## Data 1

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Teaching and Learning Activities</th>
<th>Notes/ Future Directions/Evaluation</th>
<th>Language / Date</th>
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<tbody>
<tr>
<td>A student:</td>
<td>› describes mathematical situations and methods using everyday and some mathematical language, actions, materials, diagrams and symbols MA1-1WM</td>
<td>Background information</td>
<td>• information, data, collect, gather, display, objects, symbol, tally mark, picture, row.</td>
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<tr>
<td></td>
<td>› supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM</td>
<td>In Stage 1, students are introduced to the abstract notion of representing an object with a different object, picture or drawing. It is important that each object in a three-dimensional graph represents one object, except in the case where items are used in pairs, e.g., shoes. One object can also represent an idea, such as a person's preference.</td>
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<td></td>
<td>› gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results MA1-17SP</td>
<td>When collecting information to investigate a question, students can develop simple ways of recording. Some methods include placing blocks or counters in a line, colouring squares on grid paper, and using tally marks. A single mark in a tally represents one observation. Tally marks are usually drawn in groups of five. The first four marks are vertical, with the fifth mark drawn diagonally through the first four to make counting more efficient,</td>
<td></td>
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</tbody>
</table>

**Syllabus Content Note:**
- Choose simple questions and gather responses
- Represent data with objects and drawings where one object or drawing represents one data
- value and describe the displays

Note: AC syllabus content is very similar across Data 1 and Data 2.

**Syllabus reference:**
Hardcopy page: 118
Digital: 123-124
### Activities

#### Explicit Mathematical Teaching

**Choose simple questions and gather responses (ACMSP262)**
- 
  • investigate a matter of interest by choosing suitable questions to obtain appropriate data
  
  • gather data and track what has been counted by using concrete materials, tally marks, words or symbols

**Represent data with objects and drawings where one object or drawing represents one data value and describe the displays (ACMSP263)**
- 
  • use concrete materials or pictures of objects as symbols to create data displays where one object or picture represents one data value (one-to-one correspondence), eg use different coloured blocks to represent different-coloured cars

  - Record a data display created from concrete materials or pictures of objects (Communicating)

  • interpret information presented in data displays where one object, picture or drawing represents one data value, eg weather charts

  - Describe information presented in simple data displays using comparative language such as 'more than' and 'less than', eg 'There were more black cars than red cars' (Communicating, Reasoning)

  - Explain interpretations of information presented in data displays, eg 'More children like dogs because there are more dog pictures than cat pictures' (Communicating, Reasoning)

  - Write a simple sentence to describe data in a display, eg 'The most popular fruit snack is an apple' (Communicating)

#### Ignition Activity

**Pets: Predict which animal is most popular.**

Children discuss what type of animals they have for pets. Count children with a pet dog, cat, fish, rabbit, guinea pig, mice. Show how these numbers can be recorded as tally marks

Discuss results and what we do with them - show how to record them on a column
### Whole Class Teaching Activities

**Analysing picture books**
Students work with a partner to analyse information in picture books. Tally marks can be used to compile data on subjects, for example: *Are more characters boys or girls? What type of pets are in picture books?* Data from all groups is combined in a picture or column graph.

**Interpreting data**
Students must be presented with opportunities to interpret data in a variety of ways including:
- 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 unlabelled

Interpreting information presented in picture/column graphs
Gathering data examples:
Weather: rainy, sunny, windy, cloudy
Hair colour, number of teeth, number of children in house

**Representing/Recording Data**
When presenting data in a graph the following will need to be stressed:
- Using a consistent size symbol to represent equal amounts
- Starting from the baseline
- Equal spacing between symbols

Students may use a variety of mediums to represent data including:
- Photos and pictures (same size)
- Drawings (same size)
- Coloured paper squares
- Colouring-in squares on grid paper
- Symbols to represent data
- Tally marks
- Computer software

<table>
<thead>
<tr>
<th>Four Dice Tally - DENS 2 pp108-109</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dice</td>
</tr>
<tr>
<td>Pencils</td>
</tr>
<tr>
<td>paper</td>
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</tbody>
</table>

Organise the students into groups and provide each group with four dice and a recording sheet. Instruct each student in the group to take turns to roll the four dice and to determine the total. The group records the answer on the recording sheet by marking a tally mark under the appropriate heading, 4–14 or 15–24. Have the groups compare their results. Combine the data from all of the groups on a single chart. Ask the students to indicate whether they believe it is more likely to score 4 to 14 than 15 to 24, about or less likely. Have them justify their answers.

<table>
<thead>
<tr>
<th>Hoops and Hats - DENS 2 pp112-113</th>
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</thead>
<tbody>
<tr>
<td>Witches hats</td>
</tr>
<tr>
<td>Hoops</td>
</tr>
<tr>
<td>Pencils paper</td>
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</tbody>
</table>

Draw a starting line on the ground. Place “witch hats” in a row at one metre, two metres and three metres away from the starting line. Have each student in the class attempt to throw a hoop over each of the hats. Repeat several times while using tally marks to record the number of hoops that are successfully thrown onto the hat at each distance. Encourage the students to use counting strategies such as counting in multiples to find the total of each group.

<table>
<thead>
<tr>
<th>Smarties</th>
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<tbody>
<tr>
<td>Each child is given a small packet of smarties</td>
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<tr>
<td>Arrange the smarties in columns according to colour</td>
</tr>
<tr>
<td>Discuss:</td>
</tr>
<tr>
<td>o the frequency of each colour</td>
</tr>
</tbody>
</table>

~ 4 ~
- how many of each colour if you combine with a partner, group, whole class etc
- Colour grid paper to represent the smarties, and create a column or picture graph
- Give graph a heading and label each axis

**About Us.**
Make cards using statements from students e.g. *I like to swim, I help my dad in the garden, I like chocolate*. Cards are placed around the room and students use tally marks on the statements that relate to them. The tallies are counted and a picture graph created to represent the data.

Students work with a partner to analyse information in picture books. Tally marks can be used to compile data on subjects, for example: *Are more characters boys or girls? What type of pets are in picture books?* Data from all groups is combined in a picture or column graph.