

Report to Council and the AGM from the Education Group December 2018

The NZMS Education Groups' aim is to advocate for the enhancement of mathematics education in New Zealand through collaborative and constructive engagement with stakeholders.

In particular, our objectives are the following:

- Support learning in mathematics by encouraging effective curriculum, teaching, and assessment at all levels.
- Facilitate networking, collaboration, and the exchange of ideas through meetings, sessions, and electronic media, with regards to:
 - teaching mathematics
 - mathematics curriculum
 - all other issues related to providing students with effective and engaging encounters with mathematics in their courses of study.
- Work cooperatively with other organizations to encourage effective teaching and learning of mathematics.
- Build connections between tertiary and secondary mathematics education.
- Provide advice and guidance on education issues related to mathematics.

The membership of the group is open to anyone in NZ who is interested in education in mathematics. We currently have 74 members who have subscribed to our listserve (up from 52), including secondary and tertiary educators as well as mathematics education researchers.

The executive committee consists of the convenor, secretary, membership secretary, communications secretary, webmaster, and 5-10 members representing stakeholders and interest groups. Currently there are 15 members of the executive committee.

Members are encouraged to form interest groups and put their efforts into their interest areas. Our ongoing priorities are:

1. Secondary/Tertiary: Creating connections and understanding between the sectors that will aid in the transition of students from secondary to tertiary. We are doing this through activities aimed at providing information around the transition and professional development for secondary teachers' content knowledge.
2. First Year in Maths (FYiMaths): A network of mathematicians teaching in universities in Australia and New Zealand.
3. University Academic Numeracy: Need for support for first year maths across domains: What are the demands of first year university courses in terms of maths?
4. Creating connections with key stakeholders in NZ mathematics education. We are doing this through liaisons with the Ministry of Education, maths teacher associations, and NZQA, and the New Zealand Council for Educational Research. On June 22nd, six members of the

executive met with members of the Ministry of Education Secondary Tertiary Team and separately with representative of NZ Qualification Authority in Wellington.

This year the MoE held a major consultation on NCEA and we made a group submission for NZMS. The submission was developed through by creating group decision around goals, principles, outcomes, and issues, using Loomio which allowed for asynchronous group collaboration. 46 people joined Loomio with 25% of these actively participating in the decision making process.

Key points from our submission on **How NCEA can be improved:**

1. All students should experience mathematics and statistics teaching and learning that leads to the development of problem solving, reasoning, conceptual understanding, and fluency. This should be underpinned by confidence and competence in the subject skills, including using data and transferring the skills to other contexts. Teachers and schools need to be given the systematic support and tools to enable this.
2. NCEA can only be improved by having high-quality teachers. The government needs to prioritise training, recruiting, and retaining excellent teachers with subject area knowledge.
3. A main concern about mathematics and statistics education is that the subject is often delivered in a fragmented way, where inter-related topics are taught and assessed separately.
4. Mathematics and statistics are more than a list of topics or procedures that students need to learn and to apply. Mathematics and statistics are also ways of knowing and understanding the world and are creative mediums. Students need to be exposed to these other ways of viewing mathematics and statistics.
5. Redesign of the curriculum and standards must be supported with well-designed guidelines, good tasks, classroom resources, assessments, and PLD.