All children and young people make progress and achieve

Why have we selected this area to focus on?

The 1989 Education Act states that one of the objectives of the education system is to enable every child and young person to attain educational achievement to the best of their potential[i]. This means all children and young people develop the skills and competencies that allow them to access broad and rich education opportunities, so that they learn, progress, and achieve across the whole curriculum, over time.

Developing these skills and competencies helps prepare them for the world of work and to participate in society. These competencies are essential to cognitive development in adolescence and to increased social and physiological wellbeing for all children and young people.

Progress is necessary for achievement. As learning progresses, building blocks and cognitive connections are made that present new learning possibilities that didn't exist previously. Children and young people's knowledge, skills, competencies, attitudes, and learning relationships all grow, develop and expand.

Progress and achievement are more likely to occur if the broad range of competencies that contribute to wellbeing are noticed, nurtured and attended to as part of teaching, learning and the integral assessment of progress. Learning is a continuous process. Learning that occurs in early childhood education (ECE) and schools is supported by learning at home and in the community and vice versa.

The success of New Zealand's future society and economy rests, in large part, on more equitable outcomes for all. This means removing barriers that restrict progress and achievement and supporting higher rates of progress when needed. Barriers to learning include those arising from socio-economic deprivation, disability, poor physical or mental health, and language or behaviour issues. Higher rates of progress may be needed, at particular points, to bring up knowledge and skills faster in cases where the prior knowledge and skills are not sufficient to take full advantage of the current classroom teaching. A system that provides equal opportunities for all provides wide-ranging and targeted support either on-going or for a period of time as appropriate. Enabling all children and young people to make progress includes paying particular attention to disengaged young people, or those at risk of disengaging.

How are we doing?

There is no simple answer to the question, 'how are we doing?' In answering this question we have drawn information from the available data sources to understand how the achievement and progress of New Zealand children and young people compares against national curricula expectations and international benchmarks. We have also looked to what extent educational outcomes are being achieved equitably.

The sources from which we have drawn evidence include:

- The National Monitoring Study of Student Achievement (NMSSA)
- The Progress in International Reading Literacy Study (PIRLS)
- The Trends in International Mathematics and Science Study (TIMSS)

- The Programme for International Assessment (PISA)
- New Zealand's National Certificates of Educational Achievement (NCEA) participation and attainment information
- Ngā Whanaketanga Rumaki Māori and National Standards information
- Ad-hoc research studies
- Education at a Glance (EAG)

Achievement information reflects the measurement tool used and the purpose for which the information is collected. To provide some of this context, appendix 1 provides some information about the data sources.

Each information source has its own strengths and limitations. Studying achievement and progress from multiple data sources provides a rich method for analysis. Regardless of the differences in the purpose and nature of the information, it provides some consistent findings about how we are doing overall:

- At all stages of schooling, there are students who perform well above the expectations of the New Zealand curriculum and at the higher levels of international benchmarks. Overall, New Zealand is a country characterised by relatively high achievement when compared to the OECD average, but achievement is not equal for all.

- New Zealand's education system is not achieving equity of outcomes. This is illustrated by the wide spread of achievement at any year level and the longstanding gender, ethnic and socio-economic differences in achievement outcomes:
    - There is a very wide variation in student achievement at any year level and this variation is comparatively higher here than internationally.
    - There is a persistent pattern of socio-economic inequity of achievement outcomes.
    - Although a student's background and characteristics do not determine achievement, the education system does not deliver equitable outcomes for Māori and Pacific students, who achieve on average lower than other students.
    - There is a persistent gender gap in literacy which is relatively high when compared internationally.
    - This persistent achievement gap between subgroups is apparent in the data from early primary through to the attainment of school leavers.

- At secondary level, when students participate in NCEA, socio-economic differences also reflect subject choice and participation in external assessments. For example, students studying in lower-decile schools are much less likely to participate and gain credits in science compared with students studying in higher-decile schools. Also, students from lower-decile schools receive a far greater percentage of their credits from internally-assessed standards than they do from externally-assessed standards compared with students from higher-decile schools.

- Although measures of achievement show inequity of outcomes, progress measures in primary schooling are very similar across subgroups of students. The evidence suggests that all student subgroups are progressing at similar rates but that the higher rate needed to reduce the inequity of achievement outcomes cannot be observed at a system level, so the patterns of inequitable outcomes have persisted over time.

- There is a clear upward trend in NCEA attainment at all levels, although the proportion of students leaving with no qualifications has not decreased as quickly as the increase at higher levels. The largest percentage point increase in those attaining at least NCEA Level 2 or equivalent has been in Māori and Pacific school leavers. These changes indicate that the disparities in NCEA qualifications between most ethnic groups have reduced slightly over time but a large achievement gap remains for Māori and Pacific students. Similarly, the gap in NCEA Level 2 attainment between lower and higher-decile schools has also reduced.

- The recent increase in NCEA attainment has not translated to increases in the relative position of New Zealand's average achievement scores internationally, nor in a reduction of previously observed achievement gaps.

How are we doing in early learning?

Participation rates are the best available system indicator, as progress and achievement information is focused on the learning and development of children in their early learning setting. We know that a high-quality early learning experience can improve children's cognitive and non-cognitive abilities and emotional development, providing a foundation for their progress across the curriculum and in all aspects of learning at school and kura.

Evidence from the international studies has shown that participation in early learning is associated with achievement at middle primary level[ii] and by age 15, even after accounting for children and young people's socio-economic background.[iii] This relationship between early learning participation and later learning outcomes is strongest in countries with specific quality requirements, such as low children-to-staff ratios and qualified staff.[iv]

There has been significant growth in early learning participation, particularly for Māori, Pacific children and children from lower socio-economic communities. 96.8% of children starting school in the 12 months ending June 2017 had attended early learning before starting school.

However, there is still work to be done. Although Pacific children's participation in early learning has grown, it is still the lowest for all population groups. Disadvantaged children are also attending for fewer years on average than children from high socio-economic communities. (See evidence brief on *Learners get a good start in education* for discussion about disabled and learning support in early learning).

The oral language children have when they start school directly impacts on their ability to think and to learn. It can set the foundation for literacy in primary school[v] and be linked with academic achievement and behaviour adjustment[vi]. Some children are starting school with 6,000 words in their expressive vocabulary. These children are more likely to be able to build relationships, ask for help, express their ideas and opinions and absorb new knowledge and experiences. This is the optimum start. Other children may start only able to use about 3,000 words. These children may struggle to express themselves and may find the transition to school more challenging. Along with a lack of vocabulary, they will lack confidence and verbal fluency[vii]. These differences in oral language have an association with socio-economics, with children in socio-economically advantaged communities generally starting school with a wider working vocabulary. This provides evidence of inequity of achievement outcomes early in children's educational pathway.

Primary schooling – Years 1 to 8 in English-medium settings

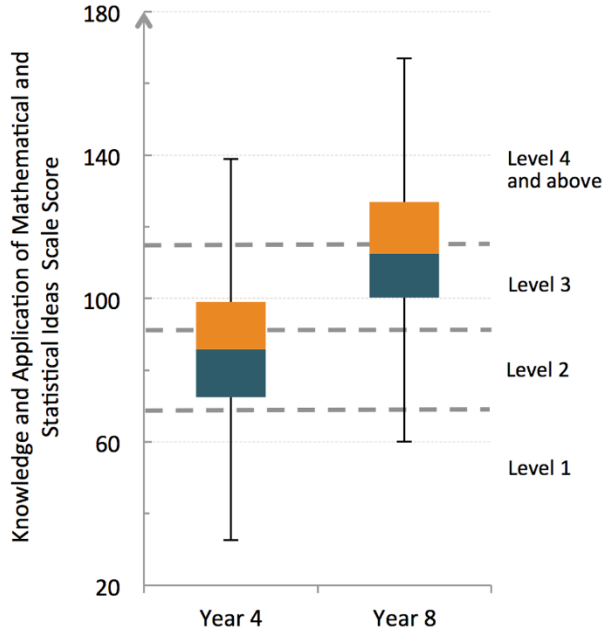
The New Zealand Curriculum, including the competencies, describes the learning objectives for each learning area for 8 levels. Ideally students will be ready to start working at curriculum level 5 when they arrive at secondary school. This supports students to progress to curriculum level 8 from Years 9 to 13 and be able to successfully participate at all levels of NCEA.

Overall achievement and progress through primary

In international comparisons, New Zealand students perform, on average, similarly or better than their international counterparts. However, New Zealand also shows a comparatively wide variation in achievement. The variation in achievement helps to identify whether a country is achieving equity in its education system. For example, TIMSS results in science and maths at Year 5 show that New Zealand's difference between higher and lower achievement was bigger than many other countries.

At primary schooling, one curriculum level typically represents two years of learning. Achievement information shows that there could be as much as two curriculum levels, or four years of learning, between children at the same year level. Figure 1 from the NMSSA shows how, in mathematics, some students at Year 4 demonstrate achievement associated with level 4 while others in the same school year do not reach the learning objectives at level 2. This finding is consistent across learning areas.

Figure 1 – Students' achievement score distribution in mathematics and statistics - NMSSA 2013



At any year level there are considerable numbers of children that achieve above the expectations of the NZ curriculum, but there is also a high proportion of students not meeting those

expectations. Data from TIMSS tells us that fewer than half of the Year 5 students sampled were in classes that were working entirely at the desired curriculum level in mathematics and statistics and science. The proportion of children meeting expectations decreases as they move from mid-primary to the intermediate[viii] and lower secondary years (TIMSS Year 9)[ix]. This result is visible in the NMSSA study, which has consistently shown that, although at Year 4 most students are working in line with expectations, by Year 8 this is not the case. This was also observed in the National Standards results, and indicates that, on average, students were making insufficient year-on-year progress from Years 1 to 8 to enable them to successfully progress across the curriculum from Years 9 to 13.

Relative achievement and progress across subpopulations

Socio-economic factors are strongly associated with performance. This pattern is visible in all data sources. The NMSSA shows that, on average, students from lower-decile schools show lower achievement than those who attend higher-decile schools. The difference in average scores between students attending decile 1, 2 or 3 schools and those attending decile 8, 9 or 10 schools is equivalent to the average amount of progress measured over about two years of schooling. Schools in the lowest deciles (1, 2 and 3) draw their students from communities with the highest degree of socio-economic disadvantage. Further, TIMSS and PIRLS show large differences, in New Zealand compared to other countries, between students in socio-economically advantaged schools and those in socio-economically disadvantaged schools.

Māori and Pacific students, who as a group are more likely than other students to attend mid and lower-decile schools, on average scored lower than students from other ethnic groups. In 2017, 82% of students in deciles 1, 2 or 3 primary schools were Māori or Pacific while only 16% of students in decile 8, 9 and 10 primary schools where Māori or Pacific.

Boys' and girls' achievement is similar for most learning areas, however gender differences in literacy are well documented internationally and are common across jurisdictions, including New Zealand. Evidence from PIRLS shows that average reading comprehension achievement at Year 5 in New Zealand is higher for girls than boys, and this difference is larger in New Zealand than many other countries. The NMSSA also shows this gender difference in English is common across assessments in reading, writing, listening and viewing. The difference in average achievement between boys and girls in English is equivalent to the average amount of progress measured over about one year of schooling.

The NMSSA shows gender differences in achievement in other learning areas. On average, girls show higher achievement in the arts and in technology than boys. Although there is no gender difference in achievement when measuring critical thinking on health and physical education, boys scored higher on a range of movement skills and strategic action skills that included rotation, agility, and balance in the context of games. Girls scored slightly higher on performing movement sequence skills that included control and use of equipment, change of pace, level, and use of their bodies, as well as variations in movements, and use of space.

Although on average, socio-economically-advantaged students usually perform better than disadvantaged students, a student's socio-economic status does not predetermine their performance. For any group of students with similar socio-economic backgrounds, the range in performance is considerable. Likewise any group of students with a given score has a wide range of students from different socio-economic backgrounds. The same can be said about ethnicity or gender differences observed in achievement data.

When NMSSA scale score differences between Year 4 and Year 8 are taken as a proxy for progress, socio-economic factors do not show a strong association with progress and any differences observed between ethnicity groups or gender are small. This finding was also found in a study that modelled student progress from Year 4 to Year 10 in reading using longitudinal student assessment data[x].

Therefore, the evidence suggests that all student subgroups are progressing at similar rates but that the higher rate needed to reduce the inequity of achievement outcomes cannot be observed at a system level so the patterns of inequitable outcomes have persisted over time. On average, student progress from year 4 to year 8 is similar regardless of school decile but students in low-decile schools leave primary school on average two years below students from high-decile schools.

Relative achievement and progress across different areas of the curriculum

When comparing results from different learning areas, New Zealand school students generally perform better in reading and science than in maths, compared with their international peers.[xi]

The NMSSA data suggests that, compared to the expectations of the New Zealand curriculum students in the last year of primary do better in English (reading, listening and viewing), the arts, health and physical education and technology, than they do in maths, social studies or science.

The NMSSA shows that, at Year 4, on average students are achieving at the expected level of the curriculum in all learning areas, but by the end of primary, at year 8, the expectations are only being met in English (reading, listening and viewing), the arts, technology, and health and physical education. When NMSSA scale score differences between Year 4 and Year 8 are taken as a proxy for progress, the average progress made by students from Year 4 to Year 8 is similar, but indicates that progress is perhaps lower for science and health and physical education, and highest for technology. The learning areas with the lowest proportion of students at the expected level at Year 8 are science, English (writing) and social studies.

TIMSS and PIRLS examine the thinking and reasoning skills and strategies students are most likely to employ when reading a piece of text, answering a question, or working on a problem. TIMSS studies show that questions requiring higher-order thinking skills were a relative strength for New Zealand students, compared with relatively simple tasks such as recalling knowledge and using procedures - this is particularly true in the context of science. In PIRLS, reasoning skills are assessed, encompassing the ability to interpret and integrate ideas in texts, and being able to reflect and examine and evaluate content language and textual features in written texts. These skills and strategies are also a relative strength for our students.

Trends over time

The gender, ethnic and socio-economic differences are longstanding and were also observed throughout the National Education Monitoring Project (NEMP) which preceded the NMSSA from 1995 to 2010.

International studies show trends are relatively stable. The most recent science and maths achievement information (TIMSS 2014) suggests a turnaround in the downward trend in performance that was observed at successive cycles from 2002 to 2011. The latest PIRLS report showed weaker performance at Year 5 in reading overall, compared to previous cycles, but particularly at the top end of the achievement distribution. That is, our more able readers in 2015

had weaker performance than more able readers in 2010. Internationally, New Zealand was no longer well-represented amongst the international group of very good readers.

Secondary schooling – Years 9 to 13 in English and Māori-medium

Overall achievement and progress through secondary

National Certificate of Educational Achievement (NCEA) qualifications are national qualifications for senior secondary school students. NCEA results provide participation and achievement information at upper secondary level. NCEA uses a criterion reference assessment method in which assessments are set according to fixed assessment standards. NCEA recognises achievement in both the English and Māori-medium curricula. The achievement results from this type of assessment cannot be easily analysed to derive quantitative measures of student progress. However, school leaver NCEA attainment information provides a summary measure of progress throughout schooling, taking into account different starting points. NCEA attainment is used to report internationally about upper secondary achievement.

International comparative indicators show that upper-secondary attainment in New Zealand is similar to the OECD average[xii]. A two-year upper-secondary qualification (equivalent to NCEA Level 2 in New Zealand) is the level set internationally as 'upper-secondary' attainment, and is increasingly considered a basic minimum benchmark for equipping citizens and societies to do well. In 2016, 83% of 25 to 34 year-olds had attained an education equivalent to an NCEA Level 2 qualification or higher. This was similar to the OECD average of 85%.

In 2016, 89% of school leavers left with an NCEA qualification of at least Level 1, 80% had achieved Level 2 or above and 54% left with NCEA Level 3. Forty one percent of school leavers achieved a University Entrance award.

New Zealand is one of a small number of countries that has a recognised, credentialed pathway out of education after one year of upper-secondary study. While NCEA Level 1 is considered 'below upper-secondary' in OECD international comparisons 9 percent of 2016 school leavers left school holding a recognised NCEA Level 1 or equivalent qualification as their highest qualification, while 11% held no qualification at all.

Data from international studies shows that, as for primary, secondary achievement in New Zealand has a larger variation when compared internationally, with high levels of both top performers and very low performers.

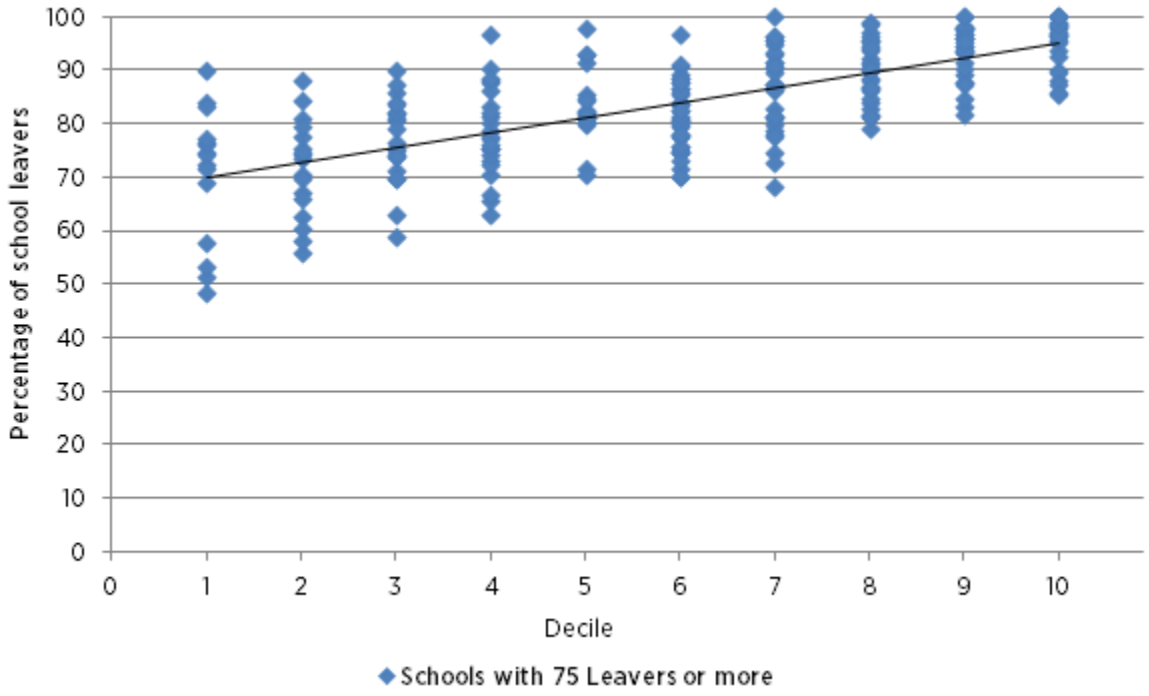
Data from TIMSS provides evidence of achievement at the first year of secondary schooling (Year 9) in mathematics and science. At the lower-secondary level, mathematics has never featured as a strong discipline for New Zealand students compared with other countries, with average achievement just below the international scale centre-point. At this level, science performance has always been shown as a relative strength against international comparisons, with the New Zealand average coming above the international scale centre-point.

Data from PISA tells us that New Zealand 15-year-olds perform, on average, above the OECD average for reading, science and mathematics literacy. Relative to other countries, mathematics performance improves over time as children progress from middle-primary to middle-secondary.

Relative achievement and progress across subpopulations

The strong association between socio-economic factors and achievement observed at primary level is still visible at secondary. In 2016, 92.9% of students from schools in the highest deciles (deciles 9 and 10) left school with at least an NCEA Level 2 qualification. This was 25.4 percentage points higher than the percentage for school leavers in deciles 1 and 2 (67.5%). Figure 2 shows that while for most high-decile schools at least 80% of their students leave with at least an NCEA Level 2 qualification or equivalent, for the lower-decile schools that is not the case.

Figure 2 - Percentage of school leavers with at least an NCEA Level 2 qualification or equivalent, by school decile (2016)



International studies show that achieving equity of outcomes across socio-economic boundaries is a challenge for many countries. PISA compares equity of participating countries through two different indicators:

- One indicator relates to how strongly socio-economic status predicts achievement. New Zealand's results for this indicator are the same as the OECD average, about the same as for Australia and the United States, and higher than Canada.
- A second equity indicator is the impact of different levels of socio-economic status on achievement. The results for this indicator show that socio-economic differences have a higher impact in New Zealand than the OECD average.

When looking at NCEA Level 2 attainment by ethnicity groups, the data shows that, in 2016, Asian students had the highest percentage of school leavers attaining at least NCEA Level 2 or equivalent (91.1%), which was 7.4 percentage points higher than European/Pākehā (83.7%). Pacific students (74.7%) and Māori (66.5%) had the lowest rates. PISA results show that,

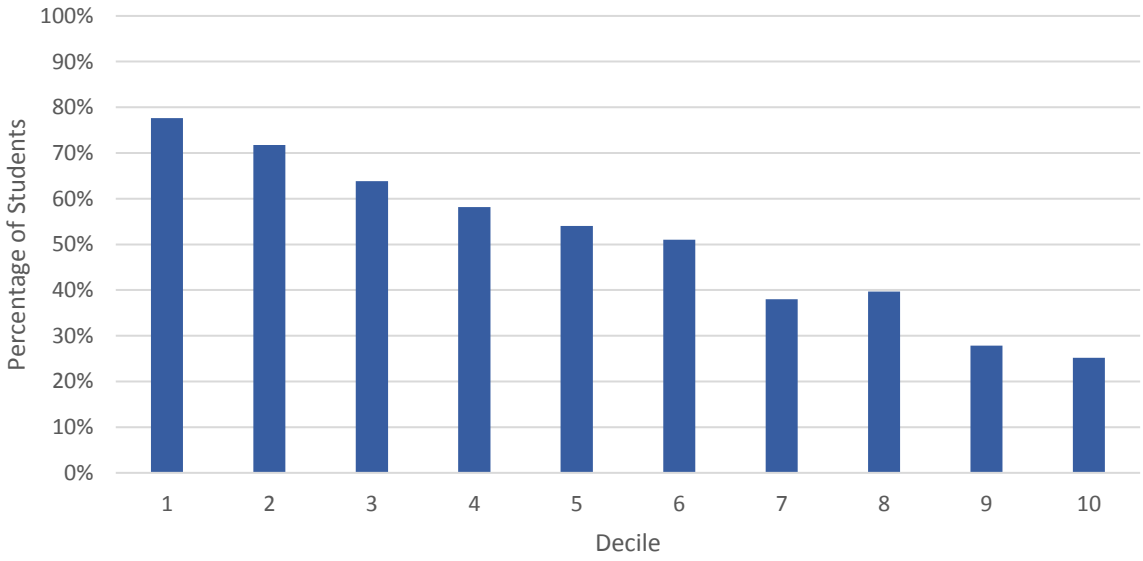
although the overall average achievement is above the OECD average for reading, science and mathematics literacy, these outcomes are not achieved for every student, and Māori and Pacific students perform, on average, below the New Zealand and OECD averages.[xiii]

For female school leavers, NCEA Level 2 attainment (82.8%) was higher than for their male counterparts (78.0%). In 2015 in PISA, New Zealand boys had a science literacy score (516 points) similar to girls (511 points). In contrast, New Zealand girls demonstrated a higher reading literacy average score (526 points) than boys (493 points). In mathematics, boys (499 points) performed higher than girls (491 points).

Comparing primary and secondary achievement, the data shows that the achievement gaps observed in mid-primary are carried on through secondary, and are reflected in school leavers' NCEA attainment rates. However, NCEA attainment rates also include a gender gap which, at Year 4, is only observed in reading and writing. At 15 years of age, boys' average achievement in maths and science is similar or higher than the girls' average, but girls on average outperform boys in reading. This may explain in part the overall gender difference in NCEA attainment rates, and indicate the importance of literacy for overall performance.

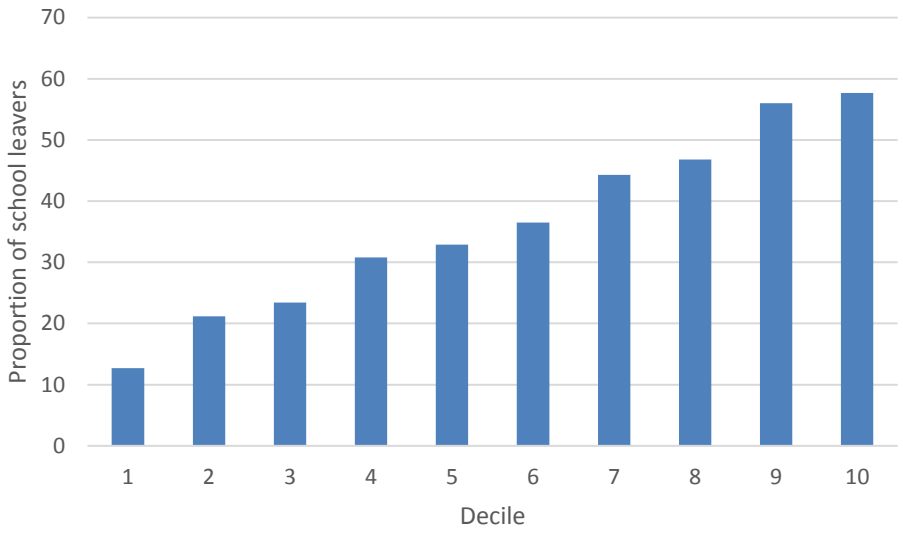
Socio-economic differences are not only reflected in the final attainment, but also in the way attainment is achieved. A relatively high proportion of students at low-decile schools are gaining qualifications from mainly internally-assessed standards, while at high-decile schools it appears that more students are preparing for externals. This is important because, in order to continue in a subject to a higher level, students need to gain achieved or higher grades from the externals. Figure 3 shows that in decile 1 schools almost 80% of Year 12 students gained more than 70% of credits from internally-assessed standards, compared with 25% for students in decile 10.

Figure 3 - Percentage of students that achieved NCEA Level 2 in year 12 having greater than 70% of credits from internally-assessed standards by decile - 2017



The differences in attainment are reflected across all learning areas, but for some learning areas, the gap in achievement is larger than the overall differences would predict. For example, students studying in lower-decile schools are much less likely to participate and gain credits in science compared with students studying in higher-decile schools (see figure 4).

Figure 4 - Proportion of school leavers attaining at least 14 credits in Sciences by school decile



Relative achievement and progress across different areas of the curriculum

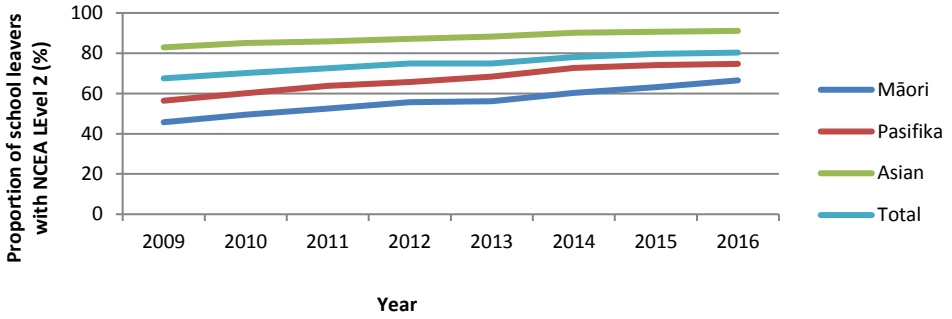
The relative strengths found by TIMSS and PIRLS for primary students are carried onto secondary. TIMSS and PISA studies show that questions requiring higher-order thinking skills were a relative strength for New Zealand secondary students. In PISA (reading), reasoning skills are also a relative strength for our secondary students.

Trends over time

Across the whole student population an increasing number of children and young people are leaving school with NCEA Level 2, the necessary foundation qualifications that will support them to move on to work or further study. Since 2009, there has been a 12.8 percentage point increase in those who attain at least NCEA Level 2 or equivalent, with 80.3% in 2016 compared to 67.5% in 2009.

The largest percentage point increase in those attaining at least NCEA Level 2 or equivalent has been in Māori and Pacific school leavers, with an increase of 20.8 and 18.3 percentage points respectively between 2009 and 2016. These changes indicate that the disparities between most ethnic groups have reduced slightly over time but a large achievement gap remains for Māori and Pacific students. Similarly, the gap in NCEA L2 attainment between lower and higher decile schools has also reduced.

Figure 5 - Percentage of school leavers with at least NCEA Level 2 or equivalent, by total response ethnic group 2009 – 2016



These increases have been observed across all levels of NCEA although the percentage increase since 2009 of school leavers attaining at least NCEA Level 1 or equivalent is lower at 8.5 percentage points. This means that the increase in NCEA Level 2 attainment has not translated into a decrease in the proportion of students leaving school with no qualifications of the same order of magnitude.

Despite the NCEA attainment increase since 2009, the average scores of New Zealand 15-year-old students in science, mathematics and reading measured by PISA have declined in that period, with Māori and Pacific students following the national pattern. Furthermore, there has been an increase in the proportion of lower achievers, along with a decrease in the proportion of high performers.

Despite this trend, our very best students continue to do well. The proportion of New Zealand students that are top performers in at least one of science, reading and mathematics is above the OECD average and we still have one of the largest proportions of students that are top performers in all three subjects.[xiv]

Māori-medium education

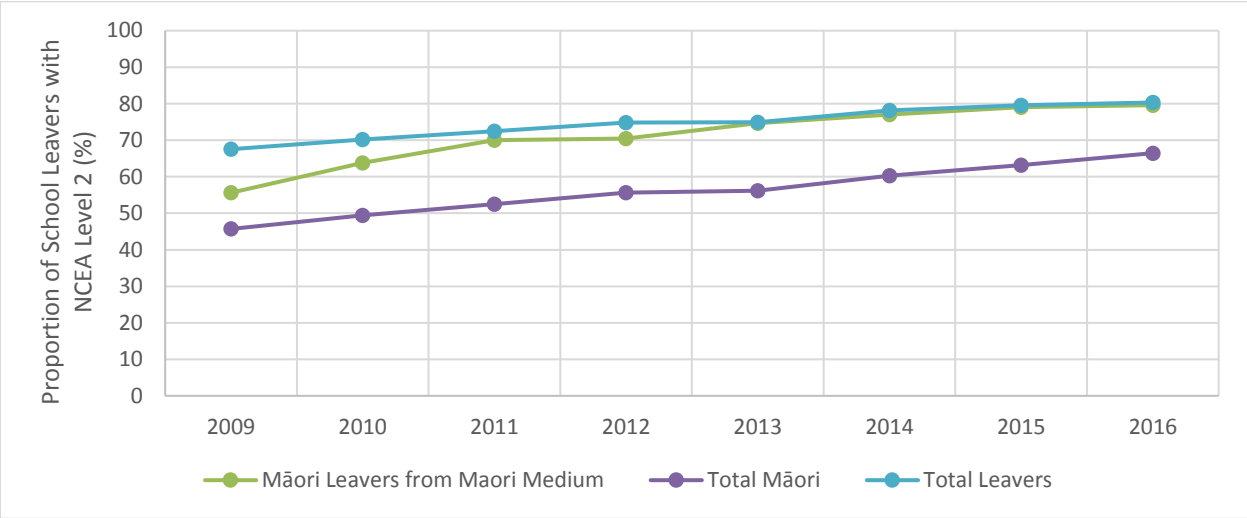
Some children and young people learn in Māori-medium for the whole or part of their education pathway. NCEA results of students leaving from Māori-medium give a summary of the progress of those students throughout their schooling.

In 2016, three percent (353 students) of school leavers studied at a kura or in a Māori-medium setting. Achievement results in Māori-medium education continue to improve, with children and young people in kura and Māori-medium settings demonstrating strong educational achievement if they stay within Māori-medium education throughout their whole education journey.

In 2016, 79.6% of school leavers from Māori-medium education left with NCEA Level 2 or above. This is similar to achievement in the total school population (80.3%). However, there is no achievement data earlier in their pathway from which to make inferences regarding the pattern of progress.

Figure 6 shows that these achievement rates in Māori-medium have been consistent over time and show an upwards trend.

Figure 6 – Proportion of students leaving school with NCEA Level 2 or above



Figures 7 and 8 compare the NCEA attainment of Māori leavers from Māori-medium and English-medium education. The graphs illustrate much higher attainment of Māori leavers from Māori-medium.

Figure 7 – Highest attainment of Māori school leavers from Māori-medium education

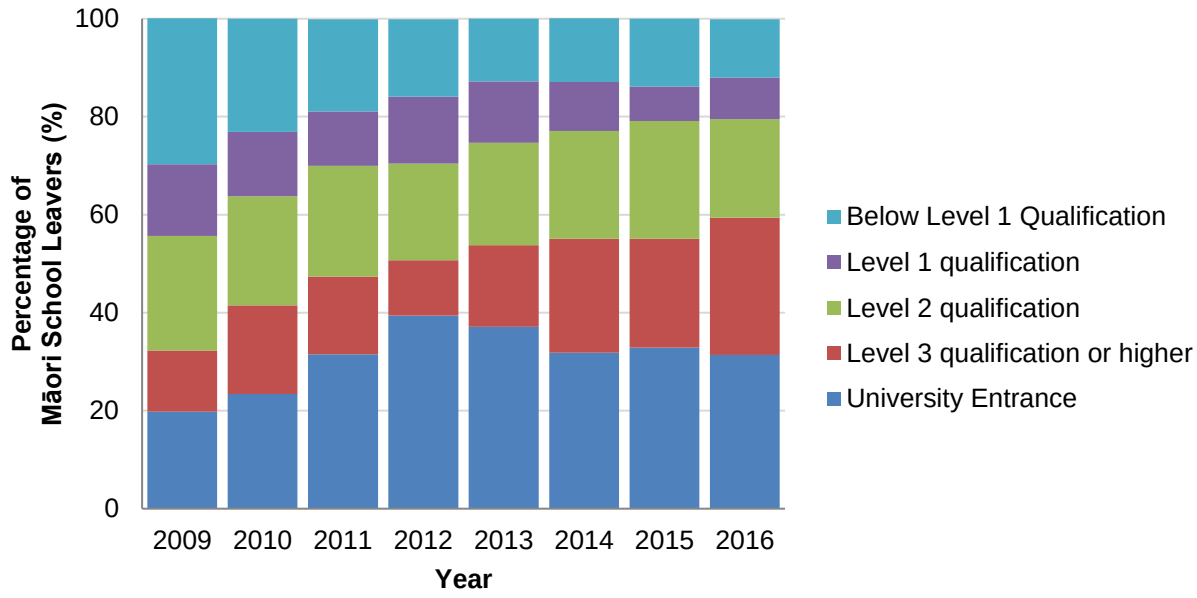
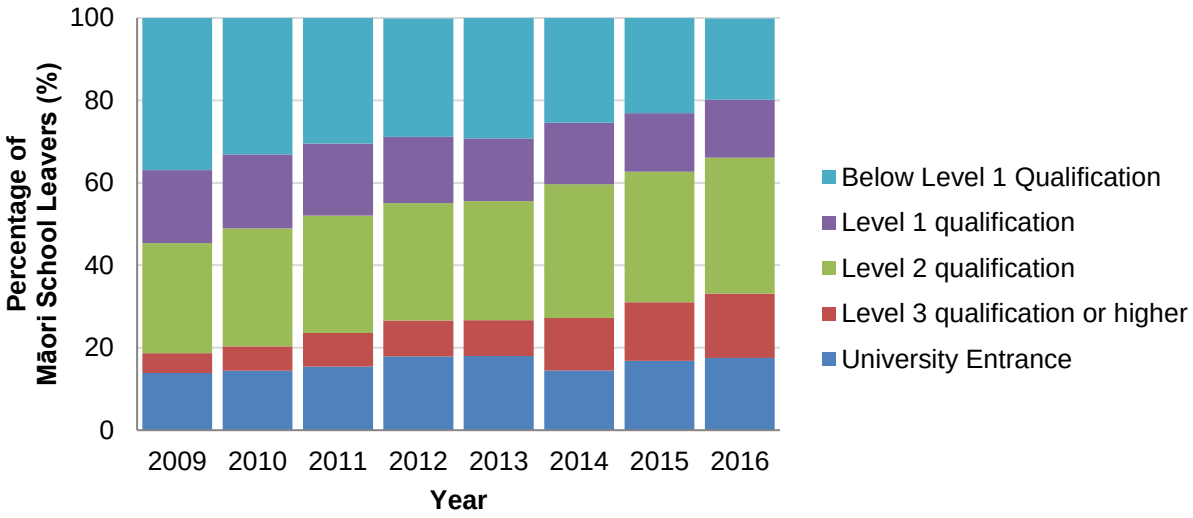


Figure 8 - Highest attainment of Māori school leavers from English-medium education



Disabled and learning support

Inclusion is one of the principles in the New Zealand Curriculum, and in most cases, children and young people with disabled and learning support needs learn alongside other children not requiring specialist support. The Ministry of Education provides specialist support to about 35,000 children and young people with disabled and learning support needs. This group of students is a diverse group and some may not fit the pattern of progress suggested by the national curricula.

There is not much data at system level from which to understand the achievement and progress of students receiving disabled and learning support funding. Results against the National Standards and Ngā Whanaketanga Rumaki Māori include all primary level students but for many of these students the standards are not relevant to their individual learning pathway. For those students their achievement and progress is invisible in those reports.

Work has been underway since 2016 to understand if and how the existing Learning Progressions Frameworks can be used to describe, assess and report on fine-grained progress of those students who are learning long-term within level one of the curriculum. Participants have reported that their expectations for student progress have risen as they have been able to visualise their learners within the progressions.

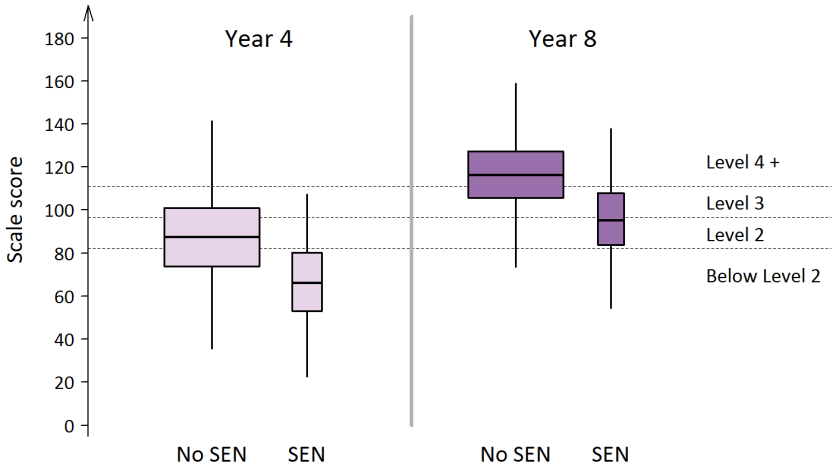
NCEA attainment information of school leavers shows that some students with the highest level of disabled and learning support needs leave school with qualifications. In 2016, 529 students, who received support from the Ongoing Resources Scheme (ORS), left school. ORS provides support for a very small number of students with the highest level of need for disabled and learning support. From all ORS school leavers, 23% had attained an NCEA qualification at Level 1 or above, and 16% had attained NCEA level 2 or above.

The NMSSA includes students with disabled and learning support needs in their assessments, and therefore the data reports on the achievement and progress of students with disabled and learning support needs for all areas of the New Zealand Curriculum. Students with disabled and

learning support needs have lower average achievement than the national average, but there is a large variation in achievement within each year level, and their average progress from Year 4 to Year 8 is similar to the average for all students.

For example, in English (reading), 24 percent of Year 4 students with disabled and learning support needs are achieving in line with curriculum expectations, while the proportion at Year 8 is 20 percent. The figure below shows that, overall, average achievement of students with disabled and learning support needs in English (reading) is lower than for students with no disabled and learning support needs. The progress of students with disabled and learning support needs from Year 4 to Year 8 was similar to the progress of those with no disabled and learning support needs. It is important to note that these findings mostly reflect achievement and progress of students with moderate disabled and learning support needs as very few students in the high-needs group participated.

Figure 9 - English (reading) achievement distribution – NMSSA 2014 (SEN = disabled and learning support needs)



Other factors associated with achievement

Enjoyment of a particular learning domain, being motivated to learn, and being confident about learning are all factors that are positively associated with achievement. These relationships are associations and not necessarily causal relationships. That is, having positive attitudes towards maths doesn't mean you will automatically be good at maths. It is however likely that students who demonstrate higher performance in maths, for example, will also have positive attitudes to learning maths. The relationship between achievement and student confidence tends to be stronger than students' liking of and valuing of a subject.

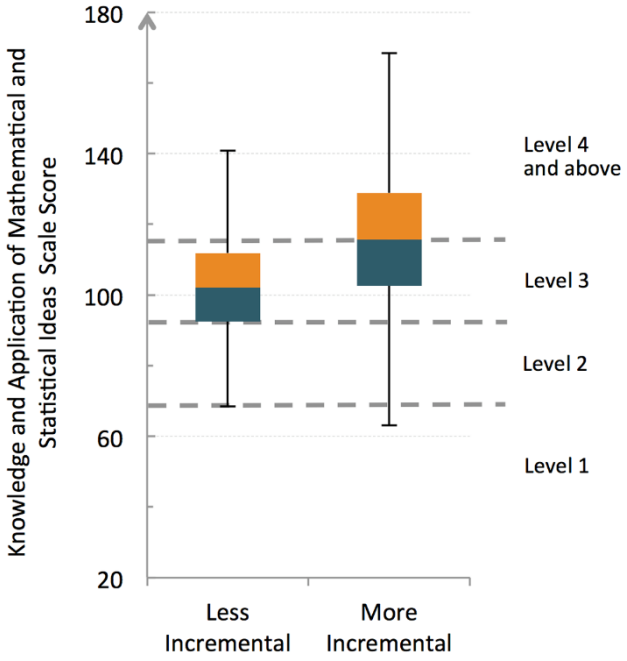
Similarly, findings for reading conclude that positive attitudes towards reading and high achievement are related in a bidirectional way – that is, better readers generally enjoy reading more and therefore read more frequently than weaker readers. In turn this can lead to better development of reading comprehension skills and strategies. [xv,xvi]

The NMSSA shows that students who reported a more positive attitude towards a learning area, on average, gained higher achievement scores. In international comparisons NZ primary

students liked learning maths but were less positive than many of their international peers. Within New Zealand, boys liked maths more than girls, and tended to be more confident.

The NMSSA explored students' belief that they had some control over their performance in mathematics and whether they thought their mathematics ability was fixed or malleable. Overall, the finding indicates that at Year 8, not only does believing they have some control over their learning give them a more positive view of learning, but their mind-set is also associated with their performance in mathematics. Figure 10 shows that average mathematics achievement is higher for students who thought their mathematics ability was malleable (more incremental) compared with those who thought it was fixed (less incremental).

Figure 10 - Year 8 mathematics achievement scores by fixed/malleable beliefs (less incremental = fixed, more incremental = malleable)



The majority (90%) of New Zealand primary students liked or very much liked learning science but were less likely to be very confident about learning science than their international peers. There are no discernible differences between girls' and boys' views about liking science or their confidence. Māori and Pacific students were over-represented in the group of not-confident students. Figure 11 shows the difference in attitude and confidence in science at Year 5 between New Zealand students and international peers.

Figure 11 - attitude and confidence in Science at Year 5 (TIMSS 2015)

	Percentage of students who . . .		
	Do not like learning science	Like learning science	Very much like learning science
Year 5	10	32	58
International mean	11	33	56
	Not confident	Confident	Very confident
Year 5	25	51	24
International mean	18	42	40

PIRLS shows that, internationally, middle-primary students are positive about reading and the reading instruction they experience at school. Year 5 students' views about their liking of reading and the extent to which they felt engaged during their reading (instruction) were generally about the same as their international peers. They did tend to be less confident about their reading abilities than their international peers.

PIRLS findings regarding motivation and confidence follow the same gender difference as the achievement results. Girls tended to like reading more than boys; nearly one fifth of boys (18%) did not like reading. Boys were also more likely than girls to not be confident readers and girls were more likely to be very engaged during reading (instruction).

The NMSSA and international studies also find an association between achievement and attendance, tardiness and transience. There is also an observed association between wellbeing variables, such as anxiety or bullying and belonging, and achievement. These areas are all explored in the evidence brief on children and young people being present, safe and included.

What do children and young people say?

The Children's Commissioner and the New Zealand School Trustees Association have undertaken to gather the voices of children and young people as a starting point for the Statement of National Education and Learning Priorities. As stated in their report: "Only they can talk about whether the kind of experience we are trying to give our children and young people is what they are actually getting."

With regard to their progress and achievement, children and young people have a broad and holistic view of achievement in their own lives and view what is recognised by school sometimes as being narrow or not relevant. The responses from the children and young people have been grounded into seven findings:

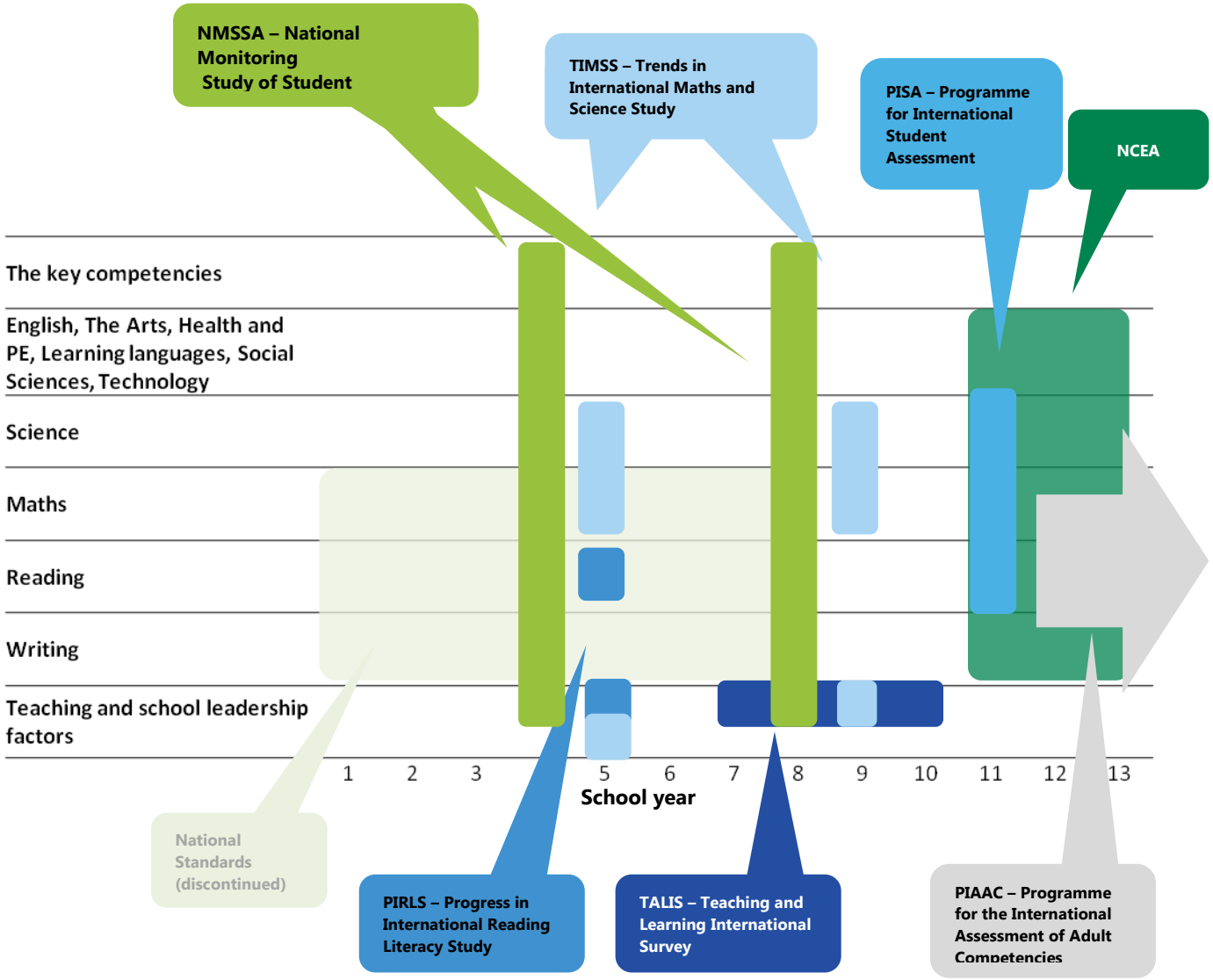
- Their family is a strong motivation to achieve.
- Some children and young people say that schools do not always focus on what really is important and would like more focus on things that are important to them.
- They want their strengths highlighted and to be given positive reinforcement and encouragement.
- Many of the children and young people talk about how their physical environment affects their learning, including a clean, safe and functional environment.
- Children and young people talked about the importance of strong relationships for enabling their achievement.
- They would like their own preferences and the way they learn recognised and responded to so they can learn.
- Bullying is a very real concern for many of them and they want to be carefully listened to and responded to when they talk to a teacher about bullying.

More detail can be found in the Key Insights report[xvii] and six in-depth reports[xviii] on the website of the Office of the Children's Commissioner.

As part of the development of the NELP we will gather more voices of children and young people to add to this picture.

Appendix 1 – Data sources

The following diagram shows the regular sources of data for teaching and learning. This brief draws evidence from NMSSA, PIRLS, TIMSS, PISA, NCEA and National Standard results.



The table below gives further explanation about the data sources used in the evidence brief on 'All children and young people make progress and achieve'.

International studies	Description of the study	Student population	Frequency	Focus Areas	Assessment type	Data type
Progress in International Reading Literacy Study (PIRLS)	Assesses how well children read, at the point in their learning where the learning focus is shifting from learning to read to reading to learn.	Year 5 (English and Māori-medium)	Every 5 years (first cycle in 2001)	Reading comprehension	Written assessment / Item response theory model	Numerical achievement scale
Trends in International Mathematics and Science Study (TIMSS)	Assesses mathematics and science achievement with a focus on the curriculum. Aims to identify the most promising teaching practices from around the world.	Year 5 & Year 9 (English-medium)	Every 4 years (first cycle in 1994)	Mathematics and science	Written assessment /Item response theory model	Numerical achievement scale
Programme for International Student Assessment (PISA)	Assesses how well prepared 15-year-old students are to meet real-life challenges.	15-year-old students (English-medium)	Every 3 years (first cycle in 2000)	Reading, mathematics and science literacy	Written assessment / Item response theory model	Numerical achievement scale
National Studies	**Description of the study**	**Student population**	**Frequency**	**Focus Areas**	**Assessment type**	**Data type**
National Monitoring Study of Student Achievement (NMSSA)	Assesses student achievement at Year 4 and Year 8 in New Zealand English-medium state schools against the New Zealand Curriculum	Year 4 & 8	2 areas of the curriculum every year in a 5-year cycle (first cycle in 2012)	All learning areas of the NZ Curriculum (English-medium)	Written assessment / Item response theory model	Numerical achievement scale (same scale for both years)

Administrative data	Description	Student population	Frequency	Focus Areas	Assessment type	Data type
Ngā Whanaketanga Rumaki Māori and National Standards reports	From 2012 to 2017 state and state-integrated schools had to report to the Ministry of Education against National Standards in reading, writing and mathematics for primary-aged students. Ngā Whanaketanga Rumaki Māori (NWRM) are the Māori-medium equivalent of National Standards.	Year 1 to Year 8 (English and Māori-medium)	Every year from 2012 to 2017	Mathematics, reading and writing across the curriculum	Overall teacher judgement / Criterion referencing	Categorical (4 categories: 'well below', 'below', 'at' and 'above')
New Zealand's National Certificate of Educational Achievement (NCEA)	NCEA are national qualifications for senior-secondary-school students.	Upper secondary (English and Māori-medium)	Every year from 2009	All	Criterion referencing	Categorical (achieved/not achieved) Numerical (number of credits)
International report	**Description**	**Student population**	**Frequency**	**Focus Areas**	**Assessment type**	**Data type**
Education at a Glance (EAG)	A set of indicators that compares the education systems of 35 countries that are members of the Organisation for Economic Cooperation and Development (OECD), and other participating partner countries. The indicators in Education at a Glance are considered to "reflect a consensus among professionals on how to measure the current state of education internationally", and are a key reference for assessing New Zealand's education system in an international context.	From early childhood education to adulthood	Yearly	System focus	N/A Uses existing data	Varied

Reference List

Education Review Office. 2015. *Educationally powerful connections with parents and whānau*. Accessed from: http://www.ero.govt.nz/assets/Uploads/ERO-Educationally-Powerful-Connections-FINAL.pdf.

Ministry of Education. 2015. *Ka Hikitia- Accelerating success for Māori.* Accessed from: https://www.education.govt.nz/assets/Documents/Ministry/Strategies-and-policies/Ka-Hikitia/KaHikitiaAcceleratingSuccessEnglish.pdf.

Ministry of Education. 2016. *National Standards - 2016 Achievement Information.* Accessed from: https://www.educationcounts.govt.nz/__data/assets/pdf_file/0020/182018/2016-National-Standards-Achievement-Results.pdf

Ministry of Education. 2016. *Ngā Whanaketanga Rumaki Māori Achievement Information.*

Ministry of Education. 2016. Pasifika Education Plan 2013-2017. Accessed from: https://www.education.govt.nz/assets/Documents/Ministry/Strategies-and-policies/PEPfoldup12Feb2013.pdf.

Mosher, FA. 2011. *The role of Learning Progressions in Standards-Based Education Reform,* Policy Briefs, Graduate School of Education, University of Pennsylvania. Accessed from: http://www.cpre.org/sites/default/files/image/2011/1218_screenshot2014-07-30at24441pm.png.

Office of the Controller and Auditor General. 2016. *Education for Māori: Using information to improve Māori educational success*. Accessed from: https://www.oag.govt.nz/2016/education-for-maori/docs/maori-education.pdf.

OECD (2013). *How do early childhood education and care (ECEC) policies, systems and quality vary across OECD countries?* Education Indicators in Focus. Paris: OECD publishing. Accessed from: https://www.oecd-ilibrary.org/education/how-do-early-childhood-education-and-care-ecec-policies-systems-and-quality-vary-across-oecd-countries_5k49czkz4bq2-en

Snow, Pamela. 2014. Oral Language Competence and the Transition to School: Socio-Economic and Behavioural Factors That Influence Academic and Social Success. *International Journal on School Disaffection*, 11 (1): 3-24.

Sylva, Kathy and Melhuish, Edward and Sammons, Pam and Siraj-Blatchford, Iram and Taggart, Brenda (2004) *The Effective Provision of Pre-School Education (EPPE) Project: Final Report: A Longitudinal Study Funded by the DfES 1997-2004.* Retried from: http://discovery.ucl.ac.uk/10005309/1/sylva2004EPPEfinal.pdf

Talking Matters. 2017. *Language shapes opportunity*. Accessed From: http://www.talkingmatters.org.nz/page/the-challenge

[i] http://www.legislation.govt.nz/act/public/1989/0080/235.0/DLM7266701.html

[ii] Mullis, I. V. S., Martin, M. O., Foy, P., & Hooper, M. (2017). *PIRLS 2016 International results in reading.* Retrieved from Boston College, TIMSS & PIRLS International Study Center website: https://timssandpirls.bc.edu/pirls2016/international-results/

[iii] OECD (2016), PISA 2015 Results (Volume II): Policies and practices for successful schools. OECD Publishing, Paris, https://read.oecd-ilibrary.org/education/pisa-2015-results-volume-ii_9789264267510-en#page1 (Table II.6.52)

[iv] OECD (2013). *How do early childhood education and care (ECEC) policies, systems and quality vary across OECD countries*? Education Indicators in Focus. Paris: OECD publishing.

[v] Sylva, Kathy and Melhuish, Edward and Sammons, Pam and Siraj-Blatchford, Iram and Taggart, Brenda (2004) *The Effective Provision of Pre-School Education (EPPE) Project: Final Report: A Longitudinal Study Funded by the DfES 1997-2004.* Retrieved from: http://discovery.ucl.ac.uk/mwg-internal/de5fs23hu73ds/progress?id=OGAqhuuMuMwV1ybRUXzAdFKRUs4Qie9C_sX8h1Z4Uno,&dl

[vi] Snow, Pamela. 2014. Oral Language Competence and the Transition to School: Socio-Economic and Behavioural Factors That Influence Academic and Social Success. *International Journal on School Disaffection*, 11 (1): 3-24.

[vii] http://www.talkingmatters.org.nz/page/the-challenge van Hees, J. (2011), *Talking the Talk,* Te Kuaka, Issue 3, 2011, Faculty of Education, The University of Auckland, p1

[viii] Nat Standards, NMSSA (http://nmssa.otago.ac.nz/)

[ix] See for example the TIMSS 2014 Year 9 report: Caygill, R., Hanlar, V., & Singh, S. (2016). Mathematics Year 9: Trends over 20 years in TIMSS. Wellington: Ministry of Education. Retrieved from http://www.educationcounts.govt.nz/publications/series/2571/timss-201415.

[x] Using PAT: *Reading Comprehension data to understand student progress in reading*, Melanie Berg and Elliot Lawes, NZCER 2016

[xi] PIRLS (https://www.educationcounts.govt.nz/publications/series/2539) and TIMSS (https://www.educationcounts.govt.nz/publications/series/2571)

[xii] How does New Zealand's education system compare? *OECD's Education at a Glance 2017,* Aaron Norgrove and David Scott, Evidence, Data & Knowledge, Ministry of Education, September 2017

[xiii] PISA 2015 (https://www.educationcounts.govt.nz/publications/series/2543/pisa-2015).

[xiv] PISA 2015 New Zealand Summary Report (https://www.educationcounts.govt.nz/publications/series/2543/pisa-2015/pisa-2015-summary-report)

[xv] Mullis, I. V. S., Martin, M. O., Kennedy, A. M., Trong, K. L. & Sainsbury, M. (2009). *PIRLS 2011 assessment framework.* Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.(pp. 54-55)

[xvi] Mullis, I. V. S., & Martin, M. O. (2015). *PIRLS 2016 assessment framework.* Chestnut Hill, MA: TIMSS & PIRLS International Study Center and International Association for the Evaluation of Educational Achievement. (pp.52-53)

[xvii] Education Matters to me: Listen to the voices of children and young people: http://www.occ.org.nz/publications/reports/education-matters-to-me-key-insights/

[xviii] Six detailed reports (Experiences of tamariki and rangatahi Māori, Emotional wellbeing, Engagement, If I were the boss, Progress and achievement, Transitions) http://www.occ.org.nz/publications/reports/