# Mathematics and Statistics Assessment Schedule: Assessment Activity 1.1a

##### Activity Title: Tākaro-ā-ringa pūkana

##### Achievement Standard: 91944 Explore data using a statistical enquiry process

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| Achievement | Achievement with Merit | Achievement with Excellence |
| Achievement Criteria |
| At the Achieved level, the student is able to explore data using a statistical enquiry process | At the Merit level, the student is able to explore data using a statistical enquiry process with statistical justification | At the Excellence level, the student is able to explore data using a statistical enquiry process with statistical insight |
| Teacher Judgement |
| At the Achieved level, the student is able to:* source data and explain where it came from, using the data collection process
* present their data using at least one appropriate visualisation
* describe at least two visual features of the data in context, with reference to at least one visualisation.
 | At the Merit level, the student is able to:* write a purpose or introduction that includes the investigative question or statement
* connect ideas within the context of the investigation
* use visualisations and measures or summary statistics to justify features
* present a conclusion which is relevant to the investigative question or statement
* use all stages of a statistical enquiry process.
 | At the Excellence level, the student is able to:* complete a well-developed investigation using an enquiry process
* incorporate statistical and contextual knowledge in two or more sections of the enquiry process
* consider the enquiry process and discuss other relevant factors, sources of bias, or reflections that show further insight. This may include ideas such as the impact of sample size, the reason for managing sources of variation in the data collection stage and what impacts not managing this well could have on the results.
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Overall level of achievement will be based on a holistic examination of the evidence provided against the criteria in the Achievement Standard.

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| For example (description of possible student evidence for this activity) |
| Achievement | Achievement with Merit | Achievement with Excellence |
| At the Achieved level, the student has:* made a video recording of their investigation and in the recording, the student has:
* *identified the investigative statement*
* *described who played the game and how data was recorded*
* *described the rules of the game and as part of this discussed any sources of variation that were part of the data collection process*
* *presented the results of the game in a bar graph and a two-way table*
* *described one visible feature of the bar graph and one visible feature of the two-way table, clearly showing links of each to the context of the investigation.*
 | At the Merit level, the student has:* made a video recording of their investigation and in the recording, the student has:
* *given an introduction that outlined a purpose to the investigative statement*
* *linked ideas in discussions*
* *justified the ways that the data was collected to ensure that possible sources of variation were managed*
* *used graphs along with measures to justify the features of the data*
* *clearly drew conclusions that linked to the purpose, summarising their findings.*
* appropriately referenced visualisations and measures, and comments are in context.
 | At the Excellence level, the student has:* made a video recording of their investigation and in the recording, the student has:
* *developed an introduction that gave clear purpose to the investigative statement*
* *made an extra graph to show the long run relative probability related to one aspect of the game, explaining its inclusion and relevance, linking back to the introduction/purpose*
* *extended and applied thinking beyond the immediate information in the analysis*
* *made on overall clear, concise, and logical presentation using a statistical enquiry process, referencing the context throughout*
* *reflected on the enquiry process, talking about possible bias, the impact or limitations on the quantity of data that was used, and the implications of these factors on the overall findings if hadn’t been considered from the planning stage*.
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Overall level of achievement will be based on a holistic examination of the evidence provided against the criteria in the Achievement Standard.