

Proposed Mathematics Entry Requirement for Primary Initial Teacher Education Programmes

Consultation on English
medium Initial Teacher
Education

29 August 2024



**Teaching
Council of
Aotearoa
New Zealand**

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Section 1: Accompanying information

How to have your say

The Teaching Council of Aotearoa New Zealand (the Teaching Council) welcomes feedback from all kaiako | teachers, tumuaki | principals, professional leaders, unions, Initial Teacher Education (ITE) providers, peak bodies, and other stakeholders, including members of the public, and kura or school communities, who may be interested in or potentially affected by the proposed policy changes to the *ITE Programme Requirements* policy (*Programme Requirements*). The deadline for feedback is **5:00pm Monday 30 September 2024**.

This consultation document relates to English medium primary ITE programmes. A related process of engagement and consultation on Māori medium primary ITE programmes will commence shortly, with its own timeframes.

You can submit your feedback on the proposed changes through a survey on our website. However, you can also make a written and/or oral submission. If you wish to provide more detailed feedback rather than responding to the survey, please send written comments to ITRequirementsconsult@teachingcouncil.nz.

What we will do with your feedback

The Teaching Council will analyse and consider your feedback before making decisions on the proposed amendments to the *Programme Requirements*. An analysis of the submissions will be published.

The Teaching Council is required to consider any request to release the submissions under the Official Information Act (OIA). Any submissions released under the OIA will be anonymised. You cannot veto the release of your submission under the OIA, but you can let us know if there are specific reasons why you would like your feedback to remain confidential, and we will consider those reasons before deciding on any OIA request that is received.



Te Whare o te Matatū Aotearoa | House of the Teaching Profession



All the Teaching Council’s work is underpinned by recognition of our partnership responsibilities under Te Tiriti o Waitangi. We have illustrated this using a whare metaphor, which includes a depiction of our Tiriti partnership relationship using the tukutuku panels.

Ngā Pātū o te Whare | Wall of Identity

Ngā Pātū o te Whare reminds us of our responsibilities as tiriti partners, and the accountability we have to all communities. This includes our responsibility to (amongst other things) support the protection and revitalisation of te reo Māori as a taonga for iwi, hapū and whānau, and as a language integral to our national identity. It also provides space for us to respond to needs and aspirations of different communities as these are identified.



Mana Whenua /
Tangata whenua



Bi-cultural



Tagata o le Moana



Multicultural



About the proposed changes

The need to strengthen the capability of mathematics teaching

A strong foundation in mathematics is crucial to every primary school student's educational success and the Teaching Council believes that strengthening the mathematics capability of primary teachers will support student achievement.

ITE providers are best placed to prepare student teachers and give them a strong grounding in the content and teaching practices of the mathematics and Pāngarau curricula areas.

But we also need a shared threshold of numeracy and mathematical understanding. Regardless of whether, at least to some extent, a student teacher's grasp of mathematics can be developed in ITE programmes, the reality is that these programmes have time constraints and will already be facing challenges in adapting to the expectations of curriculum reform, including preparing students to teach the new Mathematics and Statistics curriculum. The Teaching Council feels that the finite resources of primary ITE programmes are best used to focus on those aspects of teacher preparation that a candidate will not or cannot acquire elsewhere.

For this reason, the Teaching Council is proposing to make it a requirement that student teachers enrolling in an ITE programme that has been approved for graduates intending to become primary teachers must demonstrate competence in mathematics.

This is part of a broader change to teacher preparation system

We have entered a period of change for the education system, including ITE. The government has set ambitious goals that it wants to achieve.

The Teaching Council sees a multi-stage process is needed for ITE to continue to play its part in adapting to and supporting system change. We can't do it all right away – many of the key pieces aren't in place yet, but nor can we wait until everything is completely assembled before responding. The ITE sector will need to be nimble in some ways and ahead of the curve in others – as we know it is well-placed to be.

The Teaching Council will play its part with three rounds of change to requirements and guidance:

- *Immediate term:* including this document, and a recent document consulting on proposed changes to the *Programme Requirements* to provide clarity to providers of primary and secondary programmes as they adapt their programmes to curricula change.
- *Short term:* over the next few months we will be working with the Initial Teacher Education and Induction Stakeholder Group (ITEISG) on three areas:
 - Strengthening the visibility, confidence and consistency of culminating integrative assessments (CIAs).
 - Working on a first 'core' Key Teaching Task (KTT) in relation to structured literacy.
 - Developing options for stronger entry standards into primary teaching programmes that better recognise the cognitive abilities and dispositional characteristics that student teachers will need.
- *Longer-term:* We are also starting a conversation about broader whole-of-system reform focusing initially on primary ITE programmes and induction and mentoring.



How we propose to measure competence in mathematics

We are proposing two measures which student teachers could use to demonstrate their competence in mathematics.

We propose that from the beginning of 2025 all primary student teachers would need to demonstrate competence in mathematics through one of these measures, regardless of their age and the programme type they are seeking to enter (Bachelor's degree programmes, Graduate Diploma, Postgraduate Diploma, and Master's).

The first measure is through **achievement at secondary school**.

For most students, who undertake NCEA at secondary school, demonstrating competence in mathematics using this measure would require:

holding a minimum of fourteen credits at Achieved, Merit or Excellence in the NCEA subjects 'Mathematics and Statistics' and /or 'Pāngarau' at NCEA Level 2 or above.

There are currently 31 'Mathematics and Statistics' and 'Pāngarau' achievement standards at Level 2 and Level 3, totalling 108 credits, that could be used to meet this requirement. (These are set out in Appendix 1.)

We consider that this measure will be valuable in sending a strong signal that mathematical competence is an important aspect of primary teaching. It is also intended to encourage school students considering a career in primary teaching to continue with their study of mathematics.

For students who undertake recognised equivalent qualifications to NCEA such as International Baccalaureate or Cambridge International, we propose that competence in mathematics be demonstrated by a pass grade in the subject 'Mathematics' at Year 13 or (where applicable) Year 12. We will engage with interested parties during the consultation to test this proposed approach.

It is worth emphasising that this measure would not only be available to recent school leavers. Candidates who are not recent school leavers can still use their NCEA record to demonstrate their competence in mathematics. For those who finished secondary school before NCEA was introduced (over the period 2002-04), we propose that the measure of mathematical competence be a pass grade in Mathematics in Sixth Form Certificate or Bursary.

The second measure is by **passing a prescribed assessment**.

This would involve the Teaching Council specifying a designated assessment tool or process and the minimum score needed on that assessment to demonstrate competence.

We have commenced work on identifying a prescribed assessment that would be accurate, appropriate for a New Zealand setting, and manageable to use. We are considering what is already available and could be adapted for this purpose. Our intention is that this tool or process would be available for use, in at least an initial form, before the beginning of the 2025 academic year.

Timing of the changes

We acknowledge that having these new requirements take effect from 2025, as proposed, will put pressure on providers and could disrupt the plans of prospective student teachers. We recognise that secondary students undertaking NCEA Level 3 in 2024 will have already committed to their programme of study and may have limited opportunities to make changes to meet this new requirement.

We are proposing transitional arrangements for 2025 and 2026, as outlined below, to help mitigate these impacts.

There are also, however, strong reasons in favour of making changes as soon as possible. The scale of the challenge in terms of New Zealand's achievement in mathematics is significant, and there is genuine need for urgency in responding to this. The numbers graduating from ITE programmes each year is very small relative to the size of the teaching profession, and the full impact of this new



requirement would not be seen in the teaching workforce for some time. Arguably, that is another reason to begin as soon as possible.

The government has also brought forward the rollout of the new curriculum for Mathematics and Pāngarau for Years 0-8 to 2025. There is good reason to believe that this new, more detailed curriculum will be more demanding of a strong mathematical foundation on the part of primary teachers, so setting in place the new entry requirement from 2025 is timely in this respect.

Transitional arrangements for 2025 and 2026

Our proposal, once fully implemented, would mean that candidates would need to demonstrate their competency in mathematics, either through their achievement at secondary school or by passing a prescribed assessment *prior* to entering a primary ITE programme.

However, we recognise that this requirement would cause significant disruption in 2025, and possibly even in 2026. We therefore propose a transitional arrangement for these years, which is designed to achieve the same result while allowing more flexibility about timing.

This would involve providers having discretion, for study commencing in 2025 or 2026, to admit candidates to a primary ITE programme *prior* to these formal demonstrations of competence in mathematics.

However, these student teachers would need to pass the mathematics assessment specified by the Teaching Council with at least the specified minimum score before they are able to graduate from the programme.

As an additional safeguard we propose that providers would need to undertake their own formative assessment of these candidates' mathematics competence and have assured themselves that the candidate is capable of passing the specified mathematics assessment with the levels of support that the provider is able to offer.

A focus on primary ITE programmes

These changes, as proposed, would only apply to ITE programmes that have been approved for graduates intending to become primary teachers.

Primary teachers need to be well-prepared to deliver the whole curriculum, whereas much of the responsibility for developing secondary students in mathematics rests with teachers in particular subject areas such as mathematics and science, which already require them to develop some subject depth in these areas.

There is a role for early childhood education (ECE) teachers in helping children to develop mathematical awareness, but there is limited information to suggest that a lack of a grounding in mathematics is a particular problem for ECE teachers.

Managing the impact on diversity

A teaching profession that is diverse is critical to the success for all learners. While we transition, the Teaching Council recognises the need to create bridging pathways and transition approaches to grow mathematics capability and allow time for potential student teachers to prepare to meet this higher entry standard.

We do acknowledge that a number of students, including many Māori and Pasifika students, have not been supported to have equitable access to mathematics learning throughout their schooling. However, we don't believe the level of attainment proposed is too high or that Māori and Pasifika students cannot attain this. Candidates for ITE must already achieve University Entrance, which requires attainment at



NCEA Level 3 as well as Level 2. This is largely about asking prospective teachers to change the subjects they choose to focus on at secondary level.

Impact on teacher supply

Given current demographics and forecast volumes of primary school students, there is reason to believe that the impact of this proposal on the number of future primary teaching graduates from this proposed change will be manageable.

The current period for primary teaching is set to be one not dominated by teacher supply challenges. The Ministry of Education’s Teacher Demand and Supply Planning Tool projects that, at an aggregate level, the supply of primary teachers will exceed demand from 2024 to 2026, with the demand for primary teachers decreasing steadily through to at least 2033.¹

This is not to claim that there won’t still be schools and areas of expertise that continue to find it challenging to find candidates that they consider suitable.

But at the same time, there is also a genuine prospect that, if current ITE volumes were to continue, some graduates may (as has happened from time to time in the past) experience difficulties in attaining a teaching position. As the Ministry of Education has put it, “This may result in a situation at a national level where there are more qualified primary teachers looking for work in the sector than there are vacancies.”²

We recognise though that data projections around teacher demand and supply are always subject to uncertainty and may be sensitive to changes in factors such as immigration levels.

In this context, the proposed transition period in 2025 and 2026 has the benefit of providing scope for the Teaching Council, ITE providers, and schools to get a better understanding of the practical impact of the requirements and what they might mean for teacher supply on the ground before the full effect of a requirement prior to entry comes into effect. If we need to revisit the provisions based on that information, we will do so.

The role of bridging programmes

We envisage a role for bridging programmes and similar forms of assistance in helping to prepare student teachers to pass the mathematics assessment specified by the Teaching Council.

It may be that candidates undertake these programmes in order to prepare them to meet the entry requirements for a primary ITE programme.

During the transition period, these programmes may also be taken alongside or as part of the ITE programme.

However, we consider that the nature and design of these programmes is best left with the individual providers. Therefore, we do not propose regulating them via the *Programme Requirements*. We do, however, propose that programme monitoring, and review should take an interest in the arrangements that providers choose to put in place.

¹ Ministry of Education, *Summary Report: Teacher Demand & Supply Planning Projection – December 2023*, 2023, https://www.educationcounts.govt.nz/_data/assets/pdf_file/0003/224652/Teacher-Demand-and-Supply-Planning-Projection-Report-Dec-2023issn.pdf.

² *Ibid.*, p. 6.



Implications for the current numeracy test

There is currently a requirement that, prior to entry, candidates for any ITE programmes must pass a numeracy competency assessment, as set by the provider.

This assessment, focussed on numeracy in particular, is more narrowly focussed than the proposed demonstration of competence in mathematics. It is also set at a different level and applies to secondary and early childhood education programmes as well as primary.

We propose to leave this requirement as is for now, but would review its role, particular for primary programmes, once a new mathematics requirement was in operation.



Section 2: Proposed new requirement - Competence in mathematics (primary programmes only)

Requirement

Student teachers enrolling in an ITE programme that has been approved for graduates intending to become primary teachers must demonstrate competence in mathematics.

This can be done in one of two ways:

- a) By holding a minimum of fourteen credits at Achieved, Merit or Excellence in the NCEA subjects 'Mathematics and Statistics' and /or 'Pāngarau' at NCEA Level 2 or above (or a recognised equivalent), **or**
- b) By passing a mathematics assessment as specified by the Teaching Council.

This requirement applies to candidates of any age and to all programme types (Bachelor's degree programmes, Graduate Diploma, Postgraduate Diploma, and Master's).

Recognised equivalents

For any other school qualification that the provider would recognise as equivalent to University Entrance for the purpose of Academic Requirements for Admission (6.1), competence in mathematics can be demonstrated by a pass grade in the subject 'Mathematics' at Year 13 or (where applicable) Year 12. For candidates whose schooling predated NCEA, this includes a pass grade in Mathematics in Sixth Form Certificate or Bursary.

The required mathematics assessment option

The Teaching Council will, from time to time, specify a designated assessment tool or process as the way that student teachers can demonstrate competence in mathematics by means of a required assessment, and the minimum score needed on that assessment to demonstrate competence.

Information about the specified assessment and score needed will be recorded in an appendix to these programme requirements.

Special provisions for 2025 and 2026 only

For study commencing in 2025 or 2026, providers can admit candidates to a primary ITE programme without formally demonstrating their competence in mathematics in the ways set out above.

There are two conditions on this, however.

Firstly, for any candidates admitted after this requirement takes effect, providers will need to have undertaken their own formative assessment of each candidate's mathematics competence and have assured themselves that the candidate is capable of passing the specified mathematics assessment, with the levels of support that the provider is able to offer.

Secondly, providers must ensure that any student teacher, who has not demonstrated competence in mathematics prior to entry to the programme, is required to pass the specified mathematics assessment with at least the specified minimum score before they are able to graduate from the programme.



Evidence to support meeting this requirement

The Teaching Council will want to see in **provider documentation**:

- Clearly documented policies and procedures on these matters.

The **approval panel** and **programme monitoring, and review** will want to particularly test:

- What teaching or other support or assistance (including but not limited to bridging programmes) the provider will have in place as part of or alongside the ITE programme to support student teachers to prepare for the mathematics assessment specified by the Teaching Council.
- During the transition period, what the provider's procedures are for undertaking a formative assessment, when, how often, and on what basis student teachers will be permitted, or required, to take the mathematics assessment specified by the Teaching Council during the programme.

Guidance

A strong foundation in mathematics is crucial to every primary school student's educational success. ITE providers are best placed to prepare student teachers and give them a strong grounding in the content and teaching practices of the mathematics and Pāngarau curricula areas. But we also need a shared threshold of numeracy and mathematical understanding.

First measure – achievement at secondary school.

To demonstrate competence in mathematics using this measure, a student who undertakes NCEA needs to hold a minimum of fourteen credits at Achieved, Merit or Excellence in the NCEA subjects 'Mathematics and Statistics' and /or 'Pāngarau' at NCEA Level 2 or above.

Note that all the credits must be in either the NCEA subject 'Mathematics and Statistics' or the NCEA subject 'Pāngarau'. Some schools design a 'course' of study for the purposes of offering a 14-credit course endorsement (sometimes colloquially described as a 'subject endorsement'). A school may designate that 'course' as 'Mathematics' or some similar title. Nevertheless, a 'course endorsement' can only be used to meet the mathematics entry requirement to the extent that the credits are in the required NCEA subjects.

Second measure - passing a prescribed assessment.

Where the provider is responsible for administering an assessment, it is important that the provider has confidence that the person undertaking the literacy and numeracy assessments is the same person who has applied to enter the programme, and that the candidate is not using additional external support to complete the assessments (for example, the internet, or someone sitting with them).

Transitional arrangements for 2025 and 2026

Where a student teacher has entered the programme during the transition period without formally demonstrating their competence in mathematics, providers are able to permit, or require, these student teachers to take the specified mathematics assessment at any time during the programme. Providers also have discretion as to how many times a student teacher can sit this assessment

Bridging programmes

Bridging programmes, and similar forms of assistance, are likely to have a role in helping to prepare student teachers to pass the mathematics assessment specified by the Teaching Council.

It may be that candidates undertake these programmes to prepare them to meet the entry requirements for a primary ITE programme.

During the transition period, these programmes may also be taken alongside or as part of the ITE programme.



The Teaching Council considers that the nature and design of these programmes is best left with the individual providers. However, programme monitoring and review should take an interest in the arrangements that providers choose to put in place.



Section 3: Consultation questions

1. Do you see merit in having a requirement to demonstrate competence in mathematics prior to entry to a primary Initial Teacher Education (ITE) programme?
2. Which of the following would be most effective at strengthening mathematics teaching capability:
 - a) a requirement to demonstrate competence in mathematics prior to entry to a primary ITE programme
 - b) adding an explicit requirement to build mathematical knowledge and pedagogy to primary ITE programmes
 - c) both of the above
 - d) neither of the above
 - e) Other (please describe)
3. Do you consider a minimum of 14 NCEA Level 2 credits in 'Mathematics and Statistics' and/or 'Pāngarau' as a measure of mathematics competence is:
 - a) too low
 - b) too high
 - c) about right
4. If primary ITE candidates could also demonstrate competence by passing a prescribed assessment, do you agree that the assessment used should be common across all primary ITE programmes?
5. If providers could admit candidates to a primary ITE programme prior to formal demonstrations of competence in mathematics, so long as they passed before graduating, should this be allowed:
 - a) not at all
 - b) as a transitional provision for 2025 only
 - c) as a transitional provision for 2025 and 2026 (Teaching Council proposal)
 - d) for a longer transition
 - e) permanently
6. If providers were able to use discretion to admit any candidate, as outlined in question 5, do you agree that it would be important for providers to undertake a formative assessment of a candidate's mathematics competence to ensure the candidate was likely to pass the specified mathematics assessment?

If so, should this be included as a requirement?
7. Do you consider that bridging programmes and similar forms of assistance should be made available to prospective ITE candidates?
8. Are there any barriers to ITE providers delivering bridging programmes in mathematics? Please describe any specific changes that you would want to see.
9. Are there any barriers to prospective ITE candidates undertaking a bridging programme in mathematics? Please describe any specific changes that you would want to see.



Appendix 1: Current achievement standards in ‘Mathematics and Statistics’ and ‘Pāngarau’³

Level 2 – 16 standards

91256	Mathematics	Apply co-ordinate geometry methods in solving problems	2 credits	Internal
91257	Mathematics	Apply graphical methods in solving problems	4 credits	Internal
91258	Mathematics	Apply sequences and series in solving problems	2 credits	Internal
91259	Mathematics	Apply trigonometric relationships in solving problems	3 credits	Internal
91260	Mathematics	Apply network methods in solving problems	2 credits	Internal
91261	Mathematics	Apply algebraic methods in solving problems	4 credits	External
91262	Mathematics	Apply calculus methods in solving problems	5 credits	External
91263	Mathematics	Design a questionnaire	3 credits	Internal
91264	Mathematics	Use statistical methods to make an inference	4 credits	Internal
91265	Mathematics	Conduct an experiment to investigate a situation using statistical methods	3 credits	Internal
91266	Mathematics	Evaluate a statistically based report	2 credits	Internal
91267	Mathematics	Apply probability methods in solving problems	4 credits	External
91268	Mathematics	Investigate a situation involving elements of chance using a simulation	2 credits	Internal
91269	Mathematics	Apply systems of equations in solving problems	2 credits	Internal
91764	Pangarau	Te whakahaere rangahau pāngarau	3 credits	Internal
91765	Pangarau	Te tātari i te reo motuhake o tētahi kōrero pāngarau	3 credits	Internal

Total Level 2 = 48 credits

³ It is proposed that a student teacher can demonstrate competence in mathematics by holding a minimum of fourteen credits at NCEA Level 2 that must be in either the NCEA subject ‘Mathematics and Statistics’ or the NCEA subject ‘Pāngarau’.



Level 3 – 15 standards

91573	Mathematics	Apply the geometry of conic sections in solving problems	3 credits	Internal
91574	Mathematics	Apply linear programming methods in solving problems	3 credits	Internal
91575	Mathematics	Apply trigonometric methods in solving problems	4 credits	Internal
91576	Mathematics	Use critical path analysis in solving problems	2 credits	Internal
91577	Mathematics	Apply the algebra of complex numbers in solving problems	5 credits	External
91578	Mathematics	Apply differentiation methods in solving problems	6 credits	External
91579	Mathematics	Apply integration methods in solving problems	6 credits	External
91580	Mathematics	Investigate time series data	4 credits	Internal
91581	Mathematics	Investigate bivariate measurement data	4 credits	Internal
91582	Mathematics	Use statistical methods to make a formal inference	4 credits	Internal
91583	Mathematics	Conduct an experiment to investigate a situation using experimental design principles	4 credits	Internal
91584	Mathematics	Evaluate statistically based reports	4 credits	External
91585	Mathematics	Apply probability concepts in solving problems	4 credits	External
91586	Mathematics	Apply probability distributions in solving problems	4 credits	External
91587	Mathematics	Apply systems of simultaneous equations in solving problems	3 credits	Internal

Total Level 2 = 60 credits



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