National Year 1 Literacy and Numeracy Check

Expert Advisory Panel:
advice to the Minister

April 2017

Expert Advisory Panel
National Year 1 Literacy and Numeracy Check

Senator the Hon Simon Birmingham
Minister for Education
Parliament House and Training
Canberra ACT 2600

28 April 2017

Dear Minister,

On 29 January 2017, you established an Expert Advisory Panel (the Panel) to provide advice on the development and implementation of a national Year 1 literacy and numeracy check.

The Panel consisted of:

- Dr Jennifer Buckingham (Chair), Senior Research Fellow , The Centre for Independent Studies, and Director of FIVE from FIVE Project

- Ms Mandy Nayton OAM, Chief Executive Officer, Dyslexia SPELD Foundation, Western Australian President AUSPELD

- Professor Pamela Snow, Head of the La Trobe Rural Health School

- Mr Steven Capp, Principal, Bentleigh West Primary School in Victoria

- Professor Geoff Prince, Director, Australian Mathematical Sciences Institute

- Ms Allason McNamara, Mathematics Teacher at Trinity Grammar in Victoria and President, Australian Association of Mathematics Teachers

In undertaking our work, the Panel focused on the need for a nationally consistent strategy for early identification of students who are likely to make slower progress than their peers in key literacy and numeracy aspects of the school curriculum. By Year 3 (the first year in which students undertake NAPLAN assessments), it is difficult, expensive, and inefficient to remediate gaps in literacy and numeracy skills that prevent full engagement with the curriculum in middle primary years and beyond.

The Panel drew on evidence on how children learn to read and become numerate, and identified the key early concepts and skills that underpin and predict later literacy and numeracy achievement.

The Panel examined a range of international and Australian early years literacy and numeracy assessments in use across the three education sectors in the states and territories, and mapped them against criteria developed from a review of the literature and from consultation with content experts. We found that there is no systematic early assessment of the essential core early reading and numeracy skills identified.

The Panel undertook consultations with key stakeholders to inform its advice. This included an online public submissions process, direct consultations with key stakeholders, and contact with state and territory education departments and the independent and Catholic school sectors.
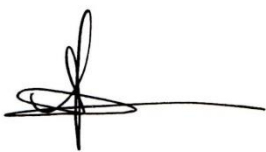
The recommendations contained in this report draw on the range of views conveyed to the Panel by those who made submissions and/or participated in interviews, as well as the Panel's review of recent relevant literature on evidence-based early instruction, and the findings of three large-scale inquiries into the teaching of literacy since 2000.

The Panel has concluded that there is a role for 'light touch' Year 1 screening assessments of literacy and numeracy, and these should occur around the middle of the second year of schooling. The Year 1 literacy check should focus on phonics and the Year 1 numeracy assessment should focus on number sense and position/location. The development and implementation of the checks will be easier in the short-term in relation to literacy, because of the work that has been carried out in England since 2012. No similar brief systemic tools for screening assessment of numeracy skills in Year 1 were identified, however, so the task ahead is slightly more complex in this domain.

The Panel further recommends that these screening assessments be administered by a teacher familiar with the child, using an online platform for scoring and rapid reporting of results to teachers and parents/carers. Individual results should be shared with parents/carers by the child's school, and school-level data should not be published or disseminated in any way that makes schools, teachers, or children identifiable. Results should, however, be made available to appropriately credentialed researchers for purposes of deeper analysis and ongoing recommendations. Schools in which significant proportions of children do not reach criterion on these measures should be offered appropriately tailored supports, at teacher and student levels.

On behalf of the Panel I am pleased to present our advice and recommendations. We thank you for the opportunity to conduct this important work.

Yours sincerely

Dr Jennifer Buckingham

Panel Chair

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Executive Summary

Background

In May 2016, the Australian Government released Quality Schools, Quality Outcomes, an evidence-based approach to schools reform to improve learning outcomes for all Australian students. As part of this reform, a national Year 1 check of all children in the areas of reading, phonics and numeracy was announced. This reform aims to ensure that students who are behind in their schooling are identified early and can receive the extra support they need.

On 29 January 2017, Senator the Hon Simon Birmingham, Minister for Education and Training, announced the establishment of an Expert Advisory Panel (the Panel) to advise the Government on how to best develop and implement a national Year 1 check.

The Panel met on three occasions: 15 February 2018, 8 March 2017 and 23 March 2017. During this period, the Panel undertook consultations with key stakeholders and invited written submissions. The Panel also undertook an online, public submission process between 4 March 2017 and 17 March 2017.

The purpose of this report is to provide the Minister with advice and a set of recommendations to guide the development and implementation of a national Year 1 check in literacy (phonics) and numeracy.

Key findings

Large numbers of children in Australia are not meeting the expected learning outcomes and standards in literacy and numeracy in their schooling years. This has an impact on their future learning and development, and their ability to be productive and participate fully in society. Early success in reading and number sense is a powerful predictor of later achievement, and is strongly correlated with schooling performance across the curriculum.

This means that effective reading and numeracy instruction in the early years of schooling is critical. Part of effective teaching is the use of appropriate assessments to inform teachers of the achievement level of students so that appropriate teaching and intervention strategies can be put in place if a child is not achieving at the expected level.

A review of current literacy and numeracy early years assessments in Australia found that most schools undertake assessment on-entry to school at the Foundation Year. Many schools also provide follow-up assessments at the end of Foundation Year. While a number of schools do have literacy and numeracy assessments in Year 1 and Year 2, there is no consistent approach across education systems or jurisdictions, and they are not mandatory in every state or territory.

The Panel found that whilst most states and territories undertake some form of literacy and/or numeracy assessment in Year 1, they do not cover all aspects of the Australian Curriculum to the same extent. The Panel found there is a clear gap in the assessment of phonics, which does not align with the Australian Curriculum, which could be addressed through a national check. It is the Panel's view that without appropriate teaching and effective assessment of phonics skills, many children will not be able to progress through their levels of schooling. The Panel therefore recommends that the Phonics Screening Check that is statutory in primary schools in England should be adapted for use in Australia to assess whether children have acquired a sufficient level of phonics knowledge to make progress in reading.

For numeracy early years assessments, the Panel found that some state and territory assessments include some good quality test items that reflect the Australian Curriculum. However, there is no one test that the Panel considers to be of sufficient quality that covers all numeracy descriptors in the Australian Curriculum. There is therefore a gap in Australian early years numeracy assessments that needs to be addressed, and a new tool should be developed for the Year 1 numeracy check.

The Panel is in agreement that introducing nationally consistent Year 1 literacy and numeracy checks will ensure that the early identification of children at risk of long-term underachievement is occurring, and will provide schools with a mechanism to review the extent to which children are mastering a number of specific foundation skills considered necessary for long-term success.

The value of introducing national Year 1 literacy and numeracy checks is that it provides the opportunity to ensure the check is consistent across all education sectors and schools, and that it can be delivered to every Year 1 student. A national check also ensures that schools and teachers can be confident that their Year 1 students have acquired, or have almost acquired, selected skills and conceptual knowledge recognised as necessary for successful literacy and numeracy development at a level that is consistent with the expectations of Year 1 students in all states and territories.

The Panel notes that the key rationale for introducing any new assessment is that it should aim to improve literacy and numeracy skills amongst young children. It should also be cognisant of the teacher's time and not place undue burden on schools, teachers and students.

It is within this context, that the Panel recommends that the Year 1 check be developed and implemented in accordance with the following best practice principles:

- Conducted early and able to measure progress over time;

- Measure core knowledge and skills that are strongly predictive of later achievement and accurately identify risk of low progress;

- Conducted one on one with a member of teaching staff known to the child;

- Brief in duration (to cater to attention of 5/6 year old children and time pressures in schools);

- Provides results to teachers quickly;

- Not 'high stakes' or linked to progression of year level;

- Provides sufficient amount of detail to guide intervention at the student level, and changes to teaching practice at the school and system level where necessary.

Importantly it is recommended that individual school results should not be published or compared to those of other schools. These principles underpin the recommendations made by the Panel, which are contained in this report.

Recommendations

The Panel makes the following recommendations:

Recommendation 1 – core literacy skills to be assessed

1.1. In prioritising the core literacy skills to be assessed under the Year 1 checks, the Panel recommends that a Year 1 literacy check should focus on the assessment of phonic knowledge, rather than a broader multi-component literacy assessment to ensure that the check is effective, efficient, and avoids duplication.

Recommendation 2 – core numeracy skills to be assessed

2.1 In prioritising the core numeracy skills to be assessed under the Year 1 checks, the Panel recommends that a Year 1 numeracy check should assess 'number sense' and position/location, and should be related to 'Number and Algebra' and 'Measurement and Geometry' in the Australian Curriculum (Foundation and Year 1).

2.2 Student disposition towards mathematics should be registered by the check or in conjunction with it.

Recommendation 3 – analysis of literacy and numeracy assessments

From the analysis of literacy and numeracy assessments, the Panel recommends:

3.1 The Phonics Screening Check developed by the UK government and which is statutory in primary schools in England should be adapted for use in Australia to assess whether children have acquired a sufficient level of phonics knowledge and decoding skills to make good progress in reading.

3.2 A new tool should be developed for the Year 1 numeracy check.

Recommendation 4 – purpose of Year 1 literacy and numeracy checks

The Panel recommends that the Year 1 checks be introduced to:

4.1 Provide a nationally consistent assessment of all students in all schools.

4.2 Provide data for schools and classroom teachers that is aligned to the literacy and numeracy strands outlined in the Australian Curriculum.

4.3 Assist in the early identification of students who may not be meeting expected learning outcomes.

4.4 Provide teachers and schools with meaningful and timely information on student achievement.

4.5 Become part of the National Assessment Program.

4.6 It is also recommended that individual school results should not be published or used for the purpose of comparing schools.

Recommendation 5 – implementation

In the area of implementation, the Panel recommends that:

5.1 The checks should be administered one-on-one by a member of the teaching staff familiar with the student and in a quiet but relaxed school setting.

5.2 The delivery mode of the check should make immediate results accessible to the teacher following the checks, for example, a printed booklet with the test items for the student and an 'app' for scoring and data collection by the teacher.

5.3 The checks should take place early in Term 3 of Year 1, to assess almost 18 months of formal schooling and to allow time within the current school year for intervention. Further consideration of the timing of the check should be taken to ensure consistency with the Australian Curriculum.

5.4 Contextual student and teacher data should be collected during the checks.

5.5 Individual student results should be accessible to the teacher and school, and reported to the student's parents/carers. School level results should be available to state and territory government and non-government sector authorities but should not be published.

5.6 Publication of data should be at the jurisdictional and national level. Careful consultation is necessary to ensure correct protocols are observed for the use and purpose of national data collection and reporting.

5.7 Communication of student results to parents and carers should come from schools.

5.8 The checks should be implemented over several years, starting with the literacy (phonics) check, and include a pilot study for both the literacy and numeracy check. The pilot study should enable evaluation of both content and process aspects.

5.9 Expert steering committees should be established to guide the development of each of the checks. The Phonics Check Steering Committee should comprise recognised experts in early reading instruction, scientific reading research, linguistics, and design and analysis of test items. The Numeracy Check Steering Committee should comprise recognised experts in early numeracy instruction, scientific research in the development of mathematical ability, and design and analysis of test items.

5.10 Teachers are provided training to deliver and interpret the results. Appropriate relief support is provided to teachers as they conduct the check.

Recommendation 6 – further reforms

6.1 Additional teaching resources should be accessible to schools to support appropriate intervention, as identified by the results of the check. Such resources might include teacher professional development concerning data analysis and intervention approaches to support acceleration of progress for students who do not reach criterion on the check.

6.2 Schools should have access to a central point for guidance on professional learning and intervention resources (utilising existing online portals).

6.3 A public communication strategy should be developed to ensure stakeholders and the general public are aware of the purpose and need for the Year 1 checks and how the data will be used.

6.4 Specific professional learning focused on effective, evidence-based teaching of phonics (systematic synthetic phonics), number sense and position/location should be made available.

Expert Advisory Panel Terms of Reference

The Panel's work was guided by the following Terms of Reference:

Background

In May 2016, the Australian Government released *Quality Schools, Quality Outcomes (QSQO)*, an evidence-based approach to schools reform to improve learning outcomes for all Australian students.

As part of this reform, a national Year 1 check of all children in the areas of reading, phonics and numeracy was announced. This reform aims to ensure that students who are behind in their schooling are identified early and can receive the extra support they need.

QSQO stated:

Reforms such as assessing children in reading, phonics and numeracy during Year 1 and reporting annually to parents against agreed national literacy and numeracy standards for every year of schooling, will ensure students who are behind are identified early and can be targeted with interventions before the achievement gap grows.

Purpose

The purpose of the Panel is to provide advice to the Minister for Education and Training to inform the development and implementation of a national Year 1 check.

The advice will include:

- a summary of recent national and international research of best practice in early years instruction and assessments covering reading, phonics and numeracy

- a summary of literacy (including phonics) and numeracy assessments that are currently used in Australia and internationally in the early years and on-entry to school

- recommendations on the implementation of a Year 1 check, including frequency, timing, prioritising of core skills assessed and reporting

- options for staggered implementation of a national Year 1 check, including an initial pilot study that could be scaled up to a national assessment

- recommendations on further reforms that may follow the implementation of a national early years check such as specific teacher development programs to support the teaching of early years reading, phonics or numeracy.

Consultation

The Panel will undertake consultations with key stakeholders to inform its advice.

The Panel will consult with, at a minimum:

- teacher employers

- key representative bodies of the education sector, including principal and key subject professional associations

- teachers and relevant education experts.

Roles and responsibilities

The Panel will report to the Minister for Education and Training by the end of April 2017.

The Department of Education and Training will provide secretariat support to the Panel.

Constitution

The Panel will comprise five to seven members.

1. Introduction

1.1 Literacy and numeracy trend data

Australia's results over recent years in both nationally representative and international sample assessments have shown that large numbers of Australian children do not reach expected standards of literacy and numeracy competencies. Around the world, data from national and international assessments is being used to inform reforms to education systems.[1] Results across international assessments show that Australian students are not making the same amount of progress relative to other countries. Domestically, over the eight years since the National Assessment Program – Literacy and Numeracy (NAPLAN) tests were introduced, there have been some statistically significant, but relatively small improvements in some year levels in national average performance, however the improvements are unevenly distributed geographically and with respect to indices of socio-economic disadvantage.[2] It is essential that students reach and maintain expected standards of literacy and numeracy achievement as language, literacy and numeracy are the essential underpinning skills that enable people to be productive in their work, to continue to learn and develop, and to participate fully in society.[3]

Literacy (reading) results

Many Australian students are not meeting the expected minimum standards in reading and this under-achievement persists into adulthood. While there have been some improvements in the percentage of students meeting national minimum standards (NMS) in NAPLAN reading over time, around 4.9 per cent of Year 3 students (1 in 20 students) in 2016 are still not meeting the NMS for reading.[4] Furthermore, the NMS is considered to be a relatively low benchmark for achievement by international standards and so arguably understates the extent of low reading ability among school students.[5]

NAPLAN 2016 results for Year 9, six years further into schooling, show that the proportion of students not achieving the NMS in reading has grown from 4.9 per cent in Year 3 to 7.1 per cent (1 in 14 students). At the other end of the achievement spectrum, the proportion of higher-achieving students (placed in the top two NAPLAN bands) has dropped from 49.4 per cent in Year 3 to 20.6 per cent by Year 9. These findings accord with evidence that one in seven 15-year olds (approximately 40,000 young people) has literacy skills below international baseline levels.[6]

According to recent results from the Programme for International Student Assessment (PISA) 2015, 18 per cent of 15-year-old Australian students were low performers in reading proficiency by international standards (failing to reach Level 2, the baseline proficiency level). Thirty nine per cent of Australian students failed to meet the Australian National Proficient Standard (Level 3) in reading literacy.

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[1] Breakspear, S. 2012. *The Policy Impact of PISA: An exploration of the normative effects of international benchmarking in school system performance*. OECD Education Working Papers No. 71. Paris: OECD; Cresswell, J. 2016. *System-level assessment and educational policy*. Assessment GEMS Series No. 10. Camberwell: ACER.

[2] Australian Curriculum, Assessment and Reporting Authority. 2016a. *NAPLAN Achievement in Reading, Writing, Language Conventions and Numeracy: National Report for 2016*. Sydney: ACARA. https://www.nap.edu.au/results-and-reports/national-reports

[3] Industry Skills Council. 2011. *No More Excuses: An industry response to the language, literacy and numeracy challenge,* https://www.ibsa.org.au/sites/default/files/media/No%20More%20Excuses%20ISC%20response%20to%20LLN%20challenge.pdf

[4] ACARA. 2016a.

[5] Lamb, S., Jackson, J., Walstab, A. & Huo, S. 2015. *Educational opportunity in Australia 2015: Who succeeds and who misses out*. Melbourne: Centre for International Research on Education Systems, Victoria University, for the Mitchell Institute.

[6] Masters, G. 2016. *The 'long tail' of underachievement*, Teacher Magazine, ACER, 1 February 2016. https://www.teachermagazine.com.au/geoff-masters/article/the-long-tail-of-underachievement

This is a similar picture to results from the Progress in International Reading Literacy Study (PIRLS) 2011[7], where 24 per cent of Year 4 students (1 in 4 students) did not meet the Intermediate International Benchmark.

Australian adult literacy skills are also concerning. According to the Programme for the International Assessment of Adult Competencies (PIAAC)[8], 12.6 per cent of adults in Australia only attained Level 1 or below in literacy proficiency. This concern is also borne out in the 2011 Industry Skills Council of Australia report that indicated that "*Literally millions of Australians have insufficient (language, literacy, and numeracy) skills to benefit fully from training or to participate effectively at work*".[9] Given the evidence that jobs for unskilled school leavers, most particularly males, are rapidly disappearing in industrialised nations[10], early literacy and its role in educational engagement and attainment, is more important than in previous decades.

Numeracy (mathematics) results

While there have been some improvements over time in the percentage of students meeting the NAPLAN NMS in reading, the only numeracy improvement between 2008 and 2016 results has been in Year 5 numeracy. In 2016, 4.5 per cent of students in Year 3 (1 in 20 students) are still not meeting the NMS for numeracy and by Year 9, six years further into schooling, this proportion persists.[11]

At the other end of the achievement range, the proportion of higher-achieving students (placed in the top two NAPLAN bands) drops from 35.6 per cent in Year 3 to 22.5 per cent by Year 9.

Results from PISA 2015 show that 22 per cent of Australian students were low performers in mathematical literacy by international standards (failing to reach Level 2, the baseline proficiency level). Forty-five per cent of Australian students failed to meet the Australian National Proficient Standard (Level 3) in mathematical literacy.[12] Similar to reading proficiency, between 2000 and 2015, there has also been a decrease in the proportion of high performing students and an increase in the proportion of low performing students in Australia's PISA mathematical literacy results.

[7] TIMSS & PIRLS International Study Center. 2011. *PIRLS 2011 International Results in Reading*. Lynch School of Education, Boston College. http://timssandpirls.bc.edu/pirls2011/downloads/P11_IR_FullBook.pdf

[8] OECD. 2013. *OECD Skills Outlooks 2013: First Results from the Survey of Adult Skills,* OECD Publishing. *http://www.oecd.org/skills/piaac/Skills%20volume%201%20(eng)--full%20v12--eBook%20(04%2011%202013).pdf*

[9] Industry Skills Council. 2011.

[10] McDowell, L. 2011. *Redundant masculinities? Employment change and white working class youth*. Vol. 37, John Wiley & Sons.

[11] ACARA. 2016a.

[12] OECD. 2016. *PISA 2015 Results (Volume I): Excellence and Equity in Education.* OECD Publishing, Paris. *http://www.oecd.org/education/pisa-2015-results-volume-i-9789264266490-en.htm*

1.2 Importance of early literacy and numeracy acquisition

Early success in reading is a powerful predictor of later literacy achievement and is strongly correlated with performance across the school curriculum.[13] Similarly, early numeracy skills can predict achievement in mathematics as children progress through school.[14] There is also evidence that children who develop good literacy and numeracy skills early will have better language skills and better informal numeracy, which can lead to improved mathematical outcomes.[15] The direction of the causality here remains to be fully understood however, as there are clear advantages attached to entering school with a strong history of rich pre-school language and learning experiences.[16]

Effective reading and numeracy instruction in the early years of schooling is critical. There is considerable agreement that children who present with reading difficulty at an early age will not meet year-level expectations when receiving only regular classroom education.[17] The same is also true for numeracy.[18] Children enter school with a wide range of early numeracy skills but they vary greatly in how they acquire, and how quickly they acquire, different mathematical concepts.[19]

It is also important to note the interrelationship between literacy and numeracy skill development. Most teaching of number is through language, but language alone does not effectively develop the concept of number as some understanding of number is independent of language.[20]

An extensive body of research shows that quality, comprehensive literacy programs develop children's skills in five essential areas: phonemic awareness, phonics,[21] fluency, vocabulary and comprehension.[22] This research provides evidence that early reading progress is most likely to occur when teaching is explicit and systematic, with the strongest evidence supporting early, explicit and systematic phonics instruction, and especially for children who are at greatest risk of reading difficulties.[23] These associations have also been used as evidence to support interventions designed to boost early mathematical skills, with the implication

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[13] Buckingham, J., Wheldall, K., & Beaman-Wheldall, R. 2013. *Why poor children are more likely to become poor readers*. Australian Journal of Education, 57(3), 190-213.

[14] Reid, K. 2016. *Counting on it: Early numeracy development and the preschool child*. Council for Educational Research. http://research.acer.edu.au/cgi/viewcontent.cgi?article=1020&context=learning_processes

[15] Purpura, D. & Napoli, A. 2015. *Early numeracy and literacy: Untangling the relation between specific components.* Mathematical Thinking and Learning: An International Journal, 17(2-3), 197–218.

[16] Hart, B. & Risley, T. 2003. *The early catastrophe: The 30 million word gap by age 3*. American Educator, Spring, 4-9.

[17] Stanovich, K. E. 1986. *Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy.* Reading Research Quarterly, 22, 360-407, https://www.psychologytoday.com/files/u81/Stanovich__1986_.pdf; Pfost M., Hattie J., Dorfler T. & Artelt C. 2014. *Individual differences in reading development: A review of 25 years of empirical research on Matthew effects in reading.* Review of Educational Research, 84(2), 203-244.

[18] Watts, T. W., Duncan, G.J., Siegler, R. S. & Davis-Evans, P. E. 2014. *What's Past is Prologue: Relationships between early mathematics knowledge and High School achievement.* Educational Researcher, 43(7), 352-360. http://edr.sagepub.com/content/43/7/352.full

[19] Reid, K. 2016.

[20] Sharma, M. C. 2013. *Numbersense: A window into Dyscalculia and other Mathematics Difficulties,* Key Note Speech, NHSAA 2013 Best Practices Conference on Curriculum, Instruction and Assessment, New Hampshire.

[21] Rose, J. 2006. *Independent review of the teaching of early reading*. Bristol: Department for Education and Skills. http://dera.ioe.ac.uk/5551/2/report.pdf; Stuart, M. & Stainthorp, R. 2016. *Reading Development and Teaching*. London: SAGE Publications.

[22] National Institute of Child Health and Human Development. 2000. *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction.* U.S. Government Printing Office, Washington, D.C. www.nichd.nih.gov/publications/pubs/nrp/documents/report.pdf; Seidenberg, M. 2017. *Language at the Speed of Sight: How we read, why so many can't, and what can be done about it*. New York: Basic Books.

[23] Snow, P. C. 2016. Elizabeth Usher Memorial Lecture: *Language is literacy is language. Positioning Speech Language Pathology in education policy, practice, paradigms, and polemics*. International Journal of Speech Language Pathology, 18(3), 216-228; New South Wales Centre for Education Statistics and Evaluation 2017. *Effective Reading Instruction in the Early Years of School*. Sydney: NSW Department of Education https://www.cese.nsw.gov.au/images/stories/PDF/Effective_Reading_Instruction_AA.pdf

that such interventions could help narrow gaps between advantaged and disadvantaged children in later mathematics achievement.[24]

1.3 Role of assessment

Although assessment has assumed many different roles in contemporary education practices, assessments should be used to inform classroom teachers of the achievement levels of students, which can then inform selection of appropriate interventions, monitoring progress and evaluating effective teacher practice.[25] However, more recently, higher expectations have been placed on the assessment of student learning. There has been growing interest on the part of governments and education systems in how national results compare with international standards, and in understanding what high-performing schools and education systems do to achieve high levels of excellence and to promote equity in school education and student outcomes.[26]

The assessments that are used to establish where students are in their learning can also be used to identify starting points for further teaching and learning or to review progress made by the student since the last time they were assessed. Assessments to understand where learners are in their learning and to identify starting points for teaching require active investigation on the part of the teacher, together with the ability to interpret and utilise data.[27] At the classroom level, effective teaching interventions occasionally require more detailed investigations of students' misunderstandings and difficulties, perhaps through focused teacher questioning or diagnostic testing, the latter sometimes needing to be carried out by allied health professionals such as speech pathologists and/or educational and developmental psychologists.[28] This use of assessment data and its application for selection of intervention services is central to Response to Intervention, a multi-tiered model for conceptualising universal teaching and the monitoring and response to this across increasingly specialised tiers.[29]

There is evidence that students at the same age can be at very different points in their prior knowledge and school-based learning, yet much of teaching is still focused on delivering the same year-level curriculum to all students in a class.[30] At the completion of each stage of the curriculum, students are assessed to establish how much of the content they have successfully learnt and their level of success is reported as a score, percentage, or grade.[31]

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[24] Watts, T. W. et. al. 2014.

[25] Hattie, J. 2009. *What is the nature of evidence that makes a difference to learning?* Australian Council for Educational Research.

[26] Masters, G. 2013. *Reforming Educational Assessment: Imperatives, principles and challenges*: http://research.acer.edu.au/cgi/viewcontent.cgi?article=1021&context=aer

[27] Ibid.

[28] Kilpatrick, D. A. 2017. *Essentials of Assessing, Preventing and Overcoming Reading Difficulties* Hoboken. New Jersey: Wiley.

[29] National Center on Response To Intervention (NCRTI). 2010. http://www.rti4success.org/

[30] Goss, P. & Hunter, J. 2015. *Targeted Teaching: How better use of data can improve student learning.* Melbourne: Grattan Institute.

[31] Ibid.

Findings

- *Literacy and numeracy achievement of Australian students is low by international standards, and by some measures is in decline.*

- *Early proficiency in literacy and numeracy strongly predicts later achievement.*

- *Accurate and timely assessments play an important role for teachers in the classroom through early identification of students who require intervention and support, and the provision of data and information to guide effective teaching practice.*

2. Literacy

2.1 How children learn to read

Over the past several decades, research findings from a number of disciplines – including education, psychology and cognitive science — has converged to provide a rigorous and consistent evidence base for how children learn to read.

Unlike the development of oral language, which occurs naturally for most children if they grow up in a conducive environment, children have no innate spontaneous cognitive capacity for reading and writing. Written language is an invented code that children must learn in order to be able to read.[32] They must learn that language is made up of words, which are in turn made up of distinct and distinguishable sounds (phonemes) and meaningful word parts (morphemes) which operate below the word level. Children must learn that the letters of the alphabet (graphemes) are used to represent the sounds in speech (phonemes), and then learn the extensive range of letter-sound relationships that form the English written code (phonics).[33] It has been observed by Snow, Burns & Griffin that

"….because phonemes are the units of sound that are represented by the letters of an alphabet, an awareness of phonemes is key to understanding the logic of the alphabetic principle. Unless and until children have a basic awareness of the phonemic structure of language, asking them for the first sound in the word boy, or expecting them to understand that cap has three sounds while camp has four, is to little avail".[34]

The English written language code is more complex than other languages – it has a more 'opaque orthography', which means there is not a simple, one-to-one relationship between letters and sounds.[35] Modern English contains words from numerous language origins including Old English, Latin, Greek, French, and German, each of which has different spelling conventions. This makes it even more important for children to be taught the English written code in an explicit and systematic way – its inherent complexity makes it difficult to independently intuit all combinations of letter-sound relationships.[36]

Cognitive science and neuroscience research has revealed the structures and connections in the brain involved in learning to read. There is no specifically-evolved reading area of the brain that can be activated via access to books and print. Reading requires deeply embedding connections between visual, phonological (sound), and semantic (meaning and memory) areas of the brain. Making these connections requires repeated exposure to the content to be learned. Some children need only a

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[32] Shaywitz, S. E. & Shaywitz, B. A. 2003. *The science of reading and dyslexia*. Journal of American Association for Pediatric Ophthalmology and Strabismus. 7(3), 158-166.; Seidenberg, M. 2017.
[33] Stuart, M. & Stainthorp, R. 2016. *Reading Development and Teaching*. London: SAGE Publications.
[34] National Research Council. 1998. *Preventing reading difficulties in young children*. National Academies Press, p.54.
[35] Seymour, P. H. K., Aro, M., & Erskine, J. M. 2003. *Foundation literacy acquisition in European orthographies*, British Journal of Psychology, 94: 143-174.
[36] Frost, R. 2005. *Orthographic Systems and Skilled Word Recognition Processes in Reading*. In M. J. Snowling & C. Hulme (eds.) The science of reading: A handbook. Oxford: Blackwell; Moats, L. C. 2010. *Speech to Print: Language Essentials for Teachers* (2nd ed). Baltimore: Paul H. Brookes.

few exposures, others need multiple exposures in a variety of ways.[37] Early years' classrooms need to be able to meet the needs of all learners, not just those who have had rich pre-school early language and literacy experiences.

Our growing understanding of the reading brain concurs with the findings of educational research that explicit and systematic instruction in the foundations of written English is more effective than 'Whole Language'-derived approaches. While the English code is extensive and complicated, once it is learned, children can decipher almost any word they encounter, and either retrieve the word meaning from their memory or derive it via inferencing or referring to a dictionary.[38] 'Whole Language'-derived approaches to reading require children to either discern the written code themselves through the process of being read to, or memorising written language as whole words.[39] As there are far fewer phonics rules than individual words in English, learning to decode is a much more cognitively efficient way to learn to read and, for many children, is the only way they will learn.[40]

Of course, accurate identification of a word is only the initial aspect of reading. Knowing the meaning of words, both literally and in context, is also important for reading comprehension, as is knowledge of syntax and the capacity to infer.[41] However, children cannot read for meaning if they are unable to decipher the words on the page.

The Simple View of Reading

The Simple View of Reading[42] is a theoretical model widely discussed in literacy education. The Simple View of Reading is a formula based on the widely accepted view that reading has two basic components: word recognition (decoding) and language comprehension (overall understanding at a text rather than a word level).

The Simple View of Reading as presented by Gough and Turner is:

Reading Comprehension = Decoding (D) X Language Comprehension (LC)

The model highlights that a student's reading comprehension can largely be predicted if decoding skills (D) and language comprehension (LC) abilities are known and that reading comprehension is the product (not a mere sum) of decoding and language comprehension. If a student has difficulties in one or both these areas, they will have low comprehension.

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[37] Wolf, M. 2007. *Proust and the Squid: The story and science of the reading brain*. New York: Harper Collins.

[38] Share, D. L. 1999. *Phonological recoding and orthographic learning: A direct test of the self-teaching hypothesis*. Journal of Experimental Child Psychology, 72(2), 95-129; Nation, K., Angell, P. & Castles, A. 2006. *Orthographic learning via self-teaching in children learning to read English: Effects of exposure, durability, and context*. Journal of Experimental Child Psychology, 96, 71-84.

[39] Konza, D. 2006. *Teaching Children with Reading Difficulties* (2nd ed). South Melbourne: Cengage Learning Australia.

[40] Dehaene, S. 2009. *Reading in the Brain: The Science of How We Read*. New York: Penguin Viking; Carroll, J. M., Bowyer-Crane, C., Duff, F. J., Hulme, C. and Snowling, M. J. 2011 *References in Developing Language and Literacy: Effective Intervention in the Early Years.* Chichester: UK John Wiley & Sons, Ltd.

[41] Adlof, S. M., Catts, H. W. & Lee, J. 2010. *Kindergarten predictors of second vs eighth grade reading comprehension impairments*. Journal of Learning Disabilities, 43(4), 332-345.

[42] Gough, P. B. & Turner, W. E. 1986. *Decoding, Reading, and Reading Disability.* RASE 7(1), 6-10.

The Simple View reflects the evidence-base on the reading brain and has been supported, validated and extended by numerous research studies. These studies show that the factors are developmentally interactive and their respective influences change over time. In the early years, decoding is the stronger predictor, but in later school years—once decoding has reached proficiency—language comprehension (especially vocabulary and knowledge of word and sentence structure) becomes more important.[43]

2.2 Essential components of early reading instruction

Research indicates there are five essential components of proficient reading, known as the five 'keys' to reading: [44]

1. Phonemic awareness – the ability to identify and manipulate the distinct individual sounds (phonemes) in spoken words. Examples of skills that reflect phonemic awareness are *blending* (on hearing for example the sounds /d/ - /o/ - /g/, being able to put these together mentally to arrive at the word "dog". Segmenting refers to the same process in reverse, i.e. on hearing the word "dog", being able to isolate its component sounds as /d/ - /o/ and /g/. It is beneficial for children to arrive at school with emergent phonemic awareness skills, which are then strengthened through exposure to the written word and its component sounds and morphemes. It should be noted that phonemic awareness is a sub-skill of *phonological awareness*, which refers to a more general awareness of the fact that speech comprises a range of sounds which are put together to create words and sentences.

2. Phonics – the ability to decode words using knowledge of the relationships between the 26 letters of English and the approximately 44 sounds they represent, by being used both in isolation and in combination. Despite the fact that English is considered to be an *opaque alphabetic system,* with multiple spelling patterns, well over 80 per cent of words can be easily decoded using knowledge of sound-letter (phoneme-grapheme) links once this knowledge has been taught.[45]

In addition to its reference to a child's knowledge of the so-called *alphabetic principle*, phonics can also refer to teaching strategies employed by teachers. There are variants of phonics instruction, and these reflect underlying ideological and theoretical stances on early reading instruction and are differentially effective.

Incidental Phonics refers to an adult assisting a child to identify the sound(s) associated with the first letter of a problematic word in the context of reading a passage, either aloud or silently. In many cases, this is the third of three supportive options to the beginning readers, the first two being use of semantic (meaning) cues, and the second being the use of grammatical/syntactic cues, to encourage the child to guess the type of word on which they are stumbling. This approach is often referred to as Multi-Cueing or Three Cueing, and is central to Whole Language-based reading instruction, as well

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[43] Cain, K. 2015. *Learning to read: Should we keep things simple?* Reading Research Quarterly, 50 (2), 151-169. http://eprints.lancs.ac.uk/72139/
[44] Garcia, J. R. & Cain, K. 2014. *Decoding and reading comprehension: a meta-analysis to identify which reader and assessment characteristics influence the strength of the relationship in English*. Review of Educational Research, 84(1); Hempenstall, K. 2016. *Read About It: Scientific evidence for effective teaching of reading*. Research Report 11. Sydney: The Centre for Independent Studies.
[45] Hanna, P. R., Hanna, J. S., Hodges, R. E. & Rudorf, E. H. 1966. *Phoneme–grapheme correspondences as cues to spelling improvement*. Washington, DC: U.S. Department of Health, Education, and Welfare.

as to its descendent pedagogy, Balanced Literacy.[46] Multi-cueing is a theoretical model and has no empirical evidence supporting it.[47] Incidental phonics and multi-cueing reflect a pedagogical position that phoneme-grapheme correspondences should be acquired in the context of actual reading, not as an isolated skill that children are taught in order to independently decode new, unfamiliar words.

Analytic Phonics is more systematic than incidental phonics. It teaches grapheme-phoneme correspondences through examining the sound and letter patterns in similar words. Analytic phonics frequently stops at the first letter or sound (in itself a distinction that may not be clear to novice readers), rather than encouraging the child to 'decode through the word'.

It is noteworthy that some education academics caution against confidence in the capacity of Balanced Literacy to deliver effective reading instruction to all children. For example, Konza (2014) has observed that "It is true that some children readily acquire the skills of independent reading without highly explicit teaching, but if balanced is interpreted as offering all children only an embedded rather than an explicit approach to phonics instruction, those most in need will be further disadvantaged."[48]

Systematic Synthetic Phonics (SSP) refers to an approach that explicitly teaches the relationships between the letters of the alphabet and the speech sounds they represent. When a child learns to read using synthetic phonics they learn to link letters to speech sounds and then blend (synthesise) these sounds together to read words. They also learn to separate (segment) words into their constituent sounds and link these sounds to letters in order to spell them. Instruction begins with a small number of letters and sounds that can immediately be used in combination to read (decode) and spell (encode) two and three letter words. A pre-determined sequence of phoneme-grapheme relationships is systematically and cumulatively taught until such time as children can read and spell most commonly-occurring English words. The aim of SSP instruction is to ensure that decoding skills are not left to chance, so that a reliance on alphabetic knowledge and an increasing grasp of both regular (transparent) and irregular sound-letter combinations contributes to automaticity in reading. Children who are taught via SSP are not encouraged to use pictures or other cues to "guess" a problematic word. Rather they are equipped with skills to decode through the word and then to locate the meaning in context. It should be noted however, that there is wide agreement that decoding skills are a *necessary but not sufficient* component of reading. Such skills must be developed alongside morphological awareness, vocabulary, comprehension, and fluency. The central role of effective phonics instruction is well summarised by Professor Catherine Snow (Harvard University) and Professor Connie Juel (Stanford University), who have asserted that:

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[46] Emmitt, M., Hornsby, D. & Wilson, L. 2006. *The Place of Phonics in Learning to Read and Write.* ALEA. https://www.alea.edu.au/documents/item/773/; Laquinta, A. (2006). *Guided reading: A research-based response to the challenges of early reading instruction.* Early Childhood Education Journal, 33(6), 413-418.
[47] Seidenberg, M. 2017.
[48] Konza, D. 2014. *"Teaching reading: Why the "Fab-Five should be the "Big Six".* Australian Journal of Teacher Education, 39(12), p.160.

"Explicit teaching of alphabetic decoding skills is helpful for all children, harmful for none, and crucial for some."[49]

Phonics skills are also relevant to the teaching and learning of spelling, as knowledge of phoneme-grapheme links enables beginning learners to form and test hypotheses about how to represent words in the written form in their own texts. Children's early attempts to write words, using so-called "invented spellings" can provide valuable insights into their phonemic awareness and knowledge of word boundaries, as noted by Snow et al:

"Beginning writing with invented spelling can be helpful for developing understanding of phoneme identity, phoneme segmentation, and sound-spelling relationships. Conventionally correct spelling should be developed through focused instruction and practice."[50]

This position is, of course consistent with the view that children should be taught sound-letter correspondences in a systematic, rather than *ad hoc* manner.

Sight words are thought to play an important role in early reading instruction, because there are several hundred frequently occurring words whose mastery accelerates independent reading. There are differences, however, in approaches taken to the teaching of sight words. In some, children are encouraged to learn by sight and by rote, a large collection of words that are not bound by any common factors beyond their frequency. In the context of SSP teaching, however, sound-letter correspondences, whether transparent or not, are explicitly pointed out to and discussed with children, so that they have an additional level of scaffolding in acquiring and consolidating these words early in their reading careers. In many SSP programs, only a small number of high frequency words are introduced in order to facilitate the reading of connected text.

3. Fluency – This refers to reading with speed, accuracy and expression. Evident when reading aloud, skilled readers are able to replicate the writer's meaning by linking words within a prosodic contour that flows smoothly and efficiently, with word boundaries being barely perceptible to listeners, rather than being halting and stilted. Konza (2014) has observed that

"Fluency has a transformational impact on the reading process: it is the point at which component skills are so automated and highly integrated that maximum cognitive energy is available to focus on meaning. Fluency is where learning to read transforms into reading to learn."[51]

The notion of transitioning from learning to read, to reading to learn is critical, as in most western education systems, this is a change of focus that occurs after the first three years of school, and at this point, children with poor foundational skills become 'exposed' and start to fall behind in other areas of the academic curriculum, and in some cases, comorbid behavioural difficulties surface as a consequence of these academic struggles[52]

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[49] Snow, C. E. & Juel, C. 2005. *Teaching children to read: What do we know about how to do it?* In M. J. Snowling & C. Hulme (eds). *The science of reading: A handbook.* Malden: Blackwell Publishing, 501-520.
[50] Ibid
[51] Konza, D. 2014.
[52] Snow, P. C. 2016.

4. Vocabulary – This refers to knowing the meaning of a wide variety of words and understanding the structure of written language (the latter being more precisely subsumed under the domain of syntax). There is good evidence that some children experience pre-school language exposure in the home that sets them up to succeed academically, while others enter school with relatively impoverished oral language skills, meaning that their receptive and expressive vocabularies are smaller than those of their more advantaged peers.[53] In a now famous US study conducted by Hart and Risley in the mid-1990s, it was found that by age 4, the children of professional parents had heard (that is, have had directly spoken to them) some 30 million more words than children of parents on welfare benefits.[54] In order to keep up with the fast-paced academic curriculum, children's vocabularies need to develop apace on school entry, meaning that classroom instruction actually needs to accelerate the vocabulary development of children who are starting from behind.[55]

5. Comprehension – The ultimate purpose of reading is comprehension – the reader's ability to understand the meaning and intent of the written text.[56] In the early stages of reading, meaning is explicit and simple, but as children progress through the primary years, and particularly at secondary level, they need to derive meaning through the formation of hypotheses and the drawing of inferences. This means that they need to understand written text at a wider discourse level, not simply as a collection of words and sentences. It is difficult for students with poor vocabularies and limited general knowledge to derive meaning from text, thus reinforcing the inter-dependence on these five essential elements in the transition to literacy and ongoing consolidation of strong reading skills.[57] As children become more skilled readers, they understand nuances around different discourse genres and also monitor their own comprehension, seeking clarification and/or support from a range of sources (e.g. a dictionary or web-based information resource) to promote their understanding of written material.

Morphemes are also important to the process of early reading, as they are the smallest units of meaning that exist below the word level – the affixes (prefixes and suffixes) that change the meaning of the base or root word. English spelling conventions and pronunciations are dependent on morphemes and morphemic awareness is highly correlated with reading and spelling accuracy.[58]

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[53] Department for Education and Training 2015. *Australian Early Development Census National Report*. Canberra: Commonwealth of Australia. https://www.aedc.gov.au/resources/detail/2015-aedc-national-report; McKean C., Mensah F. K., Eadie P., Bavin E. L., Bretherton L. & Cini E. 2015. *Levers for Language Growth: Characteristics and Predictors of Language Trajectories between 4 and 7 Years*. PLoS ONE 10(8).

[54] Hart, B. & Risley, T. R. 1995. *Meaningful differences in the everyday experience of young American children*. Paul H Brookes Publishing.

[55] Roy, P. & Chiat, S. 2013. *Teasing apart disadvantage from disorder. The case of poor language*. In C.R. Marshall (ed.) Current Issues in Developmental Disorders. London: Psychology Press, 125-150.

[56] Buckingham, J. 2016. *Focus on Phonics: Why Australia should adopt the Year 1 Phonics Screening Check*. Research Report 22, The Centre for Independent Studies.

[57] Oakhill, J., Cain, K. & Elbro, C. 2015. *Understanding and Teaching Reading Comprehension: A handbook*. Oxon: Routledge.

[58] Bowers, P. N., Kirby, J. R. & Deacon, S. H. 2010. *The effects of morphological instruction on literacy skills: A systematic review of the literature*. Review of Educational Research, 80(2), 144-179.

2.3 Phonics instruction in the classroom

The collective research and studies conducted over the past two decades have identified that the way that literacy is taught has the greatest impact on children's literacy performance. We know (through NAPLAN, PIRLS and TIMSS) that Australia's literacy and numeracy performance is declining and we know that evidenced-based teaching practices can address this.

Phonics instruction occupies a unique position among the so-called "five big ideas" discussed above, as it is the most highly researched in terms of both the volume of research over the past few decades and the consistency of the evidence in its support. However it is also the most contentious aspect of early literacy education.

Numerous reviews of scientific studies of reading have recommended that early reading instruction should have a well-developed systematic and explicit phonics component. The extent to which education academics, principals, and classroom teachers have adopted this message remains highly uneven however, reflecting the persistence of the "reading wars" and the failure of "Balanced Literacy" to incorporate SSP as a first-line approach.[59] Instead, a word that occurs in many published papers describing Balanced Literacy is "eclectic", which is at odds with the notion of systematic instruction.[60]

Research indicates that students who struggle to read are most likely to benefit from highly systematic and explicit phonics instruction. However, all children benefit from phonics instruction, whether it is for, learning to read or learning to spell, and it is therefore viewed as an essential part of all early years' literacy teaching programs.[61]

In 2005, the National Inquiry into the Teaching of Literacy Committee recommended that teachers provide systematic, direct and explicit phonics instruction so that children master the essential alphabetic code-breaking skills required for foundational reading proficiency.[62] The recommendations of this inquiry have not, however, been formally adopted by any Australian states or territories.

The United Kingdom's 2006 Independent Review into the Teaching of Early Reading points to a similar conclusion: that there is clear evidence that the teaching of systematic synthetic phonics is the most effective way of teaching young children to read, particularly those at risk of having problems with reading.[63]

Although its place in early reading instruction has reached some form of détente in academic, policy, and practice circles, phonics instruction retains a range of interpretations and debate continues as to whether its role in early reading instruction should be early, explicit, and systematic, or embedded, analytic, and/or incidental. These debates are consistent with ongoing tensions between so-called 'child-centred'

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[59] Ewing, R. & Maher, M. 2014. *Phonics: its place in the literacy story*. ALEA 'Hot Topic' October 2014. Australian Literacy Educators Association. https://www.alea.edu.au/documents/item/943; Buckingham, J., Wheldall, K. & Beaman-Wheldall, R. 2013. *Why Jaydon can't read: The triumph of ideology over evidence in teaching reading.* Policy: A Journal of Public Policy and Ideas, 29(3), 21-32.

[60] Bingham, G. E. & Hall-Kenyon, K. M. 2013. *Examining teachers' beliefs about and implementation of a balanced literacy framework*. Journal of Research in Reading, 36(1), 14-28.

[61] New South Wales Centre for Education Statistics and Evaluation. 2017. *Effective Reading Instruction in the Early Years of School*. Sydney: NSW Department of Education. https://www.cese.nsw.gov.au/images/stories/PDF/Effective_Reading_Instruction_AA.pdf

[62] Department of Education, Science and Training. 2005. *Teaching Reading. National Inquiry into the Teaching of Literacy*. Canberra: Commonwealth of Australia.

[63] Rose, J. 2006.

constructivist approaches to early education at one extreme, and so-called 'teacher-centred' explicit instruction approaches at the other.

For example, a widely-used text in initial teacher education (ITE) courses states that "Phonic knowledge is probably best learned through lots of reading and writing, and activities that grow from reading and writing".[64] This statement is wholly inconsistent with the scientific research evidence on effective reading instruction.

In reality, most ITE and classroom practice sits between the two extremes identified above, but at varying points on the continuum. Phonics can be said to be 'in the curriculum' in the broadest sense, but the way it is approached in individual classrooms is likely to be highly variable, and this in turn, is reflected in unevenness of student achievement, regardless of important factors such as socio-economic status.[65]

2.4 Stakeholders' views on literacy teaching in Australia

The Panel's consultation process found that stakeholders' views were mixed on the current teaching of literacy in Australia. The majority of stakeholders were supportive of the introduction of a Year 1 check, with many commenting specifically on the introduction of a phonics check (similar to the UK Phonics Screening Check). These stakeholders were generally in agreement that the teaching of phonics was an important aspect of learning to read that was either not being taught effectively in schools and/or should be an area with stronger focus in ITE and classroom practice.

One stakeholder commented that the introduction of a phonics check would start an important, national conversation about the teaching of phonics and its place in early learning. Overall, the online submissions revealed that the approach to the instruction of phonics remains inconsistent in literacy education.

Stakeholders who were not supportive of a Year 1 check generally argued that teachers already do similar checks in the classroom, and felt that an additional assessment would not be effective, would increase the test burden on teachers; and/or would not provide results that would support improvements in literacy and/or numeracy learning outcomes. The Panel addresses these concerns in later chapters of this report.

It should be noted, however, that a view was also expressed that teachers do not know how to adequately and appropriately use the data they already collect about children's early reading progress, and they will not be equipped to adequately use the data from a Phonics Check either. There was also concern that the introduction of a Phonics Check would have a distorting effect on teacher practices, resulting in them emphasising phonics instruction at the expense of other aspects of oral language and early reading mastery.

The Panel shares these concerns about teachers' ability to use data effectively and a potential deleterious over-emphasis on phonics instruction. The implementation of new literacy and numeracy checks should be accompanied by clear training and guidance for teachers on how to interpret the results and appropriate classroom responses.

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[64] Emmitt, M., Zbaracki, M., Komesaroff, L. & Pollock, J. 2015. *Language and Learning: An Introduction for Teaching* (6th edition). South Melbourne: Oxford University Press.
[65] Snow, P.C. 2016.

The Panel considers that where teachers are currently using effective phonics instruction in the classroom, the Year 1 check would be a simple, quick and effective tool to monitor children's progress in phonics instruction. Where the check indicates students may not be achieving the national benchmarks, it may be an indication that phonics is not being taught as effectively as it could be, and it could be used to support school-based reviews of effective literacy teaching.

The Panel considers that there is reason to believe that many of the most effective phonics instruction methods are not being used routinely in the classroom by teachers. Many objections to the teaching of phonics come from a lack of understanding about the most effective methods, or a lack of certainty or confidence in the teaching of phonics in the classroom.

Some stakeholders indicated their preference for the check to be broader than phonics, and be expanded to consider the other essential components of literacy. The Panel is of the view that phonics is a critical component of learning to read and an indicator of future literacy achievement. The Panel has taken this into consideration in their recommendations, noting that the content of the check will impact on its length.

2.5 Content of the literacy check: phonics

After consideration and discussion of the merits of conducting a broad-based multi-component literacy assessment, taking into account research evidence and stakeholder consultation, the Panel agreed that the Year 1 literacy check should focus on the assessment of phonics, that is, it should be a 'phonics check'. This conclusion was resolved for a number of reasons.

1. *Effectiveness:* Decoding ability (using knowledge of phonics) in the early years of school is a strong predictor of later reading comprehension. All children can learn to decode with evidence-based phonics instruction and therefore ensuring all children acquire this knowledge in the early years will reduce the number of children who struggle with reading in the later years of school.

2. *Efficiency:* Phonics knowledge can be assessed relatively quickly and accurately with a high level of discrimination. While oral vocabulary is an early co-predictor of later reading proficiency, it is more difficult to assess in a short, 'light touch' assessment and is more influenced by family circumstances, including language background. For young children, the length of the assessment is an important consideration. A broad-based multi-component check provides a wider range of information but this is traded-off against the level of detail obtained when time is a constraint.

3. *Avoiding duplication*: A scan of early years assessments used in the state and territory government school sectors found that the phonics component of these assessments was relatively weak and highly variable. It was the opinion of the Panel that these existing assessments do not provide sufficient information about students' phonics knowledge to inform teaching practices or policy. Schools in the Catholic and independent sectors use a large variety of assessments, many of which do not have a strong phonics component.

Findings

- *There is strong evidence from multiple research disciplines that most children require explicit and purposeful teaching of the written code of the English language (phonics) in order to learn to read, alongside the development of a robust and rich oral language capacity.*

- *Phonics is an essential component of early literacy instruction and a student's ability to accurately decode words using phonic knowledge is a strong predictor of their reading achievement.*

- *Phonics and the teaching of phonics is still a contentious area in literacy education despite the large volume of evidence in support of explicit and systematic instruction.*

- *Phonics instruction in the classroom is inconsistent and where phonics instruction is occurring, it may not be delivered effectively.*

- *Most stakeholders were supportive of a Year 1 check for literacy, with some in favour of a phonics check and others in favour of a broader literacy assessment.*

Recommendations

1.1. In prioritising the core literacy skills to be assessed under the Year 1 checks, the Panel recommends that the Year 1 literacy check should focus on the assessment of phonics knowledge, rather than implementing a broader multi-component literacy assessment to ensure that the check is effective, efficient, and avoids duplication.

3. Numeracy

3.1 How children become numerate

Some quantification capabilities are evident in infancy but numeracy proper develops with the acquisition of language. There is some agreement that there is a progression from "numberness" through "number sense" to numeracy. These terms are defined in the following section. The development of the visual-spatial capability required in mathematics – the internalisation of shape, orientation and location - is somewhat separate from numeracy but indispensable nonetheless.

Around the age of three many children have rote learned counting from one to ten and the perception of relative size, both discrete and continuous, is present to a limited extent. The child's verbalisation of a comparison strategy appears to be an important driver of development.

The abstract concept of number and concepts of ordering and absolute countable size (ordinality and cardinality) are normally establishing by the time that formal schooling begins although this development is both highly malleable and unreliable. The cognitive developments required for the internalisation of shape, orientation and location are particularly volatile well into early primary years.

These "number sense" skills are the basis of numeracy – the ability to execute the arithmetic operations on whole numbers which appears around the age of six and is progressively learned through primary school.

3.2 Essential components of early numeracy development and 'number sense'

Numberness or *number concept* is simply exemplified by the abstract attributes of oneness, twoness, and so on. The ability to recognise the number of objects in a group (up to five) without counting is known as *perceptual subitising* and is an important part of the development of numberness. Acquiring fluency with numberness is necessary in order to acquire arithmetic competency.

Number sense is a cluster of core numerical competencies, including the ability to additively decompose and recompose whole numbers, make size comparisons, and understand and use the number concept in real world applications, for example in sharing objects amongst a group of children. Verbalisation of these processes is part of number sense. It is the foundation upon which numeracy is built.[66]

Numeracy is the ability to execute standard whole-number operations/ algorithms correctly, consistently and fluently with understanding and estimate, calculate accurately and efficiently, both mentally and on paper using a range of calculation strategies and means. Numeracy is the gateway to higher mathematics, beginning with the study of algebra and geometry.[67]

Visual-spatial domain. This capability is responsible not only for visualising and analysing geometric objects, and interpreting graphs and tables, but at a more fundamental level in reading large numbers and mathematical symbols and processing the spatial orderings necessary in arithmetic algorithms. There is some overlap here with *conceptual subitising* which is the ability to manage perceptually subitised entities to create larger ones, for example, recognising the total rolled on two dice without counting.

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[66] Aunio, P. et. al. 2006.; Sharma, M.C. 2015. *A window into dyscalculia and other mathematics difficulties* in The Routledge International Handbook of Dyscalculia and Mathematical Learning Difficulties*,* ed. Steve Chinn, pp. 277-291.
[67] Sharma, M. C. 2015.

Research has found that core numerical competencies (number sense) are related to the attainment of numerical/arithmetical skills (numeracy) rather than general cognitive abilities.[68] This highlights the importance of effective numeracy instruction in the early years, and ensuring we provide young children with the best opportunity to learn vital numerical skills in the early years window.

In young children, research indicates that there are critical stages at which numerical learning occurs. At the age of four, children begin to have an understanding of concepts such as 'more' and 'less' and counting systems. At the age of six, the 'mental number line scheme' begins to emerge, which allows children to have knowledge of written numbers, words and values.[69] Number sense development is a combination of these specific numerical skills built on general numerical knowledge, and whilst studies show that children do progress general number abilities with age, specific numerical skills are a combination of environment, social and cultural factors.[70] The importance of effective numeracy teaching, therefore, is crucial in the first and second formal years of schooling.

The importance of visual-spatial development is discussed by Karagiannakis and Cooreman:

"*A deficit in the Visual-Spatial domain is not always identified pre-emptively. Students with a visual-spatial deficit do not always show early or obvious maths difficulties. The teacher should be particularly aware of the visual component when analysing wrong answers. Reading and manipulating large numbers is often visually challenging. Students should be supported in structuring the visual information.*" [71]

At Year 1 (6 years old), consultations with experts considered that variable cognitive development may make the visual-spatial domain difficult to assess, for example, shape and measurement. However, straightforward position and location questions (for example, routes between places on a map) should be used to assess visual-spatial capacity along with number sense.

Expert stakeholders were divided on the need to test conceptual subitising, which is a component in the Foundation Year Australian Curriculum, but not in the Year 1 curriculum. In part this is because this capability is not regarded as a reliable predictor of future mathematics proficiency.[72] As a result the Panel have decided to recommend measures of visual-spatial ability alone but in a way which should also uncover weakness in visual navigation of groups of numbers. In particular, the test should include an item of the type:

(a) "Point to third number in the second row",

(b) "Please say it out loud",

   (and which should be preceded by an item on ordinality).

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[68] Butterworth, B., Humberstone, J., Reynolds, F. & Reeves, R. 2012. *Stability and Change in Markers of Core numerical Competencies.* Journal of Experimental Psychology: General, 141(14), 649-66.

[69] Aunio, P et. al. 2006.

[70] Dehaene, S. 2011. *The Number Sense*: *How the Mind Create Mathematics* (2nd ed). New York: Oxford University Press.

[71] Karagiannakis, G. N. & Cooreman, A. *Focused MLD intervention based on the classification of MLD subtypes.* In S. Chinn (ed.) The Routledge International Handbook of Dyscalculia and Mathematical Learning Difficulties, 265-276.

[72] Lembke, E. & Foegen, A. 2009. *Identifying early numeracy indicators for kindergarten and first-grade students*. Learning Disabilities Research & Practice, 24(1), 12-20.

3.3 Numeracy instruction in the classroom

It is implicit in the widespread national use of checking instruments in early numeracy that there is a need to identify children at risk. Indeed, the increasing tail of underachievement in Australian schools in the TIMSS[73] tests indicate that the number of children at risk is also increasing.

In addition, there has been widespread concern about the levels of mathematics pedagogy expertise in Australian primary schools and the Education Council and the jurisdictions have taken a number of measures to address this.

Just over 20 per cent of Australian adults attain Level 1 or below in numeracy (above the OECD average of 19 per cent). Adults at level 1 can perform basic mathematical processes in common, concrete context, for example, one-step or simple processes involving counting, sorting, basic arithmetic operations and understanding simple percentages.[74] This puts a crude but significant upper bound on the number of children at risk in our primary schools.

The 2015 TIMSS results show that Australian Year 4 students scored significantly higher than the overall Australian mathematics score in *data display* and *geometric shapes and measures* (the three content domains along with *number*), but were weaker in *number*. Australian Year 4 students scored significantly higher than the overall mathematics score in *applying* and *reasoning* (the three cognitive domains along with *knowing*), but were weaker in *knowing*.[75] The TIMSS results also show that Australian girls at Year 4 perform less well than boys in the number domain but not in the other two content domains. International relative performance in the number domain shows that Sweden and Germany, with overall scores similar to ours, also have relatively poorer performance in the number domain but this is not generally the case in higher performing countries such as Singapore, Hong Kong, Northern Ireland and USA and in many cases in this group the situation is reversed. The Panel concludes that a focus on the Number and Algebra sub-strands of the Australian Curriculum will be effective in understanding our domestic and international position.

Consultation with expert stakeholders indicates that the check, to be delivered in Term 3, should assume that the Australian Curriculum content for Foundation and Year 1 mathematics has been taught to that point, and that when students undertake the check they will have been taught the necessary skills and have the understanding to complete the check. The check will reveal if they have been taught these critical skills in the early years, and identify those students who may not have been taught these skills effectively or have not been able to translate their learning into action. The check should also be designed to allow teachers to identify their students' misconceptions, and not just gaps, and remediate them before they become entrenched.

Stakeholders also argued that the disposition and attitude towards numeracy is also critical, for both the teacher and the student. Experts therefore consider that disposition towards mathematics is a risk indicator and this should be assessed either as a test item or by the teacher. The Panel supports this view but refrains from suggesting how this might be implemented except to say it will require consultation with experts outside of the mathematics pedagogy domain.

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[73] Thomson, S., Wernert, N., O'Grady, E. & Rodrigues, S. 2017. *TIMSS 2015 Reporting Australia's Results*. Camberwell: ACER.
[74] OECD. 2013. *OECD Skills Outlook 2013: First results from the survey of adult skills*, OECD Publishing.
http://www.oecd.org/skills/piaac/Skills%20volume%201%20(eng)--full%20v12--eBook%20(04%2011%202013).pdf
[75] Thomson, S. et al. 2017.

3.4 Content of numeracy check: number sense and position/location

Taking into account research evidence and stakeholder consultation, the Panel agreed that the Year 1 numeracy check is both necessary and viable and should focus on the assessment of numeracy as it is identified in the Year 1 Australian Curriculum under the sub-strand Number and Algebra. Nonetheless we have agreed that Position/Location (part of the sub-strand Measurement and Geometry) should form a part of the check because the visual spatial domain is fundamental to mathematics proficiency and interacts with the later acquisition of numeracy. Disposition towards mathematics is seen by experts as influential and we recommend that it be included in the check although the design of this measure is most likely outside the expertise of the mathematics pedagogy community.

Quality: There is significant variability in the quality of the various early year numeracy checks in place in Australia. A national Year 1 numeracy check will raise the standard and provide a benchmark for some of the more detailed programs currently available.

*Effectiveness***:** A simple, app-based numeracy check delivered with a follow-up after 3-4 months will be more effective in many jurisdictions than the current, more complex regimes which are not universally implemented or incorporate a follow-up. Teachers will have a sophisticated diagnostic tool which they can use to identify and remediate student content and cognitive gaps, misconceptions, and disposition issues.

*National benefit***:** A Year 1 numeracy check will provide Australian governments with high quality, national data which, along with NAPLAN, PISA and TIMSS studies, will allow them to plan and resource some of the interventions, both in schools and at home, required to turn around Australia's declining performance in numeracy.

Findings

- *Between 10 and 20 per cent of Australian primary school children have significant numeracy problems in adulthood.*

- *Consultation with experts indicated that a Year 1 numeracy check is both viable and desirable.*

- *The establishment of number sense in the early years of schooling is essential to a child's acquisition of numeracy in later primary years.*

- *The identification of children at risk in mathematics is currently a widely understood imperative in Australia's educational jurisdictions.*

- *There are a number of well understood core competencies which can and should be checked in Year 1. Attention should be paid to misconceptions as well as content and cognitive gaps.*

- *The impact of visual-spatial inadequacy extends to number sense and numeracy.*

- *Disposition towards mathematics can inhibit or contribute to the development of mathematics proficiency.*

- *Australia's TIMSS performance indicates a significant weakness in content and cognitive aspects of number compared to other aspects of mathematics.*

Recommendations

2.1. In prioritising the core numeracy skills to be assessed under the Year 1 checks, the Panel recommends that the numeracy check should principally assess 'number sense' and also position/location, and should be related to 'Number and Algebra' and 'Measurement and Geometry' in the Australian Curriculum (Foundation and Year 1).

2.2. Student disposition towards mathematics should be registered by the check or in conjunction with it.

4. Literacy and numeracy assessment

4.1 Delivery of early assessments in Australian schools

Children commence school with a range of different skills and learning capacities. Most schools across Australia undertake assessments on entry to formal schooling (Foundation year). On-entry assessments provide teachers with an opportunity to gauge the skills and learning capacity of children as they begin their first year of formal schooling, and are an important tool for teacher planning.

Many schools also conduct a follow-up assessment at the end of Foundation year, often for the purposes of identifying students for participation in intervention programs in Year 1. While a number of systems also make assessments available for Years 1 and 2, they are not mandatory.

Early years assessments are not compulsory across all schools, and there is no national consistency as to which assessments are used, when they are used, or how they are used. State and territory education departments are responsible for the availability and use of early years assessments in government schools, however they are not all mandated for use in all schools. In the Catholic system, it is generally up to the regional dioceses to determine which assessments are used, and in the independent school sector the decisions are generally left to the school.

Feedback from consultation with states and territory education departments, the non-government sector and from submissions indicates the range of early years assessments crosses all year levels, from Foundation to Year 2. Assessment and programs used in schools will often start in Foundation, and extend up until the end of Year 2. For example, some schools will use an early years assessment such as PIPS in both Foundation and Year 1, whereas other schools will use different assessments for each year of schooling.

Across the schooling sectors there is also a difference in the way assessments are applied across the school years. In the independent sector, some states and territories, such as New South Wales, have developed their own early literacy and numeracy screening tools, which are used in conjunction with a range of other assessments and programs such as PIPS and PAT. It is important to recognise that there is a different approach to early years assessment across Australia, and often assessments and programs will span across multiple year levels.

The Panel contacted state and territory education departments, and the Catholic and independent sectors to request information about assessments currently used in schools. A summary of the most prevalent early years assessments is presented in Table 1 below. It should be noted that the list provided in this report is not an exhaustive list of all early years assessments available or used in Australian school sectors. Further information on government school early years assessments is provided in Tables 4 and 6.

There is a range of early assessments and on-entry assessments used by jurisdictions and school sectors. However there is no consistency across jurisdictions on the type of assessments, year levels or core skills assessed.

Table 1. Early years assessments commonly used in Australian schools

Jurisdiction	Age and Year Assessed	Assessment
ACT Government Schools	5 years old Kindergarten (Foundation)	Performance Indicators in Primary Schools (Early numeracy and literacy)
TAS Government Schools	5 years old Preparatory (Foundation)	Performance Indicators in Primary Schools (Early numeracy and literacy)
TAS Catholic Schools	5 years old Preparatory (Foundation)	Performance Indicators in Primary Schools (Early numeracy and literacy) PAT Vocab, Spelling, Comprehension, PAT Mathematics
TAS Independent Schools	5 years old Preparatory (Foundation)	Letters and Sounds (synthetic phonics) I Can Do Maths 1 and 2, PAT Maths (numeracy)
VIC Government Schools	5 years old Preparatory (Foundation)	English Online Interview and Mathematics Online Interview (Literacy and Numeracy)
VIC Catholic Schools	5 years old Preparatory (Foundation)	A range of literacy and numeracy assessments are used.
WA Government Schools	5 years old Pre – Primary (Foundation)	On-Entry Literacy and Numeracy Assessment Program (Literacy and Numeracy)
WA Catholic Schools	5 years old Pre – Primary (Foundation)	On-Entry Literacy and Numeracy Assessment Program (Literacy and Numeracy)
WA Independent Schools	5 years old Pre – Primary (Foundation)	On-Entry Literacy and Numeracy Assessment Program (Literacy and Numeracy) as well as a range of literacy and numeracy assessments.
NSW Government Schools	5 years old Kindergarten (Foundation)	Best Start Kindergarten Assessment
NSW Catholic Schools	5 years old Kindergarten (Foundation)	Best Start Kindergarten Assessment Mathematics Assessment Interview
NSW Independent Schools	Foundation – Year 2	A range of literacy and numeracy assessments are used
NT Government Schools	5 years old Transition (Foundation)	Assessment of Student Competencies (Literacy and Numeracy components) Foundations of Early Literacy Achievement NT (phonological awareness, phonemic awareness, phonics)
QLD Government Schools	5 years old Preparatory (Foundation)	Early Start (Literacy and Numeracy)
QLD Catholic Schools	5 years old Preparatory (Foundation) to Year 2	A range of literacy and numeracy assessments are used
QLD Independent Schools	Foundation – Year 2	A range of literacy and numeracy assessments are used
SA Government Schools	6 years old Year 1 and 2 not	Running Records (Literacy)

Jurisdiction	Age and Year Assessed	Assessment
	Reception (Foundation)	
SA Catholic Schools	4 and a half to 6 years old	Early Years Numeracy Observation Assessment
SA Independent Schools	Foundation – Year 2	A range of literacy and numeracy assessments are used

4.2 Current international early years literacy and numeracy assessments

Internationally, there are few countries that conduct nationally consistent mandated assessments of literacy and/or numeracy, either during Year 1 or on entry to school. England and Wales have conducted national literacy and numeracy assessments since 2013. Scotland has recently introduced a literacy and numeracy assessment, which is to commence in August 2017.

Countries that typically perform well in international sample assessments[76] such as Japan, China and Singapore, do not appear to have nationally consistent assessments until children are either in the Australian equivalent of Year 3 or they conduct formal exams at the end of primary school.

However, most countries' education systems appear to use a range of assessment tools in the early years as part of routine classroom practice. Internationally there are a large number of literacy and numeracy assessments for children on entry to formal schooling or after one year of schooling. A number of these are outlined below in Table 2.

Table 2. Early years assessments commonly used internationally

Country	Assessment and Description
England	UK Phonics Screening Check[77]
Wales	The National Literacy and Numeracy Tests[78]
New Zealand[79]	NumPA (Numeracy Project Assessment Diagnostic Interview) Junior Assessment of Mathematics (JAM) Observation Survey of Early Literacy Achievement (Six Year Net)
United States of America	STAR Assessments[80] Utrecht Early Numeracy Test (ENT)[81] Test of Early Mathematical Ability, 3rd edition (TEMA-3)[82]

Following a review of the key international assessment in the early years, it is the Panel's view that the UK Phonics Screening Check provides a sound basis from which to inform the development of a national Year 1

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[76] International sample assessments include PISA, TIMSS and PIRLS.

[77] UK Department for Education. 2016a. *2016 Key Stage 1: assessment and reporting arrangements (ARA).* https://www.gov.uk/guidance/2016-key-stage-1-assessment-and-reporting-arrangements-ara/section-7-phonics-screening-check

[78] Welsh Government. *2016. National Reading and Numeracy Tests*. http://learning.gov.wales/resources/collections/national-reading-and-numeracy-tests?lang=en

[79] Ministry of Education. *Assessment Online: Observation survey of early literacy achievement (aka Six year net)*. http://assessment.tki.org.nz/Assessment-tools-resources/Commonly-used-assessments/Observation-survey

[80] Renaissance. *Star Math*. http://www.renaissance.com/products/assessment/star-360/star-math-skills/

[81] Aunio, P. et. al. 2006.

[82] Ginsburg, H. & Baroody, A. *Test of Early Mathematics Ability, 3rd Ed. (TEMA-3)*. http://www4.parinc.com/Products/Product.aspx?ProductID=TEMA-3

check of phonics for Australian schools. The Phonics Screening Check was introduced in primary schools in England in 2012 to check Year 1 students' (generally around age 5) understanding of grapheme-phoneme correspondences through the reading of phonetically decodable words and pseudo-words.[83] This check is a statutory requirement, which is administered towards the end of the school year for all pupils in Year 1. Students who do not reach the expected standard in Year 1 retake the Check in Year 2.[84]

The Phonics Screening Check takes approximately 5-7 minutes to administer per student, and it is done by the classroom teacher. Results are reported at the national level, individual student results are not published, and school level results are published only in Ofsted reports.[85]

Each year since the Phonics Screening Check was introduced, performance has improved, with 81 per cent of students achieving the expected standard and 18 per cent of students achieving the maximum score in 2016.

Figure 1. Percentage of students achieving the expected standard on the Phonics Screening Check in English schools, 2012-2016[86]

	Year 1	Year 2	Improvement from Year 1 to Year 2 (Percentage points)
2016	**81%**	**91%**	**14**
2015	77%	90%	16
2014	74%	89%	20
2013	69%	85%	27
2012	58%	Not applicable	

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[83] UK Department for Education. 2016b. *Phonics screening check: 2016 materials*.
https://www.gov.uk/government/publications/phonics-screening-check-2016-materials
[84] UK Department for Education. 2017. *Phonics screening check: administration guidance*.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/527765/CAG_2016.pdf
[85] Walker, M., Sainsbury, M., Worth, J., Bamforth, H. & Betts, H. 2015. *Phonics screening check evaluation: Final report*. Department for Education: National Foundation for Educational Research.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/434821/RR418A_Phonics_screening_check_evaluation.pdf
[86] UK Department for Education. 2016a.

Table 3. Percentage of Year 1 students achieving high scores on the Phonics Screening Check in English schools, 2012-2016[87]

Year	Score of 38-40	Score of 40 (max. score)
2016	43	18
2015	38	16
2014	38	15
2013	20	11
2012	22	9

Following the introduction of the Phonics Screening Check there has also been a decrease in the proportion of children not achieving the expected level of reading proficiency in the Key Stage tests in Year 2, which are a broader literacy measure— from 15 per cent in 2011 to 10 per cent in 2015. There was a similar decrease in the Key Stage attainment gap associated with low income.[88] New, more difficult, Key Stage tests were introduced in 2016, so a trend in performance in those tests is not yet evident.

In 2015, the UK Department for Education undertook an evaluation of the Phonics Screening Check to explore whether the introduction of the check had an impact on the standard of reading and writing in UK schools using data from the 2012 to 2014 checks. The review found that a majority of schools made some changes to sharpen their phonics teaching and/or to improve phonics assessment more broadly, stating that "the national results show an improvement in performance in phonics, as measured by the Check, which would be consistent with adjustments to teaching methods reported."[89]

After a review of early years assessments internationally, the Panel did not identify any best practice early years assessments in numeracy that could be readily replicated in Australia.

Expert stakeholders commented that many countries look to Australia as a leader in the development of early years numeracy assessments. For example, Germany is currently using the Victorian Mathematics Online Interview.

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[87] Ibid.
[88] UK Department for Education. 2016c.
[89] Walker, M. et. al. 2015.

Findings

From the review of international early years assessments, the Panel found:

- *The UK Phonics Screening Check is a good model of a phonics assessment that could be readily adapted for use in Australia.*

- *There is no identified international, best practice early years assessment in numeracy that could be used in Australia.*

By consulting with jurisdictional schooling sectors, the Panel found that:

- *All jurisdictions, apart from South Australia, have an on-entry assessment for students in their first year of formal school in government schools (Foundation/Kindergarten/Transition/Reception).*

- *In South Australia, a reading comprehension assessment is undertaken in Years 1 and 2 in government schools (Running Records).*

- *In jurisdictions that have on-entry and systemic early years assessments, government sector participation is generally mandatory in the Foundation year and optional in subsequent years (Year 1 and Year 2). In the non-government sector in Australia, on entry assessments are not consistently undertaken, but where they are undertaken, there is generally optional access to the government-mandated tool.*

4.3 Criteria for high quality phonics assessment

Scientific research on early reading instruction provides robust and consistent evidence that the ability to decode words using knowledge of phonics in the early years of school is a strong predictor of reading progress. There is also evidence that early decoding ability can be assessed accurately using word reading and pseudoword reading tasks.[90]

To determine whether the essential components of literacy and numeracy were being adequately assessed in Australian schools, the Panel undertook a comparative analysis of some of the most commonly used early years literacy and/or numeracy assessments. In the absence of agreed standard criteria for assessing the effectiveness of early years literacy and numeracy assessments, the Panel developed its own working criteria, based on the literature concerning effective early years instruction. These were then used to map the extent to which the core skills in phonics and number sense and position/location were being adequately and effectively checked in schools and education systems across the states and territories.

The Panel conducted an analysis of the Australian Curriculum and the draft National Literacy Learning Progressions[91] (Literacy Progressions) to determine the extent to which phonics is covered as a component of literacy. The Literacy Learning Progressions (provided by ACARA to the Panel for the purposes of

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[90] Garcia, J. R. & Cain, K. 2014.; Castles, A., Coltheart, M., Larsen, L., Jones, P., Saunders, S. & McArthur, G. 2009. *Assessing the basic components of reading: a revision of the Castles and Coltheart test with new norms*. Australian Journal of Learning Difficulties, 14:1, 67-88.

[91] ACARA. 2017. *National Literacy Learning Progression (Version 1 – Not publically available)*. Provided to the Panel in-confidence.

informing this Report) are an evidence-based map to better support teachers to locate a student's current literacy knowledge and determine what learning should follow. The Panel's analysis of the Australian Curriculum is at appendix A3.

Phonics is a key component in the Australian Curriculum, and all aspects of the criteria for phonics are present in the draft Literacy Progressions. Of note is the importance of knowledge of grapheme representation for all phonemes in the Literacy Progressions across levels a to c.

When compared, however, to the state and territory government early years assessments in literacy, the assessment of phonics does not appear to align with the Australian Curriculum and the draft Literacy Progressions in most cases. Whilst some (such as Queensland's Early Start) touch on grapheme representation for some phonemes in the assessment, none of the assessments appear to assess all phoneme-grapheme relationships (at least one representation for the 44 sounds on English) and few assess all phoneme combinations (particularly CVCC, CCVC and CCVCC) (see Table 4).

This is a fundamental critique of current Australian early years assessments as they do not adequately assess the components of phonics that are clearly outlined in the Australian Curriculum, and the draft Literacy Progressions. Without this knowledge, many children will not be able to make progress through the key aspects of literacy development needed for success at school. The Panel considers that phonics is a key component of the Australian Curriculum and Literacy Progressions, and therefore should also be a key component of all literacy early years assessments.

Phonics in State/Territory Early Years Assessments

Whilst the Panel did not undertake a full comparative analysis of all the early years assessments identified through consultation and submissions (see Table 1 for a list of early years literacy and numeracy assessments used in Australia), it did look at the early years assessments currently prescribed by state and territory governments.

From the analysis of the literacy assessments currently used across jurisdictions, there appears to be a relatively good level of assessment for phonemic awareness. Of particular note is the Foundations of Early Literacy Assessment Northern Territory (FELA-NT) assessment, which appears to provide a good assessment tool for teachers to determine the level of understanding of phonemic awareness and basic phonic knowledge of their students.

However, the literacy assessments as a rule do not adequately assess children's understanding of phonics, with some assessments testing phonological awareness rather than phonics, even though the sections are labelled as 'phonics' (for example, Performance Indicators in Primary Schools (PIPS)). In addition, where assessments do assess some phonics, it occurs to varying degrees. For example, although the Queensland Early Start assessment does include a 10 item 'phonics' component, of these items only four are word reading and the progression of difficulty limits its usefulness as an assessment tool for the teacher. These ambiguities have conceivably led to some of the claims that phonics is already being assessed in state-developed assessments.[92]

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[92] Hiatt, B. 2017. *Phonics test opposed by Australian school principals*. The West Australian, Monday 10 April 2017. https://thewest.com.au/news/wa/phonics-test-no-use-principals-ng-b88439552z

South Australia's Running Records assessment has no phonemic awareness or phonics components. This has been acknowledged as a deficit in assessment in that state; early in 2017, the South Australian government announced a plan to trial a phonics check based on the UK Phonics Screening Check.[93]

Tables 4A to 4G below outline the comparison between state and territory early years assessments from the government sector, and a review of the phonics components in each assessment.

The Panel considers that there is currently a large gap in the assessment of phonics in early years assessments, and that a national phonics check would not duplicate but rather complement any existing literacy assessments.

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[93] South Australian Government. 2017. The Hon Susan Close MP, South Australian Minister for Education and Child Development. *Sound move – phonics test trial aims to improve reading in SA schools.* News release: 4 February 2017. http://www.premier.sa.gov.au/index.php/susan-close-news-releases/1748-sound-move-phonics-test-trial-aims-to-improve-reading-in-sa-schools

Comparison of state and territory early years assessment in government schools – literacy (phonics) components

Table 4A. Assessment: Performance Indicators in Primary Schools (i). Jurisdictions: ACT, TAS. Year and Point of Assessment: Foundation or Year 1, March and October, mandatory in TAS.

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
The initial code Assesses knowledge of single phoneme-grapheme relationship	Partially Present
Assesses knowledge of diagraphs	Absent
Assesses knowledge of trigraphs	Absent
Assesses knowledge of grapheme representation for all phonemes	Absent
Assesses capacity to read simple CV and CVC words with items then increasing in complexity to include VCC, CVCC, CCVC and CCVCC words:	Partially Present
- CV	Absent
- CVC	Absent
- VCC	Absent
- CVCC	Absent
- CCVC	Absent
- CCVCC	Absent
The extended code Assesses knowledge of alternate spelling patterns	Absent
Adjacent consonants Assesses knowledge of adjacent consonants	Partially Present
Reading pseudowords Assesses capacity to read nonsense words in order to demonstrate identification and blending (from left to right) of all letter-sound relationships in a word	Absent
Assesses automaticity of nonsense word reading	Absent

Table 4B. Assessment: English Online Interview. Jurisdiction: VIC. Year and Point of Assessment: Start of Foundation (mandatory), Year 1 and Year 2 (optional)

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
The initial code Assesses knowledge of single phoneme-grapheme relationship	Present
Assesses knowledge of diagraphs	Absent
Assesses knowledge of trigraphs	Absent
Assesses knowledge of grapheme representation for all phonemes	Absent
Assesses capacity to read simple CV and CVC words with items then increasing in complexity to include VCC, CVCC, CCVC and CCVCC words:	Absent
- CV	Absent
- CVC	Partially Present
- VCC	Absent
- CVCC	Partially Present
- CCVC	Partially Present
- CCVCC	Absent
The extended code Assesses knowledge of alternate spelling patterns	Absent
Adjacent consonants Assesses knowledge of adjacent consonants	Partially Present
Reading pseudowords Assesses capacity to read nonsense words in order to demonstrate identification and blending (from left to right) of all letter-sound relationships in a word	Absent
Assesses automaticity of nonsense word reading	Absent

Table 4C. Assessment: Early Literacy in English Tool (ii). Jurisdiction: VIC. Year and Point of Assessment: Foundation (mandatory)

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
The initial code Assesses knowledge of single phoneme-grapheme relationship	Partially Present
Assesses knowledge of diagraphs	Absent
Assesses knowledge of trigraphs	Absent
Assesses knowledge of grapheme representation for all phonemes	Absent
Assesses capacity to read simple CV and CVC words with items then increasing in complexity to include VCC, CVCC, CCVC and CCVCC words:	Absent
- CV	Absent
- CVC	Absent
- VCC	Absent
- CVCC	Absent
- CCVC	Absent
- CCVCC	Absent
The extended code Assesses knowledge of alternate spelling patterns	Absent
Adjacent consonants Assesses knowledge of adjacent consonants	Partially Present
Reading pseudowords Assesses capacity to read nonsense words in order to demonstrate identification and blending (from left to right) of all letter-sound relationships in a word	Absent
Assesses automaticity of nonsense word reading	Absent

Table 4D. Assessment: Early Start (iii). Jurisdiction: QLD. Year and Point of Assessment: End of Foundation and Year 1, Year 2 as needed (optional)

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
The initial code Assesses knowledge of single phoneme-grapheme relationship	Absent
Assesses knowledge of diagraphs	Partially Present
Assesses knowledge of trigraphs	Absent
Assesses knowledge of grapheme representation for all phonemes	Absent
Assesses capacity to read simple CV and CVC words with items then increasing in complexity to include VCC, CVCC, CCVC and CCVCC words:	Absent
- CV	Absent
- CVC	Partially Present
- VCC	Absent
- CVCC	Absent
- CCVC	Absent
- CCVCC	Absent
The extended code Assesses knowledge of alternate spelling patterns	Absent
Adjacent consonants Assesses knowledge of adjacent consonants	Partially Present
Reading pseudowords Assesses capacity to read nonsense words in order to demonstrate identification and blending (from left to right) of all letter-sound relationships in a word	Absent
Assesses automaticity of nonsense word reading	Absent

Table 4E. Assessment: Running Records (iv). Jurisdiction: SA. Year and Point of Assessment: Year 1 and/or Year 2 (mandatory)

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
The initial code Assesses knowledge of single phoneme-grapheme relationship	Absent
Assesses knowledge of diagraphs	Absent
Assesses knowledge of trigraphs	Absent
Assesses knowledge of grapheme representation for all phonemes	Absent
Assesses capacity to read simple CV and CVC words with items then increasing in complexity to include VCC, CVCC, CCVC and CCVCC words:	Absent
- CV	Absent
- CVC	Absent
- VCC	Absent
- CVCC	Absent
- CCVC	Absent
- CCVCC	Absent
The extended code Assesses knowledge of alternate spelling patterns	Absent
Adjacent consonants Assesses knowledge of adjacent consonants	Absent
Reading pseudowords Assesses capacity to read nonsense words in order to demonstrate identification and blending (from left to right) of all letter-sound relationships in a word	Absent
Assesses automaticity of nonsense word reading	Absent

Table 4F. Assessment: FELA (v). Jurisdiction: NT. Year and Point of Assessment: Each term from Foundation to Year 1 until sufficiently mastered

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
The initial code Assesses knowledge of single phoneme-grapheme relationship	Partially Present
Assesses knowledge of diagraphs	Partially Present
Assesses knowledge of trigraphs	Absent
Assesses knowledge of grapheme representation for all phonemes	Absent
Assesses capacity to read simple CV and CVC words with items then increasing in complexity to include VCC, CVCC, CCVC and CCVCC words:	Present
- CV	Absent
- CVC	Present
- VCC	Absent
- CVCC	Absent
- CCVC	Present
- CCVCC	Present
The extended code Assesses knowledge of alternate spelling patterns	Absent
Adjacent consonants Assesses knowledge of adjacent consonants	Present
Reading pseudowords Assesses capacity to read nonsense words in order to demonstrate identification and blending (from left to right) of all letter-sound relationships in a word	Present
Assesses automaticity of nonsense word reading	Present

Table 4G. Assessment: On Entry Assessment (vi). Jurisdiction: WA. Year and Point of Assessment: Start of Foundation (mandatory), Year 1 and/or Year 2 (optional)

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
The initial code Assesses knowledge of single phoneme-grapheme relationship, the Initial Code.	Present
Assesses knowledge of diagraphs	Absent
Assesses knowledge of trigraphs	Absent
Assesses knowledge of grapheme representation for all phonemes	Absent
Assesses capacity to read simple CV and CVC words with items then increasing in complexity to include VCC, CVCC, CCVC and CCVCC words:	Absent
- CV	Absent
- CVC	Partially Present
- VCC	Absent
- CVCC	Partially Present
- CCVC	Partially Present
- CCVCC	Absent
The extended code Assesses knowledge of alternate spelling patterns, the Extended Code.	Absent
Adjacent consonants Assesses knowledge of adjacent consonants	Partially Present
Reading pseudowords Assesses capacity to read nonsense words in order to demonstrate identification and blending (from left to right) of all letter-sound relationships in a word, reading pseudo words.	Absent
Assesses automaticity of nonsense word reading	Absent

Table note: The New South Wales Department of Education is currently refreshing the Best Start on-entry Foundation assessment, and will be trialling the new assessment in schools in Term 3 of 2017 for rollout in 2018. It will be based on psychometric validation of the tool, with a number of changes to strengthen measurement properties, and alignment of the assessment to the new national Literacy and Numeracy Learning Progressions, including additional phonics items to fill gaps in the current set. For this reason, the Panel chose not to include the current Best Start assessment in the comparative analysis.

The Panel made the following notes on the early years assessments present in Tables 4A to AG:

(i)   Performance Indicators in Primary Schools (PIPS)
- Relevant sections are
    - Letters
    - Words
    - Stories.
- The sections labelled as 'Phonics' assess phonological awareness, not phonics.

(ii)   Early Literacy in English Tool
- The relevant EO assessments administered are:
    - Phonemes
    - Alphabet Letters
    - Early Reading
    - Phonological Awareness.
- Assessment methods for components considered partially present:
    - Single phoneme-grapheme relationship knowledge is assessed by presenting the student with an alphabet board, and asking them to provide either the grapheme name or phoneme for each upper and lower case letter of the alphabet**;**
    - Knowledge of adjacent consonants is assessed by providing a word orally and asking the student to identify all of the sounds in the word e.g. the word is 'grass', tell me all the sounds in the word 'grass'.

(iii)   Early Start
- 'Phonics' section comprises 10 items – 4 single word reading items (bin, blossom, battery, bacteria) and 6 items requiring correct affix selection (the base word is presented by the tester) e.g. "This is the word 'SAND'. Add any one of these suffixes (presented on cards and read as suffixes) to make another word." "What does it mean?"

(iv)   Running Records
- Running Records may assess error, accuracy and self-correction rates.
- Running Records may assess use of/response to MSV cues.
- Wordlists are typically based on curriculum content at the time of assessment.
- Some notations may be made about types of errors e.g. omission or substitution.

(v)   FELA
- Relevant sections:
    - Letter Name and Letter Sound Identification
    - Non-word Reading.

(vi)   On-Entry Assessment
- Relevant sections:
    - Oral language
    - Rhyming words
    - The Beach Ball
    - Words
    - Sounds' and Letters
    - 'Ick' words
    - The Lunch Boxes

Findings

- *The Australian Curriculum for Foundation to Year 6 includes a phonic and word knowledge sub strand but does not specifically detail all phonics at the content description level. The Literacy Learning Progression under development contains the full range of phonics content. The progression does not specify the year level at which it is expected to be learnt as it is a developmental progression that recognises that students progress at different rates. The Australian Curriculum sets the broad expectations for learning at each year level. The revised progression will link to these expectations.*

- *Early years literacy assessments used in state and territory government systems are not well-aligned with each other, nor with the Australian Curriculum in phonics.*

- *State or territory early years assessments have either weak or non-existent phonics components, with some assessments misclassifying phonemic awareness tasks and phonics tasks.*

- *Both government and non-government school sectors use a variety of assessments, including the state and territory government assessments as well as standardized reading tests. Some of the standardised tests do assess phonics but it is not known how widely used they are, and they are not used in a systematic way.*

4.4 Criteria for high quality numeracy assessment

Number sense, position/location in the Australian curriculum

The skills, knowledge and concepts identified as being essential components of early numeracy instruction and predictive of mathematics achievement identified in Chapter 3 are represented in the Australian Curriculum for Foundation and Year 1 Mathematics. They are found in the content strands Number and Algebra with the emphasis being on number and place value, and Measurement and Geometry with the emphasis being on location as outlined in Table 5 below.

Table 5. Components of early numeracy development

Number and Algebra: Number and place value

- Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero. (ACMNA012)

- Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line. (ACMNA013)

- Count collections to 100 by partitioning numbers using place value. (ACMNA014)

- Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts. (ACMNA015)

Number and Algebra: Patterns and algebra

- Investigate and describe number patterns formed by skip-counting and patterns with objects. (ACMNA018)

Measurement and Geometry: Location and transformation

- Give and follow directions to familiar locations. (ACMMG023)

Number sense, position/location in state and territory early years assessments

The state and territory early years assessments include some good quality items which test the content in the descriptors and the proficiency strands: Understanding, Fluency and Problem Solving. A summary has been given in Table 6A to 6D below. From the tests observed, there is no one test that meets the Panel's advice exactly: they are not simple checks that identify students at risk and they do not concentrate on the descriptors above. Items which test common misunderstandings in Number need to be further developed. This will help identify students who for example know how to count to 100 but have no real number sense.

Two other assessments recommended to the Panel through the consultation process were also benchmarked: Schedule for Early Number Assessment (SENA) and ACER A: I Can Do Maths. These assessments met many of the benchmark criteria and the SENA in particular could be useful in the development of a Year 1 numeracy check.

Comparison of state and territory early years assessment in government schools – numeracy components

Table 6A. Assessment: Performance Indicators in Primary Schools. Jurisdiction: ACT, TAS. Year and Point of Assessment: Foundation or Year 1, March and October (TAS – mandatory)

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
Number and Algebra: Number and place value Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero. (ACMNA012)	Absent
Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line. (ACMNA013)	Absent
Count collections to 100 by partitioning numbers using place value. (ACMNA014)	Absent
Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts. (ACMNA015)	Absent
Number and Algebra: Patterns and algebra Investigate and describe number patterns formed by skip-counting and patterns with objects. (ACMNA018)	Absent
Measurement and Geometry: Location and transformation Give and follow directions to familiar locations. (ACMMG023)	Absent

Table 6B. Assessment: Mathematics Online Interview. Jurisdiction: VIC. Year and Point of Assessment: Start of Foundation (mandatory), Year 1 and Year 2 (optional)

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
Number and Algebra: Number and place value Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero. (ACMNA012)	Present
Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line. (ACMNA013)	Present
Count collections to 100 by partitioning numbers using place value. (ACMNA014)	Present
Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts. (ACMNA015)	Present
Number and Algebra: Patterns and algebra Investigate and describe number patterns formed by skip-counting and patterns with objects. (ACMNA018)	Absent
Measurement and Geometry: Location and transformation Give and follow directions to familiar locations. (ACMMG023)	Absent

Table 6C. Assessment: Early Start. Jurisdiction: QLD. Year and Point of Assessment: End of Foundation and Year 1, Year 2 as needed (optional)

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
Number and Algebra: Number and place value Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero. (ACMNA012)	Absent
Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line. (ACMNA013)	Absent
Count collections to 100 by partitioning numbers using place value. (ACMNA014)	Absent
Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts. (ACMNA015)	Absent
Number and Algebra: Patterns and algebra Investigate and describe number patterns formed by skip-counting and patterns with objects. (ACMNA018)	Absent
Measurement and Geometry: Location and transformation Give and follow directions to familiar locations. (ACMMG023)	Absent

Table 6D. Assessment: On Entry Assessment. Jurisdiction: WA. Year and Point of Assessment: Start of Foundation (mandatory), Year 1 and/or Year 2 (optional)

Column 1: Descriptor	Column 2: Is the descriptor Present, Partially Present or Absent?
Number and Algebra: Number and place value Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero. (ACMNA012)	Partially Present
Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line. (ACMNA013)	Absent
Count collections to 100 by partitioning numbers using place value. (ACMNA014)	Absent
Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts. (ACMNA015)	Present
Number and Algebra: Patterns and algebra Investigate and describe number patterns formed by skip-counting and patterns with objects. (ACMNA018)	Partially Present
Measurement and Geometry: Location and transformation Give and follow directions to familiar locations. (ACMMG023)	Absent

Table note: The New South Wales Department of Education is currently refreshing the Best Start on-entry Foundation assessment, and will be trialling the new assessment in schools in Term 3 of 2017 for rollout in 2018. It will be based on psychometric validation of the tool, with a number of changes to strengthen measurement properties, and alignment of the assessment to the new national Literacy and Numeracy Learning Progressions. For this reason, the Panel chose not to include the current Best Start assessment in the comparative analysis.

- *While the Panel has not identified an appropriate existing numeracy assessment, a number of very good test items for numeracy already exist.*

- *A good quality Numeracy Check that meets the criteria identified by the Panel in consultation with experts is not systematically used in Australian schools.*

- *Test items that test common misunderstandings in numeracy need to be further developed.*

4.5 Best practice principles for early years assessments

Drawing on the review of Australian and international early years assessments, and consultation with stakeholders, the Panel recommends that an effective Year 1 check of literacy and numeracy be developed and implemented using the following key principles:

- Conducted early and able to measure progress over time.

- Measure core knowledge and skills that are strongly predictive of later achievement and accurately identify risk of low progress.

- Conducted one on one with a teacher or adult well known to the child.

- Brief in duration (to cater to attention of 5/6 year old children and time pressures in schools).

- Provides results to teachers quickly

- Not 'high stakes' or linked to progression of year level.

- Provides sufficient amount of detail to guide intervention at the student level, and changes to teaching practice at the school and system level where necessary.

Findings

- *A wide range of assessments is used in Australian schools and there is no consistent and mandatory collection of data beyond the Foundation year.*

- *Current early years assessments do not meet the Panel's criteria.*

- *The Panel has developed 'best practice principles' that should be reflected in the Year 1 literacy and numeracy checks.*

- *A check in Year 1 would not duplicate assessments already in place, but would complement and add specificity to existing assessments and provide a quick check in Year 1 of students' progress.*

Recommendations

From the analysis of literacy and numeracy assessments, the Panel recommends:

3.1. The Phonics Screening Check developed by the UK government and which is statutory in primary schools in England should be adapted for use in Australia to assess whether children have acquired a sufficient level of phonics knowledge and decoding skills to make good progress in reading.

3.2. A new tool to should be developed for the Year 1 numeracy check.

5. National Year 1 literacy and numeracy checks

The positive effects of the early, successful acquisition of foundation skills in both literacy and numeracy is widely acknowledged and this has been referenced earlier in this report. Likewise, the deleterious long-term impact of failing to develop these skills is well-documented, as is the need to identify children at potential risk of literacy and/or numeracy failure as early as possible, and to intervene to alter their educational trajectories.

The aim of introducing a nationally consistent, Year 1 literacy and numeracy check would be to ensure that the early identification of children at risk of long-term underachievement was occurring, and to provide schools with a mechanism to review the extent to which children were mastering a number of specific foundation skills, considered necessary for long-term success.

Ideally, a national Year 1 literacy and numeracy check would be positioned in the context of current state and territory assessments within the NAP assessment framework.

5.1 Purpose of the Year 1 check

The Panel's view is that the purpose of an early years assessment is to identify, as early as possible, those students that are not meeting expected learning outcomes in literacy and/or numeracy. A check in the early years of schooling will identify which students need additional help and where additional teaching strategies may be required to improve student learning outcomes.

The Panel notes that the key rationale for introducing any new assessment is that it should aim to improve literacy and numeracy skills amongst young children. It should also be cognisant of the teacher's time and not place undue burden on schools, teachers or students.

In addition, expert stakeholders stressed that the purpose of the check needs to be made clear, as this would impact on the design and intent of the check. It is just as important to acknowledge the purpose of the check as well as what the check is not intended to do.

5.2 Objectives of the Year 1 checks

The Panel notes that the objective of any assessment reform is not to have an additional assessment in place, but to improve literacy and numeracy skills amongst young children. The Year 1 checks are the appropriate tool for this as they will provide important information to the classroom teacher about students' literacy and numeracy achievement levels in specific key foundation skills, and will additionally provide school and system level information as to the progress of young students towards achieving essential early skills in both literacy and numeracy.

The Panel considers the objectives of the Year 1 checks are to:

1. Provide a brief nationally consistent assessment of all students in all schools.

2. Provide data for schools and classroom teachers that is aligned to the literacy and numeracy strands outlined in the Australian Curriculum (and learning progressions once finalised).

3. Assist in the early identification of students who may be at risk educationally.

4. Assist systems in the identification of schools that may need support in early years literacy and numeracy teaching.

Nationally consistent assessment

The value of introducing a national Year 1 literacy and numeracy check is that it provides the opportunity to ensure the check is consistent across all education sectors and schools, and that it can be delivered to every Year 1 student. A national check also ensures that schools and teachers can be confident that their Year 1 students have acquired, or have almost acquired, selected skills and conceptual knowledge recognised as necessary for successful literacy and numeracy development at a level that is consistent with the expectations of Year 1 students in all states and territories.

The Year 1 literacy and numeracy check would only assess foundation skills and knowledge that can be mastered by almost all Year 1 children, assuming they have had access to adequate and appropriate instruction prior to the check.

A number of stakeholders also suggested that the collection of data nationally, would potentially provide access to valuable information across jurisdictions with the potential to inform educational research and future policy directions. This is considered further in Section 6.

Alignment to the Australian Curriculum

A recurring theme through the Panel's consultations and the online submissions is the importance of ensuring the Year 1 checks are linked to the Australian Curriculum, and are relevant to the Australian context. This is viewed as critically important by the Panel. The Year 1 checks are designed to be curriculum-based assessments, meaning that there is an assumption implied that the skills and knowledge being assessed will have been taught. It is anticipated that all items included in the proposed Year 1 checks will have direct links to the Australian Curriculum and will be contextually relevant. Consultation with expert stakeholders indicated a curriculum-based, one-on-one Year 1 numeracy check was viable.

Early Identification

The potential benefit most cited by stakeholders concerning the introduction of a Year 1 literacy and numeracy check was that the results would inform teachers about the achievement and abilities of the student, and whether or not they are reaching expected learning outcomes, as nationally benchmarked. In addition to this, stakeholders noted it could be particularly beneficial for students who may experience learning difficulties, and an early years check may assist teachers in identifying students who need additional help earlier than might otherwise occur.

The benefits of one-on-one assessments or interviews with students have been identified in recent literature. In Australia there are a number of early years assessments in numeracy and/or literacy that take this approach. The benefits of a one-on-one interview/assessment allow for the teacher to collect higher quality assessment information as the teacher can record greater detail as the interview progresses.[94]

Stakeholders were in agreement on the importance of early intervention for a child's development and the longer term outcomes in learning and wellbeing. High quality education is critical in the early years of

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[94] Clarke, D., Mitchell, A. & Roche, A. 2005. *Student one-to-one assessment Interviews in mathematics: a powerful tool for teachers.* Melbourne: Australian Catholic University.

education to maximise significant development that occurs in this window. Early intervention is therefore particularly important for children who show signs of struggle with key literacy and numeracy skill development, and who may be developmentally vulnerable. Stakeholders representing students with learning difficulties, such as dyslexia, agreed that the introduction of nationally consistent Year 1 check had the potential to identify the learning needs of students in the critical areas of reading, phonics and numeracy. Students with persistent and enduring difficulties acquiring and mastering key academic skills despite adequate and appropriate instruction and intervention may meet the criteria for specific learning disorder diagnosis (DSM 5). A Year 1 literacy and numeracy check will not identify students with learning disorders such as dyslexia but will certainly assist to highlight students at risk, particularly in cases where there has been explicit, targeted instruction in the key academic skill being assessed and with which the student continues to struggle.

Evidence suggests that regardless of the pathway(s) leading to children's difficulties in learning to read, the principles of the intervention are almost always the same.

Findings

- *Stakeholders agreed that a Year 1 check in literacy and numeracy provides a mechanism for the identification of students not meeting expected learning outcomes in the acquisition of essential foundation skills early in their schooling.*

- *The Year 1 literacy and numeracy check also has the potential to identify students at risk of developing persistent and enduring learning difficulties.*

- *There is benefit for the checks being delivered through a one-on-one interview.*

5.3 Positioning the Year 1 literacy and numeracy checks in the Australian assessment framework

The National Assessment Program (NAP) is the agreed measure by the Education Council to determine if young Australians are meeting educational outcomes. The NAP is a major component of the *Measurement Framework for Schooling in Australia 2015,*[95] which reports on the measures from the *Melbourne Declaration on Educational Goals for Young Australians*.[96]

The NAP, endorsed by all Australian education ministers, includes:

- National Assessment Program – Literacy and Numeracy (NAPLAN);

- NAP sample assessments, including science literacy, civics and citizenship and information and communication technology (ICT) literacy;

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[95] ACARA. *Measurement Framework for Schooling in Australia 2015*. http://www.acara.edu.au/reporting/measurement-framework-for-schooling-2015

[96] Ministerial Council on Education, Employment, Training and Youth Affairs. 2008. *Melbourne Declaration on Educational Goals for Young Australians.* http://www.scseec.edu.au/site/DefaultSite/filesystem/documents/Reports%20and%20publications/Publications/National%20goals%20for%20schooling/National_Declaration_on_the_Educational_Goals_for_Young_Australians.pdf

- International sample assessments, including the Programme for International Student Assessment (PISA), the Trends in International Mathematics and Science Study (TIMSS) and the Progress in International Reading Literacy Study (PIRLS).[97]

NAPLAN is a yearly assessment for students in Years 3, 5, 7 and 9, which has been occurring since 2008.[98] The assessments are undertaken by all students across Australia, and cover the curriculum areas of reading, writing, language conventions (spelling, grammar and punctuation) and numeracy. NAPLAN is not considered a "high-stakes" assessment, but it does provide valuable information at the student, school and education system level.

The Panel considers there is scope for a brief literacy and numeracy check in the early years as part of the NAP. There is currently no early years assessment component in the NAP, rather this is left up to jurisdictions and school systems to determine. A nationally consistent assessment of literacy and numeracy in the early years would provide important information, not just for individual students and teachers, but on the teaching of literacy and numeracy at the wider school and system level across states and territories.

However, it is important to make clear that the Year 1 check is not intended to be NAPLAN for Year 1 students. Rather it is viewed as two brief checks in literacy and numeracy delivered by the classroom teacher to each Year 1 student. It is also important that governments agree not to publish individual school results and that any reporting of results should be limited to national and state and territory levels (further discussion at 6.2 Reporting and Data Usage).

These areas were both raised by stakeholders as critically important concerns. The notion that individual students, or particular schools, could be publicly identified as 'failing' as a consequence of the results achieved in a single 7-minute test, were considered to be a major impediment to the introduction of the Year 1 checks. A number of stakeholders suggested that they would not be able to support the Year 1 checks if the data were to be published on the My School website or if the collection of data resulted in the development of so-called "league tables" in which schools are compared.

The Panel acknowledges these concerns and addresses them fully in the recommendations on administration below.

Findings

- *There is currently no early years assessment component in the NAP.*

- *There is scope for a brief literacy and numeracy check in the early years as part of the NAP.*

- *There are concerns in the educational community about the potential publication and misuse of data.*

- *There are concerns about potential identification of students or schools, which could be publicly identified as 'failing'.*

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[97] Department of Education and Training. 2017. *National Assessment Program (NAP)*. https://www.education.gov.au/program-page-national-assessment-program-nap

[98] ACARA. 2016b. *NAPLAN*. http://www.nap.edu.au/naplan

Recommendations

The Panel recommends that the Year 1 Literacy and Numeracy checks be introduced to:

4.1. Provide a nationally consistent assessment of all students in all schools.

4.2. Provide data for schools and classroom teachers that is aligned to the literacy and numeracy strands outlined in the Australian Curriculum.

4.3. Assist in the early identification of students who may not be meeting expected learning outcomes.

4.4. Provide teachers and schools with meaningful and timely information on student achievement.

4.5. Become part of the National Assessment Program.

4.6. It is also recommended that individual school results should not be published or compared to those of other schools.

6. Implementation

6.1 Administration

Stakeholders were asked to identify specific challenges associated with the introductions of a Year 1 literacy and/or numeracy check. Through the online submission process and one-on-one interviews, stakeholders identified a range of potential issues that should be considered by the Panel and policy makers when developing and implementing the checks.

Administrative challenges were a key theme in the stakeholder submissions.

Who should deliver the checks?

One of the key challenges identified by stakeholders was ensuring there was enough time for teachers to undertake the check, as delivering one-on-one checks to each student could be time consuming and take time away from teaching. To address this administrative challenge, the Panel considers it will be important to ensure the checks can be delivered quickly and efficiently, minimising the time per student to undertake the test and the need for teacher relief or support in the classroom.

There are benefits and drawbacks to the various alternatives as to who should administer the checks. While there are potential issues around bias, on balance, the Panel decided it was preferable for the checks to be administered by a teaching member of the school staff that is familiar to the student, including their classroom teacher. This would allow integration of the checks with students' usual classroom experience, and provide the opportunity for teachers to directly observe where students may have difficulties with the content.

Mode of delivery

A review of research by the Panel found strong support for one-to-one interview-style assessment of literacy and numeracy for children in the age range for Year 1 checks. The Panel therefore recommends that the checks be administered in this format.

The Panel asked stakeholders (through the online submission process and also via one-to-one interviews) whether the check should be paper-based or technology-based (app-based), and asked for supporting evidence. There was approximately equal support for technology and paper-based checks among stake-holders, but there was also strong support for a flexible administration (that is, paper based delivery with results entered into an online database).

The Panel considers the check provides a good opportunity to utilise technology to enhance the efficiency of the administration of the Year 1 checks. This would also address some criticisms of the paper-based UK Phonics Screening Check. Use of technology could provide immediate results to teachers so that targeted interventions for students and appropriate adjustments to teaching can be initiated as soon as possible.

The Panel is also aware of the current transition to NAPLAN Online, which will take place over a three year period.[99] The benefits of online assessment, as outlined by ACARA, include assessment results being available much faster than paper-based assessments, reducing the time it takes to provide feedback to

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[99] ACARA. 2016c. *NAPLAN Online*. http://www.nap.edu.au/online-assessment/naplan-online

schools, teachers, parents and students.[100] Stakeholders commented on the value of fast turnaround time of results, particularly for teachers in the classroom.

However, it should be emphasised that the content and format of the Year 1 literacy and numeracy checks recommended by the Panel are very different to the NAPLAN assessments. It is therefore envisaged that the technology required to administer the Year 1 checks would be much less sophisticated (and less costly) than that required for NAPLAN Online.

Specifically:

- The Year 1 checks should be delivered in a one-to-one interview delivery, rather than pen-and-paper or on a computer, as a class group.

- The checks would require oral responses from students, and scoring by the teacher would consist of recording responses as correct or incorrect. The checks would not be responsive; all students would answer the same items.

- The Panel considers that an app-based mode would be more functional than an online mode. The app could be designed for use on any smart phone or tablet computer device. The app would be used for scoring student responses in real time. Ideally, student, class, and school reports could be produced immediately after the all students have done the check.

- The app could be made available for download at the beginning of the week the checks are to be administered, and the check items available to download and print as part of the app.

Training and Guidance Material

A key stakeholder expressed concern in another early years classroom assessment, and that there was no point in doing any test without appropriate and necessary support and training around how to respond to the results. Professional development and time for teachers were raised as major concerns. This concern was reflected in other stakeholder consultations and through the online submission process. Stakeholders were supportive of the provision of appropriate guidance material to schools and teachers on the checks.

The UK Department for Education provides guidance materials and training videos online for all teachers and school administrators. The Panel considers high quality teacher guidance material and training to be essential to the effectiveness of the checks. Training could be in the form of videos and online modules.

The guidance material and training should clearly and comprehensively cover the following:

- The purpose and rationale for the checks.

- Appropriate assessment environments to minimise disruptions and distractions.

- Administration guidelines, including awareness of verbal and body cues to avoid unconscious prompting.

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[100] Ibid.

- The range of acceptable responses for each item to be marked correct, taking into account regional accents, other language accents, speech difficulties, and alternative pronunciations for graphemes.

- Criteria for exemptions and absences.

- Criteria for discontinuation of the check (for example, after a designated number of incorrect responses or non-attempts) and scoring of discontinued checks.

- Scoring and collection of data.

- Advice on communication of the results of the checks to parents and carers.

Communication

Communication and ensuring the purpose of the checks is clearly identified and expressed to the teachers, school leaders and broader community is critical to successful implementation of the checks. There are concerns the new national checks will resemble a 'NAPLAN-style' assessment, where children undertake standardised tests by themselves. The Year 1 checks are not intended to be high-stakes or cause stress for children, teachers or parents. The checks will be similar to other types of assessments already conducted in classrooms across Australia every day. Communication and input from teachers and school leaders will be an important part of ensuring the check is built into everyday classroom practice.

Findings

- *Concerns raised by stakeholders over the possible bias of teachers (conscious and unconscious), and the lack of consistency in implementing the check can be addressed by using an app for scoring and data collection.*

- *Training for teachers on assessment administration and comprehensive guidance on scoring will be essential for the assessments to be effective.*

- *As the checks are very different in design to NAPLAN, the technological requirements of an app-based mode of delivery would be less challenging than NAPLAN Online.*

6.2 Reporting and Use of Data

Reporting and use of data

The Panel considers it is important to have consistent and comparable data from the Year 1 checks, and that data collection should be consistent in both the literacy and numeracy checks.

Concerns have been raised by stakeholders on the publication of data, and the purpose for data collection, however this was by no means unanimous. There was a range of views, from submissions that were supportive of the publication of data to ensure schools were held accountable for effective early years teaching, to submissions that did not support the publication of any data on the results of the checks.

The Panel considers that the introduction of a national consistent check provides the opportunity to have a strong national database on student achievement. A national database that enables research to inform improvements in teaching practice and policy would be very valuable. However, in light of the serious

objections raised by some stakeholders, the Panel does not consider the publication of individual or school level data would be advantageous for this check, and recommends limitations on the publication of data. The Panel does recommend that high level national and jurisdictional level data sets should be available for the purposes of national and state/territory reporting, and also recommends that school level data be available to the relevant sector authorities and appropriately credentialed and authorised researchers. The Panel was evenly divided on the question of making school level results on the checks available to parents and prospective parents via publication in annual school reports. Therefore the Panel offers no recommendation on this matter.

The Panel considers that de-identified data should be available for research purposes, but notes this would be subject to relevant state and territory approvals. The Panel advises that every effort should be made to ensure that stakeholders have confidence that data from the Year 1 checks is not used for the purpose of creating school 'league tables'.

In addition, there is an opportunity to collect contextual information at the student, teacher and school level when conducting these checks. Contextual data such as child's age in months, English as a second language status, teacher experience (years of teaching and years of experience in early years' classrooms), and any other factor that is considered to be influential in student performance should be collected to allow a more sophisticated and meaningful analysis of the data. There is also potential to use this data in relation to other national datasets (such as NAPLAN or the Australian Early Development Census (AEDC) datasets), which would be an important and valuable tool for statistically powerful educational research in Australia.

Stakeholders noted the importance of the storage and linking of the data into other, national datasets. For example, there is an opportunity to link this data to NAPLAN data as part of a longitudinal study. The Panel notes concerns from stakeholders that this could raise potential privacy issues and questions around the use of national data and the Panel advises that consideration of linkages to other datasets should be investigated now rather than after the check is in place.

Reporting under the National Assessment Program

All assessments under the NAP are reported at a national level (aggregated) against a standard or proficiency level in accordance with:

- *Principles and protocols for reporting on schooling in Australia (June 2009);*

- *Measurement Framework for Schooling in Australia (2015);* and

- *Data Standards Manual: Student Background Characteristics (Sixth Edition October 2012).*

NAPLAN provides both student and school reports on individual results, and data is also reported at a jurisdictional and national level. The student report provides general information about the NAPLAN tests, and presents the individual student's results in each of the subject areas on the common assessment

scales.[101] Depending on the state or territory, parents are also provided with additional information on the NAPLAN tests and results.

NAPLAN student reports are provided directly to parents and carers from the Australian Curriculum, Assessment and Reporting Authority (ACARA). Given the level of detail in the NAPLAN student reports, there are sound reasons for this mode of communication. In the case of the Year 1 checks, however, the Panel recommends that communication to parents and carers of individual student results should be from the school. An app-based delivery mode that allows immediate production of student reports would facilitate this communication with parents and support important home-school partnerships at this early stage of learning.

Findings

- *Data needs to be accessible quickly and in an easy to use format if the checks are to be effective in assisting teachers. The mode of delivery is central to timely data dissemination.*

- *There is an opportunity to have a national database, which could be linked to other assessment results and contextual information.*

- *Consistent with other assessments in the NAP, there is general consensus that student results should be provided to parents and schools, but there are concerns about the public reporting of school or student data.*

6.3 Timing

The prioritising of key skills to assess under the Year 1 Check is highly dependent upon the frequency and timing of the check. The Panel considers the most appropriate time to undertake both the literacy and the numeracy check is early Term 3 of Year 1 (late July/early August, approximately 18 months after children begin school, when most will be aged between 5.5 and 7.0 years of age. This will allow for the check to measure Foundation and half of the Year 1 curriculum, while avoiding the busy mid-year student reporting cycle. The checks could be re-administered toward the end of Term 4 of Year 1 to those students identified as not reaching the national benchmark, following a period of up to 14 weeks further teaching and/or intervention.

Presently, there is no way of precisely aligning mid-year checks with the Australian curriculum as it defines content in full year standards. While ACARA is developing Literacy and Numeracy Progressions to provide a higher level of detail to the literacy and numeracy curricula, setting out the sequence in which students are typically expected to acquire particular content knowledge and skills, it does not specify the point at which it should be mastered.

As noted in Chapter 4, this does not preclude the check being developed with reference to the Australian Curriculum for Foundation and Year 1, and the Literacy and Numeracy Progressions if agreed. The Literacy and Numeracy Progressions contain enough information to be able to make reasonable judgements about what children might be expected to know and be able to do after 18 months of schooling if the Curriculum has been taught. However, it does mean that expert judgement will be required to determine both the level of difficulty of the checks and the expected level of achievement at this point.

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[101] National Assessment Program. *Student Reports*. https://www.nap.edu.au/results-and-reports/student-reports

The Phonics Screening Check used in England provides a valuable point of reference. It was designed so that all children could ideally and theoretically achieve the maximum score of 40, but a 'threshold score' of 32 was designated by an appointed panel of teachers as a reasonable level of expectation of all students. In the most recent results of the Phonics Screening Check in English schools, 100 per cent of students achieved the maximum score in more than 1000 schools and 81 per cent of students nationally achieved the expected score. Although the Phonics Screening Check is administered toward the end of Year 1 (after almost two years of school) in England, the age range of students at this time would be roughly equivalent to the age range of students in mid-Year 1 (as the school year begins in September in England).

There are good reasons for adopting England's Phonics Screening Check for use in Australia, with some modification to administration. It has been rigorously developed, validated and trialled to provide a high level of detail in a brief assessment. It has been implemented for five years and evaluations and official statistics have shown it to have become widely accepted as an effective tool for schools to inform their teaching practice. There seems to be little benefit in Australia developing a new assessment, if the UK government is willing to allow the Australian government to use the template for the Phonics Screening Check in Australian schools. In addition, it would be useful to have a consistent international dataset.

6.4 Staged implementation of checks

As indicated in Section 4, the Panel recommends the implementation of a phonics-based literacy check, modelled on the Phonics Screening Check. However, as there is no 'off-the-shelf' product the Panel recommends for the numeracy check, this will have an impact on the implementation timeframe for the check. The creation of the numeracy check will therefore require additional time investment for the development and piloting of specific assessment items/questions.

The Panel recommends that a trial of the Year 1 checks is conducted and that it will involve the following implementation activities:

- Review of test items to ensure relevance and alignment to the Australian Curriculum and school settings.

    - For the literacy check, this will involve a direct review of the UK Phonics Screening Check. For the numeracy check, test items will need to be developed.

    - This would include a review of item accessibility requirements for Indigenous and Torres Strait Islander students; students with a disability; students with additional needs (language and speech disorders); and students for whom English is a second language (ESL).

- Development of appropriate technology-based application for implementing the checks.

- Standard Setting exercise – a group of phonics/numeracy experts to draft performance descriptor followed by standard setting exercise involving teachers of Foundation and Year 1 students to determine appropriate standards.

- Conduct a national pilot trial of the checks in a stratified sample of schools, with a review to inform national roll out.

A proposed time frame for the implementation of the checks is outlined below.

Table 7. Proposed timeframe for the implementation of checks

Timeframe	Activity
Term 3 and 4 2017	Phonics: ● Develop items using Phonics Screening Check format ● Develop app ● Develop training and administration guidelines for teachers Numeracy: ● Identification of key skills, item development/item accessibility considerations
Term 1 and 2 2018	Phonics: ● Pilot study of Year 1 phonics check, including evaluation and review ● Training and guidelines available to schools nationally Numeracy: ● Develop app ● Trial of Year 1 numeracy check for validity and reliability
Term 3, 2018	Phonics: ● National Year 1 phonics check commences ● Number: Pilot of Year 1 number check in sample of schools
Term 3, 2019	Numeracy: ● Year 1 number check commences

Recommendations

In the area of implementation, the Panel recommends that:

5.1. **The checks should be administered one-on-one by a member of the teaching staff familiar to the student and in a quiet but relaxed setting.**

5.2. **The delivery mode of the check should enable immediate results to be accessible by the teacher following the checks, —for example, a printed booklet with the test items for the student and an app for scoring and data collection by the teacher.**

5.3. **The checks should take place early in Term 3 of Year 1, to assess 18 months of formal schooling and to allow time within the current school year for intervention. Further consideration of the timing of the check should be taken to ensure consistency with the Australian Curriculum.**

5.4. **Contextual student and teacher data should be collected during the checks.**

5.5. Individual student results should be accessible by the teacher and school, and reported to the parents/guardians. School level results should be available to state and territory government and non-government sector authorities but should not be published.

5.6. Publication of data should be at the jurisdictional and national level. Careful consultation is necessary to ensure correct protocols are observed for the use and purpose of national data collection and reporting.

5.7. Communication of student results to parents and carers should come from their school.

5.8. The checks should be implemented over several years starting with the literacy (phonics) check, and include a pilot study for both the literacy and numeracy check. The pilot study should consider both content and process aspects.

5.9. Expert steering committees should be established to guide the development of each of the checks. The Phonics Check Steering Committee should comprise recognised experts in early reading instruction, scientific reading research, linguistics, and design and analysis of test items. The Numeracy Check Steering Committee should comprise recognised experts in early numeracy instruction, scientific research in the development of mathematical ability, and design and analysis of test items.

5.10. Teachers are provided with training to deliver and interpret the results. Appropriate relief is provided to teachers as they conduct the check.

7   Recommendations for further reforms

The literacy and numeracy checks are designed to give teachers a strong indication of what decoding, number sense, location/position skills students have, and which need to be further developed in order for a child to be considered educationally 'on-track'. To support this development, it is imperative that schools have information and support to guide education leaders and teachers to evidence-based resources to inform any teaching response that may be needed.

The Panel has recommended using a Response to Intervention Framework. The Response to Intervention approach is a delivery model designed to ensure that all students at risk of academic underachievement are identified as early as possible and provided with appropriate intervention and support. It is a multi-tiered approach, with each tier offering increasingly targeted and intensive levels of intervention. The most common framework has three tiers:

- Tier 1 relates to the primary mainstream or whole grade level instruction and learning. The aim at Tier 1 is to provide high-quality screening, instruction and support to all children.

- Tier 2 relates to students that fall behind in Tier 1 and need small group teaching and extra support to ensure that they 'catch up'. The expectation is that students will be provided with evidence-based intervention that is delivered explicitly, is targeted at the student's area of weakness and is delivered in small-group or one-to-one.

- Tier 3 relates to students who continue to fall behind despite Tier 2 support or who are identified through regular screening as having significant gaps in their foundation knowledge and skills and may be working at a year level well below their own. These students may require further assessment, intensive intervention (one-to-one), curricula adjustments and an ILP.

The appropriate responses in the table below are constructed with this framework in mind. The appropriate responses in the table also refer to two components of teaching:

1. *Teacher content knowledge: teachers need to know the content they teach.*

Content knowledge, for this instance, in literacy refers to acquiring knowledge of synthetic phonics. A baseline knowledge of systematic synthetic phonics is crucial in being able to teach students effectively.

Content knowledge, for this instance, in numeracy refers to acquiring knowledge of number sense and location/position.

2*. Pedagogy: refers to knowing 'how to teach' the content effectively.*

The panel recommends explicit teaching of skills in literacy and numeracy. Advice on using explicit teaching models that ensure repeat exposure to content in a variety of ways will also need to be present.

Supporting measures

Panel members discussed what resources will need to be provided to teachers/schools for the Year 1 check. The Panel has identified, through review of existing research and consultation with stakeholders, what type of resources may be needed for teachers (and students) following the Year 1 checks. It is important that teachers are supported not only in the delivery of the checks, but also in the intervention and follow up

phases of the check. Once a student has been identified as not meeting the expected standard, the teacher needs to know what appropriate strategies for intervention should be used.

The type of resources will differ depending on the results at the school level, and the response will be different depending on how many students reach expected achievement levels. The types of schools identified by the Panel and appropriate responses are identified in Table 8 below.

Table 8. Results profiles of schools and appropriate responses

Type of school	Appropriate response
A. A school where the whole cohort of students (or close to) did not meet the expected standard in the literacy and/or numeracy check.	Professional Learning for teachers focusing on Primary instruction addressing content knowledge and/or pedagogy. Access to recommended evidence-based practitioners to support alignment of Primary, Tier 2 and Tier 3 responses. LDA, SPELD are examples organisations that can help direct this work. Advice on training intervention staff and/or selection of evidence-based intervention programs (e.g. AUSPELD guide). Access to evidence-based teaching materials Access to Professional Learning for School Leaders on RTI, high quality early instruction in both literacy and numeracy, evidence-based instruction and the Simple View of Reading and effective teaching. School level support for an improved approach to effective teaching of numeracy. A selection of case studies and links to schools that have successfully implemented explicit approaches to systematic synthetic phonics, number sense and position/location instruction. Advice and guidance on communication to parents
B. A school where results indicate specific weakness in instruction, for example, one class where students do not reach expected standards, or where many students struggled with particular items in the checks	Professional development for teachers focusing on Primary instruction addressing content knowledge and/or Pedagogy. Access to evidence based teaching materials for literacy and/or numeracy, tailored to the concept/knowledge/skill to be taught.

Type of school	Appropriate response
C. A school were most students reach the expected standards, but identify individuals who need assistance.	Access to recommended evidence-based practitioners to support alignment of Primary, Tier 2 and Tier 3 responses. Advice on training intervention staff and/or selection of evidence based intervention programs (e.g. AUSPELD guide). Access to evidence-based teaching materials for literacy and/or numeracy

The Panel does not offer any recommendations about which level of government should take responsibility for the provision of resources to allow the appropriate responses by schools.

Developing targeted Professional Learning programs for teacher content knowledge and pedagogy

In the event that schools perform poorly in both the literacy and the numeracy check, the time required to implement training, change curriculum focus and pedagogy in two areas would be necessary and challenging for any educational leader. Consideration of the time frames that schools would need for change and to improve results would be needed.

The Panel considers there is value in a central pool of resources that teachers and schools can draw upon. Through consultations with key stakeholders, the Panel is aware of resources such as 'Scootle' and the Australian Association of Mathematics Teachers Dimensions Portal that are available to teachers.

Scootle is a national digital platform holding a large array of digital resources aligned to Australian Curriculum accessible by all Australian Schools free of charge. Scootle allows educators to network, create groups and collaborate via the online space. Students can also access Scootle.

Scootle has the potential to be used as a central platform where evidence based materials and programs could be shared and accessed, along with links to educators and schools, as recommended in the report.

Consideration will need to be given to the fact that the use of Scootle, across Australia, may vary widely along with the knowledge of how to use it effectively. Therefore, communication and support in using such a platform would be needed. Due to variable Scootle accessibility, a commitment from governments to ensure it is universally available and endures as an evidenced based platform would also need to be explored.

The Australian Association of Mathematics Teachers (AAMT) has designed the Dimensions Portal to be responsive to teachers' needs in professional learning. This means that the catalogue of what is included will expand over time, through AAMT seeking out (or even commissioning) programs. For inclusion in Dimensions, programs need to be clearly linked to resources – including in relation to assessment and intervention – that teachers can use with confidence.

In the case of the implementation of the numeracy check there are already existing programs that may be able to be upgraded. Education systems and universities are likely to develop programs through collaboration with schools and the profession. However these programs and approaches emerge, Dimensions will be available to maximise teachers' access to quality assured professional learning.

The Evidence for Learning organisation also offers a possible rich source of independent information and resources to develop teacher content knowledge and guidance on evidence-based teaching and interventions.

The Panel offers no evaluation or comment on the quality and range of resources presently on these platforms, however they do offer the online infrastructure to support schools to respond to the results of Year 1 literacy and numeracy checks.

Communication with stakeholders, parents, and the general public

A recurring theme in the stakeholder consultations and submissions was the need to communicate a clear purpose to the community for the Year 1 checks. The online submissions in particular revealed a general misunderstanding of the purpose of the Year 1 checks, and demonstrated the need to ensure communication on the Year 1 check was clear and easy to understand.

Stakeholders raised questions during the consultation process that indicated there was limited information to date about what the Year 1 checks would include.

The panel recommends a public awareness strategy that addresses some key areas commonly raised during the consultation process:

- Purpose of the checks and how the checks differ from perceived high stakes testing such as NAPLAN.

- The benefits of having a nationally consistent standard and test and how the collection of this data differs from information already collected by the education sectors at the state and territory level already.

- Defining systematic, synthetic phonics, number sense and location/positioning to promote wider understanding in the community.

- Communication of the benefits of the tests and the importance of skills such as phonics, number sense and position/location, acknowledging that these skills on their own don't guarantee reading and numeracy acquisition but are an essential basis for their development.

- Communicating what constitutes evidence-based intervention. Clear direction around the supports that will be given to schools in response to results to develop technical knowledge and explicit teaching skills.

Recommendations

6.1. Additional resources should be accessible to teachers to support appropriate intervention, as identified by the results of the check. Such resources might include teacher professional development concerning data analysis and intervention approaches to support acceleration of progress for students who do not reach criterion on the check.

6.2. Schools should have access to a central point for professional learning and development resources and intervention resources (utilising existing online portals).

6.3. A public communication strategy should be developed to ensure stakeholders and the general public are aware of the purpose and need for the Year 1 checks and how the data will be used.

6.4. Specific professional learning focused on effective, evidence-based teaching of phonics (systematic synthetic phonics), number sense and position/location should be made available.

Appendices

A1. Panel process

In May 2016, the Australian Government released *Quality Schools, Quality Outcomes*, an evidence-based approach to schools reform to improve learning outcomes for all Australian students. As part of this reform, a national Year 1 check of all children in the areas of reading, phonics and numeracy was announced. This reform aims to ensure that students who are behind in their schooling are identified early and can receive the extra support they need.

On 29 January 2017, Senator the Hon Simon Birmingham, Minister for Education and Training, announced the establishment of an Expert Advisory Panel (the Panel) to advise the Government on how to best develop and implement a national Year 1 check.

The Panel met on three occasions: 15 February 2017, 8 March 2017 and 23 March 2017. During this period, the Panel undertook consultations with key stakeholders and invited written submissions. The Panel also undertook an online, public submission process between 4 March 2017 and 17 March 2017.

The Panel was chaired by **Dr Jennifer Buckingham,** Senior Research Fellow and Director of FIVE from FIVE Project, the Centre for Independent Studies.

Other Panel members were:

Ms Mandy Nayton OAM, Executive Officer, Dyslexia SPELD Foundation

Professor Pamela Snow, Head of the La Trobe Rural Health School

Mr Steven Capp, Principal Bentleigh West Primary School

Ms Allason McNamara, Head of Mathematics, Mount Scopus Memorial College

Professor Geoff Prince, Director, Australian Mathematical Sciences Institute.

A2. Consultation

On 10 February 2017, Minister Birmingham wrote to state and territory education ministers and non-government sector national representatives, the Independent Schools Council of Australia (ISCA) and the National Catholic Education Commission (NCEC), to advise on the establishment of an Expert Advisory Panel for the development of a national Year 1 literacy and numeracy check. The letters invited ministers and the non-government sector representatives to contribute to the Panel consultations.

Following this, the Chair of the Panel wrote to the heads of state and territory education departments, ISCA and the NCEC to seek information on the type of early years assessments administered in government, independent and catholic schools and to gain access to as many of these assessments as possible. The Chair also wrote separately to the state and territory associations of independent schools to gather this information.

Key stakeholders and organisations were contacted by the Panel for explicit written submissions/advice or face to face meetings. A list of the stakeholder organisations contacted by the Panel are outlined in Table 9 below.

Table 9. Stakeholders contacted directly by Panel

Stakeholder
ACT Education and Training Directorate (ACT)
Association of Independent Schools of the ACT Inc
Association of Independent Schools of New South Wales Ltd
Association of Independent Schools of the Northern Territory Inc
Association of Independent Schools of South Australia
Association of Independent Schools of Western Australia Inc
The Australian Association of Mathematics Teachers (AAMT)
Australian Curriculum, Assessment and Reporting Authority (ACARA)
Australian Council of State School Organisations (ACSSO)
Australian Education Union (AEU)
Australian Institute for Teaching and School Leadership (AITSL)
Australian Literacy Educators Association
Australian Primary Principals' Association (APPA)
Catholic Education Commission NSW
Catholic Education Commission Victoria (CECV)
Catholic Education Western Australia
Children and Young People with Disability Australia (CYDA)
Department of Education and Child Development (SA)
Department of Education and Communities (NSW)
Department of Education and Training (QLD)
Department of Education and Training (Vic)

Stakeholder
Department of Education (NT)
Department of Education (TAS)
Department of Education (WA)
Early Childhood Australia (ECA)
Education Services Australia (ESA)
Independent Schools Tasmania
Independent Schools Queensland
Independent Schools Victoria
Independent Schools Council of Australia (ISCA)
Isolated Children's Parents' Association (ICPA)
National Catholic Education Commission
Queensland Catholic Education Commission (QCEC)
Speech Pathology Australia
Tasmanian Catholic Education Office
Universities Australia
University of Western Australia (UWA)

A2. Online Submissions

Between 4 March 2017 and 17 March 2017, the Panel invited interested stakeholders to make an online submission on the proposed national Year 1 literacy and numeracy check. The submission process was run through the Australian Government's Department of Education and Training website, and the Panel invited written responses to the following eight questions:

1. On the basis of your knowledge and experience, what would you say are the potential benefits of the introduction of Year 1 reading and/or numeracy checks?

2. What steps should be taken to maximise the potential benefits of the proposed Year 1 reading and/or numeracy checks?

3. Again, on the basis of your knowledge and experience, do you believe there are specific challenges associated with the introduction of Year 1 reading and/or numeracy checks?

4. What steps could be taken to minimise the potential difficulties associated with the introduction of the Year 1 reading and/or numeracy checks?

5. What would be the preferable mode for delivering and/or recording of results from the Year 1 reading and numeracy check (e.g. paper-based, app-based, web-based etc.)? Please state reasons for your answer.

6. From your knowledge and experience, what do you see as the best proven curriculum-based reading and/or numeracy assessments for Year 1 students?

7. Do you believe the data collected from Year 1 reading and numeracy checks could have a potential impact on the teaching of reading and numeracy in schools?

8. Do you have any additional comments or suggestions about the proposed Year 1 reading and/or numeracy checks?

In total, 94 responses were received from members of the public, teachers, education specialists, trainers, academics, principals, speech pathologists and education organisations. There were 64 submissions supportive of a Year 1 check, and 29 against a Year 1 check, with 1 submission neither declaring support for or against.

The Panel thanks all stakeholders for their interest and contribution to the consultation process.

The below tables provide a high level summary of the recurring themes in submission responses, according to submitter type.

Table 10. Recurring themes from: Teachers, former teachers and trainers

Theme	Comments
Benefits of a Year 1 check	• Testing of curriculum that should be taught in schools. • Early identification of at risk children in literacy and numeracy, identifies gaps in students' knowledge. • Data collection and assisting in planning.
Challenges of a Year 1 check	• Teacher training/professional development and classroom resources will need to be provided to enable effective and efficient implementation. • Funding for relief teachers whilst teachers administer the test. • Not addressing the flaws in the UK Phonics Screening Check/ inaccurately tests students. • Not providing funding/resources to support students identified through the check as at risk. • Additional workload for teachers including, impact on time to administer tests. • Duplication of existing tests and/or additional testing burden. • Stress or anxiety for students and parents. • Some teachers commented that writing was a key element that needs to be in the test.

Table 11. Recurring themes from: Academics

Theme	Comments
Benefits of a Year 1 check	• Research based evidence indicates that the use of effective literacy assessment in the early years is the basic starting point for curriculum planning and differentiated instruction. • Identifying children who require extra support. • Identifying schools whose teaching program seems to be inadequate to develop the necessary skills required for reading. • Focusing teachers' and schools' attention on the need for phonics to be taught explicitly and systematically to achieve the necessary level of word reading skills that are required to develop skilled reading. • Where necessary, changing schools' attitudes and practices related to the teaching of phonics, so that children are not denied the opportunity to develop skilled reading because of the failure of schools to teach the basic skills required for skilled reading. • Literacy and numeracy assessments can be used to celebrate learning, identify strengths, needs, barriers to learning and allow teachers to make informed and objective judgements about learning.
Challenges of a Year 1 check	• There is a significant challenge in selecting an appropriate test at the outset. If a more appropriate test could be identified or constructed, challenges relating to test implementation (training of teachers or others to implement the test), the expense of implementation, and the meaningful interpretation, timely dissemination and use of the results would be a challenge. • Measures for exemption needed. • Likely resistance from teachers, it will be necessary to make the purpose of the Phonics check clear.

Table 12. Recurring themes from: Principals

Theme	Comments
Benefits of a Year 1 check	- Greater accountability. - Drawing teachers focus on what skills need to be taught. - Identification of students who have not reached expected benchmarks in reading and numeracy, supported by evidence and data. - Improved pre service teacher training and teacher professional learning.
Challenges of a Year 1 check	- Time to perform the check and to analyse the results. - Not having additional resources allocated to each school – funding a concern. - Risk of narrowing of curriculum.

Table 13. Recurring themes from: Education consultants and officers, advocates and specialists

Theme	Comments
Benefits of a Year 1 check	• Focus for teachers on curriculum and what needs to be taught, greater understanding of curriculum. • Emergent literacy skills strong predictors of future reading and writing ability. • National baseline dataset. • Effective tacking of student performance. • Informing classroom teachers about the achievement levels of students / progress of students. • School accountability.
Challenges of a Year 1 check	• A single test measuring a single skill will not be valuable or productive, not flexible enough to meet the needs of teachers or students. • Lack of exposure to digital technologies may cause issues – online testing may not be appropriate for this age group. • Length of test and how it is implemented will impact on perceived usefulness. • Don't want to overtest students. • May achieve high marks in test, but still may not be able to read or write. • Misunderstanding of purpose of text, some teachers/unions may not be on board with test – need to be clear about purpose.

Table 14. Recurring themes from: Speech Pathologists

Theme	Comments
Benefits of a Year 1 check	- Consistent and published data on outcomes of early intervention. - Early identification of children with learning difficulties or need additional instruction. - Teachers will see phonics as an effective approach to teaching. - School accountability.
Challenges of a Year 1 check	- Parents/teachers may be sceptical or unhappy with additional testing. - Teachers may need additional professional development, particularly for phonics components. - Willingness of stakeholders to support check.

A3. Phonics in the Australian Curriculum

Table 15. Assessment of Phonics in the Australian Curriculum

Assessment	Australian Curriculum (Foundation and Year 1)
The initial code Knowledge of single phoneme-grapheme relationships (e.g. the /s/ sound can be represented by the letter 's')	**Present** (Foundation)
Knowledge of diagraphs	**Present** (Year 1)
Knowledge of trigraphs	
Knowledge of grapheme representation for all phonemes (approx. 43)	**Partially Present** (Year 1: short vowels, common long vowels, consonant digraphs)
- CV	
- CVC	**Present** (Foundation)
- VCC	
- CVCC	
- CCVC	
- CCVCC	
The extended code Knowledge of alternate spelling patterns (e.g. the /ô/ sound can be written as 'oa', 'oe', 'o-e', 'ow', etc, the 'ea' letter string represents a different sound in head, meat and steak)	
Adjacent consonants Knowledge of adjacent consonants (e.g. e<u>nd</u>, <u>tr</u>ap, te<u>nt</u>, <u>cr</u>un<u>ch</u> and <u>str</u>ap, referred to as VCC (e.g. end), CCVC (e.g. trap), CVCC (e.g. tent), CCVCC (e.g. crunch) and CCCVC (e.g. strap) words	**Present** (Year 1)
Reading pseudowords Reading nonsense words in order to demonstrate identification and blending (from left to right) of all letter-sound relationships in a word	**N/A**
Automaticity of nonsense word reading	**N/A**

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