Investigate a given multivariate data set using the statistical enquiry cycle AS 91035

The bigger picture: We want to tell the stories about a population based on a set of sample

PERFORMANCE INDICATORS:

Achieved:
Using the statistical enquiry cycle involves using each component of the statistical enquiry cycle to make comparisons.

Merit
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.

Excellence
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.

Understanding

- We investigate the data using PPDAC
- We must be careful because: "What we see …. is not quite the way it really is "
- We look at samples to try and understand what is going on in the population
- We notice what we see in front of us (the kiwifruit) and wonder what we don't see in front of us (all kiwi fruit)

Knowledge

- The components of the statistical inquiry cycle (PPDAC) for this standard and what they mean
- The information I can use to justify my findings
- The general knowledge I have to reflect on the findings

Criteria

- Investigating data that has been collected from a survey situation
- Posing an appropriate comparison question using a given multivariate data set selecting and using appropriate display(s) giving summary statistics such as the five summary values (minimum, maximum, median, quartiles)
- Discussing features of sample distributions comparatively, such as shape, middle 50%, shift, overlap, spread, unusual or interesting features
- Communicating findings, such as informal inference and supporting evidence, in a conclusion.

Modes of Assessment

Written report	Open ended assignment
Google Docs	One Note
Oral presentation	Story boards
Blog	Prezzie

Essential questions

- What is obvious in the data? **What do I see?**
- What have I noticed specifically? **Where do I see it?**
- **What does this mean** when I compare it with what I already know?

Key Idea

- Students need to understand the difference between "the kiwi fruit" (the sample) and "kiwifruit" (the population).

Essential vocabulary

Compare	Variable	Distribution	Middle
Group	Less than	Shape	Spread
Sample	More than	Population	Overlap
Make a call	Tends to	Inference	Unusual

Pain Points.

The key idea in this standard is the understanding of inference. We are drawing a conclusion about a much bigger group (the population) by comparing 2 sub groups in one sample. There is a chance the features displayed in the sample are not a true reflection of the population hence we describe our findings in terms of a tendency as we are not absolutely sure.

Issues arise when the question does not reflect this. To ensure that students make an appropriate inference a question should include the groups & variables being compared, the population & a "fuzzy" word like tends to

Do green kiwi fruit tend to weigh more than gold kiwi fruit from the 2015 harvest in the Te Puke region?

Based on a comparison of features seen in the displays the inference could then be ***Green kiwi fruit tend to weigh more than gold kiwi fruit from the 2015 harvest in the Te Puke region of New Zealand***

Skills

- Writing a comparative investigative question
- Obtaining dot and box/whisker plots
- Describing what we see in the displays
- Answering the comparative question
- Presenting a conclusion