**MATHEMATICS STAGE 1**

**TEACHING AND LEARNING OVERVIEW**

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| TERM: | WEEK: 6 | STRAND: STATISTICS AND PROBABILITY | **SUB-STRAND: Data 2** | **WORKING MATHEMATICALLY:****MA1-1WM, MA1-2WM, MA1-3WM** |
| OUTCOMES: MA1-17SP | **Gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results.** |
| **CONTENT:**  | **Identify a question of interest based on one [categorical variable](http://syllabus.bos.nsw.edu.au/glossary/mat/categorical-variable/?ajax" \t "_blank" \o "Click for more information about 'categorical variable') and gather [data](http://syllabus.bos.nsw.edu.au/glossary/mat/data/?ajax" \t "_blank" \o "Click for more information about 'data') relevant to the question (ACMSP048)** * Predict the likely responses within data to be collected. (Reasoning)
* Determine what data to gather in order to investigate a question of interest, eg colour, mode of transport, gender, type of animal, sport. (Problem Solving)

**Collect, check and classify data (ACMSP049)*** Use tally marks to assist with data collection. (Communicating)

**Create displays of data using lists, tables and [picture graphs](http://syllabus.bos.nsw.edu.au/glossary/mat/picture-graphs/?ajax" \t "_blank" \o "Click for more information about 'picture graphs') and interpret them (ACMSP050)** * Describe data displayed in simple tables and picture graphs found in books and created by other students. (Communicating)
* Record observations based on tables and picture graphs developed from collected data.
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| ASSESSMENT FOR LEARNING(PRE-ASSESSMENT) | * Students to look at the results of the survey and pose questions that can be answered by looking at a tally table, list or picture graph. Students predict likely responses within the data to be collected and design a worksheet.
* Create a tally table relating to a current class theme and then create a list, table or picture graph. (eg, Collect food types out of magazines and convert to a list, table or graph.) Make a worksheet with appropriate questions for a partner to answer.
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| WARM UP / DRILL | * Play a coits game for 10 throws each. Record your scores as tally marks.
* Use tally marks to record the different types of transport that passes the school gate in 5 minutes.
* Use tally marks to record how many balls your partner can bounce without stopping in 1 minute.
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| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | * **Transformation:** Students to look at the results of the survey and pose questions that can be answered by looking at their tally table.
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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* Narrative
 |
| RESOURCES | Magazines, sorting tubs, coits, pens, pencils. |

**TEACHING AND LEARNING EXPERIENCE**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED &INDEPENDENT ACTIVITIES |
| Modelled* Teacher conducts survey (choose topic to suit class interests)
* Explain tally marks (one for each vote; remind what happens at every 5th vote)
* Look at the amount of categories students could choose from, discuss what would happen if too many or too few categories were available
* Explain every student must vote, but only once
* At the end of the survey, count the tally marks (as a class) and make sure it represents the amount of students in the class
* Discuss as a class what they notice about the survey E.g. which is the most popular, least popular, how many votes in a given category etc.
* **Metalanguage**

Students should be able to communicate using the following language: information, data, collect, gather, **category**, display, symbol, tally mark, **picture graph, list, table, equal spacing, key, baseline.** | LEARNING SEQUENCERemediationES1 | ☐**Animal sort:** Using a tub of plastic animals sort into rows of the same animal. Ask questions relating to the most and the least. How many more does… have? Who can group animals in 5’s? Who can make a row of their different animals? |
| LEARNING SEQUENCES1 | ☐**Guided:** Get students to select their own topic to survey (give some ideas).Give instructions on how to lay out their tally table (give between 3 and 5 possible categories, remind why too many or too few categories are ineffective).Encourage the children to predict the likely responses within the data to be collected. (Reasoning) Allow time for students to survey other members of the class (each student must vote, but only once)**☐Independent**Describe data displayed in simple tables and picture graphs in books and created by other students. (Communicating). Students to look at the results of the survey and pose questions that can be answered by looking at their tally table. Use the tally table to create a column graph and picture graph. Working in pairs, student 1 is to cover their survey categories and quiz student 2 with the questions they have already developed about their tally table.**☐Reflection** Class discussion looking at what questions were easy to answer, which were difficult to answer, which couldn't be answered by looking at the graph. Students to reflect on other uses of a tally table. Students to reflect on other questions that could have been posed.<http://pbskids.org/cyberchase/math-games/bugs-in-the-system> |
| LEARNING SEQUENCEExtension Early S2 | * These are the results of a survey. What might the survey be about?

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| Place | TallyAccept any reasonable suggestions. For example it could be a survey of where the children are playing, or where accidents occurred. |
| Library | lll |
| Play equipment | This picture shows five tally marks. Tally marks are used as a form of counting and are useful for writing results without having to erase information.This picture shows five tally marks. Tally marks are used as a form of counting and are useful for writing results without having to erase information.ll |
| Under the trees | This picture shows five tally marks. Tally marks are used as a form of counting and are useful for writing results without having to erase information.ll |
| Oval | lll |

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| **EVALUATION &REFLECTION** | **Student engagement: Achievement of Outcomes:**Resources: Follow up: |

* 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.

**TEACHING AND LEARNING EXPERIENCE**

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| WHOLE CLASS INSTRUCTIONMODELLED ACTIVITIES | GUIDED &INDEPENDENT ACTIVITIES |
| * **Using Maths Tracks-Stage One-Data-Interpreting Data**

Student activities include gathering data and keeping track of what has been counted by using concrete materials, tally marks, words or symbols; displaying data using concrete materials and pictorial representations; using objects as symbols to represent data using one-to-one correspondence eg using a block to represent each car; interpreting information presented in picture graphs.  | LEARNING SEQUENCERemediationES1  | * **Super Bowl** - [Predict and Tally the Winner](http://www.kidzone.ws/math/graphing/superbowl-index.htm)
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| LEARNING SEQUENCES1 | * **Analysing picture books**

Students work with a partner or small group to analyse information in simple tables and picture graphs found in books. * **Gather data and Interpreting data** Data from all groups (tallies) combined in a picture or column graph.
* Students must be presented with opportunities to interpret data in a variety of ways and predict the likely responses within the data to be collected. (Reasoning)Eg, Determine what data to gather in order to investigate a question of interest, eg, class topic, colour, mode of transport, gender, type of animal, sport.(Problem Solving)
* When information is presented in a misleading way, such as inconsistent spacing
* Forming their own questions that can be answered using the data provided
* Providing students with an untitled graph – children choose an appropriate title for the graph and explain why they have chosen that title

As above but with one (or both) axis unlabeled* Record observations based on tables and picture graphs developed from data collection.

Interpreting information presented in picture graphsGathering data examples: Weather: rainy, sunny, windy, cloudy Hair colour, number of teeth, number of children in house, food groups, types of transport. |
| LEARNING SEQUENCEExtension Early S2 | * **Boxes of chocolate**. Tom was selling boxes of chocolate candy for his school’s fundraiser. He plotted the number of boxes he sold in the line plot below. Use his line plot to answer the questions.
* **Assessment** <http://www.commoncoresheets.com/Math/Line%20Plots/Interpreting/English/1.pdf>
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