

9.10 Statistics (3)

Title: Investigate a given data set using the statistical enquiry cycle.

Year Level: 9

Assessment: Internal

Points: 3

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
Investigate a given data set using the statistical enquiry cycle.	Investigate a given data set using the statistical enquiry cycle, with justification.	Investigate a given data set using the statistical enquiry cycle, with statistical insight.

Explanatory Notes

1. This achievement standard is derived from Level 4 and 5 of The New Zealand Curriculum, Learning Media, Ministry of Education, 2007. The following achievement objectives, are related to this achievement standard:
 - S4.1 Plan and conduct investigations using the statistical enquiry cycle:
 - determining appropriate variables and data collection methods;
 - gathering, sorting, and displaying multivariate category, measurement, and time-series data to detect patterns, variations, relationships, and trends;
 - comparing distributions visually;
 - communicating findings, using appropriate displays.
 - S5.1 Plan and conduct surveys and experiments using the statistical enquiry cycle:
 - determining appropriate variables and measures;
 - considering sources of variation;
 - gathering and cleaning data;
 - using multiple displays, and re-categorising data to find patterns, variations, relationships, and trends in multivariate data sets;
 - comparing sample distributions visually, using measures of centre, spread, and proportion;
 - presenting a report of findings.
2. **Using the statistical enquiry cycle** involves using each component of the statistical enquiry cycle to make comparisons.

Using the statistical enquiry cycle with justification involves linking aspects of the statistical enquiry cycle to the context and the population and making supporting statements which refer to evidence such as summary statistics, data values, trends or features of visual displays.

Using the statistical enquiry cycle with statistical insight involves integrating statistical and contextual knowledge throughout the statistical enquiry cycle, and may involve reflecting on the process or considering other explanations for the findings.

3. Students need to be familiar with the statistical enquiry cycle (PPDAC) to investigate a data set, which involves:

- **Problem** - posing an appropriate questions that can be solved using the statistical enquiry cycle
- **Plan** - plan what to measure or collect and how this will be done
- **Data** - collect or find an appropriate dataset
- **Analysis** - construct appropriate graphs, either by hand or using online tools, and make appropriate comments
- **Conclusion** - communicating findings and supporting evidence, in a conclusion.

4. The extension skills associated with this topic are:

- Integrating statistical and contextual knowledge throughout the statistical enquiry cycle
- Giving alternative explanations to features in the data
- Reflecting on the process and looking for improvements