**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 2 | STRAND: Statistics and Probability | **SUB-STRAND: Data 1** | **WORKING MATHEMATICALLY:****MA2-1WM, MA2-2WM, MA2-3WM** |
| **OUTCOMES: MA2-18SP** | Selects appropriate methods to collect data, and constructs, compares, interprets and evaluates data displays, including tables, picture graphs and column graphs |
| **CONTENT:**  | **Identify questions or issues for [categorical variables](http://syllabus.bos.nsw.edu.au/glossary/mat/categorical-variable/?ajax" \o "Click for more information about 'categorical variables'" \t "_blank); identify [data](http://syllabus.bos.nsw.edu.au/glossary/mat/data/?ajax" \o "Click for more information about 'data'" \t "_blank) sources and plan methods of data collection and recording (ACMSP068)*** Pose questions about a matter of interest to obtain information that can be recorded in categories.

**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" \o "Click for more information about 'picture graphs'" \t "_blank) and simple [column graphs](http://syllabus.bos.nsw.edu.au/glossary/mat/column-graph/?ajax" \o "Click for more information about 'column graphs'" \t "_blank), with and without the use of digital technologies (ACMSP069)*** Choose an appropriate picture or symbol for a picture graph and state the key used (Communicating)
* Construct vertical and horizontal column graphs and picture graphs that represent data using a one-to-one correspondence.
* Use grid paper to assist in constructing graphs that represent data using a one-to-one correspondence.

**Interpret and compare [data displays](http://syllabus.bos.nsw.edu.au/glossary/mat/data-display/?ajax" \o "Click for more information about 'data displays'" \t "_blank) (ACMSP070)*** Represent the same data set using more than one type of display and compare the displays
* Discuss the advantages and/or disadvantages of different representations of the same data (Communicating, Reasoning)
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * General questioning – What is a graph? Where might you use/see one?
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| WARM UP / DRILL | * Favourite Numbers. Break students into group of four and get each student to choose a secret number. Record these numbers on a sheet and then the group leader puts a tally mark next to the favourite number on the board. Have the students observe which is the most popular number and the least popular number.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | If 20 students like broccoli, 13 students like carrots and there are 50 students in the group. How many liked zucchini best? |
| QUALITY TEACHING ELEMENTS | **INTELLECTUALQUALITY** | **QUALITY LEARNINGENVIRONMENT** | **SIGNIFICANCE** |
| * Deepknowledge
* Deepunderstanding
* Problematicknowledge
* Higher-orderthinking
* Metalanguage
* Substantivecommunication
 | * Explicit quality criteria
* Engagement
* High expectations
* Social support
* Students’ self-regulation
* Student direction
 | * Background knowledge
* Cultural knowledge
* Knowledge integration
* Inclusivity
* Connectedness
* Narrative
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| RESOURCES | Coloured transparency squares, grid paper, highlighters, computer with internet, Maths Builder  |

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| WHOLE CLASS INSTRUCTIONMODELLED ACTIVITIES | GUIDED &INDEPENDENT ACTIVITIES |
| * When the students are out of the room scatter coloured transparency squares around the room.
* When the students return, tell them you have scattered the coloured transparency squares around the room. Tell the students they will have 30 seconds to find as many transparency squares as they can.
* Time the students while they search for the squares, when 30 seconds is up, have the students return to their seats with their collected squares.
* Put the students into groups of 3 or 4 to combine their data. Ask the groups to make a tally chart to combine their amounts. (assessment for previous lesson)
* When the groups are finished combining the data, make a class tally chart combining the amounts of all of the squares. (# of blue, etc.)
* Ask the students to discuss in small groups how they could organise the class tally chart into a picture graph. The students can use the grid paper to draw an outline of their ideas.
* As a whole class discussion, take their suggestions to make a class graph displaying the data. Highlight all the elements of the graph as you go. Including how a key is used in a graph.A helpful website is <http://www.youtube.com/watch?v=_KGnYSMUW2Q>
* Have the students discuss in small groups what conclusions they can make from the data, and then share their ideas in a whole group discussion. If the students need some guidance, ask the students how the data might relate to animals in the wild. Students might suggest conclusions relating to camouflage.
 | LEARNING SEQUENCERemediationS1 | * Have the students work in pairs to construct a picture graph from a table you have given them. Students write 3 teacher-like questions about information in the graph.
* Online Game

http://www.studyladder.com.au/ learn/mathematics/activity/3269http://www.turtlediary.com/grade-2-games/math-games/graph-and-tally.html |
| LEARNING SEQUENCES2 | * Have the students work in pairs to construct a picture graph from a table you have given them. Make sure the numbers are large enough so the students will need to include a key. Students write 5 questions about information in the table and get a partner to answer. Worksheets available on Maths Builder.
* Playground Games. Have students collect data from the other students on their favourite playground games, chosen from a list which may include: chasings, elastics, handball, soccer. Students record the information in a table using tally marks and then draw column graphs on grid paper to represent this information. Discuss if you could display the information in another type of graph and what are the advantages and disadvantages.
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| LEARNING SEQUENCEExtension Late S2 | * Have the students work in pairs to construct a picture graph from a table you have given them. Make sure the numbers are large enough so the students will need to include a key.
* Have the students work in groups to write story problems using the data collected as a class. Have the groups trade story problems and work together to solve the story problems Worksheets available on Maths Builder.
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| **EVALUATION &REFLECTION** | **Student engagement: Achievement of Outcomes:****Resources:**  **Follow up:** |

**TEACHING AND LEARNING EXPERIENCES**

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.
* Assessment rubrics or marking scale should be considered.