

Summary of results in PAT: Mathematics

These results have been determined using two alignment processes which applied two different methodologies. The first was conducted by the Ministry of Education, the second by the New Zealand Council of Educational Research (NZCER) under contract to the Ministry.

The results will help teachers who use the PAT: Maths assessment tool as part of the evidence informing their overall teacher judgment. For each scale score, they provide the likelihood of a student with that score being judged at each level of the National Standard in Mathematics.

The use of multiple pieces of evidence is important in informing overall teacher judgment of student performance against the National Standards. Certainly, no one assessment tool is enough to make a definite judgment against the mathematics standards. To emphasize this, the results of alignment are presented as likelihoods or probabilities.

The Ministry of Education would like to thank all the people who have contributed to this dual alignment work, especially NZCER, the teachers and mathematics curriculum experts who took part, and those who commented on the initial draft of this material.

Method

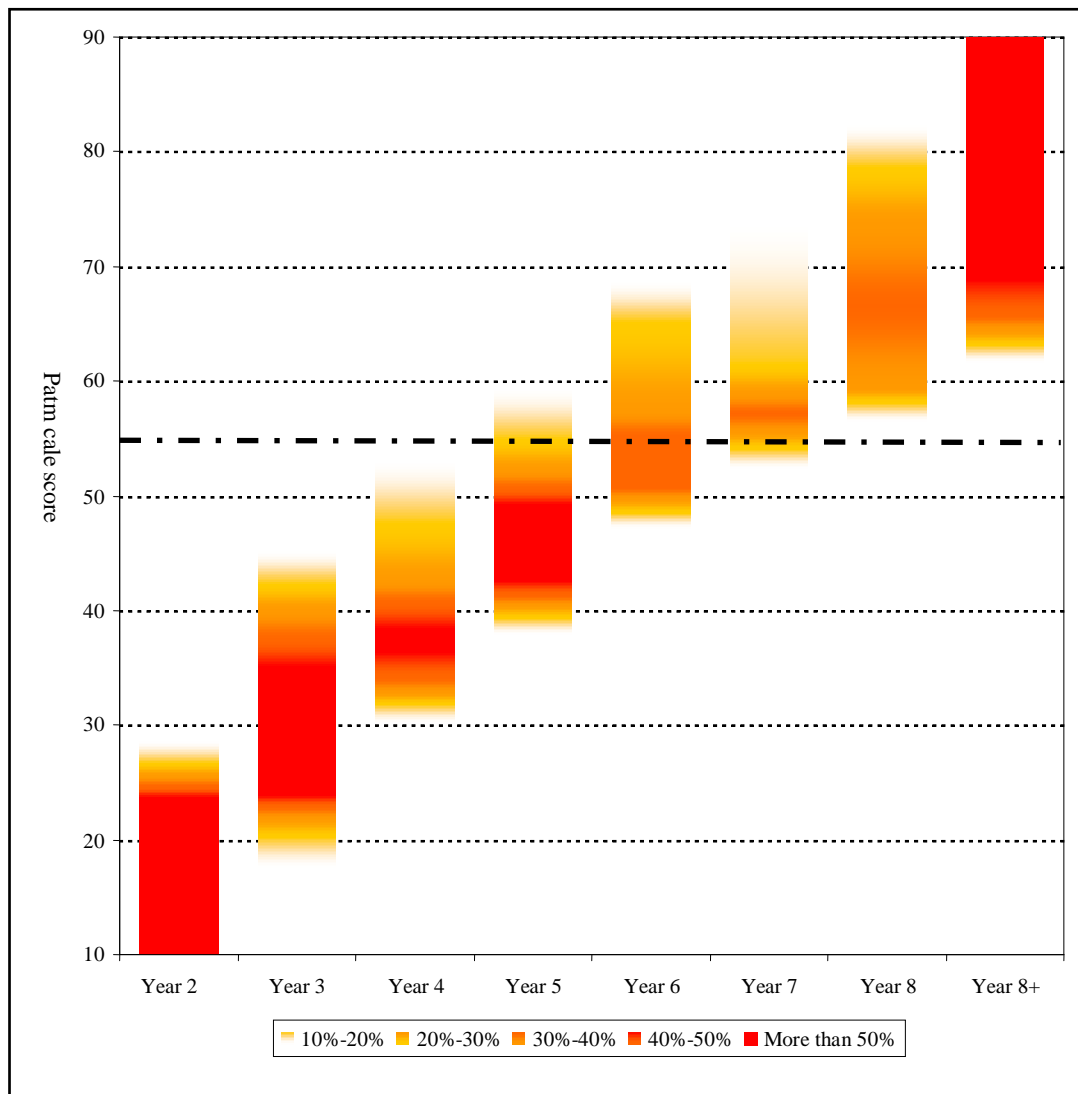
Data collection for this alignment was carried out on two occasions. The first, conducted by the Ministry of Education, used the Script Scrutiny methodology. The second, conducted by NZCER under contract to the Ministry, used the Bookmarking methodology. Both of these methodologies involved a panel of around 15 experienced teachers and numeracy professional development facilitators judging PAT: Maths materials against the National Standards in Mathematics. For details about the Bookmarking and Script Scrutiny methodologies please contact either Elliot Lawes (Elliot.lawes@minedu.govt.nz) or Lisa Ng (Lisa.ng@minedu.govt.nz) at the Ministry of Education.

Data collected on each occasion was statistically summarised and preliminary alignments were constructed. After consultation with mathematics curriculum experts it was decided that the final alignment should be an average of the two alignments.

Results

Student achievement in PAT: Mathematics is measured by a total scale score. Figure 1 below describes how the PAT: Mathematics scale score aligns with each of the Standards. The darker shades of red correspond to higher likelihoods of a judgment 'at' that reporting band.

Figure 1: PAT: Maths and the National Standards - probabilities of 'At' judgment



To read the graph, consider a student receiving a scale score of 55, as the horizontal line shows. We can conclude the following:

- The line lies across the pale orange area of the Year 5 band, reflecting that a student with a total scale score of 55 had a reasonable likelihood (20% to 30%) of being judged as at the End of Year 5 Standard.
- The line also lies across the orange area of the Year 6 band, reflecting that a student with a total score of 55 had the highest likelihood (40% to 50%) being judged as at the End of Year 6 Standard.
- Lastly, the line also lies across the pale orange area of the Year 7 band, reflecting that a student with a total score of 55 had a reasonable likelihood (20% to 30%) being judged as at the End of Year 7 Standard.

A teacher whose student had a PAT: Mathematics scale score of 55 could use the above information, together with their knowledge of other aspects of that student's mathematics performance, to make an overall teacher judgment against the National Standards in mathematics.