**MATHEMATICS STAGE 2**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 3 | 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:**  | **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)

**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)
* Use terms horizontal axis, vertical axis and axes appropriately when referring to column graphs. (Communicating)
* Mark equal spaces on column graphs, using appropriate titles, and label the axes. (Communicating)
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * General questioning – What are column graphs a practical way to display collected data? Where might you see column graphs?
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| WARM UP / DRILL | * Students make a human column graph according to their age.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | * If I threw a dice and got altogether seven 6’s, nine 1’s, eighteen 3’s, two 5’s, fifteen 2’s and eleven 4’s. How may time had I thrown the dice?
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| QUALITY TEACHING ELEMENTS | **INTELLECTUALQUALITY** | **QUALITY LEARNINGENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* Deep understanding
* Problematic knowledge
* Higher-order thinking
* Metalanguage
* Substantive communication
 | * 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 | (1)<http://www.learninggamesforkids.com/4th-grade-math/data-statistics-4th.html> (2) <http://au.ixl.com/math/year-3> (3) <http://au.ixl.com/math/year-4>(4) <http://au.ixl.com/math/year-5/bar-graphs> (5) Maths builder, dice, internet |

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| WHOLE CLASS INSTRUCTIONMODELLED ACTIVITIES | GUIDED &INDEPENDENT ACTIVITIES |
| Interpreting a column graph * Display the column graph *Chris's Bank Account* from *Supporting themes with mathematics*.Give the students this information: *Chris receives $5 in pocket money each week. This graph shows the amount of money in his bank account over 5 weeks*.

http://www.schools.nsw.edu.au/learning/7-12assessments/naplan/teachstrategies/yr2012/images/data_table_04_09.jpg* In small groups students discuss the information in the table, then what each column shows. Discuss:
* *What does the information along the vertical axis tell us?* [the amount of money in his account]
* *What does each marker represent?* [50c]
* *Would the graph look different if each marker along this axis represented $1? How?*
* *What does the information along the horizontal axis tell us?* [the number of weeks he saved for]
* *How do the horizontal lines on the graph help us?*
* Write number sentences about each column, e.g.
* In week 1, Chris spent $3 and banked $2. [$5 - $3 = $2]

In week 2, Chris had $2 and got $5 pocket money. [$2 + $5 = $7] However, he has only $1 in the bank, so he must have spent $6.[$7 - $6 = $1]  | LEARNING SEQUENCERemediationS1 | * Present children with data in table form. Quickly build a graph and discuss the information. Jointly construct possible questions. Ask children to answer and explain answers.

IT: resource 2.Maths Builder |
| LEARNING SEQUENCES2 | * For the Bank Account whole class activity. Ask students to write a story about the information shown in the graph, then share their stories with the class.
* Students prepare questions based on the graph and place in a question box for the class to answer.
* Present children with data in table and graph form. Ask students to think of other ways they may present the data.
* Students develop five open ended questions related to the data on the graphs.

IT: resource 3 Maths Builder* Counting Sheep. Have the students use the internet to research the number of cattle/sheep in farms in the area. Discuss the large numbers and how it would be too hard to record each individual animal. Introduce a key, e.g C:\Users\Emma\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\L9YUXAT4\MM900040929[1].gif = 1000 sheep. Construct a picture graph with the information from the research. Ask the students the advantages and disadvantages of a picture graph.
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| LEARNING SEQUENCEExtension Late S2 | **Answer me a question.*** Present children with a graph and a list of answers. Then ask children to pose questions.

**IT: resource 4** Maths Builder |
| **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.