

Annual Report: Education Committee of NZ Statistical Association
November 2021 to November 2022
For AGM of 22 November 2022.

Can the AGM please consider the magenta paragraphs on the last page.

A year of Inputs

The year for us has been about making inputs to the Ministry of Education's two major reviews: the '**Curriculum Refresh**' of the entire school curriculum, and the very fundamental **NCEA Review**. Some of these inputs have been substantial, and most have been on short time scales.

In December 2021, we sent in our *Vision for statistics and data science education at the senior secondary level in Aotearoa New Zealand* (Statistics and data science at CL7/8 (censusatschool.org.nz)) This *Vision* contains our ideas for Curriculum Levels 7 and 8, which are the top two years of the existing curriculum and relates to the review of NCEA Levels 2 and 3.

The *Vision* also contains our ideas about a possible new third subject at NCEA Level 3 in the mathematics and statistics learning area. We're planning to work with colleagues in NZAMT and the NZ Mathematical Society on this, with the goal of creating a subject that attracts a wide range of students in their last year of school, and covers today's emerging uses of mathematics and statistics.

The *Vision* also contains a summary of our statement, made last year to the Royal Society Expert Panel, on the whole curriculum, and what we think we need for the 21st Century. In March, we followed this with *Curriculum Refresh and Statistics - specific changes* (Curriculum refresh - what needs to change from 2007 (censusatschool.org.nz)). This proposes what we need to do, to get from the existing 2007 Curriculum to a future-focussed one.

In March and April, some of us met with Ministry staff and writers, to expand on our curriculum submissions. We had a number of informal contacts as well. Members of the committee were critical friends in the curriculum review process.

When the draft curriculum emerged recently, a group of the committee held two two-hour meetings about the whole document. **Right now**, we have three teams working on the Ministry's draft curriculum, with a closure date of 2 December. The three teams are looking closely at years 1-10 statistics, years 1-10 probability and years 11-13 statistics and probability.

We see **probability** as an area that will need ongoing research-based work.

We think that this curriculum needs to allow for **emergent trends**, like data sovereignty, ethical issues, citizen issues, social justice, computational thinking, and data science.

Sharleen Forbes visited our second meeting, and gave us a refreshing view of what is and is not, but should be, in the school system.

The Ministry released drafts for NCEA Level 1 late last year, and we've responded to those.

In August we sent the Ministry a substantial feedback document relating to the work they had released on NCEA Level 2.

We've also published our ideas on **Vocational Pathways**: Vocational Pathways and Stats (censusatschool.org.nz). In a year of refreshes, we see chances to improve statistics learning by ākonga (students) on a non-University path.

We are also watching the Ministry's other two large projects involving statistics: the **Numeracy Standard** (piloted this year and next), and the **Literacy & Communication and Maths Strategy**, which aims to make sure that learning happens equitably and effectively for all ākonga.

We acknowledge the massive amount of work done by a small number of members, using their wide

expertise and experience in statistics and its pedagogy, and often done under difficult time pressure.

We also acknowledge that this year, again, Covid has made life difficult for our teaching colleagues, throughout the country.

Who we are in 2022

Here are the 23 members as at the end of 2022. The first eight people formed the steering group for 2022, and we propose them as the steering group for 2023.

- Alasdair Noble (AgResearch) (convenor and link with NZSA Executive)
- Anna Fergusson (University of Auckland)
- Chris Wild (University of Auckland)
- Mark Hooper (Otago Boys College) (meetings scribe)
- Maxine Pfannkuch (University of Auckland)
- Michelle Dalrymple (Cashmere High School)
- Mike Camden (secretary)
- Pip Arnold (Karekare Education)

- Amy Renelle (University of Auckland)
- Cami Sawyer (Ministry of Education)
- Christine Franklin (American Statistical Association and University of Georgia, USA)
- Dave Phillipps (Lincoln High School)
- Derek Smith (University of Otago)
- Emma Mawby (Ministry of Business, Innovation & Employment)
- Marie Fitch (University of Auckland) (deputy chair)
- Marina McFarland (Auckland Girls Grammar)
- Matthew Parry (University of Otago, NZSA President)
- Neil Marshall (NZ Qualifications Authority).
- Rachel Passmore (University of Auckland)
- Rhys Jones (University of Surrey, UK)
- Robyn Headifen (University of Auckland)
- Sashi Sharma (University of Waikato)
- Sophie Carr (Bays Consulting, RSS Vice President, UK)

We've had four main meetings

Participation 2022

Date	Attendees	Apologies	Total
23/02/22	15	7	22
11/05/22	15	9	24
10/09/22	14	5	19
09/11/22	11	10	21

Again, we thank the University of Otago, and Jeff Ormandy there, for hosting the Zoom meetings.

We held about ten other smaller meetings on specific issues.

We've continued to be concerned with geographic representation of the committee, its resilience, and succession planning.

We're working on some principles for decisions on spending our budget.

We're maintaining international relations

We're keeping in contact with member Christine Franklin of the **American Statistical Association**.

Christine and colleagues released GAISE II, Guidelines for Assessment and Instruction in Statistics Education, in late 2020. Since then, they have released articles and run workshops, several involving committee members Pip Arnold, Chris Wild, Anna Fergusson, and of course our USA member Chris Franklin. We forwarded GAISE II to the Ministry, as a guide to best practice.

We're improving contact with the **Royal Statistical Society** by exporting Rhys Jones from Auckland to Surrey, and acquiring new member Sophie Carr. Both are involved in the RSS's team on statistical education, which is concerned with reviewing the national curriculum and increasing exposure to statistical literacy in the adult workforce.

Pip Arnold continues as vice-president on the executive committee of the **IASE**, organises the seminar programme, and keeps us informed about it. The November 29 seminar (10 am on 30 Nov for us) features Chris Wild. This session with Chris will be a question-and-answer session based on his recent presentation [Through a glass darkly: Statistics education, society and the future](#) at the New Zealand Association of Mathematics Teachers (NZAMT) Conference.

ICOTS11 took place in Argentina in September. Some committee members and other NZers attended and presented, either in person or digitally. Thomas Lumley was a keynote speaker. Anne Patel won the Best ICOTS Paper by Early Career Researchers award.

The new **Australian Curriculum** was endorsed by education ministers there in April 2022. See v9.australiancurriculum.edu.au.

Further interests involve resources

Our New Zealand online statistics teaching journal, **Statistics and Data Science Educator** (<https://sdse.online/>), continues to provide ideas for teachers.

Pip's Arnold's Beeby Award book, **Statistical Investigations: Te Tūhuratanga Tauanga**, is just being published. Pip acknowledges the support from Maxine Pfannkuch (statistics editing and mentoring) and Tony Trinick (te reo Māori). It will be extremely valuable as a resource for teachers. It contains a breadth of statistical education issues, including the less obvious ones like: ethical matters, cleaning, editing, imputation, etc. We hope teachers get their teeth into this book. See: <https://www.nzcer.org.nz/nzcerpress/statistical-investigations-te-tuhuratanga-tauanga>

NZAMT17 took place in New Plymouth in October. The two NZSA-sponsored keynote speakers, Chris Wild and Michelle Dalrymple, were well received. **NZAMT18** will be in Whangarei in 2023.

At the November **NZARE** (NZ Association for Research in Education) conference, Michelle Dalrymple was a member of the panel, Pip Arnold and Sashi Sharma from the NZSA education committee also presented at the day.

We updated **Links to statistical or modelling content about CoViD-19** on CensusAtSchool. We note that the many websites in there, from this country and elsewhere, are actively updating their data and graphics.

We've created a guide that will help teachers find existing resources: **Links to workshops and resources for NZ school Statistics**. It is on CensusAtSchool.

We keep an interest in **CensusAtSchool** (the main way we have for making resources available to teachers), **iNZight**, and the place of **Data Science** in NZ schools.

We're considering commissioning a **series of workshops** on areas in school where new ideas are most useful. They will be recorded and made freely available.

To find **our contributions to CensusAtSchool**, go to 'Resources' page and then to the very bottom to see 'Useful statistics links', and the 'Curriculum list'. See 'NZSA Education Committee' there, and click it to see our resources.

2023 brings continuing opportunities

We want Aotearoa New Zealand to have a world-class strand in its curriculum for statistics and probability, so we'll continue making inputs into the **Curriculum Refresh**, and the review of **NCEA Levels 1, 2, and 3**. We'll also continue to provide **support and resources for teachers** wherever we can.

We welcome input in these matters from the rest of the Association.

These requests to the AGM come from the committee's Strategy document.

We'd like the AGM to endorse our proposed Steering Group for 2023. They are:

- Alasdair Noble (AgResearch) (convenor and link with NZSA Executive)
- Anna Fergusson (University of Auckland)
- Chris Wild (University of Auckland)
- Mark Hooper (Otago Boys College) (meetings scribe)
- Maxine Pfannkuch (University of Auckland)
- Michelle Dalrymple (Cashmere High School)
- Mike Camden (secretary)
- Pip Arnold (Karekare Education)

We'd like the AGM to consider and comment on our priorities and ongoing activities for 2023:

Priorities:

1. Inputs into Review of Achievement Standards, Curriculum Refresh, and any related opportunities
2. Future of our school statistics curriculum, including resource creation
3. Support for a redesign of Years 1 to 13 probability in the curriculum, including sourcing of funding for a Teacher Handbook..

Ongoing activities:

1. International collaboration with partners in the USA, UK, Australia, and elsewhere
2. Reviewing implementation of the statistics strand of the NZ Curriculum, with inclusion of assessment. [The operational side of Priority 2]
3. Establishing and progressing the New Zealand online statistics teaching journal: Statistics and Data Science Educator (SDSE) <https://sdse.online/>
4. Statistics education in the primary sector
5. Datasets for teaching, learning, and assessment.