1.10 Multivariate data

- Inference is by a visual inspection. Not a formula. Not even for excellence.
- Don't use synthetic data. It doesn't allow for contextual information.

2.9 Inference

- Email Derek for the maths behind ICIs.
- We don't estimate the mean because the IQR is based on median. If we wanted to approximate the mean, we'd look at the normal distribution which isn't introduced until level 3.
- Don't use synthetic data. It doesn't allow for contextual information.

3.10 Formal inference

- 3.10 is not interested in the direction in the problem, just the difference. The conclusion is interested in the difference and in which direction. Use median. No need to introduce mean. They could describe median vs. mean for justification and insight.
- Don't use synthetic data. It doesn't allow for contextual information.

Experiments

- Possibly replace 3.4 critical path analysis with 3.11. Use re-randomisation.
- Ideas: Reaction time. Practice makes perfect (bottle flipping, drawing with non-dominant hand). Dart and adding weights or changing the design.
- Level 2 is pre vs. post.
- Level 3 is treatment vs. control.

All standards

- Let the students know the context before the internal so they can research the context before coming up with their investigative question.
- All of the bullet points in explanatory note 3 need to be covered for achieved.
- When you see outliers, do you think they're outliers in the population or only in your sample?
- Get students to annotate their partner's practice internal.
- Contextual knowledge includes having units at the end of statistics, e.g. "The IQR is 2kg".

Contextual knowledge

At level 1, contextual knowledge is what they already know. At level 2, it is teacher-provided information. At level 3, they are researching their own information.

Other notes

- Possibly replace 2.8 Questionnaire with 2.10 Experiment.
- Regarding literacy, for the first four years, students are on track and by the end of year 4 are at curriculum level 2. In the next four years, they are expected to make two curriculum levels of progress but the data shows that they're making only around one level of progress and at the end of year 8 are only at curriculum level 3.
- If I ever do 2.11 evaluate statistically based reports, look here for reports to evaluate.

- Regarding 1.11, the most common critique from moderators is that students aren't managing sources of variation, e.g. does every have their socks off, are the stretching to measure height?
- https://nzmaths.co.nz/key-mathematical-ideas