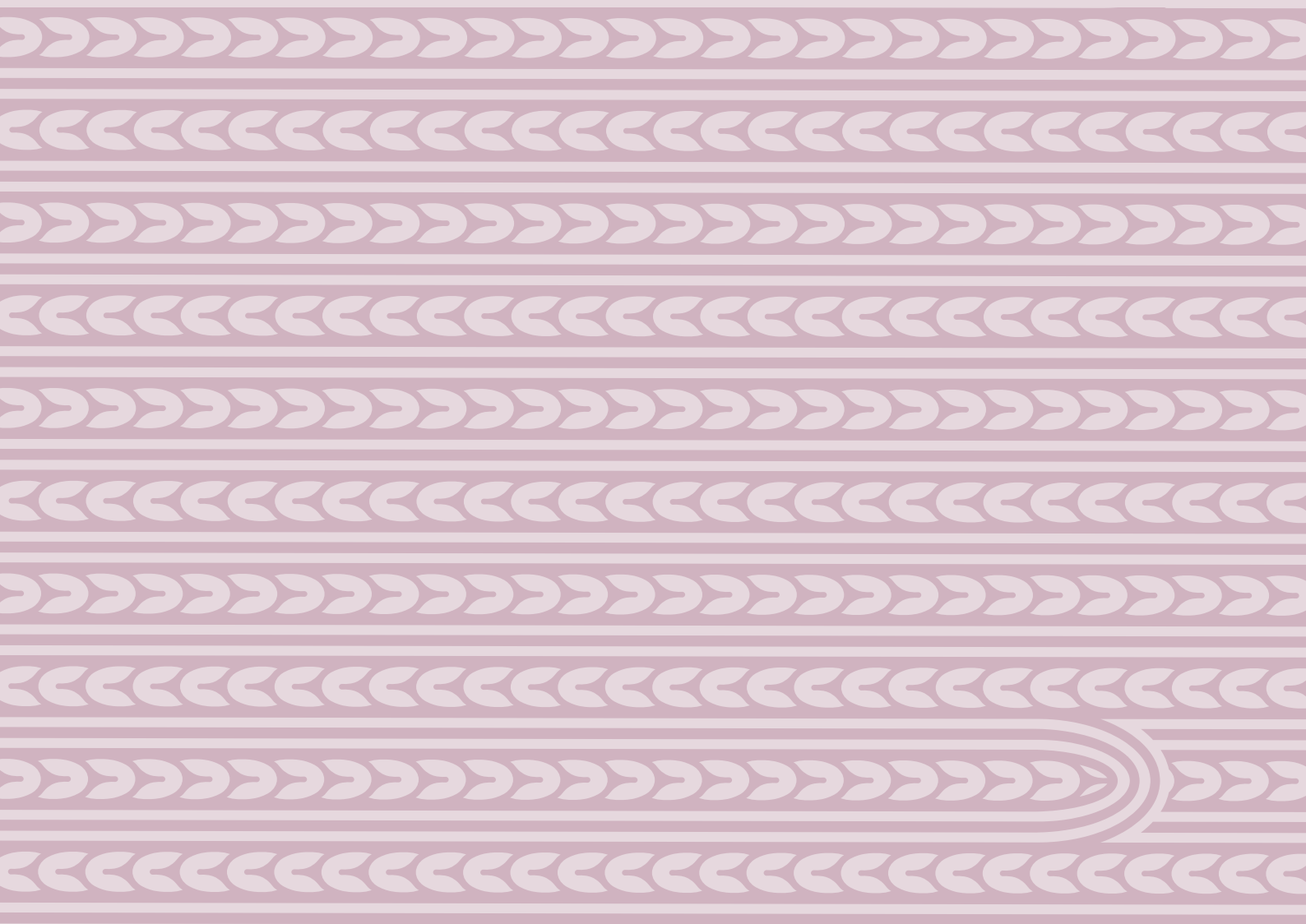


# Feedback on the draft Years 0–8 mathematics and statistics learning area

August–September 2024

Rachel Bolstad, Davina Hunt, Mengnan Li, Jess Mazengarb, and Melissa Denzler





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and Melissa Denzler**

2024

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# 1. Summary

Feedback on the draft mathematics and statistics learning area content for Years 0–8 was gathered from 12 August to 9 September 2024, primarily through a Ministry of Education survey. The survey was accessible alongside the draft content on Tāhūrangi and promoted through Ministry of Education channels. The resulting survey sample was self-selected.

## **Survey responses and submissions**

There were 975 responses to the 2024 survey, from schools (89%) or from other people and groups (11%), most of whom had education-related roles. Four hundred and seventy-three schools could be identified as having given feedback. The survey was divided into six sections and included selected response, rating scale, and open-ended questions. In the first section, respondents were asked to provide feedback on the phases 1–3 learning area structure and teaching guidance. In the second, third, and fourth sections, respondents were asked if they would like to provide feedback on phase 1, phase 2, and phase 3 content, respectively. The fifth section of the survey asked for overall feedback on some key aspects of the learning area update. The final section asked about support materials for implementing the updated learning area.

Twenty-nine additional submissions or emails were received by the Ministry outside of the survey. These were read and included in the analysis of feedback.

## **Feedback on the phases 1–3 learning area structure and teaching guidance**

Survey respondents were asked to rate their agreement with four statements about the learning area structure and teaching guidance section (which included planning guidance). The highest rate of agreement among school respondents was with the statement that “the learning area structure clearly shows how the strands (number, algebra, measurement, geometry, statistics, probability) are displayed in the mathematics and statistics learning area” (80% agreed or strongly agreed). The statement with the least agreement was “the teaching guidance will support effective practice in the classroom”. Just over half (53%) agreed or strongly agreed with this statement, while 24% disagreed or strongly disagreed.

## **Feedback on Understand Know Do (UKD) progress outcomes and year-by-year teaching sequences for each phase**

For each of phases 1, 2, and 3, respondents were given the opportunity to rate their agreement with two to three statements about the UKD progress outcomes for that phase, and eight statements about the year-by-year teaching sequence and teaching methods for that phase. Among school respondents, there were 510 responses for phase 1, 424 responses for phase 2, and 270 responses for phase 3. Among school respondents, similar response patterns were seen for each of the three phases. Table 1 shows the combined percentages of “agree” and “strongly agree” responses to these statements. Respondents were more likely to agree than to strongly agree with each statement. There was majority agreement with the statements about the UKD progress outcome for each phase. For statements about the year-by-year teaching sequence, the highest rate of agreement was with

“we can see how we can build on what we are already doing” and the lowest rates of agreement were with the statements “the level of difficulty is correct for each year” and “the teaching methods will help teachers to explicitly teach the year-by-year sequence”.

**TABLE 1. School respondents’ agreement with statements about the UKD progress outcomes and year-by-year teaching sequences**

Component	Statement	% school respondents who agreed or strongly agreed		
		Phase 1 (n = 510)	Phase 2 (n = 424)	Phase 3 (n = 270)
UKD progress outcome	The UKD progress outcome for [this phase] builds on the learning from [the previous phase].	N/A	81	77
	The UKD progress outcome for [this phase] clearly communicates what students need to be able to know, understand, and do by the end of [this phase].	72	74	74
	It is clear how the year-by-year teaching sequence builds towards achievement of the UKD progress outcome [for this phase].	74	73	72
Year-by-year teaching sequence	We can see how we can build on what we are already doing.	70	69	72
	The language is clear and easy to understand.	67	65	57
	The highlighting of critical steps in the teaching sequence will help teachers identify students who are at risk of falling behind.	61	64	46
	The information provided helps teachers to design and deliver effective learning.	55	55	56
	The level of detail feels right.	49	52	50
	The content will be easy for teachers to use.	53	52	48
	The level of difficulty is correct for each year.	39	39	48
Teaching methods	The teaching methods will help teachers to explicitly teach the year-by-year sequence.	39	37	38

### Overall feedback on the learning area

Respondents were asked to respond to eight overall feedback statements about the draft learning area. Among school respondents, the highest rate of agreement was with the two statements that “it is knowledge rich” and “it is organised logically” (75% agreed or strongly agreed across both statements). A third (66%) agreed or strongly agreed that “it uses consistent and clear language”. Just over half agreed or strongly agreed that “it is clear and easy to use” (53%) and “it is underpinned by the science of learning” (51%).



The statements with the highest rates of disagreement were that “it is inclusive of all students” (51% disagreed, with half of those indicating strong disagreement), and “it is inclusive of evidence informed teaching practices” (31% disagreed or strongly disagreed). With regards to the item “it is internationally comparable”, more than half of school respondents (57%) chose “neither agree nor disagree”. More than a quarter also chose to neither agree nor disagree for four statements: “it is underpinned by the science of learning” (31%); “it is inclusive of evidence informed teaching practices” (29%); “it is inclusive of all students (28%); and “it is clear and easy to use” (26%).

### **Positive feedback about the learning area in open comments and submissions**

Among things that some people specifically said they liked or “loved” were the clarity of what to teach, the guidance around explicit teaching, the year-level teaching sequence, the breakdown of strands and substrands, the use of manipulatives, the “do” elements, and the focus on “science of learning”, and high expectations for learners. However, positive comments were often tempered with additional feedback suggesting improvements or expressing concerns, and the things that some respondents liked about the draft were critiqued by others.

### **Areas for improvement and key concerns expressed**

There were hundreds of critical and improvement-focused comments across the survey responses and submissions. Six high-level themes recurred at high frequency across multiple parts of the survey. These themes related to:

- presentation and ease of use of the document
- concerns around inclusivity and responding to learner diversity
- adequacy of teaching guidance and support, including for differentiation and assessment
- the need for the curriculum to reflect the Aotearoa New Zealand context
- questions about the underpinning research and evidence base and the notion of international comparability
- the process and pace of the curriculum update, feedback, and implementation expectations.

### **Feedback on the phases 1–3 teaching guidance**

Within the phases 1–3 teaching guidance, feedback included critique of some of the content in this section (such as maths mastery and explicit teaching), and suggestions about teaching guidance that was felt to be either “missing” or insufficient—such as more guidance about how to support all/diverse learners in a class, culturally responsive practices, acknowledgement of te ao Māori, additional research-based pedagogies and practices, and guidance about integration across strands and between learning areas. More guidance around assessment, particularly formative assessment, was also requested here and across other parts of the feedback.

### **Feedback on phases 1, 2, and 3 year-by-year teaching sequences**

There were many recurring themes in feedback on each of the three phases, including repetition of themes discussed above. The biggest theme in the feedback concerned learner diversity, with some expectations of what should be taught at each level seen as too high to be achieved by all learners. Respondents raised questions and concerns about how to support learners at different starting points or who were progressing at different rates, and what this support would look like in real classrooms. Within phase 1, there was specific feedback about content expectations for the first 6 months and first year. Respondents suggested a 12–18-month period would be preferable to

recognise learners' diverse starting points, learners with additional learning needs, as well as new entrants' different start dates for school. Some feedback suggested there were disconnects or "jumps" between phases or within levels, and concerns were raised about the impacts on learners through higher expectation levels than at current year levels. Finally, across each phase level there was feedback about the "teaching methods" column in each of the teaching sequences, with many stating that these were just lists of resources and did not provide sufficient guidance, examples, or support for teaching practice.

### **Resources and support**

Asked about what resources would help with implementing the learning area, respondents mentioned various supports that existed or were currently used, including named or branded maths resources, and generalised resources and materials. Many described multiple programmes, resources, or maths experts or facilitators that enable their maths teaching to be effective. A few respondents described resources they had found to not support learning in their setting, or that would require updating to align to the new draft curriculum. The resource most mentioned as useful to support curriculum implementation was nzmaths. Respondents also described the resources and support they would like to see.

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## 2. Introduction and methods

This report summarises feedback on the draft mathematics and statistics learning area content for Years 0–8, released in August 2024. Feedback was gathered from 12 August to 9 September 2024.<sup>1</sup>

A Ministry of Education online survey was the main method for collecting feedback. The survey was accessible alongside the draft content on Tāhūrangi and was promoted through Ministry of Education channels. The resulting survey sample was self-selected. To facilitate professional discussion, school-based respondents were encouraged to complete the survey in groups, but respondents could choose to answer the survey individually. The survey was primarily aimed at schools, but other people and groups could also respond to the survey. Additional feedback was received by the Ministry of Education by email and sent to NZCER to include in this analysis.

### Survey structure

Respondents answered an introductory set of demographic questions. The remaining content of the survey was divided into six sections and included selected response, rating scale, and open-ended questions. In the first section, respondents were asked to provide feedback on the phases 1–3 learning area structure and teaching guidance. In the second, third, and fourth sections, respondents were asked if they would like to provide feedback on phase 1, phase 2, and phase 3 content, respectively. Respondents could complete or skip each of these sections. The fifth section of the survey asked for overall feedback on some key aspects of the learning area update. The final optional section asked about support materials for implementing the refreshed learning area.

In calculating percentages for survey sections 2, 3, 4, and 6, respondents were excluded from the “eligible” total if they chose to skip that section. The number of eligible respondents for each section is indicated in this report. Some respondents exited the survey before reaching the end. Partial responses are included in the data.

### How to read tables and graphs

Where appropriate, tables show both the counts and percentages of responses. For questions where respondents were asked to select one response from a set of options, the percentages given are calculated using the total number of responses for that question. For questions where respondents were asked to select as many options as applicable from a set, percentages are calculated using the total number of eligible survey respondents. Note that percentages may not total 100% due to rounding.

Where an “n” is provided in a plot heading, this number indicates the total number of responses to the corresponding block of questions. The numbers shown on the plot itself are percentages, calculated as above. In most cases, the “n” is consistent across a block of questions, as respondents could not move on to the next page without answering all the selected response and rating-scale questions. However, in some cases, response numbers vary across questions within a single plot where respondents skipped items. In these cases, the “n” is provided as a range.

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<sup>1</sup> This was the second time the learning area was revised and shared for sector feedback. A previous version of the learning area was shared with the sector for feedback in September 2022, and a summary report from that cycle of feedback was prepared for the Ministry of Education (see Bolstad, R., Mazengarb, J., Li, M., Gibbs, B., and Fisher, J. (2023). *Feedback on the draft Mathematics and Statistics learning area: Feedback on components of The New Zealand Curriculum Refresh*. Rangahau Mātauranga o Aotearoa | New Zealand Council for Educational Research.

## Survey responses

There were 975 responses to the survey. Respondents were asked to answer an introductory set of demographic questions. The first question asked if respondents were from a school, another education organisation, or “other”. Table 2 shows the profile of respondents. Most (89%) were from a school.

TABLE 2. Respondents by category

Number of respondents	Count	Percentage
From a school	866	89
From another education organisation	65	7
Other	44	6

For the purposes of analysis and reporting, responses to the rest of the questions in the survey have been split into two categories—those from schools, and those not from schools. Respondents who identified as responding “from another education organisation” and “other” are referred to collectively as non-school or other in the remainder of this report. Further details about the roles of respondents in each grouping are provided below.

### School survey respondents

Of the 866 school responses, most (96%) could be matched to a school name or school ID, resulting in 473 unique school IDs. This is more than four times the number of unique school IDs that could be identified in the 2022 survey which sought feedback on a previous version of the draft mathematics and statistics learning area. Appendix A describes the demographic characteristics of the schools that responded to the survey.

Of the 473 schools that returned feedback, most returned one or two surveys. Just over 10% of schools returned three or more surveys, and a handful of schools returned more than 10 surveys. In terms of how school respondents answered the survey, just over a third (36%) responded as groups, while just under two-thirds (64%) responded as individuals.

The roles held by school respondents are shown in Table 3. Respondents could select more than one role. The most frequently identified role was fully registered teacher (61% of respondents).

TABLE 3. Roles held by school respondents

Number of respondents	Count	Percentage
Principal	238	27
Deputy/assistant/associate principal	205	24
Team/syndicate leader	244	28
Specialist teacher	62	7
Fully registered teacher	526	61
Provisionally registered teacher	118	14
None of the above	4	0

## Non-school responses

Of the 109 responses that were not from a school, 81% were from individuals and 18% were from groups. Non-school respondents were asked to select a single descriptor for their role or group, and were identified as follows: facilitator/professional development provider (29 responses); academic/tertiary providers (25 responses, including some from initial teacher education); members of the public (13 responses); research (seven responses); early childhood education provider (two responses); and “other” (32 responses). The “other” category included a few kāhui ako groups, teacher unions, subject associations and networks of expertise, RTLBs, retired teachers and principals, and teachers on parental leave.

## Generalisability of the survey data

As the survey sample is self-selected, the results cannot be considered generalisable to the wider population. The analysis is descriptive and reflects the views of those who chose to respond to the survey. Observations, including comparisons, made in this report should not be assumed to reflect patterns and relationships beyond the self-selected sample.

## Submissions and emails

The Ministry of Education passed on 29 additional submissions or emails that were received by the Ministry outside of the survey. The submissions received were from 12 teachers, four principals, four individual academics, four subject-matter people or groups (PLD providers and mathematics or statistics associations), two members of the public, one union, and two that could not be categorised.

## Analysis of comments and submissions

Survey comments were coded and analysed thematically using NVivo. Submissions were read and summarised to identify the extent and nature of feedback. Some submissions provided detailed feedback on multiple parts of the draft learning area content, while other feedback was brief. Most of the shorter comments replicated themes and ideas that were also evident in the survey responses. Detailed submissions were identified to the Ministry of Education so that these could be read in full. In this report, we provide an overview of the most common themes that emerged across survey comments and submissions. Quotes have been selected to provide a general sense of the ideas expressed. We have selected examples from a range of different respondents.

For simplicity, this report tends to use the term “respondents” when providing overall commentary about the data set. Where quotes are directly provided in the text, we have identified whether the response was from a school respondent or other respondent.

---

## 3. Feedback on phases 1–3 learning area structure and teaching guidance

Figures 1 and 2 show survey respondents' levels of agreement with four statements about the phases 1–3 learning area structure, and teaching guidance. Figure 1 shows responses from schools (n = 866), and Figure 2 shows responses from other people and groups who responded to the survey (n = 109).<sup>2</sup>

### School responses

Of the four statements, the highest rate of agreement (80% agreed or strongly agreed) was with the statement that “the learning area structure clearly shows how the strands (number, algebra, measurement, geometry, statistics, probability) are displayed in the mathematics and statistics learning area”. The statement with the least agreement was “the teaching guidance will support effective practice in the classroom”. Just over half (53%) agreed or strongly agreed with this statement, and 24% disagreed or strongly disagreed.

### Other groups' responses

Among other responding people and groups, 61% agreed or strongly agreed with the first statement about the learning area structure, while just 29% agreed with the statement “the teaching guidance will support effective practice in the classroom”. Just under half (46%) disagreed or strongly disagreed with the latter statement. The proportion of non-school respondents selecting “neither agree nor disagree” for each statement was higher than for school respondents. This response pattern was generally true across most survey sections and may reflect the non-teaching roles held by some of the respondents in this group.

### Open comments

In response to the open question “What is not present in the teaching guidance that you would expect to see?”, there were 571 school responses and 74 responses from respondents who were not from a school. Themes from respondent comments are discussed in Section 9.

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<sup>2</sup> The composition of the non-school/other group is described in the previous section.

FIGURE 1. Phases 1–3 learning area structure and teaching guidance, school responses (n = 866)

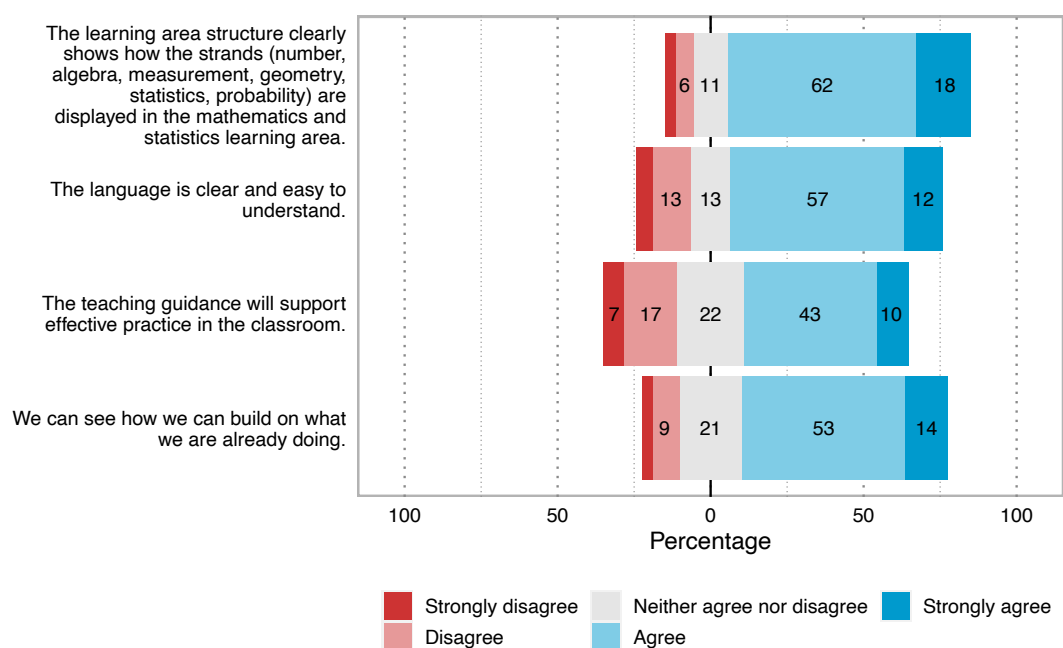
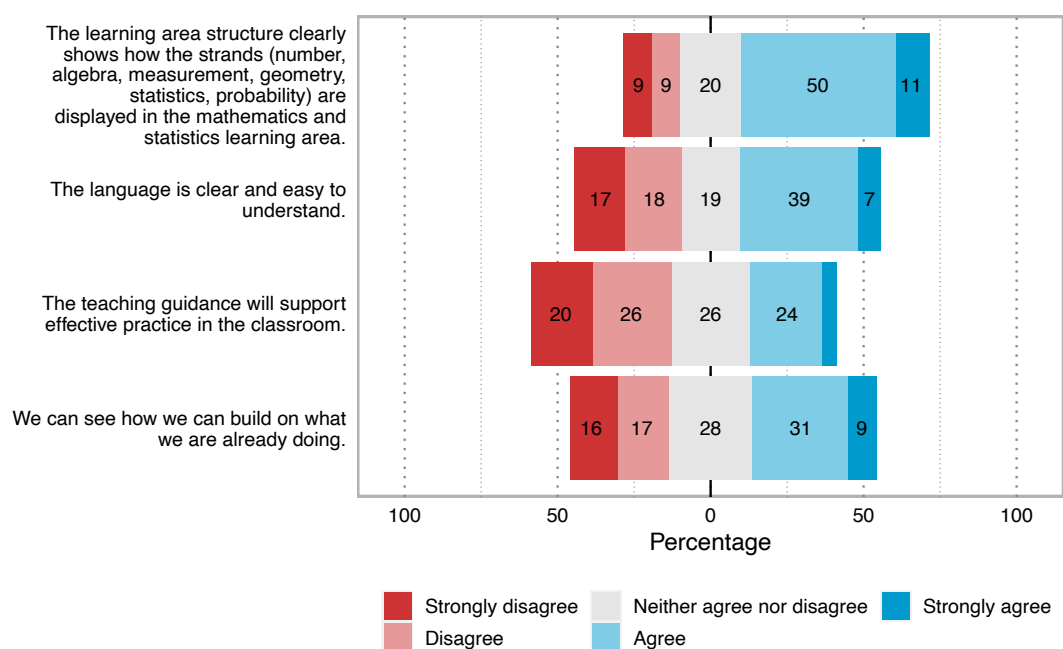


FIGURE 2. Phases 1–3 learning area structure and teaching guidance, other responses (n = 109)



## 4. Feedback on phase 1

Respondents could choose whether to give more specific feedback on each of the three phases. There were 510 responses from schools and 68 responses from other people and groups in relation to the phase 1 content.

### Phase 1 progress outcome

Figures 3 and 4 show respondents' level of agreement with statements about the UKD progress outcome for phase 1. Figure 3 shows responses from schools (n = 510) and Figure 4 shows responses from other people and groups who responded to the survey (n = 68).

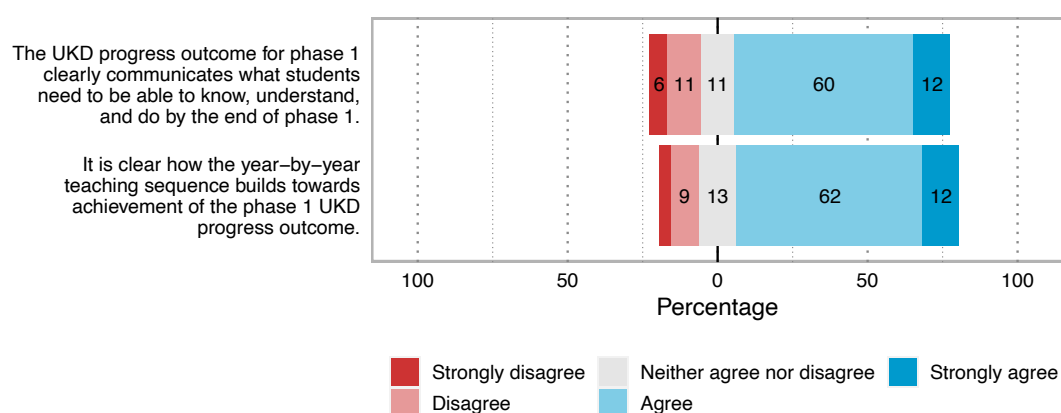
#### School responses

Eighty-one percent of school respondents who gave feedback on phase 1 content indicated that they or someone in their group was currently teaching learners at this phase. School respondents tended to agree that the UKD progress outcome clearly communicates what students need to know, understand, and be able to do by the end of phase 1 (72% agreed or strongly agreed) and that it is clear how the year-by-year teaching sequence builds towards achievement of the phase 1 progress outcome (74% agreed or strongly agreed). Respondents were more likely to agree than to strongly agree with these statements.

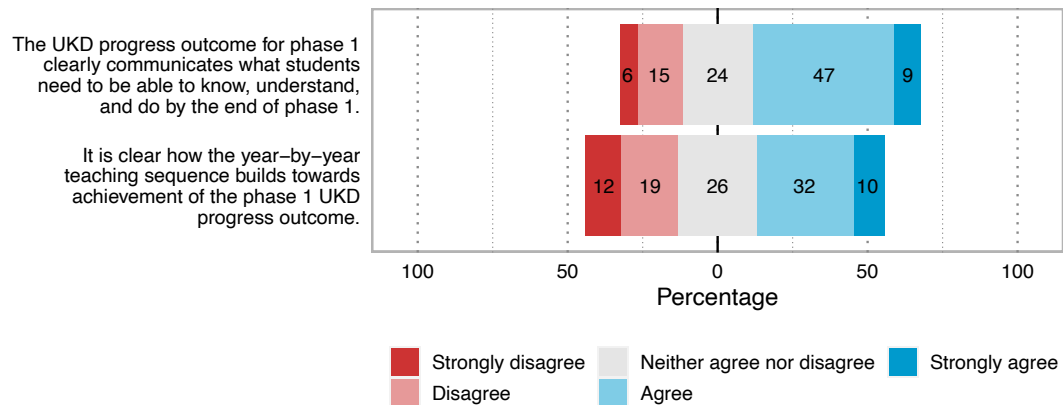
#### Other responses

As with other parts of the survey, non-school respondents tended to agree less frequently with both statements, with proportionally more selecting "neither agree nor disagree", or indicating some level of disagreement, than for school respondents.

FIGURE 3. Feedback on the phase 1 progress outcome, school responses (n = 510)





**FIGURE 4. Feedback on the phase 1 progress outcome, other responses (n = 68)**

## Phase 1 year-by-year teaching sequence

Figures 5 and 6 show respondents' level of agreement with statements about the year-by-year teaching sequence for phase 1. Figure 5 shows responses from schools (n = 510), and Figure 6 shows responses from other people and groups (n = 68).

### School responses

Among school respondents, the items with the highest rates of agreement were “we can see how we can build on what we are already doing” (70% agreed or strongly agreed) and “the language is clear and easy to understand” (67% agreed or strongly agreed), and “the highlighting of critical steps in the teaching sequence will help teachers to identify students who are at risk of falling behind” (61% agreed or strongly agreed). The items with the highest rates of disagreement were “the level of difficulty is correct for each year” (43% disagreed or strongly disagreed) and “the teaching methods will help teachers to explicitly teach the year-by-year sequence” (42% disagreed or strongly disagreed) and the level of detail feels right (33% disagreed or strongly disagreed). A quarter or more of respondents indicated disagreement that “the information provided helps teachers to design and deliver effective learning” (27% disagreed or strongly disagreed), and that “the content will be easy for teachers to use” (25% disagreed or strongly disagreed). There were three items (shown at the bottom of Figure 5) for which 20% or more of school respondents chose “neither agree nor disagree”.

### Other responses

As with other parts of the survey, non-school respondents tended to agree less frequently with most statements, with proportionally more selecting “neither agree nor disagree”, or indicating some level of disagreement, than for school respondents.

### Open comments

In response to an open question “Is there anything else you would like to see within the teaching sequence that will support learners to be successful in learning?” (for phase 1), there were 389 comments from schools and 53 comments from other respondents. Themes from open comments are discussed in Section 9.

FIGURE 5. Phase 1 year-by-year teaching sequence, school responses (n = 510)

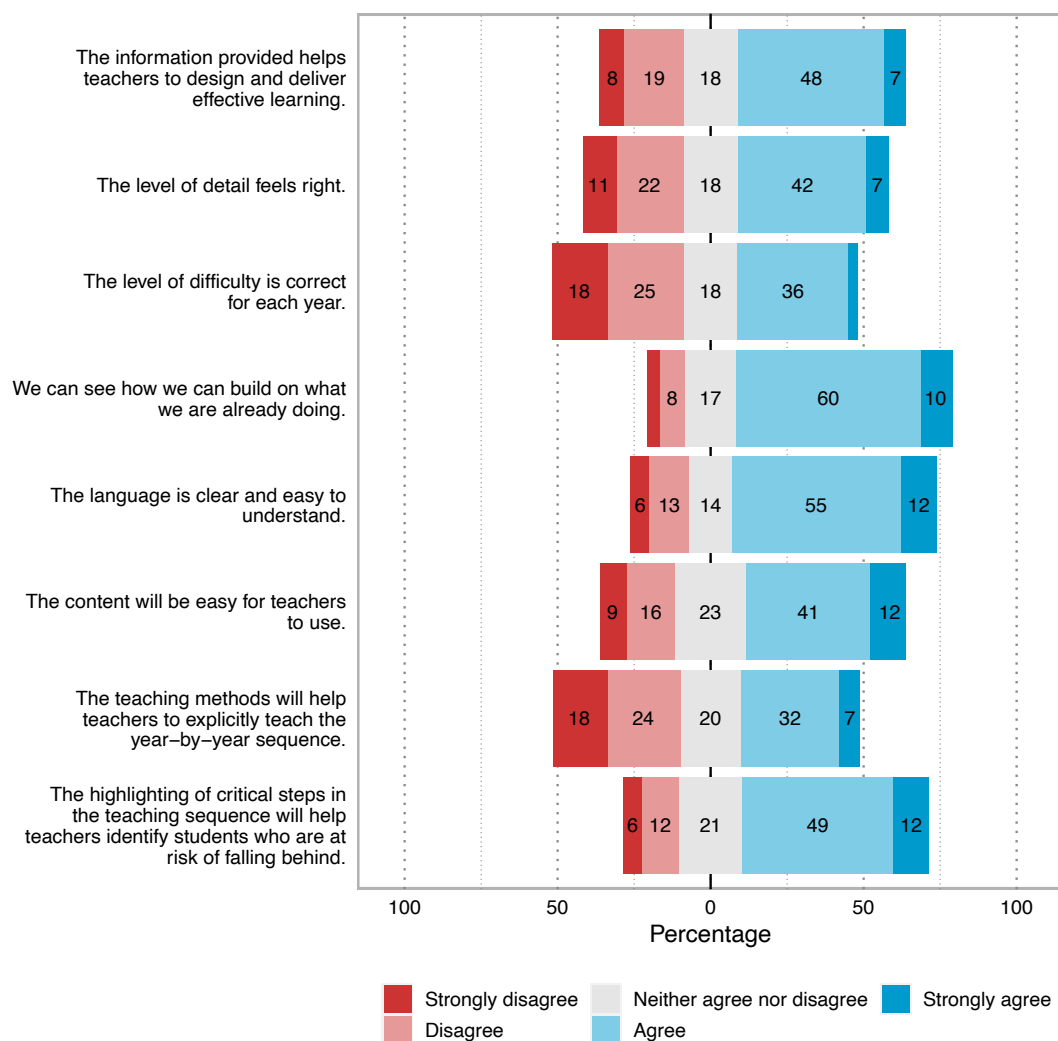
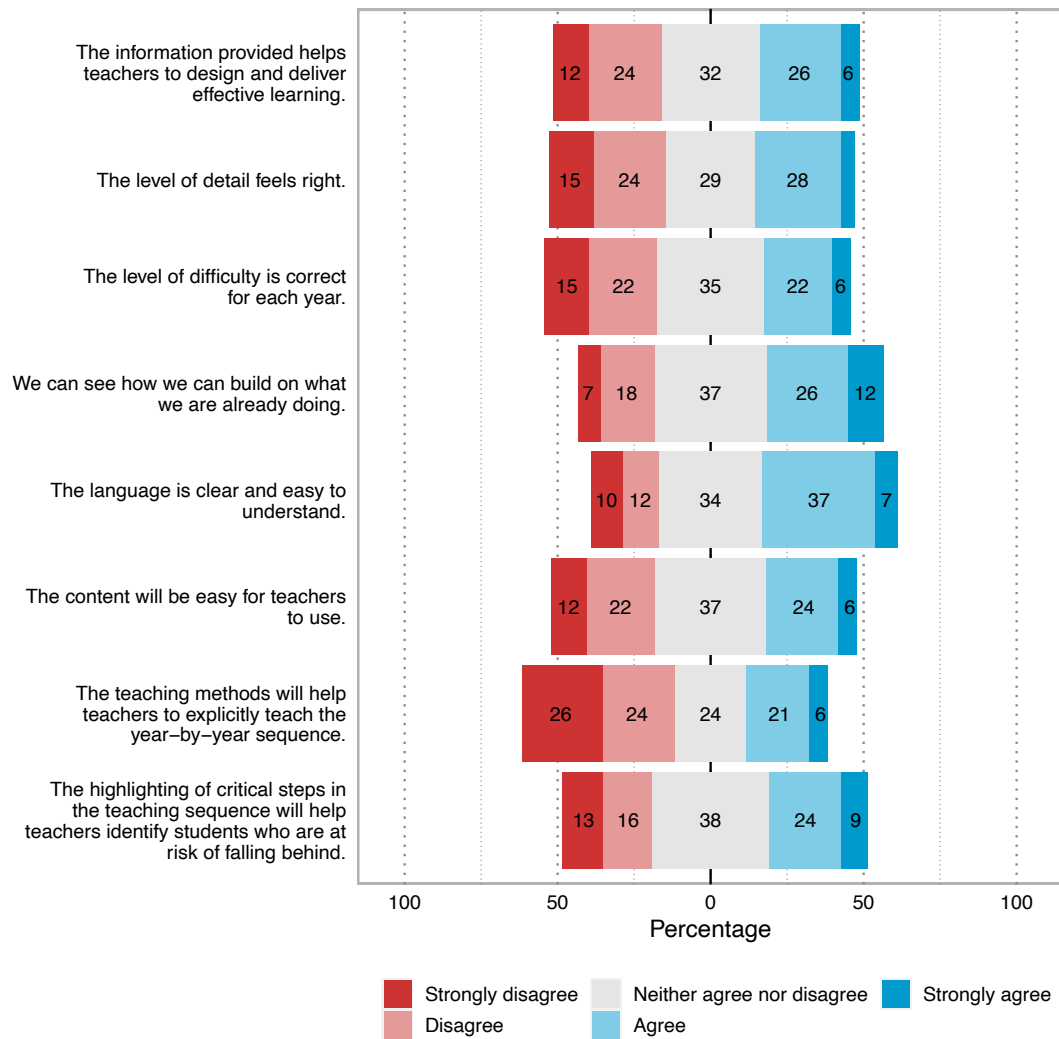


FIGURE 6. Phase 1 year-by-year teaching sequence, other responses (n = 68)



## 5. Feedback on phase 2

Four hundred and twenty-four school respondents and 46 other respondents gave feedback on phase 2.

### Phase 2 progress outcome

Figures 7 and 8 show respondents' level of agreement with statements about the UKD progress outcome for phase 2. Figure 7 shows responses from schools (n = 424) and Figure 8 shows responses from other people and groups (n = 46).

#### School responses

Eighty-five percent of school respondents who gave feedback on phase 2 content indicated that they or someone in their group was currently teaching learners at this phase. School respondents tended to agree that “the UKD progress outcome for phase 2 builds on the learning from phase 1” (77% agreed or strongly agreed). Seventy-three to 74% agreed or strongly agreed with the other two statements about the UKD progress outcome shown in Figure 7. As with phase 1, respondents were more likely to agree than to strongly agree with these statements.

#### Other responses

As with other parts of the survey, non-school respondents tended to agree less frequently with most statements, with proportionally more selecting “neither agree nor disagree”, or indicating some level of disagreement, than for school respondents.

FIGURE 7. Feedback on the phase 2 progress outcome, school responses (n = 424)

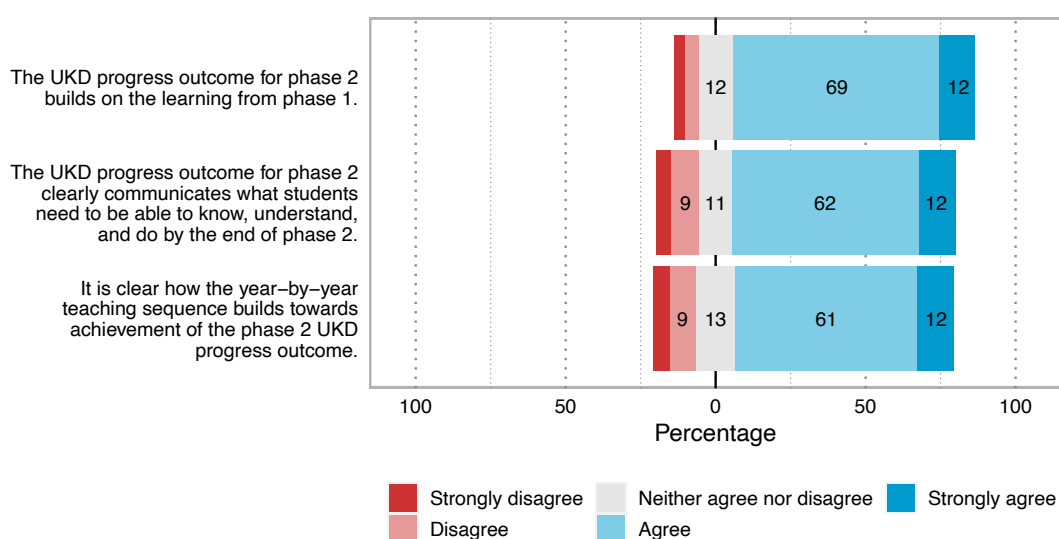
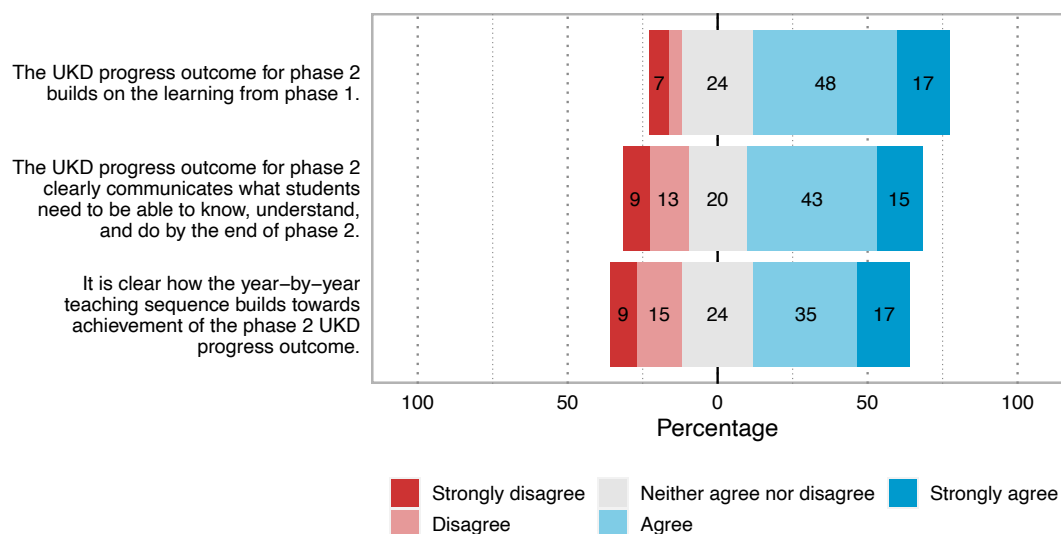


FIGURE 8. Feedback on the phase 2 progress outcome, other responses (n = 46)



## Phase 2 year-by-year teaching sequence

Figures 9 and 10 show respondents' level of agreement with statements about the year-by-year teaching sequence for phase 2. Figure 9 shows responses from schools (n = 424), and Figure 10 shows responses from other people and groups (n = 46).

### School responses

The overall shape of responses to these statements for phase 2 is similar to the patterns for phase 1. The items with the highest rates of agreement were “we can see how we can build on what we are already doing” (69% agreed or strongly agreed), “the language is clear and easy to understand” (65% agreed or strongly agreed), and “the highlighting of critical steps in the teaching sequence will help teachers to identify students who are at risk of falling behind” (64% agreed or strongly agreed). The items with the highest rate of disagreement were “the teaching methods will help teachers to explicitly teach the year-by-year sequence” (42% disagreed or strongly disagreed), “the level of difficulty is correct for each year” (41% disagreed or strongly disagreed), “the level of details feels right” (33% disagreed or strongly disagreed), and “the content will be easy for teachers to use” (25% disagreed or strongly disagreed).

### Other responses

As with other parts of the survey, non-school respondents tended to agree less frequently with most statements, with proportionally more selecting “neither agree nor disagree”, or indicating some level of disagreement, than for school respondents.

### Open comments

In response to an open question “Is there anything else you would like to see within the teaching sequence that will support learners to be successful in learning?” (for phase 2), there were 333 comments from schools and 53 comments from other respondents. Themes from open responses are discussed in Section 9.

FIGURE 9. Phase 2 year-by-year teaching sequence, school responses (n = 424)

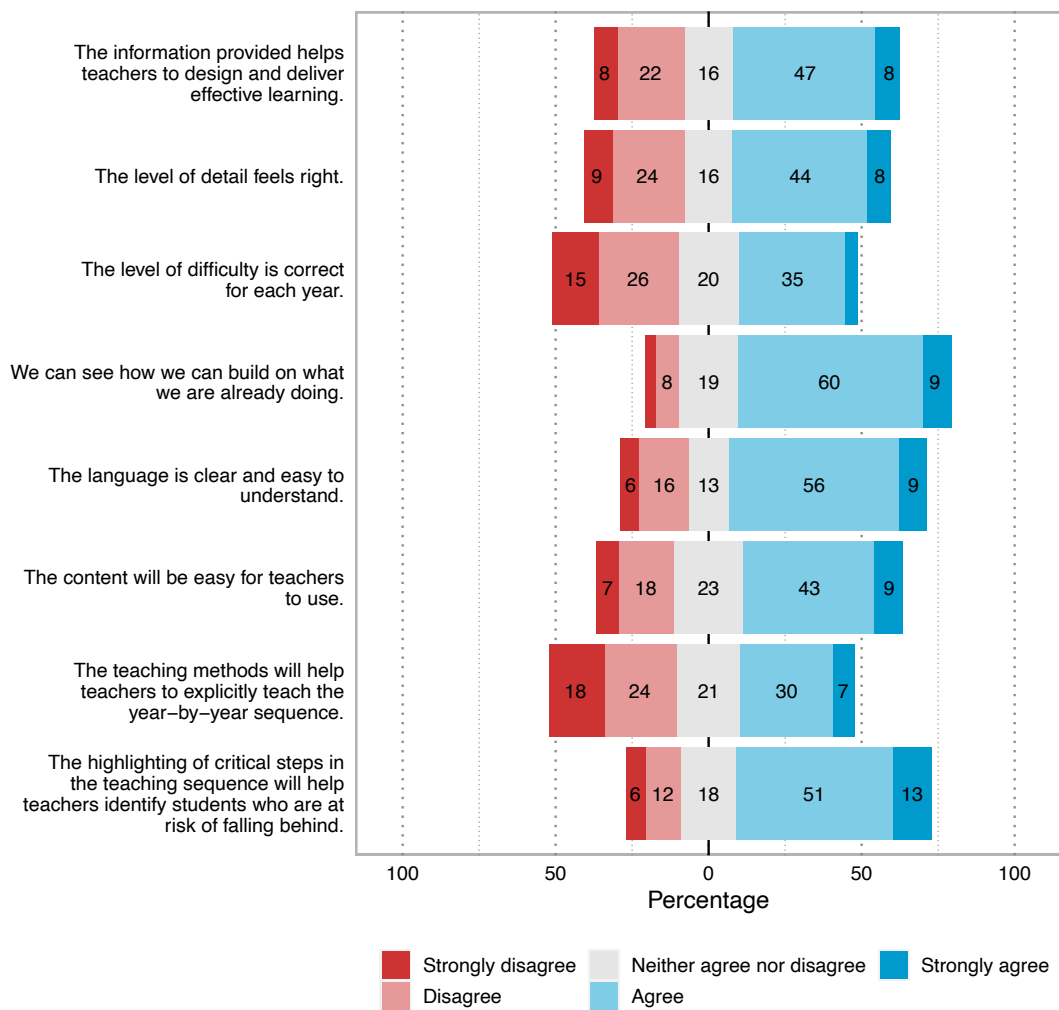
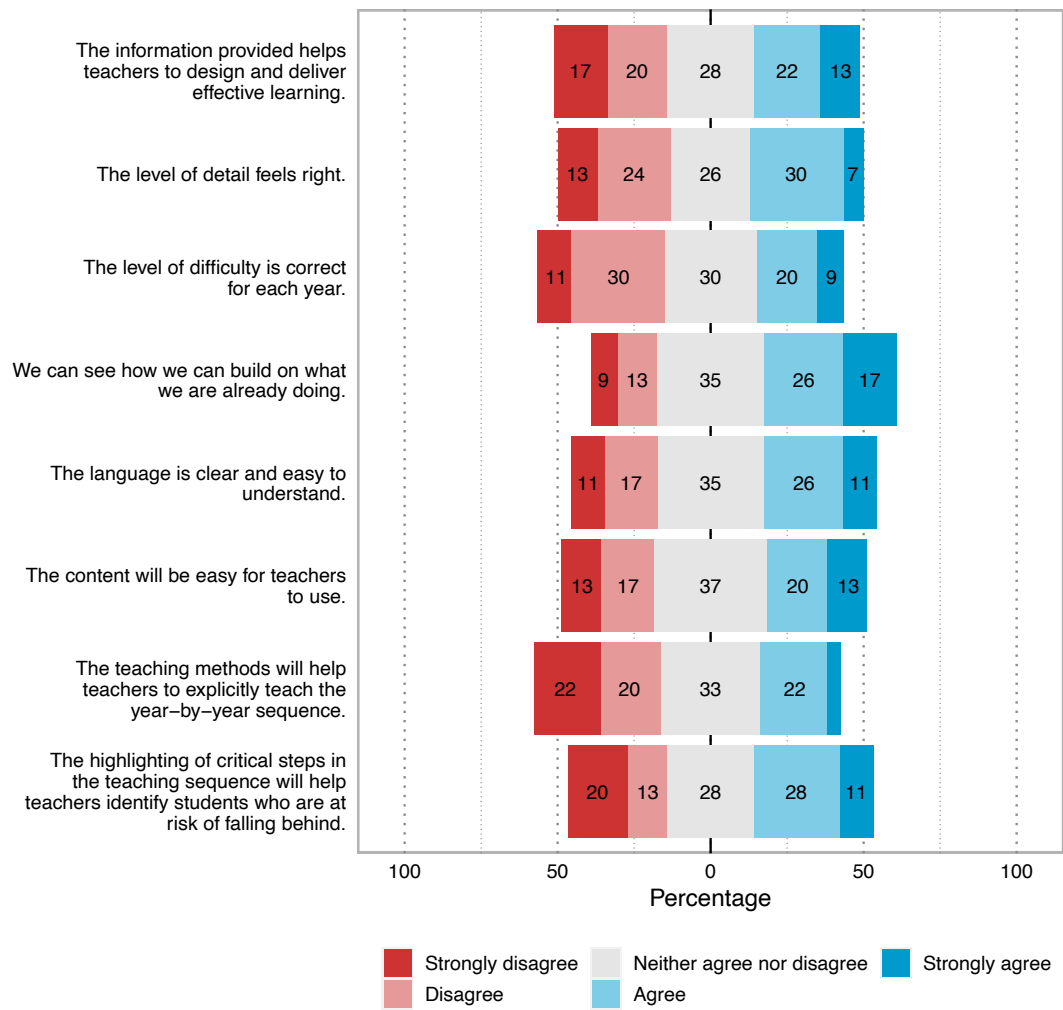


FIGURE 10. Phase 2 year-by-year teaching sequence, other responses (n = 46)



## 6. Feedback on phase 3

Two hundred and seventy school respondents and 42 other respondents gave feedback on phase 3.

### Phase 3 progress outcome

Figures 11 and 12 show respondents' level of agreement with statements about the UKD progress outcome for phase 3. Figure 11 shows responses from schools (n = 270) and Figure 12 shows responses from other people and groups (n = 42).

#### School responses

Eighty-four percent of school respondents who gave feedback on phase 3 content indicated that they or someone in their group was currently teaching learners at this phase. Seventy-two to 77% of school respondents agreed or strongly agreed with the statements about the UKD outcome shown in Figure 11. Respondents were more likely to agree than to strongly agree with these statements.

#### Other responses

As with other parts of the survey, non-school respondents tended to agree less frequently with most statements, with proportionally more selecting "neither agree nor disagree", or indicating some level of disagreement, than for school respondents.

FIGURE 11. Feedback on the phase 3 progress outcome, school responses (n = 270)

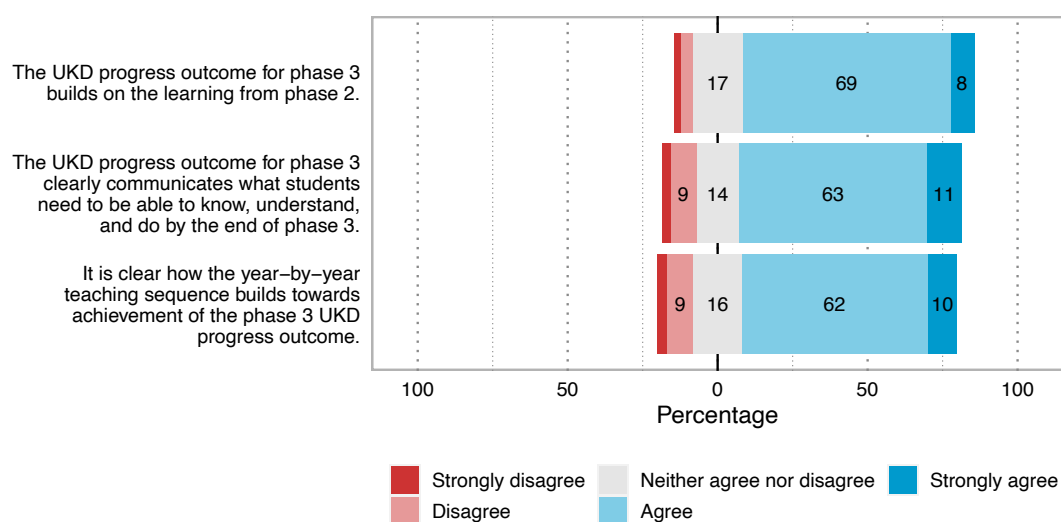
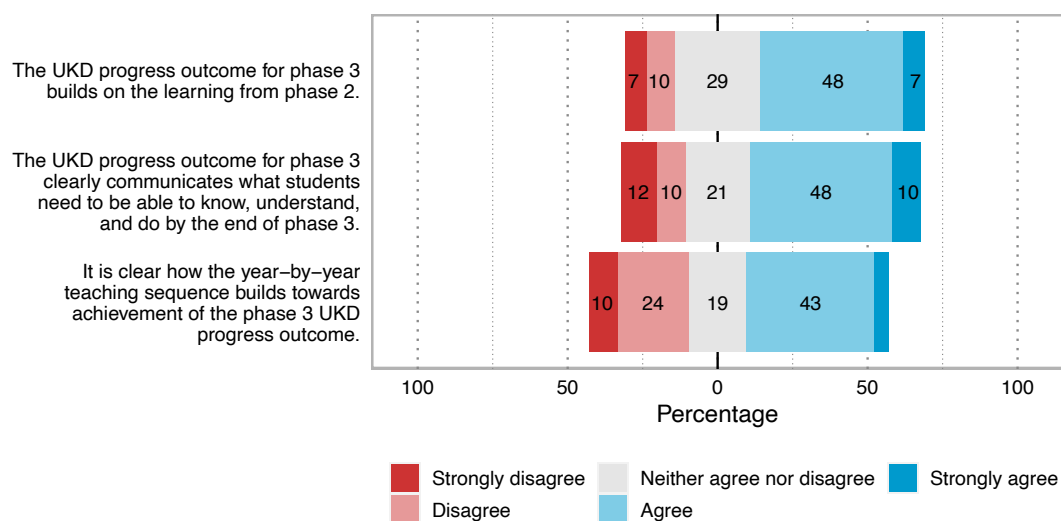




FIGURE 12. Feedback on the phase 3 progress outcome, other responses (n = 42)



## Phase 3 year-by-year teaching sequence

Figures 13 and 14 show respondent levels of agreement with statements about the year-by-year teaching sequence for phase 3. Figure 13 shows responses from schools (n = 270), and Figure 14 shows responses from other people and groups (n = 42).

### School responses

The overall shape of responses to these statements for phase 3 is similar to the patterns for phases 1 and 2, but with proportionally more respondents choosing “neither agree nor disagree” for most items than was the case for the previous phases. The items with the highest rates of agreement were “we can see how we can build on what we are already doing” (72% agreed or strongly agreed) and “the language is clear and easy to understand” (57% agreed or strongly agreed). The items with the highest rate of disagreement were “the teaching methods will help teachers to explicitly teach the year-by-year sequence” (35% disagreed or strongly disagreed) and “the level of difficulty is correct for each year” (29% disagreed or strongly disagreed).

### Other responses

As with other parts of the survey, non-school respondents tended to agree less frequently with most statements, with proportionally more selecting “neither agree nor disagree”, or indicating some level of disagreement, than for school respondents.

### Open comments

In response to an open question “Is there anything else you would like to see within the teaching sequence that will support learners to be successful in learning?” (for phase 3), there were 202 comments from schools and 33 comments from other respondents. Themes from open responses are discussed in Section 9.

FIGURE 13. Phase 3 year-by-year teaching sequence, school responses (n = 270)

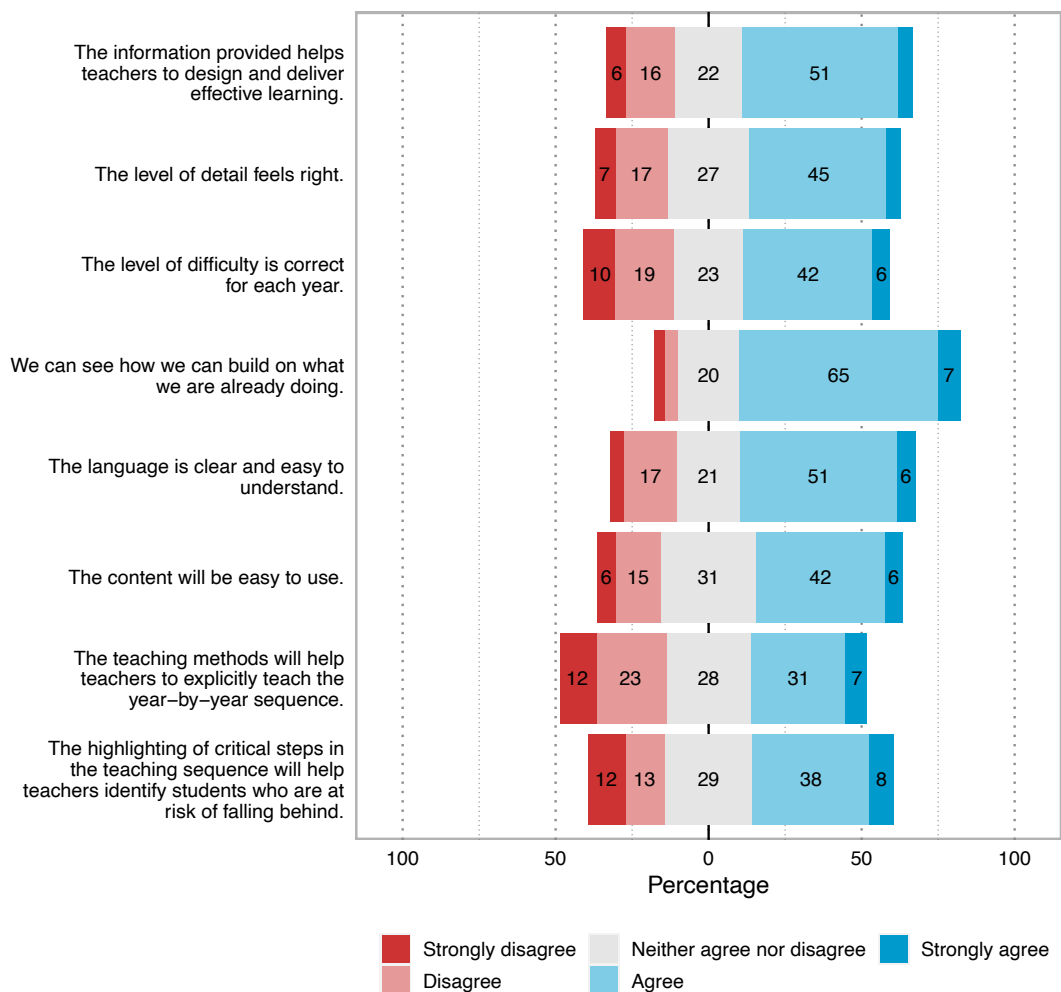
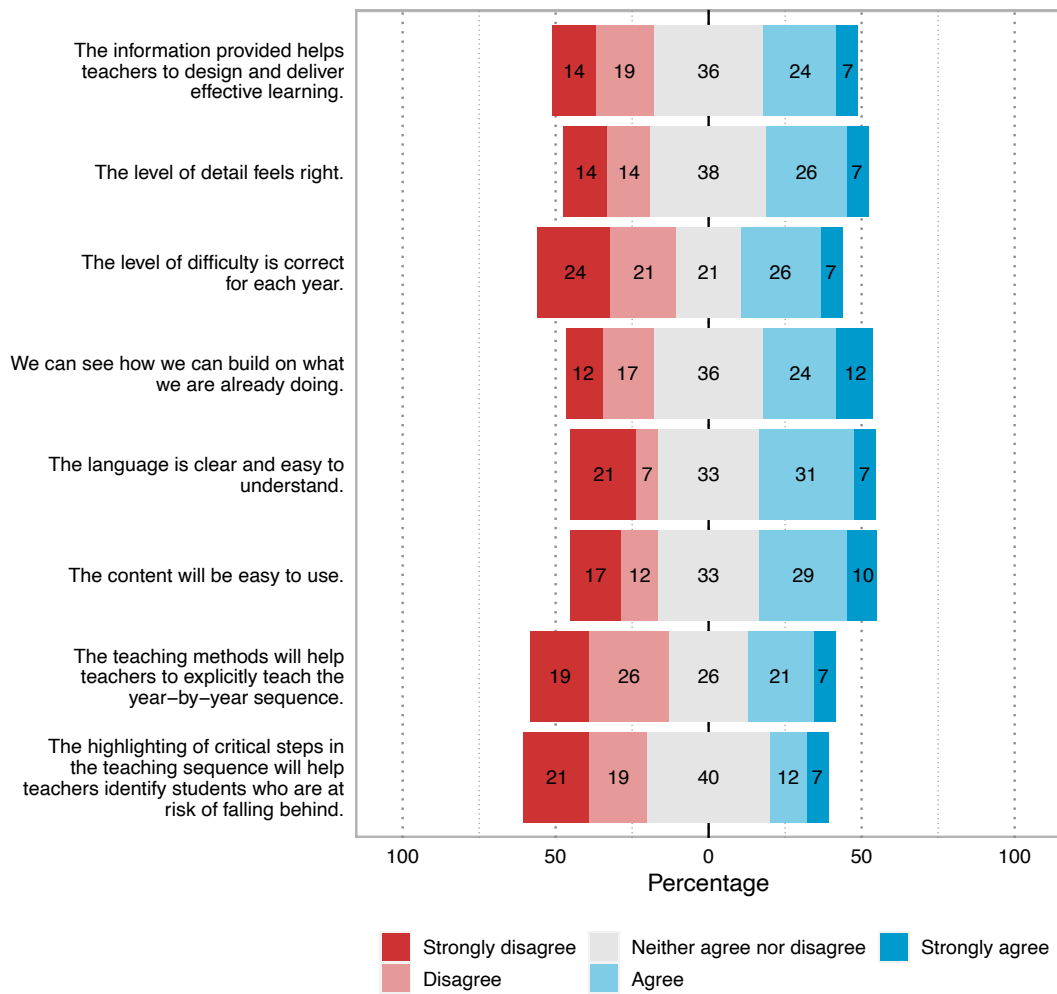


FIGURE 14. Phase 3 year-by-year teaching sequence, other responses (n = 42)



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## 7. Overall feedback on the learning area

Respondents were asked for overall feedback about the draft learning area. There were 787 school responses and 93 other responses to this section of the survey.<sup>3</sup> Figures 15 and 16 show responses from each grouping.

### School responses

Among school respondents, the highest rate of agreement was with the two statements that “it is knowledge rich” and “it is organised logically” (75% agreed or strongly agreed across both statements). A third (66%) agreed or strongly agreed that “it uses consistent and clear language”. Just over half agreed or strongly agreed that “it is clear and easy to use” (53%) and “it is underpinned by the science of learning” (51%).

The statements with the highest rates of disagreement were that “it is inclusive of all students” (51% disagreed, with half of those indicating strong disagreement), and “it is inclusive of evidence informed teaching practices” (31% disagreed or strongly disagreed). With regards to the item “it is internationally comparable”, more than half of school respondents (57%) chose “neither agree nor disagree”. More than a quarter also chose neither agree nor disagree for four statements: “it is underpinned by the science of learning” (31%); “it is inclusive of evidence informed teaching practices” (29%); “it is inclusive of all students” (28%); and “it is clear and easy to use” (26%).

### Other responses

Among other respondents, the overall shape of responses was similar, but with lower rates of agreement and higher rates of disagreement (including strong disagreement). As with other sections of the survey, there was a greater proportion of “neither agree nor disagree” for most items when compared with school respondents, except for “it is internationally comparable” (where only 41% of non-school respondents chose neither agree nor disagree, while 33% disagreed or strongly disagreed). For the statement “it is inclusive of all students”, 62% indicated disagreement, with 43% disagreeing strongly.

### Open comments

There were 505 comments from school respondents, and 70 comments from other respondents, in relation to overall feedback. Themes from open responses are discussed in Section 9.

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<sup>3</sup> There were fewer responses to this section than to the first section of the survey due to some dropout attrition.

FIGURE 15. Overall feedback on the draft learning area, school responses (n = 787)

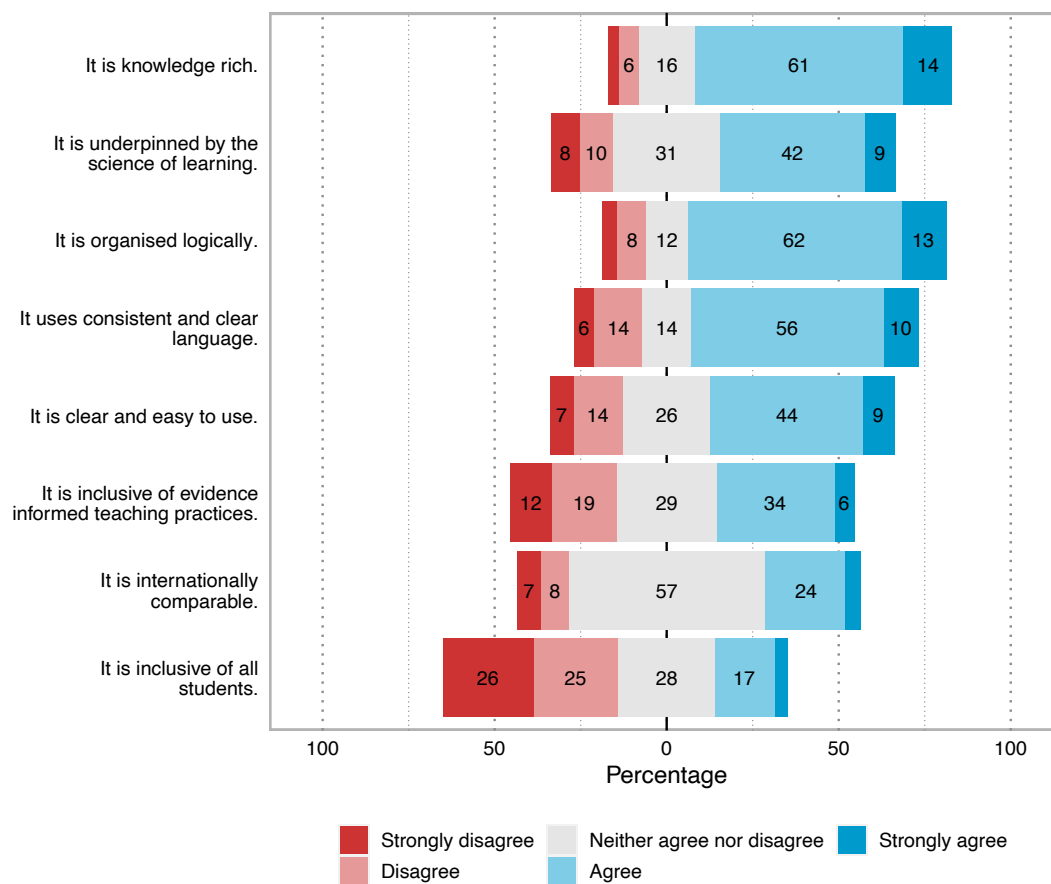
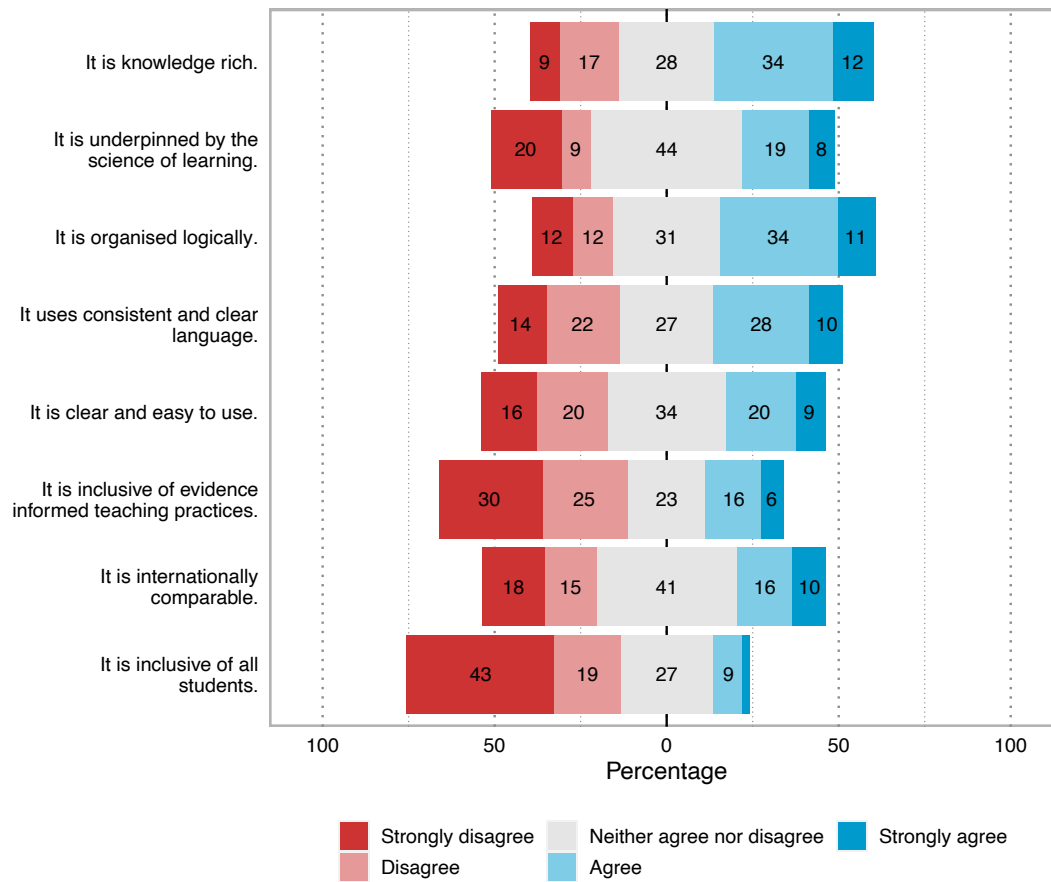


FIGURE 16. Overall feedback on the draft learning area, other responses (n = 93)



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## 8. Support needs and resources

The final section of the survey asking about support needs and resources was optional. Five hundred and one school respondents and 36 other respondents answered at least one question in this section.<sup>4</sup> Some items were skipped by respondents in each group, so the “n” varies for each item. Respondents were asked about components of the learning area and how much support they felt they would need. Table 4 below shows all responses. Across both groups, the areas most indicated as needing a lot of support were the teaching methods and the teaching guidance.

TABLE 4. **Support needs in relation to the learning area, all respondents**

Learning area component	Levels of support needed (% respondents)		
	No support	Some support	A lot of support
The learning area structure	25	50	25
The UKD progress outcome	21	48	31
Teaching sequence	19	47	34
Teaching methods	17	39	44
Teaching guidance	17	43	41

Finally, respondents were asked: “What existing resources and support materials will be useful to support you with the implementation of the mathematics and statistics learning area?” There were 383 comments from school respondents, and 25 comments from other respondents. Comments and feedback about resources and support materials are discussed in Section 9.

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<sup>4</sup> The survey indicated that respondents who were not from a school should skip this section. However, some respondents in the non-school/other groupings responded to the survey as kāhui ako groups, or had other affiliations with schools (e.g., teachers on parental leave).

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## 9. Themes from open comments and submissions

This section outlines key themes that were evident in the survey open comments and submissions. As indicated in earlier sections, there were six open questions in the survey. The first question asked about the phase 1–3 teaching guidance. There were three open questions about the year-by-year teaching sequences, one for each phase. There was one open question asking for overall feedback on the learning area, and one open question in the support materials section of the survey. Survey comments ranged from very brief comments covering a single point, to very extensive comments addressing multiple points. Similarly, the 29 submissions and additional pieces of feedback emailed directly to the Ministry of Education were written and structured in a variety of ways and ranged in length from one paragraph to multiple pages.

Overall, the qualitative feedback on the draft was wide-ranging and extensive. We found several high-level themes that recurred across various parts of the surveys, as well as a range of detailed feedback on specific parts of the document. This section begins with high-level themes we saw in terms of positive feedback (what people said they liked), as well as areas for improvement (what people wanted to see changed). Following this, we discuss specific feedback given about different sections of the draft curriculum document, as well as overall feedback and comments about support and resources for implementation.

### Positive feedback

The Ministry was interested in areas of positive feedback, as well as areas of suggested improvement. Generally, the phrasing of open questions in the survey tended to elicit more improvement suggestions (e.g., “What else would you expect to see?”) than comments about what people liked, though there were many comments about what people liked or “loved”. Some feedback expressed thanks for the work that had gone into the draft, describing it as an “amazing start”, while also noting areas that could still be improved. It is also worth noting that things some respondents liked were sometimes critiqued by other respondents.

Among things that some people specifically said they liked or “loved” were the clarity of what to teach, the guidance around explicit teaching, the year-level teaching sequence, the breakdown of strands and substrands, the use of manipulatives, the “do” elements, the focus on “science of learning”, and high expectations for learners. The quotes below are illustrative:

The progressions are clear. We like the level of detail and how the content is structured. (Overall feedback, school response)

Finally, it is made explicit what should be taught and when. (Feedback on phase 1, school response)

Great to see what comes after and what comes before a year level. Clearly able to identify gaps in a student’s learning. (Overall feedback, school response)

Great to see across strand integration and materials. (Feedback on phase 2, school response)



Finally, some clear direction for teachers. Very helpful for those new to the profession or who flounder with progression. (Overall feedback, school response)

LOVE that material and manipulatives emphasised and unpacked in the draft. (Feedback on the teaching sequence, PLD facilitator)

I am celebrating a curriculum that does not dumb our students down, is clear of what the critical knowledge is that our students need to secure at each year level while developing a positive maths identity. This curriculum allows us to still have a strong problem-solving environment, but we can explicitly teach the knowledge and concepts that students need to secure. (Overall feedback, school response)

This is a GREAT step forward in maths education in New Zealand ...Thanks for just getting this done and sorted. (Overall feedback, school response)

Those who made positive comments sometimes indicated the draft content aligned to practices and approaches their schools were already using:

Thank you for including the sequence of learning, this has been needed for a very long time. I am already using a mastery approach and this re-designed curriculum makes sense to me. (Overall feedback, school response)

We also noted that positive comments were often tempered with additional feedback suggesting improvements or expressing concerns. For example:

We really enjoy the strands being broken down into sub-groups but wonder if this will confuse teachers and not help them put it altogether into a connected and cyclic sequence which is a significant part of mastery. (Submission, PLD provider)

The clear guidelines about what to teach are useful and clear. However, it is very long and wordy which makes it a little unwieldy. (Overall feedback, school response)

Similarly, positive feedback was also often accompanied by feedback about things that were felt to be “missing” or that needed strengthening. For example, while there were some positive comments about “financial maths” in the draft, improvement suggestions were also evident:

Financial literacy needs clear steps as this is new for teachers but great to have! (Feedback on teaching guidance, school response)

Financial maths needs to have a greater focus on the financial literacy behind real life and meaningful finance. We feel that there should be more of a focus on the understanding of EFTPOS cards, bank accounts, debit, credit and interest amounts, etc. (Feedback on phase 3, school response)

The sections below further elaborate on aspects of the draft curriculum content that respondents felt were “missing” or underdeveloped.

## Areas for improvement

There were hundreds of critical and improvement-focused comments across the survey responses and submissions, and several high-level themes were evident. Six themes recurred at high frequency across multiple parts of the survey. These themes were:

- presentation, language, and ease of use of the document
- inclusivity and responding to learner diversity
- adequacy of teaching guidance and support, including differentiation and assessment

- the need for the curriculum to reflect the Aotearoa New Zealand context
- questions about the underpinning research and evidence base and the notion of international comparability
- the process and pace of the curriculum update, feedback, and implementation expectations.

## **Presentation, language, and ease of use of the document**

Feedback about improving the layout, presentation, and ease of use of the document was provided across most sections of the survey. This included feedback saying it was “too wordy”, that the language was ambiguous or “academic”, and that various terms needed definition or explanation. Improvement suggestions included “more bullet points”, “more diagrams”, and different ways of organising and laying out the content:

The document is large, very wordy and cumbersome to navigate. (Overall feedback, school response)

The progress outcomes are difficult to read. The narrative style is not appealing. There are a lot of words that [are] giving us cognitive overload. (Feedback on phase 3, school response)

Would be good to have one page table to show progressions in each stage—e.g., 6 months, 1 year so not flicking pages while planning. (Feedback on teaching guidance, school response)

## **Inclusivity and responding to learner diversity**

There were hundreds of comments expressing concerns about inclusivity and ensuring that the mathematics and statistics curriculum will work for all learners. This feedback was evident across all parts of the survey. Respondents questioned whether the teaching sequence for learners at each phase and year level will work for all learners, and how to work with learner diversity in a classroom setting. There was criticism of a perceived “one-size-fits-all” approach and a lack of recognition or acknowledgement of learner diversity:

Diversity is not accounted for in the document, a one size fits all approach. (Overall feedback, school response)

Feedback about inclusion and learner diversity spanned many different forms of diversity, including learners arriving at school with differing levels of readiness for learning, neurodiverse learners, learners with disabilities, “tier 2 and 3” learners, and learners with other additional learning support needs. Cultural diversity was also frequently discussed. The quotes below illustrate the breadth of inclusivity concerns expressed:

It is not inclusive. I have students working from pre level 1 up to level 4 and everything in between in the same class. My lowest learners do not qualify for ORS, how am I going to get success with so many different achieving learners against each of these indicators? (Overall feedback, school response)

This document doesn’t factor in learning support or how to accelerate those who don’t achieve at each phase. (Overall feedback, school response)

Not inclusive—many children come to school as 5-year-olds unable to toilet themselves, hold a pencil or speak legibly. (Overall feedback, school response)

We question how inclusive this curriculum is, especially of ākonga with learning disabilities. (Overall feedback, school response)

I struggle to see how the document is culturally responsive in any way for Māori and Pasifika. (Overall feedback, school response)

There is very little in the teaching sequence (or the whole document) that is inclusive of all students or considerate of neurodiversity or cultural diversity. (Overall feedback, school response)

Inclusive of all students: we strongly disagree because this draft does not specifically include a focus on ākonga Māori, such as the inclusion of tikanga, te reo Māori and mātauranga Māori. (Subject association, overall feedback)

Perspectives around cultural responsiveness were also strongly linked to themes about the curriculum needing to reflect that Aotearoa New Zealand context, including Te Tiriti o Waitangi (see later subsection).

### **Adequacy of teaching guidance and support, including differentiation and assessment**

Another strong theme across survey and submission feedback was a concern about having adequate access to guidance, examples, and support for teaching practice, including support around assessment practices. This theme was often linked with the inclusion and diversity theme above, as teachers often said they wanted more examples, support, and guidance about how to differentiate practice to meet the needs and readiness of different learners:

We feel like it's missing guidance around the expanded curriculum to support diverse learners (ORS). We feel it needs a statement about supporting students with additional needs. (Overall feedback, RTLB response)

The Science of Learning says we need to build on what students know, so what do we do when they don't know? Where is the differentiation, at both ends? (Overall feedback, school response)

Across various parts of the survey, people asked for “clear worked examples”, PLD, time, and more information about the precise nature of resources and supports that would accompany the curriculum implementation:

Need to focus on teacher content and pedagogy knowledge of mathematics. Better PLD that is not rushed, with facilitators in classrooms observing and supporting change in practice. (Overall feedback, facilitator/PLD provider)

There are resources implied/linked to the implementation of this new document we cannot access and therefore it is incredibly difficult to plan for change, resource this change and support our teachers with this change. (Overall feedback, school response)

The curriculum will only be clear and easy to use if teachers are given the time and support to unpack the document and are given the materials and resources stated in the teaching methods. (Overall feedback, school response)

### **The need for the curriculum to reflect the Aotearoa New Zealand context**

There was a substantial amount of feedback about what was “missing” from the draft curriculum content in terms of ensuring its relevance and fit for Aotearoa New Zealand. Specific concerns were voiced around the lack of reference to Te Tiriti o Waitangi, as well as the visibility of te reo Māori and mātauranga Māori. Some respondents drew comparisons with previous versions of Te Mātaiaho, with suggestions it has been “completely washed of the rich cultural knowledge that was in the previous refresh” (Overall feedback, school response):

Despite the whakapapa of Te Mātaiaho, there is very little reference to our cultural diversity and the unique status of Tangata Whenua and mātauranga Māori. Our students succeed when they are taught in culturally affirming ways. All resources must reflect our cultural diversity, and our rich Māori heritage. (Overall feedback, school response)

We are concerned by the removal of explicit reference to Te Tiriti o Waitangi in Te Mātaiaho framework introduction and the maths purpose statement. This is concerning as it undermines the foundational role of Te Tiriti in guiding educational practices and promoting equity, inclusion, and partnership in the curriculum. This also is in conflict with the Education and Training Act 2020 (including, but not limited to, section 127) which identifies one of the primary objectives of school Boards as giving effect to Te Tiriti o Waitangi. (Overall feedback, subject association)

Our context for teaching and learning mathematics and statistics within Aotearoa New Zealand is unique as we can draw on two valued knowledge systems—mātauranga mathematics and statistics and mātauranga Māori. The curriculum document should encourage and support teaching and learning practices that affirm both knowledge spheres. We should celebrate the unique position that Aotearoa New Zealand holds within the international educational landscape. (Submission, professional association—statistics specialists)

Also been very disappointing to see the efforts to whitewash the curriculum refresh and remove so much of what had made it a curriculum for our learners (Overall feedback, school response)

## Questions about the research and evidence base and the notion of international comparability

This theme was strongly evident in the sections of the survey asking for feedback on the phase 1–3 teaching guidance, the overall feedback section, and in submissions from academics. Use of terms like “science of learning” and “structured approach” was challenged, with suggestions that there was insufficient research evidence to support this. There was criticism that ideas about “structured maths” was “made up” or co-opted from structured literacy and was not reflective of research on learning mathematics and statistics:

The term ‘structured maths’ does not exist within an evidence base internationally. We can’t just take Structured Literacy and change the name, in order to expect the same results. (Overall feedback, school response)

The use of the terms ‘Science of Learning’ and ‘structured approach to mathematics’. They do not have sufficient research base to warrant inclusion. The terms ‘structured approach to mathematics’ or ‘structured mathematics’ simply do not exist. Rather, the discipline of mathematics, including its cumulative and structured nature, informs the curriculum sequence. The use of these terms [is] not appropriate. (Submission, academic)

A small facet from the science of learning (direct/explicit instruction) has been cherry picked to support taking mathematics teaching backwards, rather than embracing a wealth of ways to learn for diverse classrooms (Submission, academic)

A submission from an expert statistical group provided extensive feedback and suggestions for amending the draft to reflect the research base for teaching and learning statistics, which was noted as different from teaching and learning mathematics in some respects:

Across the Purpose statement and Teaching guidance sections there seems to be an assumption that all aspects of the ‘science of learning’ and ‘explicit teaching’ apply to all aspects of teaching and learning statistics, with no distinction made between the two different disciplines ... We can point readers to substantial research that supports guided and structured explorations and investigations for learning about statistics and probability ... For instance, statistics education research has established several structured approaches to designing learning tasks, such as the five-phase statistical enquiry cycle and carefully sequenced model eliciting activities. However, these structured approaches do not align with many statements provided within the Purpose statement and Teaching guidance sections and have not been acknowledged as valid ways to structure lesson planning. (Submission, professional association—statistical experts)

Respondents noted that the research evidence base was not evident or referenced in the document:

[What's missing is] Data/Research/Why—where the guidance comes from. (Feedback on teaching guidance, school response)

Sorry, we could not find the research which has underpinned this draft document. (Overall feedback, school response)

There is not enough evidence in the Science of Learning in Maths for this to be underpinned by—who has done the research and where is this research? (Overall feedback, RTLB response)

Respondents also commented that the research used was “narrow” and failed to incorporate a variety of different streams of research on learning:

The lack of NZ based research is concerning. (Overall feedback, school response)

We agree that there are many elements of this curriculum that are underpinned by the science of learning (cognitive load theory, spaced retrieval, gradual release of responsibility etc); however, there are many different educational theories that are researched and evidence based and do work for learners ... Explicit teaching works but so does opportunities to solve problems. (Overall feedback, school response)

There is no one agreed upon ‘science of learning’—there are a variety of theories and to suggest that this is based on ‘the science of learning’ is disingenuous. The Draft CPM [common practise model] was transparent with the literature that supported the content. There is no such reassurance with this iteration. (Overall feedback, initial teacher education provider)

Science of Learning: There are many theoretical frameworks for understanding learning. The government’s rationale for the draft lacks depth and clarity regarding what framework they are applying. It needs to be coherent, consistent, and clear. (Overall feedback, school response)

The notion of international comparability was also questioned. Respondents often asked how they would know “which countries” the draft ought to be compared with, and the relevance of making such comparisons:

Why does it need to be internationally comparable? Who cares? If you don’t already have [a] strong pedagogical approach to teaching maths, it isn’t going to make much difference. (Overall feedback, school response)

Some respondents raised issues with comparisons to the Singapore and UK curricula, citing differences in implementation approaches and time frames, as well as social–economic–cultural differences:

Internationally comparable? To what? The discussion around maths in other countries (particularly Singapore) is based on myth and folklore. Our culture is completely different—if you want to compare a curriculum to other countries, you also need to compare societal norms. (Overall feedback, academic/tertiary provider)

I have experience with overseas curriculum. Some aspects are out or unrealistic for NZ given the social issues that exist and that we don’t support families to keep one parent at home for the first three years of a child’s life. Singapore, whilst a good model for the mathematics, is not a realistic example. (Overall feedback, school response)

At present, I do not believe the curriculum is internationally comparable due to the rushed consultation period and the lack of up-to-date research provided during that time. For example, the most recent mathematics curriculum introduced in the UK included a twelve-month voluntary trial period, allowing schools to implement all or parts of the curriculum. After this trial, the curriculum was revised based on feedback. In contrast, the current curriculum feels rushed and lacks the

necessary supporting documentation to provide educators with the depth of understanding required for effective mathematics teaching and confidence that the curriculum is based on current research. (Overall feedback, academic/tertiary provider)

Approaches taken in other countries' curricula were also commented on:

Many countries are making maths curriculums with a focus on competencies as well as content and including indigenous perspectives and real-world applications using a cross-curricular approach. (Overall feedback, school response)

## **The process and pace of the curriculum update, feedback, and implementation expectations**

Finally, across survey responses and submissions there was feedback around the process and pace of the curriculum update, including consultation, feedback, and implementation:

The pace of change is concerning. We are already under pressure to implement other mandatory changes in assessment and literacy. The rushed timeframe means important processes, including consultation, quality control of resources and teacher professional learning, will be rushed—if they happen at all. (Overall feedback, school response)

It is a shame it is being rushed through without the time for genuine consultation and reflection. (Overall feedback, school response)

Will the new resources take into account the feedback from this consultation, or will the resources already be produced before this consultation has been thoroughly analysed? (Overall feedback, school response)

Some respondents also critiqued the design of the survey suggesting questions were “loaded” or made it difficult to provide the feedback that respondents wanted to give:

These questions don't reflect the questions that matter! (Overall feedback, academic/tertiary provider)

The limited consultation period gives little opportunity to engage fully with this complex document and so my feedback only addresses some aspects. The poorly designed survey with its loaded questions has made giving useful feedback even more difficult, and again gives little faith that the survey responses will be robustly analysed or carefully considered. It should be noted though that I (and others) have taken considerable time and drawn on rich and valuable knowledge and experience to provide feedback because we care deeply about getting this curriculum right for our tamariki. I implore you to pay attention to the issues raised here and by others and engage authentically with the wealth of expertise available to you. (Overall feedback, other education organisation)

The following sections describe specific feedback themes in relation to each part of the draft document that respondents were invited to comment on.

## **Feedback on phases 1–3 teaching guidance**

The draft “Teaching guidance” section for phases 1–3 stated that “a comprehensive mathematics and statistics programme has the following elements”. The elements described under four headings were: 1) Positive relationship with maths; 2) Maths mastery and a structured approach to teaching and learning; 3) Effective use of technology; and 4) Explicit teaching. This was followed by a two-page section on planning, including discussion of an hour a day of math, a table suggesting a structure for a dedicated maths lesson, and a page titled “use of standardised assessment tools”.

The open question asked about this section of the draft was “What is not present in the teaching guidance that you would expect to see?” Many respondents commented on what they felt was “missing” from the teaching guidance, and some also provided feedback about the four elements that were included in the guidance, as well as other content in the subsections titled “Planning guidance” and “Use of standardised assessment tools”. We noticed that respondents often interpreted the request for feedback on “teaching guidance” quite broadly, as there were also extensive comments about other parts of the draft curriculum, particularly the “teaching sequence” and “teaching methods” within each phase. Some respondents also commented on content within the UKD progress outcomes, and the purpose statement, in this section of the survey.

Dominant themes in comments about the teaching guidance section included comments about language and presentation, “missing” guidance on how to support all learners, and other aspects of the teaching guidance and teaching methods that were felt to be either “missing” or insufficient.

### **Language and presentation**

There were extensive comments about language and presentation. In some comments, it was clear that respondents were specifically referring to the teaching guidance section. However, some comments seemed to be about the language and presentation within the *teaching sequences*, some comments referred to the whole document, and some comments did not provide enough details to determine which parts of the document were being referred to. Recurring themes included feedback requesting “clearer” and “simpler” language, using more bullet points, providing more definition of certain terms, and use of diagrams:

Clarity of language. We already use mathematical language that is not consistent through the draft. It’s a page of jargon that is unnecessary and I can’t see how it will not help me plan or teach. TOO Wordy! (Feedback on teaching guidance, school response)

It should be explicit examples and instructions as the verbiage is not necessarily understandable for teachers and whānau. (Feedback on teaching guidance, school response)

Diagrams and visual aids to support concepts. (Feedback on teaching guidance, school response)

### **More guidance on supporting all learners**

Much of the feedback on teaching guidance called for acknowledgement that every classroom has learners with diverse needs, all individuals develop and learn at different rates, and bring prior skills and knowledge based on their experiences and worldviews to their learning. Many respondents said that commentary around inclusion and culturally responsive pedagogy was “missing” from the draft teaching guidance.

Feedback requested acknowledgement of the need to cater for, and how to enable, children with disabilities, complex needs, neurodiversity, and English language learners to access the mathematics and statistics curriculum at their appropriate level:

There is no provision for students with special learning needs, specifically students in specialist school settings. Often these students begin school working far below their neurotypical cohorts and have a whole lot of learning that needs to take place before even starting to learn what is required to be known after 6 months at school. For some of our students, this can take years. Trying to fit them into year-level expectations does not work. We need some levels/layers below the lowest level to cater for this. (Feedback on teaching guidance, academic/tertiary provider)



I would expect to see more information and guidance around formative and diagnostic assessment, and RTI/MTSS intervention approaches. The current information reads as though everyone will achieve at the same rate with the practices described—this is not true. There will be many students who require more direct and explicit, scaffolded teaching in small group and individualised settings. This is how to respond to students' needs—a huge current gap in the documentation. (Feedback on teaching guidance, researcher)

Guidance on culturally responsive practice was felt to be “missing” from the teaching guidance, as was te ao Māori. Respondents and submissions noted that socio-emotional aspects of learning are also part of cognitive science and “culture is a key part of this”:

There is nothing here about te ao Māori worldview, mātauranga, mana orite or anything that describes the richness and creativity of maths or acknowledges that maths is a way of making sense of the world and is cultural. Please also bring back the questions for Kaiako that say: What are the cultural contexts that will resonate with my students? How can I help ākonga find the joy in this learning? How can I help ākonga see the broad relevance of this work to their lives, including purposeful contexts, mathematical skills, social skills, knowledge, cognitive development and cultural competence. (Feedback on teaching guidance, school response)

There is no evidence of culturally responsive practice in the draft version when research has definitively identified this as one of the key determinants of successful outcomes. The original draft included reference to a strength-based approach: this appears to have been removed, it needs to be clearly stated that learners build on their existing knowledge. Teaching guidance should include how to respond to particular student needs—for example, Pasifika pedagogies for Pasifika learners. (Feedback on teaching guidance, other response)

The culturally responsive and sustaining approach of the Common Practice Model is not evident and should be in there. How do our ākonga communicate their learning? There are no Te Reo words such as ako. Teachers know what ako is. The teaching guidance does not always support the purpose statement. (Feedback on teaching guidance, school response)

Multi-year-level classrooms are common across the primary sector. Many respondents commented on the need for guidance on how to differentiate learning for the varying abilities and needs in a classroom. Schools with composite classes that cross phases (e.g., Years 3–4) requested guidance on teaching across phases to multiple year levels and abilities:

We are unsure of how to teach composite classes/over phases and flexible groups if we need to stick to the year-by-year format. How do we cater for our ākonga who are operating well below or well above their expected year level? (Feedback on teaching guidance, school response)

## **More detailed teaching guidance and examples**

Many respondents wanted more detailed teaching guidance and examples for teachers. There were strong recommendations to provide further detail of effective pedagogies based on research. These focused on using rich tasks with authentic contexts for learning, teaching of problem-solving strategies, as well as specific individual and group strategies to support understanding of concepts, connections, skill development, and critical thinking:

Examples or case studies showing how math concepts can be applied to real-world situations, helping to make learning more relevant and engaging for students. (Feedback on teaching guidance, school response)

I would expect to see more mention of culturally responsive pedagogy and authentic tasks. Both of these areas would come into developing a positive relationship with math as well as the area



labelled '2. Math mastery and a structured approach to teaching and learning'. Both culturally responsive pedagogy and authentic tasks in math have strong research bases indicating that they contribute to supporting mathematical thinking and development. (Feedback on teaching guidance, other response)

Opportunities for the children to develop their own ways of thinking and to persevere with difficult (and authentic) problems is missing. (Feedback on teaching guidance, researcher)

Comments in the “teaching guidance” feedback often mentioned the “teaching methods” column in the year-by-year teaching sequence. Most respondents who commented on the “teaching methods” stated that these were “not teaching methods”, but rather a list of materials that might be used to support learning:

Also, the title ‘Teaching methods’ is misleading as it is a mix of equipment and methods ... shouldn’t this have more links with the explicit teaching information at the front of how to explicitly teach these skills, knowledge and attitudes? Specific information teachers can use to target and accelerate learning. (Feedback on teaching guidance, school response)

Teaching methods is the wrong title—this should be named as Possible resources. (Feedback on teaching guidance, school response)

This sort of feedback was given many times through all remaining parts of the survey.

### **Other “missing” aspects to the teaching guidance**

Other comments about what was not present in the teaching guidance included references to a universal design for learning approach, the need for developmentally appropriate pedagogies such as discourse-based encouragement, maths talk, creativity, the joy of maths, collaborative approaches, and use of manipulating materials to enable learners to progress from hands on to visual and abstract representations through a Concrete–Pictorial–Abstract approach:

A Universal design for learning approach is missing from the planning guidelines. (Feedback on teaching guidance, researcher)

The guidance also doesn’t provide ways to cater for the variety of needs learners have. Not all learners will be successful through structured teaching practice. (Feedback on teaching guidance, school response)

Respondents also commented on a lack of sufficient guidance around integration, including making connections across mathematics and statistics strands, and integration of mathematics and statistics with other learning areas:

Although the curriculum is divided into distinct strands, there is a need for stronger integration between these strands. Cross-strand connections could be made more explicit to help teachers and students see the interrelationships between different mathematical concepts. (Overall comment, school response)

We feel that not enough focus has been given to creativity and problem solving in maths, use of rich tasks or investigations that encourage the integration of maths across strands, other subjects and real-life applications. (Feedback on teaching guidance, other response)

There is no integration of strand. Each area feels like it’s stand alone. Seems like it is a tick box. (Feedback on teaching guidance, school response)

Some respondents also said that recognition of teachers’ professionalism to make choices based on their context and the support needs of learners was missing from the teaching guidance.

## Feedback on the four elements that were included in the draft teaching guidance

There was some commentary about the four elements that were described as comprising “a comprehensive mathematics and statistics programme” in the draft teaching guidance section.

### 1. Positive relationships with maths

Few respondents commented on the “positive relationship with maths” element. While it was generally supported, feedback suggested this element was potentially contradicted by other elements, or by additional aspects that were felt to be “missing”:

The Positive relationships with maths section is vital yet is contradicted by elements of paragraphs 2 [maths mastery] and 4 [explicit teaching]. (Feedback on teaching guidance, academic/tertiary provider)

It is pleasing to see reference to positive relationships with maths has been retained; however, again this is a watered-down version of the CPM and loses some of its value. Furthermore, the general thrust of the ‘Teaching guidance’ section towards narrow and under-informed approaches such as a so-called ‘structured approach to teaching and learning’ are at odds with this. Please reinstate the excellent and richly conceived CPM with its original depth and rigour. (Feedback on teaching guidance, researcher/facilitator)

While it is really good to see the acknowledgement of the importance of positive relationships with maths ... there appears to be no recognition of the importance of culturally responsive teaching approaches. Mātauranga Maori has disappeared. This is concerning as it is a big leap backwards in relation to current thinking, is a significant reduction of the richness of mathematics learning, places serious limitations on students developing a sound grasp of the nature of mathematics and puts big barriers to many students developing a positive relationship with mathematics. (Feedback on teaching guidance, other response)

### 2. Maths mastery and a structured approach to teaching and learning

Many respondents commented on this element, raising concerns such as:

- lack of clarity of what defines mastery, and the need to measure when mastery and automaticity are achieved, rather than continuing to progress in complexity
- concern that misunderstandings around mastery may result in learners held back, and a remediation approach rather than accelerative approach being used
- an implication that learning is linear and requires mastery to build on ideas, rather than an interconnected or cyclic approach that reinforces and grows concepts
- tension between the expectation to cover an extensive range and amount of content (as described in the sequence for each year level) and the time taken for each concept to be mastered before moving to the next
- the need to engage, encourage, and support students who must master earlier gaps in understanding, consolidate learning, make connections, or have opportunities to apply concepts to new situations at earlier phases than peers
- shift of higher-level content into earlier years would increase gaps for current cohorts and confusion for students who are not able to master concepts quickly.

The comments below are illustrative:

Concepts (big ideas) apply across all levels and mathematical topics, and their application is increasingly complex. The development of mastery is continuous (with increasing complexity) ... Lack of clarity as to what denotes 'mastery'. Students do not learn the lockstep; holding students back rather than moving forward and continuing to provide opportunities to connect their understanding to new learning will impair student achievement. (Feedback on teaching guidance, school response)

The idea of mastery is very confusing given we are being told to teach explicitly then move on to cover the huge amount of content that is in this document. It is impossible to achieve mastery and move on at that pace. (Feedback on teaching guidance, school response)

The inclusion of a section on 'Maths mastery and a structured approach to teaching and learning' (p. 15) is highly problematic due to its complete lack of an evidence base and potential to misdirect kaiako towards teaching approaches that constrain rather than promote ākonga learning in mathematics. (Feedback on teaching guidance, other response)

### **3. Effective use of technology**

Feedback on this element questioned the need for it, mentioned the emphasis on digital technology only, requested guidance on what technology to use and to what extent (compared to other teaching methods), how technology can be used to achieve universal design for learning. Some comments questioned how technology fits into the explicit teaching model and voiced concern for encouraging digital technology use in the early years. Most responses to this section recommended that non-digital technologies were also described, such as manipulative/concrete materials/tools and physical resources for teaching and learning:

It is only technology that is mentioned in the teaching guidance; however, physical manipulatives and 'hands-on' activities are mentioned later in the teaching sequences. All of these should be included in the teaching guidance if they are truly valued (as they should be) in the mathematics teaching promoted. (Feedback on teaching guidance, school response)

Technology is only one tool in the box and currently ineffective maths teachers use digital programs as the only way to teach maths in their classroom. This hinders reasoning, justification, unpacking misconceptions and any mathematical discussion. Number 3 should be about all manipulatives that need to be used in a maths classroom. (Feedback on teaching guidance, school response)

Recognising that there are many forms of technologies (including digital), some feedback suggested that an opportunity was missed to integrate teaching and learning of mathematics and statistics with the technology curriculum more broadly:

... to highlight the range of technologies available to support maths learning, the possibilities maths offers for developing computational thinking, and the possibilities for integrating maths and technology learning. (Feedback on teaching guidance, other response)

### **4. Explicit teaching**

Many respondents referred to the description of explicit teaching in the guidance, almost all requesting further explanation or providing some critique. Feedback suggested that it was important but defined "too narrowly" and was not the only approach to highlight:

Explicit teaching has a very narrow view. Does not recognise the carefully crafted questions kaiako use to focus mathematical thinking within a learning situation. (Feedback on teaching guidance, school response)

Explicit teaching—first paragraph includes teachers constantly noticing, recognising, and responding to students’ learning—spot on! Next two paragraphs talk of an ‘I do, we do, we do, you do, you do, you do’ approach to teaching maths. This approach will stifle risk-taking and curiosity and make taurira dependent on teachers giving them knowledge and strategies for specific problems. Instead, teachers need to be able to strategically select problems and use refined questioning skills to elicit a range of strategies and more questions to encourage children to think critically about these strategies; more practice is then used to help these strategies be retained across different problem types. (Feedback on teaching guidance, school response)

A professional association for statisticians noted important differences in research-based methods for teaching statistics, compared with mathematics:

One key difference to ... evidence-based structured teaching approaches [in statistics] is that they do not start with explicit teaching or modelling of target knowledge or skills, nor do they demand mastery of other skills or procedures for students to engage with the learning tasks. The nature of the statistics discipline, with its focus on contextualised learning from data, demands that effective teaching incorporates informal exploration, experimentation, experience-based learning and guided investigations. Additionally, activities that focus on practising skills and procedures within context-free situations are not precursors for applying knowledge to solve problems, as developing confident and secure knowledge of statistics involves co-developing contextual and statistical ideas. We recommend ... that research-informed pedagogical practices for statistics education are acknowledged and incorporated alongside other research-informed pedagogical practices for mathematics education. (Submission, professional association—statistical experts)

Some feedback suggested “intentional teaching” was a more appropriate term, with some making reference to the CPM:

Explicit teaching needs to be replaced with the words ‘acts of intentional teaching’ so that it incorporates the use of explicit teaching within a variety of different pedagogies of teaching to highlight key takeaway learning points for students. Moving away from the view that mathematics is a hierarchical accumulation of knowledge. Rather it is the engagement in a variety of pedagogical rich learning experiences that allow students to develop deep understanding and accumulation of mathematical ways of thinking and being. (Feedback on teaching guidance, other response)

Although this Draft claims to have incorporated the CPM Phase 1 (2023) content, this section clearly exposes that this is not true. Due to the many different meanings of the terms ‘explicit teaching’ and ‘intentional teaching’, these phrases were carefully considered, and in the draft Phase 2 of the CPM (unpublished), there was a great deal of thought given to how these ideas were expressed. The main problem with using ‘explicit’ for maths teaching is that maths has an unfortunate history of ‘teacher telling’ and of all the learning areas in the school curriculum, people remember their maths experiences as being ‘show and tell’. And it continues in this Draft where teacher talk is portrayed as a ‘transmission’ view of teaching. This is an example of how explicit teaching immediately conjures up a one-way flow of communication from the teacher to the learners. This is known within the profession as ‘show and tell’ or ‘chalk and talk’, (also ‘drill and kill’ ... that is kill any interest in maths). (Feedback on teaching guidance, other response)

Feedback highlighted a range of pedagogies and practices that teachers might draw on to support development of learner understanding:

Teachers should be able to have the autonomy to choose from a number of evidence-based practices depending on their context. Explicit teaching is just one approach of many. Lessons should not always start with ‘teacher modelling’ as suggested. If this is the format expected students will be

denied opportunities to engage in critical thinking and forms of reasoning. (Feedback on teaching guidance, other response)

The teaching method is too prescriptive and isn't aligned with what we do (DMIC) [Developing Mathematical Inquiry Communities]. We get great results, and results that are equitable for Māori ... and do not believe a shift to a teacher directed, explicit model of teaching supported by workbooks is culturally appropriate, nor will be it be effective. (Feedback on teaching guidance, school response)

It is important to include and have an awareness of all evidence informed practices. Structured approaches work, but so do 'balanced' approaches. Explicit teaching works but so does opportunities to solve problems. (Feedback on teaching guidance, school response)

## Assessment guidance

In this section and throughout the phase-specific sections of the survey, respondents gave feedback on the lack of guidance around assessment, particularly formative assessment, and specific strategies for full-class teaching in real-time (e.g., checking student readiness, adapting lessons, reviewing self/peer assessment, reflections and next steps, analysing conceptual understandings, marking, delivering immediate feedback, etc.):

There are two key messages missing from the teaching guidance: 1. Formative assessment. This is a key teacher practice which needs to be unpacked further to support teachers. Using a sentence stem for each curriculum statement is not sufficient. The page about using standardised assessment tools is not enough. We need clear information about assessment practices that support learning (not just data gathering). 2. Teaching guidance for using the mathematical processes (DOs). (Feedback on teaching guidance, facilitator/PLD provider)

The consultation document talks about formative assessment in general but does not offer concrete techniques for checking student readiness or adapting lessons based on ongoing assessment. Clear methods for real-time assessment and adjusting instruction accordingly are absent. (Feedback on teaching guidance, school response)

Formative assessment needs more clarity—the way it is currently written may lead to pre- and post-tests. (Feedback on teaching guidance, facilitator/PLD provider)

Many school respondents wondered whether their current planning and assessment tools would be sufficient and, if not, what or when resources would be available to support PLD and long-term planning to enable implementation in 2025. Some respondents were concerned about resourcing for all schools, due to the cost of some tools:

We would like to know what the assessments are going to be and if we will be using current assessments. We currently use PaCT for our planning. We are interested to know how this will change to align with the draft Curriculum. (Feedback on teaching guidance, school response)

More detail on assessment expectations at phase 1 were requested. Due to continuous new entrant intake, students can have widely variable months at school as Year 0 or Year 1, which creates an inequitable foundation of opportunity, engagement, and progression in a sequenced programme:

There is an issue with the way in which we start school in NZ and the levels. It is clearly based on countries that have their tamariki start at the same time (e.g., 6 months, Year 1 and Year 2 standards). Many of our tamariki have 6 months at school and then they are a Year 2. (Feedback on teaching guidance, school response)

There was commentary about assessment in Year 1 and the “phonics checks” stated in the draft:

The testing tool for Years 1–2 is not mentioned for this year level. What assessment tools are the junior teachers going to use to assess and gather data on student achievement and next teaching steps? (Feedback on teaching guidance, school response)

What will Years 0–2 use for assessment? Will the assessment be consistent? Will we receive planning templates or are we expected to design these? Could Teacher PD modules be developed? (Feedback on teaching guidance, school response)

## Other comments

In addition to comments on the teaching guidance section as requested, some respondents used the opportunity to comment on the importance of the missing UKD overview (under development), need for literature references to support the science of learning statement, concern for the removal of reference to Te Tiriti o Waitangi and the interface of mātauranga Māori and mathematics and statistics knowledge systems:

Conceptual learning in number is much more of a network or a ‘constructed spider’s web’ which is why the spider web whakataukī is so useful, and the Sept 2023 explanation of the whakataukī was so valuable for teachers to read at the start of the document. There was also a great visual representing the connections of UK and D with web connecting all of these parts together. I recommend this is still made available for teachers, and it would be great within the document. (Feedback on teaching guidance, academic/tertiary response)

Understand–Know–Do overview—It is very unfortunate that these are not available to provide feedback on, or to provide an overarching view of the curriculum. This is one example of how the rushed approach to getting this learning area ‘out there’ is highly problematic. What opportunities will there be to give additional feedback once we have access to a more complete picture of the curriculum? (Feedback on teaching guidance, academic/facilitator response)

We are concerned by the removal of explicit reference to Te Tiriti o Waitangi in Te Mātaiaho framework introduction and the maths purpose statement. This is concerning as it undermines the foundational role of Te Tiriti in guiding educational practices and promoting equity, inclusion, and partnership in the curriculum ... We are also concerned by the removal of explicit references to mātauranga Māori. (Feedback on teaching guidance, PLD provider response)

## Feedback on phases 1, 2, and 3

For the teaching sequences for phases 1, 2, and 3, respondents were asked if there was “anything else [they] would like to see within the teaching sequence that will support learners to be successful in learning?”.

There were many recurring themes in feedback on each of the three phases, including repetition of themes discussed above. For example, there were many comments about the presentation, structure, and/or language used in the year-by-year teaching sequences, with suggestions of more bullet points, simpler language, definitions or glossaries, and clearer formatting and layout:

We liked the idea of having the ‘Do’ parts numbered (to make them easier to link, like we do with AOs). We liked the idea of worked student work examples to match with each area, to show what is being asked. (Feedback on phase 3)

## **Learner diversity, inclusion, and level expectations**

The biggest theme in the feedback on each phase teaching sequence concerned learner diversity, with some expectations of what should be taught at each year level or phase seen as too high to be achieved by all learners. Respondents raised questions and concerns about how to support learners at different starting points or who were progressing at different rates, and what this would look like in real classrooms:

What happens for children who will take longer than one year to move through the material? E.g. Will this mean that a Year 8 student could be working in a Year 5 class? If I have a Year 3 class but some of my students haven't mastered Year 1 or Year 2, how will this impact my teaching? I'm assuming I'll need to cover material from 3 year groups (possibly more if I have advanced learners). (Feedback on phase 1)

[Need] guidance on how to provide differentiation as classes have various level and various ākonga. (Feedback on phase 1)

Some feedback described content in the teaching sequence that was perceived as being too difficult for learners/some learners at each year level or phase. As was expressed in earlier sections of the survey around the "teaching guidance", the document was felt to be lacking in "suggestions on how to support children who do not meet the expectations at any level of the curriculum" (Feedback on phase 1):

We as a staff are concerned that the expectations of number knowledge etc seems quite high especially taking into consideration what our young learners have as prior knowledge as well as what experiences they have previously had. We believe some of the expectations are quite steep when our young learners don't have a huge amount to draw on. (Feedback on phase 1)

Slow it down. Too much learning expected in the first few years of school. Children don't even get time to get used to school before they are expected to be achieving at certain level. Less content or a slower progression would mean our youngest learners would have time to really grasp concepts properly. To really understand and make connections. This would set them up for quality learning later in school. Going faster and trying to accelerate learning this early on will only create gaps and poor understanding of essential mathematical concepts that underpin layer learning. (Feedback on phase 1)

It is too rushed and way out of line in some places to what is realistic to be taught in schools with our current reality of levels and neurodiversity of children. Yes, they need to be higher, however some are not realistic or align with science of learning—brain development. We are in a great school with parent support and great teaching in place, however it will be a real mission to get our kids to these expectations in their current format. (Feedback on phase 1)

The benchmark for this phase is too high. There is content that is currently Level 4 maths. This could mean that teaching becomes about coverage rather than consolidation and understanding. There is far too much content in phase 2 and at each year level for students to learn and embed as knowledge. This is reminiscent of the 1990s curriculum. (Feedback on phase 2)

Within phase 1, there was specific feedback about amount and difficulty in the teaching sequence content for the first 6 months and first year. Respondents suggested a 12–18-month period would be preferable to recognise learners' diverse starting points, learners with additional learning needs, as well as new entrants' different start dates for school:

I would like to advocate for our youngest learners, who seem to be forgotten in a desperate need to 'accelerate' learning. That first 18 months–2 years needs to be a band of progression, not 6 months. Over my 18 years in the classroom, I observe that our children take that length of time, if not more, to settle into school and feel happy and safe. (Feedback on phase 1)



I don't agree with the time frames for 6 months. I think it needs to stretch to at least 12–18 months. (Feedback on phase 1)

Six months is not an appropriate length of time to build foundations and needs to be extended to at least 18 months!!!! I actually am very worried about this part here. Six months to build foundations. Do you understand how much children have to learn, adapt, when they come to school. As a teacher, we prioritise children's learning routines, feeling safe and belonging. This is NOT long enough. (Feedback on phase 1)

The critical steps for 6 months are too prescriptive when they have only been at school for a short time, and all have a variety of pre-school backgrounds. Having year levels in general is very prescriptive. What about the foundation level? What do we do for our Special Needs learners who may not achieve anything at the 6 months level. Due to the staggered start of NE (5 years) some students will start as straight Yr 1s therefore will need to achieve 18 months in one year. Can these be broader progressions rather than age band progressions. (Feedback on phase 1)

Concerns about social, emotional, and cultural implications of the draft content were also expressed. For example:

A bicultural focus on mathematics content and teaching. This phase is Eurocentric and lacks contextualised learning. It is a procedural [rules] approach to teaching and learning. Research has shown that this rote learning approach does not align with student understanding or appreciation of mathematics. Consider opportunities for the students' cultural worlds to be included in the teaching and learning. Children should not be viewed as empty vessels to be filled with the 'teacher's' knowledge. Consider the repercussions of assessing children, streaming, failing levels, repeating years until mastery is reached? (Feedback on phase 1)

Five-year-olds need and deserve time to learn in a developmentally appropriate way, that takes into account the important social and emotional adjustments to school. This is true for any 5-year-old and particularly those who are ESL learners or who have experienced developmental trauma, which we know is shamefully prevalent in NZ. (Feedback on phase 1)

Culturally responsive tasks, contexts, examples, and pedagogy. There needs to be a mana-enhancing approach, not a one size fits all. (Feedback on phase 2)

You have removed references to Te Tiriti, Te Ao Māori, Māori, and Pasifika. The document needed these references to fully and effectively [reflect] ALL students in Aotearoa. (Feedback on phase 2)

Some respondents perceived that raising expectations about what should be taught at each level, compared with current levels, could cause issues for learners and their whānau:

The expectation on phase 1 (at Year 3) currently aligns with what is being done at Year 4 end of level. This is highly aspirational and could be setting up many learners to fail. (Feedback on phase 1)

What support is there going to be for all learners who are currently at their expected level, but will be below when this is implemented as the expectations are set a level higher for each year level. How will this be communicated to whānau? (Feedback on phase 2)

Some feedback suggested there were disconnects or "jumps" between phases or within levels:

There is a significant jump in expected number knowledge and operations at Years 4–6 level. Examples: Year 4 is extended to 10,000 from 1,000 and decimal numbers to 1dp. (Feedback on phase 2)

Make the connections between phase 1 and phase 2 more explicit within the curriculum documentation. This could involve providing a summary of how phase 1 outcomes feed directly into the objectives of phase 2. (Feedback on phase 2)



Content coverage was a linked concern:

We counted the learning statements for the first 6 months (approx 20 weeks). There were 18. For Year 1 there were 46 statements for 40 weeks, perhaps some can be taught together but we worried that there was not enough time provided to consolidate so much new knowledge. This will impact future learning if we are skimming to ensure everything in the plan is covered. (Feedback on phase 2)

## Teaching methods

Across each phase level there was feedback about the teaching methods. Respondents commonly indicated that the content presented under “teaching methods” is not what they would consider to be teaching methods, and “appear to be more about the types of equipment you can use rather than pedagogical methods to support students” (Feedback on phase 1). Some respondents requested a clearer “scope and sequence”, particularly at phase 1. Across phases, respondents indicated that more specific examples, links, resources, and guidance would be helpful to support teaching practice, including differentiation and assessment:

It shows WHAT we need to teach but it does not tell us HOW to teach it. (Feedback on phase 1)

The teaching methods appear to be thrown in as after thoughts e.g.: Marked number lines ... this is equipment not a method! Area model and vertical methods, known facts ... be specific and how are they to be used. The support of the numeracy project was fantastic with detailed teaching lessons, things to look for, equipment, scope etc. ... This is not comprehensive enough for teachers to use it at all!!! Go back to the drawing board!!!! (Feedback on phase 2)

More explicit information around ‘teaching methods’—the things listed are resources rather than pedagogy and for beginning teachers a list of possible resources isn’t enough. It would be best if these were linked to explanations of the pedagogy and mathematical conceptual understanding that is built through the use of these resources. (Feedback on phase 3)

Some feedback discussed “teaching methods” that were missing, particularly at phase 3:

Fostering opportunities for group work, dialogue, and mixed-ability group work. (Feedback on phase 3)

More authentic links to the world outside the classroom. More problem-solving ... putting multiple aspects of mathematics to use at one time. More emphasis on the joy of mathematics. More emphasis on what actually makes a good mathematician ... not being a rote learner. (Feedback on phase 3)

Include more differentiated instructional strategies and resources in phase 3 to accommodate students who may need additional support in making the transition from phase 2. This could involve tiered activities, scaffolding, or targeted interventions. Ensure that assessment rubrics and criteria in phase 3 explicitly reflect the progression from phase 2. This could involve creating assessment tools that highlight the development of skills and knowledge across phases. Introduce more real-world problems and scenarios that require students to apply phase 2 knowledge in phase 3. This could involve project-based learning, community engagement, or interdisciplinary projects that connect learning to students’ lives outside the classroom. Build in more opportunities for students to review and reflect on their learning from phase 2 before moving into phase 3. This could be achieved through formative assessments, peer reviews, or reflective journaling. (Feedback on phase 3)

Some feedback criticised the prescriptiveness of the teaching sequence and teaching methods:

Teachers need agency over how they teach and agency to incorporate teaching pedagogies into their practice. (Feedback on phase 3)

Years 0–3 tamariki are capable of actively listening to, reflecting on, and building on each other's thinking and learning ... I have seen this done well with 5-year-olds. And this practice needs to start from when they start school for it to become natural. Only listening to teachers 'think alouds' will train them to become dependent on the kaiako. (Feedback on phase 1)

The year-by-year sequence could lead to the unintended consequence of teaching the content of the draft and not teaching the learner. (Feedback on phase 1)

There was a mix of responses to the highlighting of "critical steps", which were present in the phases 1 and 2 draft teaching sequences, but absent in the teaching sequence for phase 3:

Concerned that teaching will only focus on the critical steps and narrow the children's learning outcomes. Surely all elements of the teaching sequence are critical. (Feedback on phase 1)

Again, we are against having highlighted critical steps. We are surprised to note that the steps highlighted do not seem to align with the results of the Curriculum Insights study about what students found difficult. By phase 2 we would expect a lot more critical maths to be included. While we can see some aspects of critical maths in Know progress outcomes such as questioning assumptions, considering ethics in data gathering and how different representations can result in different insights, we feel this is not reflected strongly enough in the teaching sequence. (Feedback on phase 2)

However, there was also positive feedback about highlighting of critical steps.

Additional specific themes in the phase 3 feedback included:

- Quantity of content is of concern at phase 3.
- Level of expectation is higher in phase 3 than currently at Years 7–8.
- The learning needs of students below year expectations accumulate at phase 3.
- There are challenges with progressions from phase 2 to 3 or phase 3 to 4.

## Overall feedback

Comments in the "overall feedback" section of the survey generated many responses, and this section was where we most clearly saw both the "positive" comments stating what people liked about the draft, and the six high-level themes identified as areas for improvement. These key themes have already been well covered at the beginning of this section. It was evident that several of the rating-scale questions in particular generated a high volume of comments and feedback, particularly the items around "inclusive of all students", "internationally comparable", "inclusive of evidence informed teaching practices", and "underpinned by the science of learning".

## Resources and support

Finally, when asked "What existing resources and support materials will be useful to support you with the implementation of the mathematics and statistics learning area?", most school respondents who commented mentioned various supports that existed or were currently used, including 274 references to 48 different named or branded maths resources, 71 references to generalised resources and materials (e.g., hands-on resources, videos, digital tools that can be differentiated to individual needs), and 19 references to human resources (including ALiM and maths specialist teachers, teacher aides, and learning support co-ordinators). Many described multiple programmes, resources, or maths experts or facilitators that enable their maths teaching to be

effective. A few respondents described resources they had found to not support learning in their setting, or that would require updating to align to the new draft curriculum. The resource most mentioned as useful to support curriculum implementation was nzmaths. Elements of this website that were appreciated were: easy to navigate; achievement objective elaborations; rich and engaging activities linked to curriculum; long-term plans; online planners; strand units; e-ako; guidance on teaching specific concepts, sequences, and teaching methods; links to follow-up material; and resources to accelerate understanding for our diversity of learners. Of the 18 respondents commenting on the Tāhūrangi website, 12 commented on the current difficulty they had in finding the maths resources and support they needed.

Respondents also described the resources and support needed from the perspectives of planning, teaching, assessment, and reporting; for example, the need for a teacher guide that specifically aligned to the new curriculum. Some requested exemplars and examples, and many indicated that facilitated professional development for teachers is required:

Explicit PD on the teaching progressions and how they are to be taught. Not just what materials to use but how to effectively use them. (School response)

Updated PD in line with the new curriculum outcomes, specially focusing on effective, purposeful and updated summative assessment. (School response)

Many respondents specifically requested “more time” prior to implementation, such as teacher only days, to go through the document and to become familiar with supporting resources:

Because [the] document is still in draft and we don’t have supporting resources yet, it is impossible to implement the new curriculum by the start of next year. (School response)

Having the time to go through these documents will be the most useful. Not just a meeting after school, but potentially a Teacher Only Day dedicated to understanding this Curriculum document and the changes that are coming. This will need to be done sooner rather than later as teachers will need time to process and see how these changes relate to what they are currently doing in the classroom. Adding on extra resources, such as workbooks, won’t be as helpful as having time to look through the documents and see what each team/school has developed already to support students’ learning needs. (School response)

Many respondents commented on the importance of ensuring support materials and resources were inclusive of all students with a diverse and complex range of needs, and some respondents raised the need for equity of funding so all schools can purchase the new resources, materials, and assessments that are required for implementation of the curriculum.

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# Appendices

## APPENDIX A. Demographics of school respondents — by respondent

The tables in Appendix A show the school demographics of every survey response that included a school ID or identifiable school name (n = 835). There were 31 responses “from a school” that could not be matched to a school name or ID. Some schools may be counted more than once in these demographics (e.g., if more than one response was received from the same school).

Urban/rural	Count	Percent
Large urban area	143	17
Major urban area	403	48
Medium urban area	72	9
Rural other	107	13
Rural settlement	49	6
Small urban area	59	7
Unknown	2	0

School type	Count	Percent
Composite	31	4
Contributing	402	48
Correspondence School	1	0
Full primary	269	32
Intermediate	77	9
Secondary (Years 7–10)	1	0
Secondary (Years 7–15)	21	3
Secondary (Years 9–15)	19	2
Specialist school	14	2

Education region	Count	Percent
Bay of Plenty, Waikato	64	8
Canterbury, Chatham Islands	129	15
Hawke’s Bay, Tairāwhiti	69	8
Nelson, Marlborough, West Coast	35	4
Otago, Southland	83	10
Tai Tokerau	22	3
Taranaki, Whanganui, Manawātū	40	5
Tāmaki Herenga Manawa	85	10
Tāmaki Herenga Tāngata	113	14
Tāmaki Herenga Waka	26	3
Waikato	68	8
Wellington	101	12

Equity Index grouping	Count	Percent
Fewer	392	47
Moderate	311	37
More	126	15
Not applicable	6	1

Roll	Count	Percent
0–100	78	9
101–300	274	33
301–500	220	26
501–1,000	222	27
>1,000	40	5
Unknown	1	0

## APPENDIX B.

# Demographics of school survey respondents — by unique school ID

The tables in Appendix B show the demographics of schools from which responses were received. In these tables, each school is counted only once, regardless of how many responses were received from that school. In these tables, n = 473.

Urban/rural	Count	Percent
Large urban area	75	16
Major urban area	184	39
Medium urban area	51	11
Rural other	80	17
Rural settlement	33	7
Small urban area	48	10
Unknown	2	0


School type	Count	Percent
Composite	19	4
Contributing	215	45
Correspondence School	1	0
Full primary	170	36
Intermediate	25	5
Secondary (Years 7–10)	1	0
Secondary (Years 7–15)	17	4
Secondary (Years 9–15)	18	4
Specialist school	7	1

Education region	Count	Percent
Bay of Plenty, Waiairiki	35	7
Canterbury, Chatham Islands	81	17
Hawke's Bay, Tairāwhiti	30	6
Nelson, Marlborough, West Coast	27	6
Otago, Southland	50	11
Tai Tokerau	18	4
Taranaki, Whanganui, Manawatū	30	6
Tāmaki Herenga Manawa	44	9
Tāmaki Herenga Tāngata	47	10
Tāmaki Herenga Waka	18	4
Waikato	30	6
Wellington	63	13


Equity Index grouping	Count	Percent
Fewer	201	42
Moderate	190	40
More	76	16
Not applicable	6	1

Roll	Count	Percent
0–100	62	13
101–300	180	38
301–500	123	26
501–1,000	82	17
>1,000	25	5
Unknown	1	0

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