (<i>Reasoning</i>) 	11 - 4,8
<ul style="list-style-type: none"> draw conclusions based on the analysis of data (eg a survey of the school canteen food) using the mean, mode and/or median, and range (<i>Applying Strategies, Reasoning</i>) 	6 - 7 7 - 9,10 9 - 6 11 - 6,8 12 - 8
<ul style="list-style-type: none"> interpret media reports and advertising that quote various statistics eg media ratings (<i>Communicating</i>) 	9 - 1,2,3,4,5
<ul style="list-style-type: none"> question when it is more appropriate to use the mode or median, rather than the mean, when analysing data (<i>Questioning</i>) 	10 - 1,6