

## **PAT: Reading Test 4 Comprehension and Vocabulary and the ‘by the end of year 7’ National Standard**

This material is provisional and under review. Overall Teacher Judgments should be supported by a range of evidence, as different assessment methods look at different aspects of student work.

The purpose of this work is to inform overall teacher judgement of student performance against the ‘by the end of year 7’ national standard in reading<sup>1</sup>. In particular it will help teachers who use the PAT: Reading (Comprehension and Vocabulary) Test 4 assessment tool as part of the evidence informing their overall teacher judgement.

### **The work**

A team of experienced teachers, literacy professional development facilitators and an assessment expert from NZCER, worked through sets of anonymised PAT scripts which record student performance during year 7.

Initially, the ‘by the end of year 7’ standard was introduced. This was followed by a description of how data collected using the PAT: Reading Test 4 assessment tool could reveal features of the standard such as the ability to read, respond to, and think critically about texts. Then, after a discussion of the definitions of the standard’s four reporting bands (‘well below’, ‘below’, ‘at’ and ‘above’<sup>2</sup>) and a practice attempt at rating a script, the experts made independent judgements on a pack of six scripts each. Altogether 30 scripts were rated against the standard, with each being rated by two separate judges.

The teachers and other judges made their decisions independently, so that a range of judgements for a given level of performance was captured. This means that for any one piece of evidence describing student performance, (such as the PAT: Reading Test 4 assessment), only the likelihood of that piece of evidence being judged as ‘well below’, ‘below’, ‘at’ or ‘above’ the relevant national standard can be provided.

The number of scripts used in this work, (30), was modest and the work has yet to be replicated on a larger scale. The Ministry has done similar work for the STAR assessment and the Observation Survey. It intends to follow this with similar work for other assessment tools.

### **Results**

#### ***Comprehension***

Student achievement in PAT: Reading Test 4 is measured by comprehension and vocabulary scale scores. The current results describe how each of these scales align

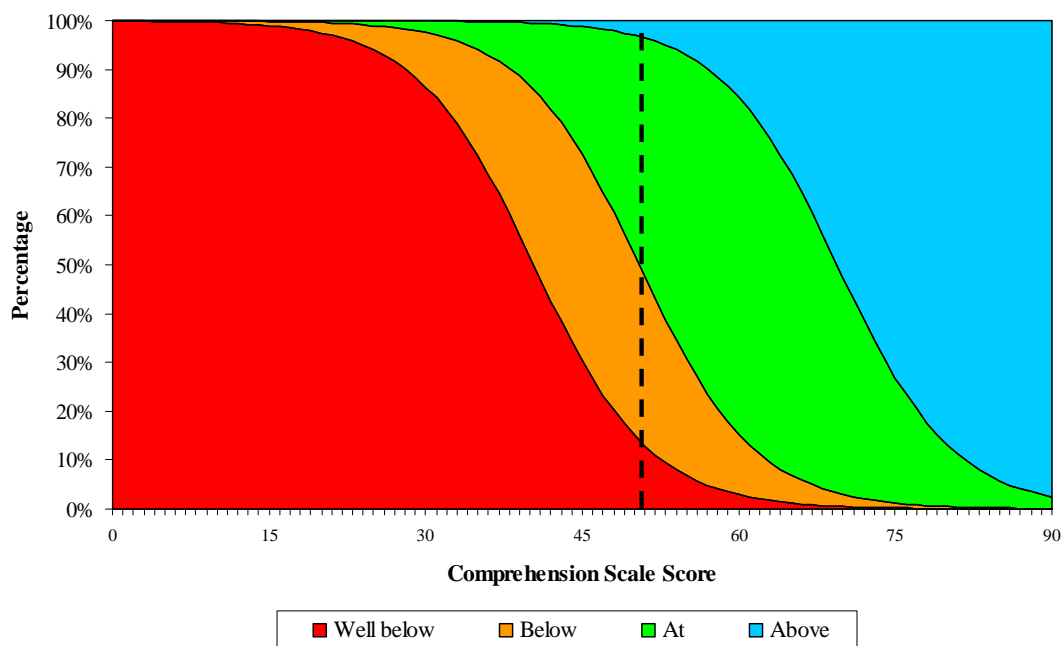
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<sup>1</sup> See: <http://nzcurriculum.tki.org.nz/National-Standards/Reading-and-writing-standards/The-standards/End-of-year-7>

<sup>2</sup> See <http://assessment.tki.org.nz/Effective-use-of-evidence/Overall-teacher-judgement-OTJ/A-student-s-achievement>

with the ‘by the end of year 7’ national standard in reading. The ‘area graph’ below shows the percentage of scripts in each of the four reporting bands against the comprehension scale score. It was produced using a statistical modelling technique applied to the collected data.

**Percentages at Different Reporting Bands Depending on Comprehension Scale Score (Area Graph)**



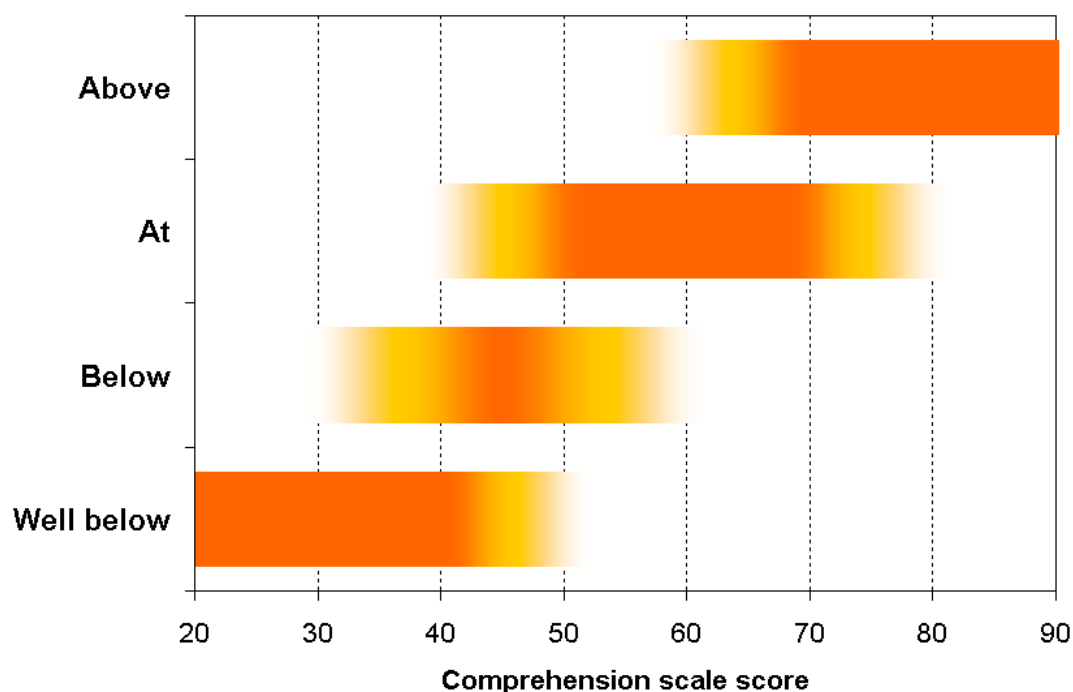
To read the graph, consider a vertical line above a comprehension scale score of, for example, 50 (illustrated). Looking at the areas with which the line intersects, we can conclude the following.

- Only a small part of that line is in the blue area, reflecting that a script with a comprehension scale score of 50 had little likelihood of being judged as **above** the ‘by the end of year 7’ national standard in reading.
- A moderate part of that line is in the green area, reflecting that a script with a comprehension scale score of 50 had a reasonable likelihood of being judged as **at** the ‘by the end of year 7’ national standard in reading.
- A somewhat smaller part of that line is in the orange area, reflecting that a script with a comprehension scale score of 50 had a fair likelihood of being judged as **below** the ‘by the end of year 7’ national standard in reading.
- A small part of that line is in the red area, reflecting that a script with a comprehension scale score of 50 had a small likelihood of being judged as **well below** the ‘by the end of year 7’ national standard in reading.

A teacher whose student had a PAT: Reading Test 4 comprehension scale score of 50 could use the above information, together with their knowledge of other aspects of that student’s reading performance to make an overall teacher judgement against the ‘by the end of year 7’ national standard in reading.

The graph below shows the same information, but now as a set of ‘fuzzy bars’ illustrating the overlap between the four reporting bands when considered against the scale score. In it, darker shades of orange correspond to higher likelihoods of a judgement against the standard falling into that reporting band.

### Overlaps between Reporting Bands Depending on Comprehension Scale Score



The following points summarise the main features of the above pair of graphs.

- ‘Well below’ judgements were somewhat likely<sup>3</sup> up to a comprehension scale score of about 46. They were clearly the most likely<sup>4</sup> judgements up to a comprehension scale score of about 40.
- ‘Below’ judgements were somewhat likely for comprehension scale scores ranging from about 36 to 55. For no comprehension score were they clearly the most likely judgements.
- ‘At’ judgements were somewhat likely for comprehension scale scores ranging from about 45 to 75. They were clearly the most likely judgements for comprehension scale scores ranging from about 51 to 69.
- ‘Above’ judgements were somewhat likely for comprehension scale scores of about 63 and higher. They were clearly the most likely judgements for comprehension scale scores of about 69 and higher.

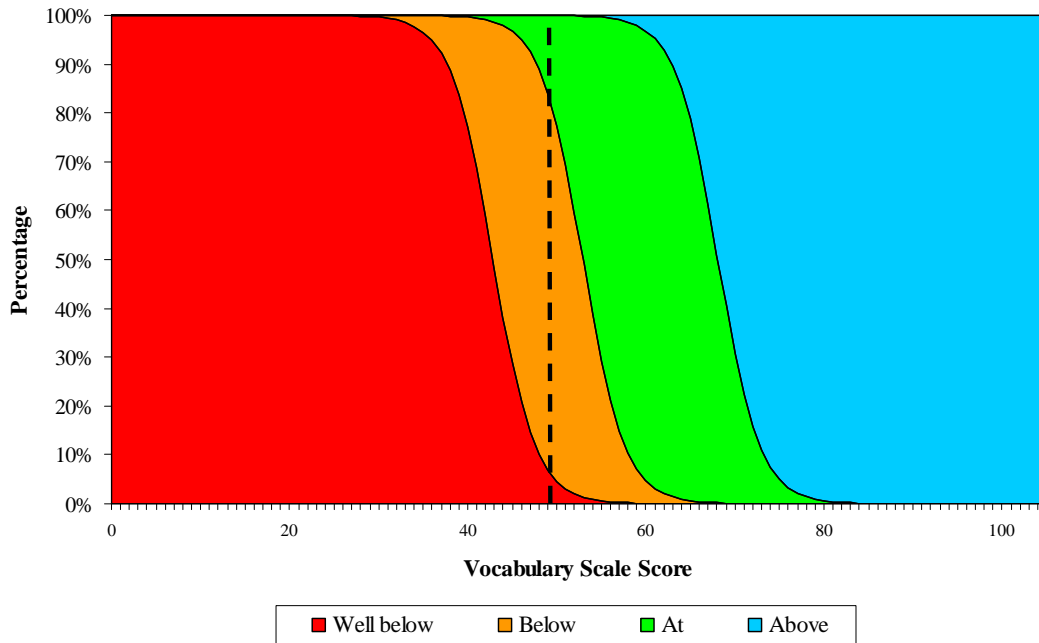
### Vocabulary

The area graph below shows the percentage of scripts in each of the four reporting bands against the vocabulary scale score. It was produced using a statistical modelling technique applied to the collected data.

<sup>3</sup> i.e. with a probability of about 25% or more.

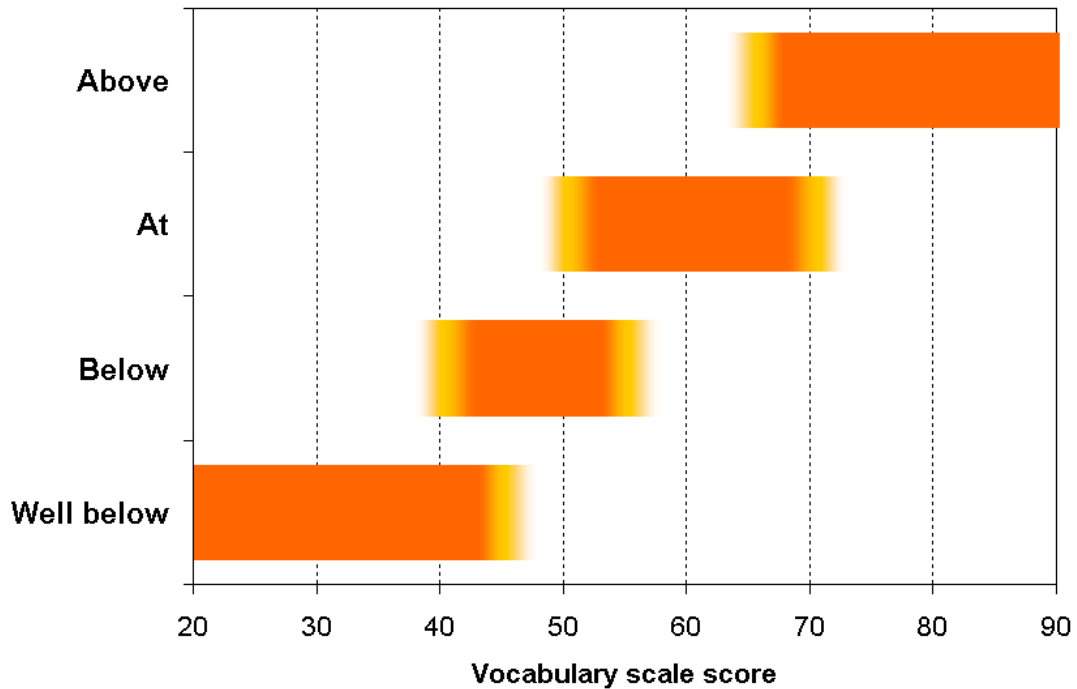
<sup>4</sup> i.e. with a probability greater than 50%.

**Percentages at Different Reporting Bands Depending on Vocabulary Scale Score (Area Graph)**



This graph may be read similarly to the comprehension area graph above. The graph below shows the same information, but now as a set of ‘fuzzy bars’ illustrating the overlap between the four reporting bands when considered against the scale score.

**Overlaps between Reporting Bands Depending on Vocabulary Scale Score**



The following points summarise the main features of these two graphs for vocabulary.

- ‘Well below’ judgements were somewhat likely up to a vocabulary scale score of about 45. They were clearly the most likely judgements up to a vocabulary scale score of about 43.
- ‘Below’ judgements were somewhat likely for vocabulary scale scores ranging from about 40 to 55. They were clearly the most likely judgements for vocabulary scale scores ranging from about 43 to 53.
- ‘At’ judgements were somewhat likely for vocabulary scale scores ranging from about 50 to 71. They were clearly the most likely judgements for vocabulary scale scores ranging from about 53 to 68.
- ‘Above’ judgements were somewhat likely for vocabulary scale scores of about 65 and higher. They were clearly the most likely judgements for vocabulary scale scores of about 68 and higher.

## **Conclusion**

This work will help teachers to use PAT: Reading Test 4 as part of the evidence informing the overall teacher judgement of student performance against the ‘by the end of year 7’ national standard in reading. It is modest in scale and is yet to be replicated in a larger setting.

For each point on the PAT: Reading Test 4 scales, this work provides the likelihood of a student with that PAT: Reading Test 4 scale score being judged as ‘well below’, ‘below’, ‘at’ and ‘above’ the ‘by the end of year 7’ national standard in reading. The fact that results are presented as likelihoods or probabilities reflects the fact that no one assessment tool will be enough to make a definite judgement against the reading standard. It highlights the need to use multiple pieces of evidence in informing overall teacher judgement of student performance against the national standards.

One thing you may notice when you study these results is that often there is not a consistent relationship between a test’s norms (e.g. stanines, average scale scores for a year level etc.) and the most likely national standard reporting category. This is not a cause for concern. Test norms are based on what the average student of a given age *can* do; the standard relates to what all students *should be able* to do, if they are on track for a successful educational outcome. In some areas of learning, the two coincide – the average student (i.e. stanine 5) is at the required level. In other areas, there may be a general shortfall – only high-performing students (e.g. stanine 7+) are likely to reach the standard, with others needing to improve their achievement in order to do so. This is an important feature of national standards, and one of the ways in which they are intended to drive improved learning for all students.

## **Acknowledgements**

We would like to thank all the people who have helped with and contributed to this work, especially the teachers and other literacy experts who took part in the script scrutiny event, and those who commented on initial drafts of this material to improve it, including members of the New Zealand Assessment Academy and AtoL directors.

### **Important things to remember**

Some key points to remember about this information:

- It is provisional, based on early analysis of existing data
- It is designed to help teachers make judgements against the standard on the basis of student performance on particular assessment tools
- It tries to capture the variability around the judgements made using any single tool, and shows the importance of pulling together different kinds of evidence to make an overall teacher judgement
- Results for more assessment tools are being processed and will be published as soon as possible
- Next year we will be publishing results based on more extensive data collection and analysis for a range of assessment tools
- Schools can use these results directly – they do not need to carry out their own ‘script scrutiny’ exercises.