STARPATH SCIENCE PROJECT

Supporting science teachers in using student achievement data

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Aims:

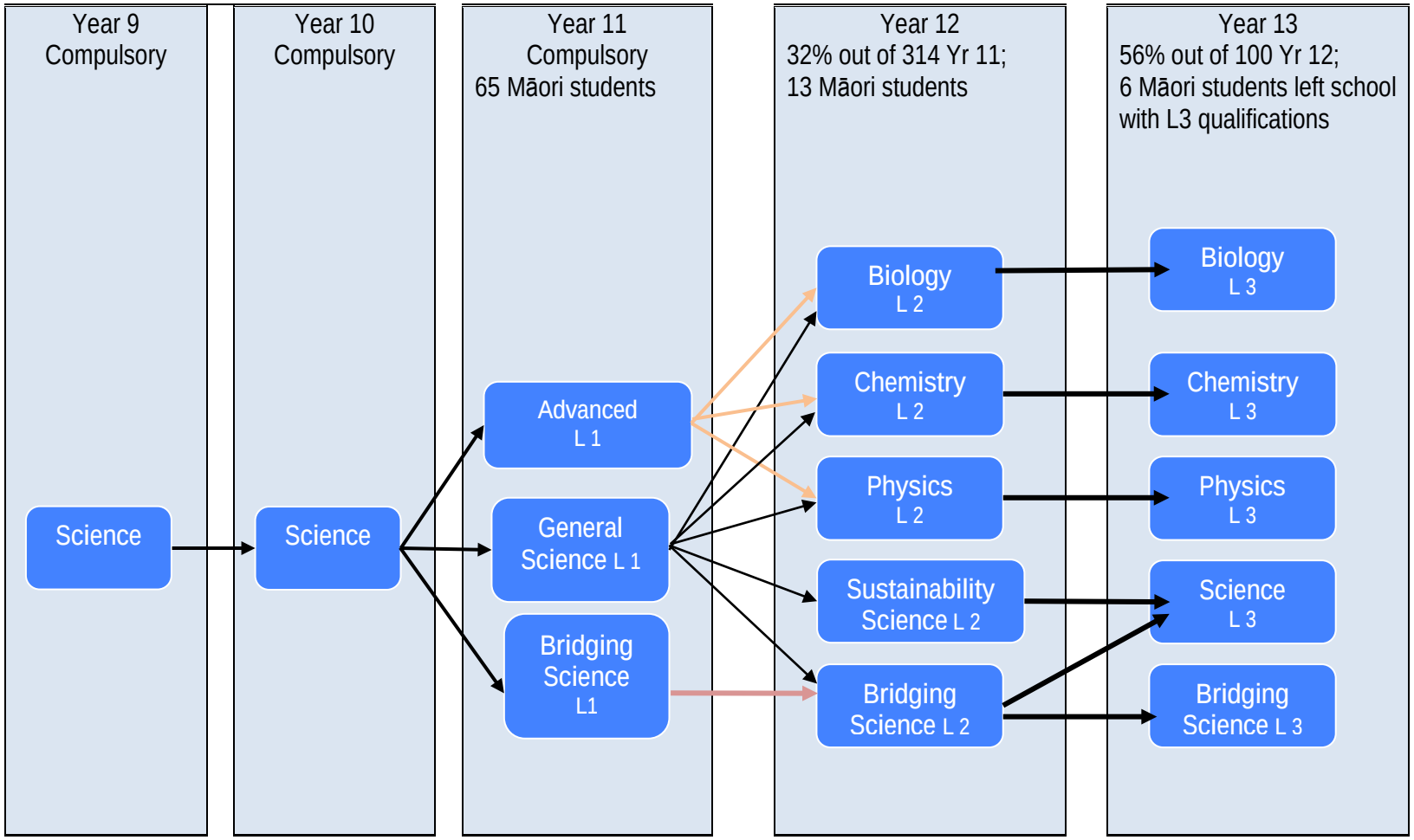
- To develop and support science HODs and teachers in using achievement data.
- To create greater opportunities for underrepresented groups of students (priority learners) to learn science at senior levels.

Exploratory study on data use in science departments

- In November 2012, interview data were collected from 9 science HODs from Starpath schools
  1. What are the current practices of Science Heads of Department in using achievement data for improving student outcomes in their departments?

  2. How do we build data analysis and interpretation skills with the Science Heads of Department/teachers, with a focus on improving science learning outcomes of priority learners?

Case study on science pathways in schools



Findings

- Lack of junior level standardised science tests
- Lack of reliable evidence of student performance in science for decision-making
- Achievement data used only for placement rather than supporting instructional decisions
- Limited skills and knowledge on data analysis and interpretation
- Limited monitoring and tracking of the progress of priority learners

Using Science: Thinking with Evidence (STwE)

- In 2013-14, 6 schools participated in a study to investigate the use of a standardised science assessment tool.
  - What impact does the use of a standardised junior science assessment tool have on teachers to support priority learners in science pathways?
- Science - Thinking with Evidence (STwE) is a standardised MCQ assessment developed by New Zealand Council of Educational Research (NZCER). www.**nzcer**.org.nz/

Why focus on "thinking with evidence?"

"Thinking with evidence" is central to developing competencies and dispositions for using science knowledge:

- **asking relevant critical questions**
- **evaluating the value of a claim**
- **reading patterns in compound visual texts**
- **critical thinking about cause and effect**
- **an appreciation of the relative scale of events**
- **setting aside prior knowledge when irrelevant to the question at hand**
- **not rushing in (noticing details, taking time to think)**

Content in STwE

NOS sub-strands	Student may be asked to:
Understanding about science	• Identify whether a statement is supported by evidence • Decide what the evidence means • Find evidence to support a statement
Investigating in science	• Thinking about key feature of scientific investigations • Identify questions that can be answered by the evidence presented, or identify questions for further investigations
Communicating in science	• Read and correctly interpret scientific texts of the form: o One or more numeric texts o One or more visual texts o Combination of visual and numeric texts
Participating and contributing	• Making judgements • Prioritizing • Weighing up possible alternatives • Applying what is known in one context to a new context • Recognising which fact to consider • Making predictions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PAT:Reading Vocabulary
Science Thinking with Evidence
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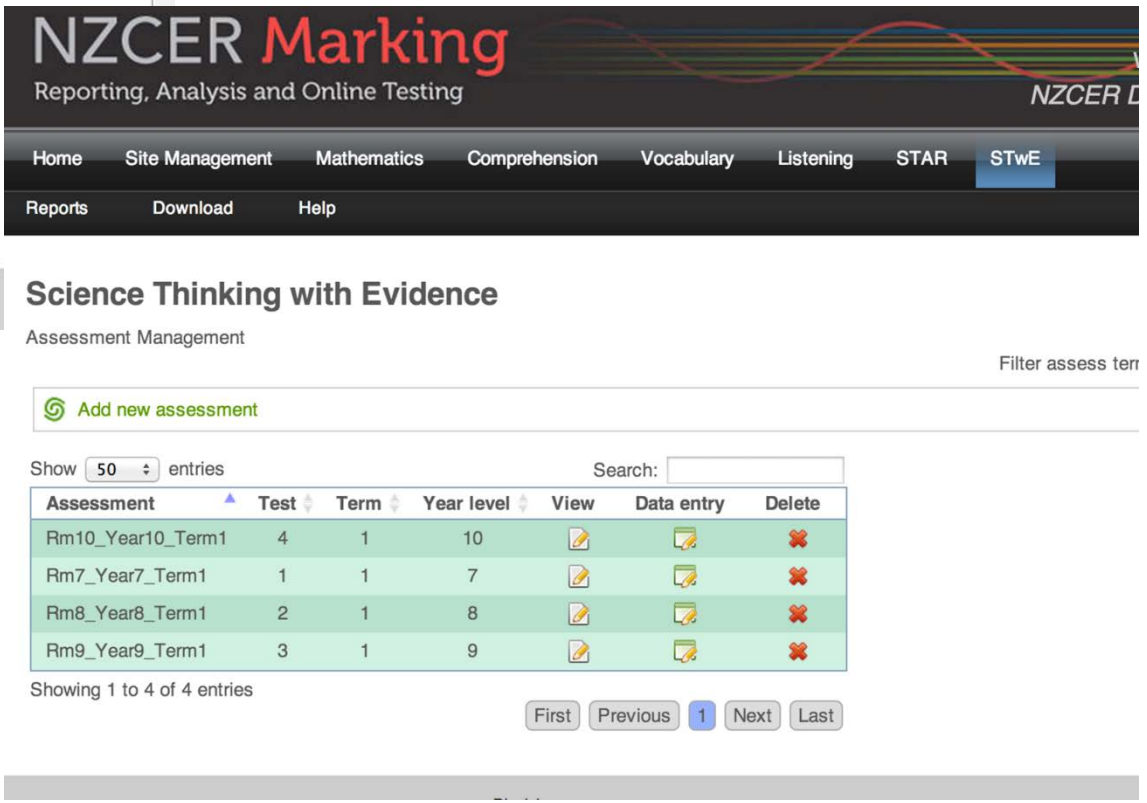
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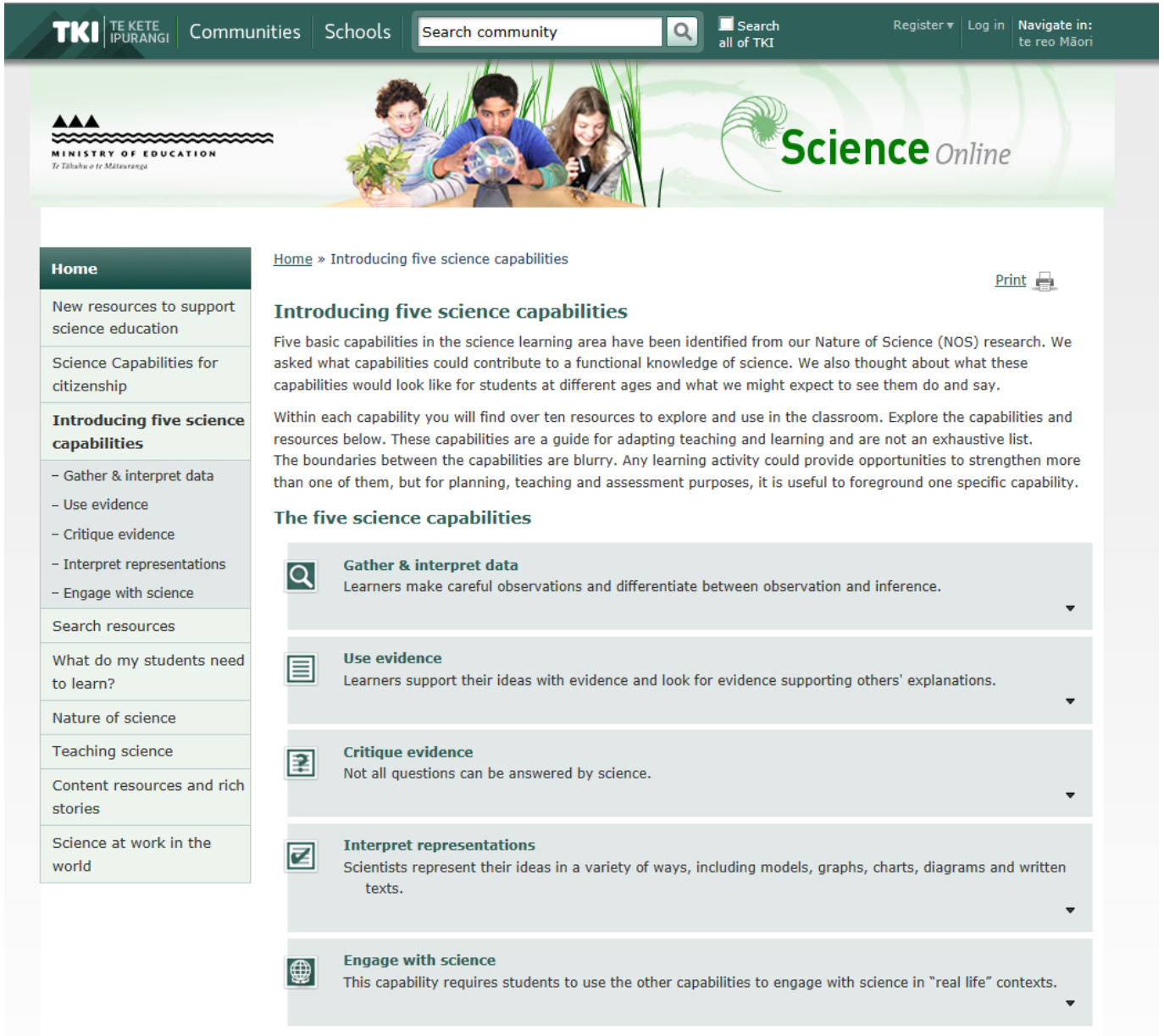
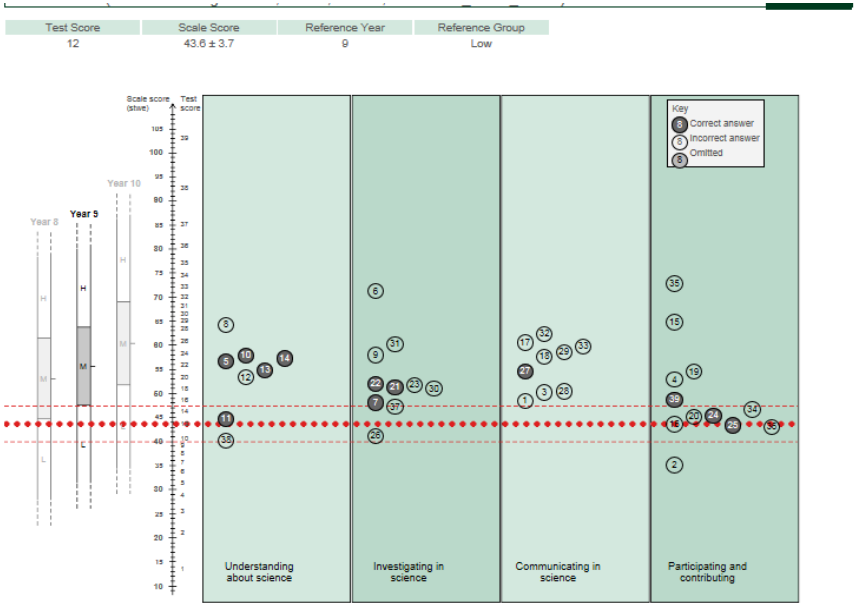
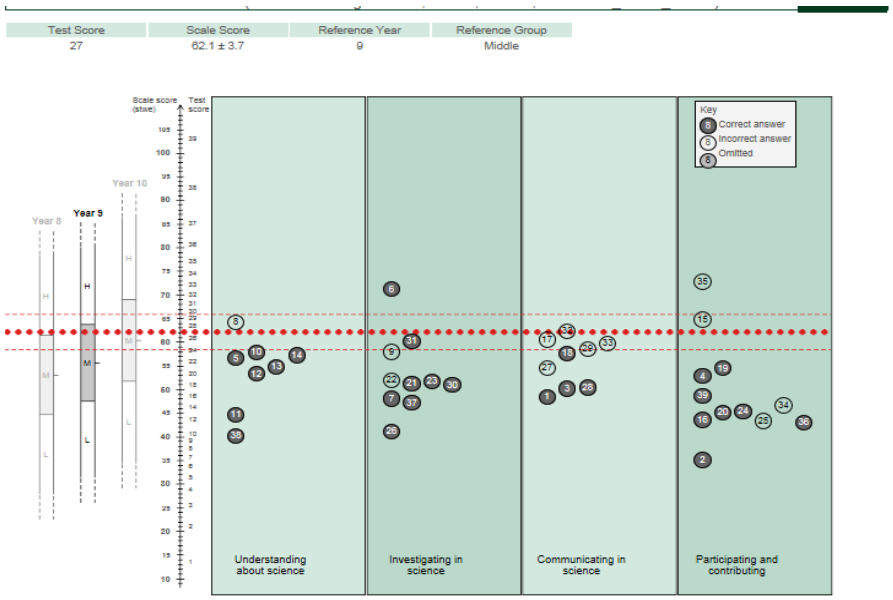
http://scienceonline.tki.org.nz/

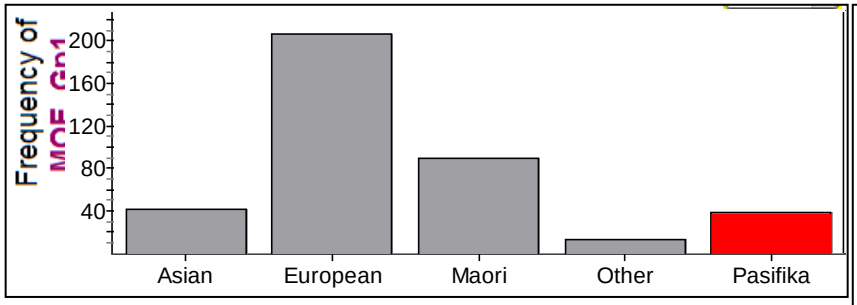


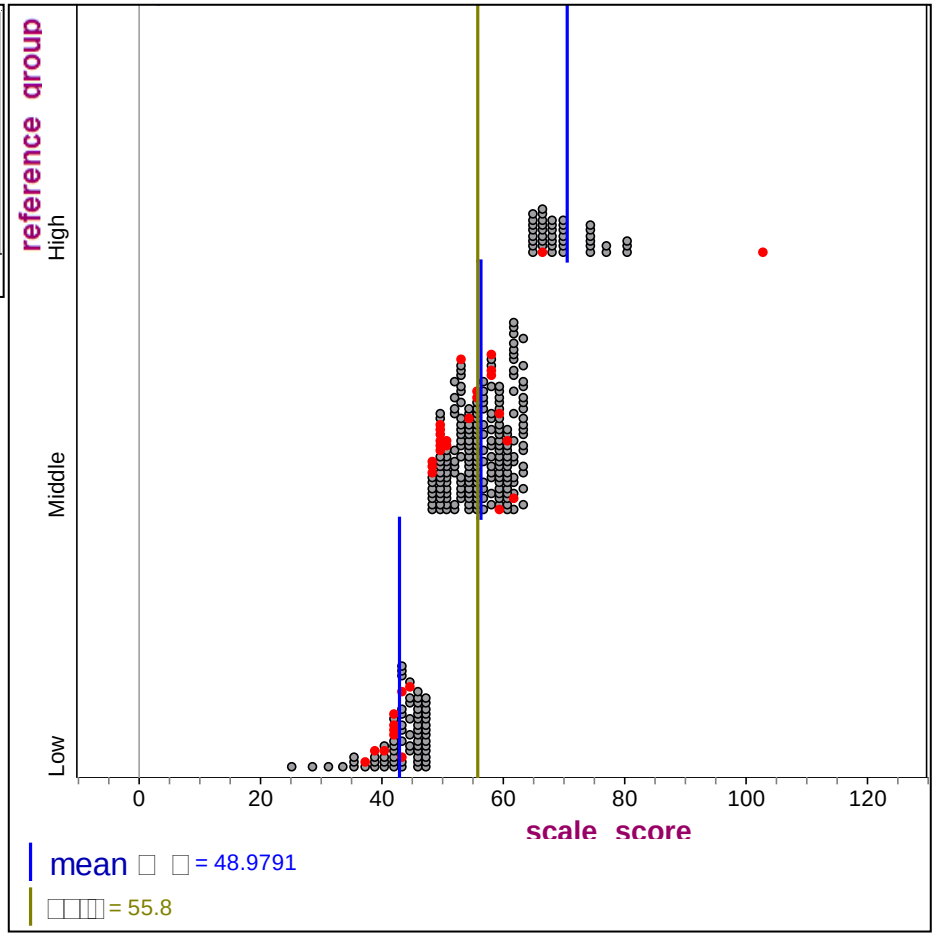
Comparing individual student reports





Comparing groups of students - Pasifika

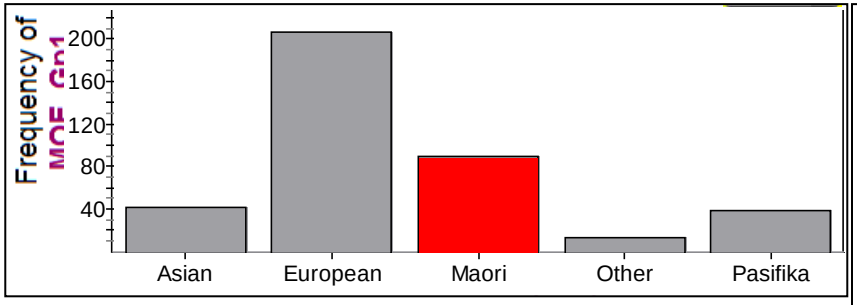


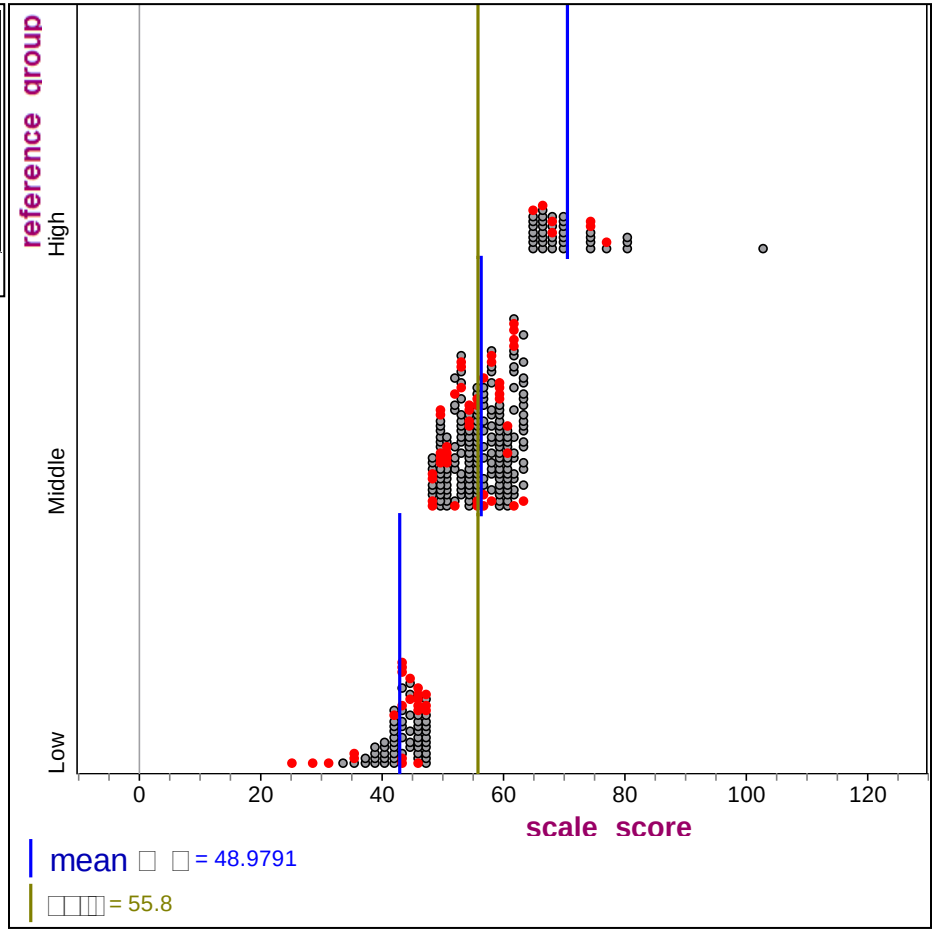


The visualisation tool used is Fathom™

https://www.mentis.co.nz/fathom

Comparing groups of students - Maori





Acknowledgement:

The slides on STwE were adapted from the Starpath STwE Symposium 25th October 2013 presentation by Cathie Johnson.