Data 2

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<th>Outcome</th>
<th>Teaching and Learning Activities</th>
<th>Notes/ Future Directions/Evaluation</th>
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<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, category, display, symbol, tally mark, picture graph, list, table, equal spacing, key, baseline.</td>
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<td></td>
<td>› uses objects, diagrams and technology to explore mathematical problems MA1-2WM</td>
<td>Categorical variables can be separated into distinct groups or categories, eg the different colours of smarties in a box, the types of favourite fruit of class members. A key indicating one-to-one correspondence in a picture graph uses one symbol to represent one response/item,</td>
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<td>› supports conclusions by explaining or demonstrating how answers were obtained MA1-3WM</td>
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<td>› gathers and organises data, displays data in lists, tables and picture graphs, and interprets the results MA1-17SP</td>
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Syllabus Content Note:
- Identify a question of interest based on one categorical variable and gather data relevant to the question
- Collect, check and classify data
- Create displays of data using lists, tables and picture graphs and interpret them

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

Syllabus reference:
Hardcopy page: 120
Digital: 125 -126
### Explicit Mathematical Teaching

**Identify a question of interest based on one categorical variable and gather data relevant to the question (ACMSP048)**

- Pose suitable questions that will elicit categorical answers and gather the data, e.g., 'Which school sport is the most popular with our class members?', 'How did each student in our class get to school today?'
- Predict the likely responses within data to be collected (Reasoning)
- Determine what data to gather in order to investigate a question of interest, e.g., colour, mode of transport, gender, type of animal, sport (Problem Solving)

**Collect, check and classify data (ACMSP049)**

- Collect data on familiar topics through questioning, e.g., 'How many students are in our class each day this week?'
- Use tally marks to assist with data collection (Communicating)
- Identify categories of data and use them to sort data, e.g., sort data collected on attendance by day of the week and into boys and girls present

**Create displays of data using lists, tables and picture graphs and interpret them (ACMSP050)**

- Represent data in a picture graph using a baseline, equal spacing, same-sized symbols and a key indicating one-to-one correspondence
- Identify misleading representations of data in a picture graph, e.g., where the symbol used to represent one item is shown in different sizes or where symbols are not equally spaced (Reasoning)
- Use digital technologies to create picture graphs (Communicating)
- Display data using lists and tables
- Use displays to communicate information gathered in other learning areas, e.g., data gathered in a unit on families or local places (Communicating)
- Interpret information presented in lists, tables and picture graphs
- 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
## 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 graph using a different colour for each pet.

## 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

**Four Dice Tally - DENS 2 pp108-109**
Dice
Pencils
paper

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.

**Hoops and Hats - DENS 2 pp112-113**
Witches hats
Hoops
Pencils paper

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.

**Smarties**
- Each child is given a small packet of smarties
- Arrange the smarties in columns according to colour
- Discuss:
  - the frequency of each colour
  - 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.