UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

CAM
CENTRE FOR ASSESSMENT & MONITORING

Value-Added Progress Explained for Year 13

NZ System for NZ Schools

VA13 measures the value-added progress of NZ students in Year 13. These Year 13 students sat NCEA the previous year (in Year 12) and intend sitting NCEA at the end of Year 13.

Frequently Asked Questions

How is progress measured?

Progress is measured between two achievement anchors, using regression analysis.

START: A baseline achievement score from NCEA performance the previous year anchors the **start** of the measurement.

END: NCEA performance in each end-of-year subject anchors the **end** of the measurement.

Progress is a measure of whether a student kept pace, performed better or did not perform as well as expected when compared to similar students.

What is the progress score?

The progress score is measured in standard deviations from what is expected from similar students.

+2.0 Significantly better progress

+ve value Progress better than expected

0.0 Progress as expected

+ve value Progress below expected

-2.0 Progress significantly below expected.

The progress score is on a continuous scale with approximately 64% students of similar prior achievement scoring between -1.0 and 1.0, and 95% between -2.0 and 2.0.

Schools usually begin with a focus on significantly low and high scores, initiating teacher discussion on whether these extreme scores were expected and "why".

Which subjects are included?

As many subjects as possible are included, and this is usually 30-40 subjects (domains) across NCEA. With regression analysis, individual subjects are included in the feedback provided all criteria are met. For example,

1) There must be enough data points (paired student results from both baseline and final assessments) in the subject;
2) The correlation coefficient from data points between baseline and final results must be high enough;
3) The slope of the regression line must be high enough.

If a subject is not included in the feedback then that means at least one of the criteria was not met for that particular subject in that year. Note: That same subject could be included in future years if all criteria are met.

How is the baseline score and final subject score calculated?

The calculation is an accumulation of credits, level and grade.

Weights are allocated to the level and grade. For example, a level 3 standard has a higher weight than a level 2 standard, which in turn has a higher weight than a level 1 standard.

Likewise, an *Excellence* grade carries a higher weight than a *Merit* grade, which in turn carries a higher weight than an *Achieved* grade.

In every calculation, priority is given to *Excellence*, then *Merit*, then *Achieved*.

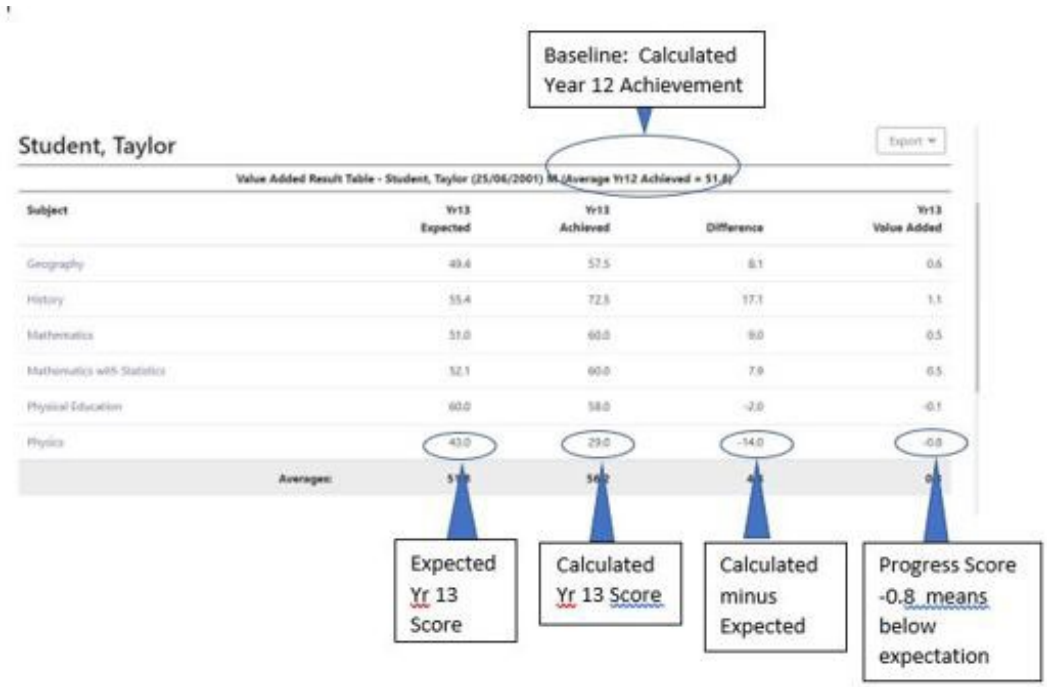
FYI: Based on previous years' data, an average student who gains *Achieved* in a full-time subject tends to record a score of 40 in Year 11, a score of 45 in Year 12 and a score of 50 in Year 13. These values will vary slightly between year groups and subjects.

VA13 - Student Reports

Student Report tables show how each student progressed in his/her subjects in Year 13. Open the 'Student Reports' tab to see the full list of registered students. Select any student name to see their table of results.

Student Table

For Example: **Name**: Taylor Student



Taylor's Year 12 prior achievement score (51.8), which is an accumulation of standards, levels and grades, is at the top of the table. How Taylor performed in Year 13 is then compared to other NZ Year 13 students who also achieved the same level of performance in Year 12.

Taylor was full time in Geography, History, Mathematics, Physical Education and Physics. This means he was registered in NCEA for at least 14 credits in each subject.

Taylor performed better than expected in Geography (0.6), History (1.1) and Mathematics (0.5). He was close to keeping pace in Physical Education (-0.1), but his performance in Physics was below expectation (-0.8). Teachers may wish to use this indicator to discuss why Taylor's progress in Physics did not match his good progress in his other subjects.

VA13 - Subject Reports

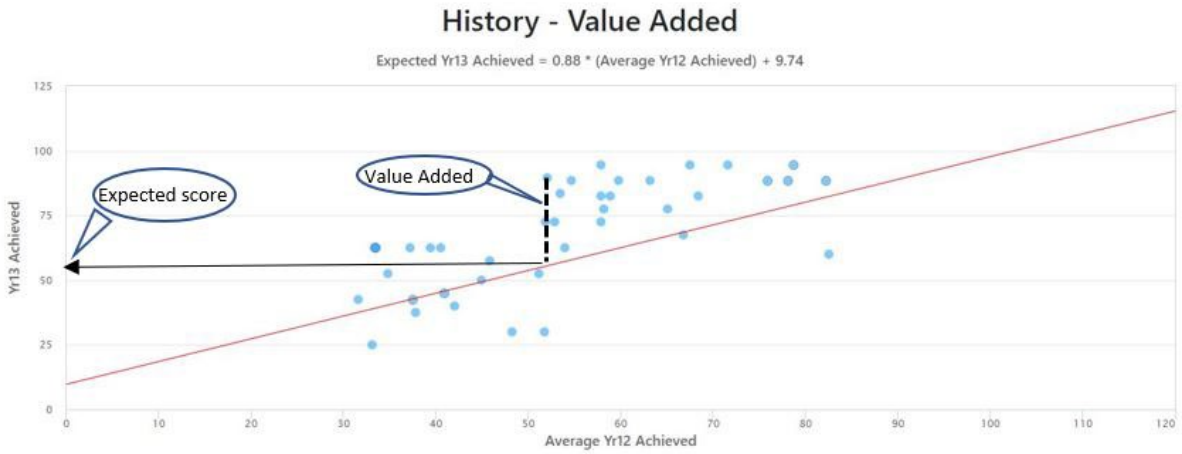
A subject graph plots the distribution of students and indicates how far a student is from expected performance. Select the 'Subject Reports' tab. Then select the subject.

We will use **History** as an example.

Initially, every NZ student doing a full-time course (14 or more credits) in History is plotted on a scattergram as data points. Year 12 Achievement is on the horizontal axis and Year 13 Achievement is on the vertical axis.

A 'line of best fit' (regression line) is drawn through the data of all the NZ Year 13 students. In our example, this forms the History regression line for all schools.

A school sees only their own students as data points scattered around the Year 13 History regression line. On the CAM website, moving the cursor over each data point gives the student's name, Year 12 score and Year 13 History value-added progress score.

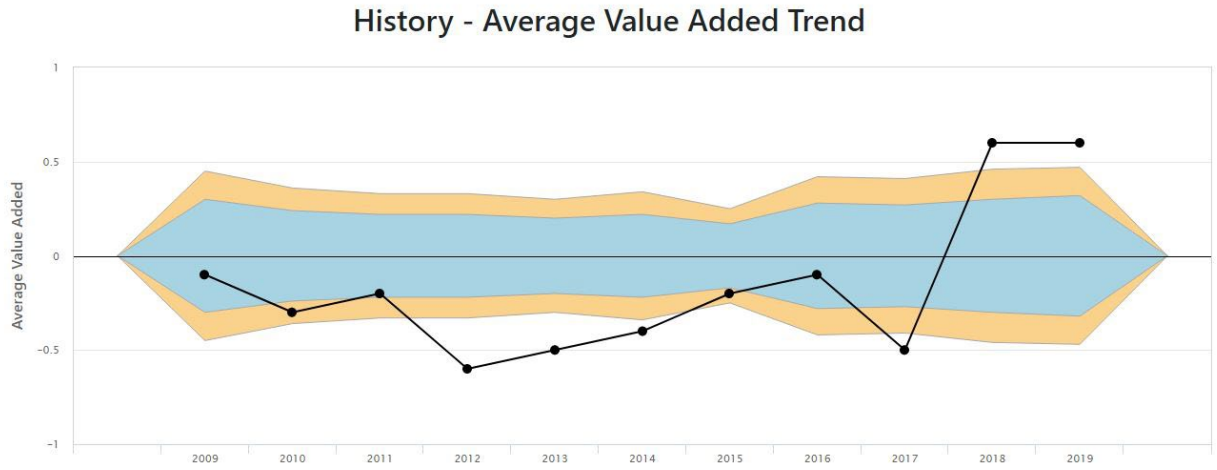


To see a student's value-added progress, draw a vertical line from a student data point directly to the regression line. This vertical distance (dotted line) represents the value-added progress score for that student. Extending left to the vertical axis shows the expected score for that student.

This school's History value-added distribution shows exceptionally good results. Most of the students did better than expected, with many significantly better, so the average (Institution Report tab) would show an overall significant positive value-added average for History.

VA13 – Subject Trends Over Time

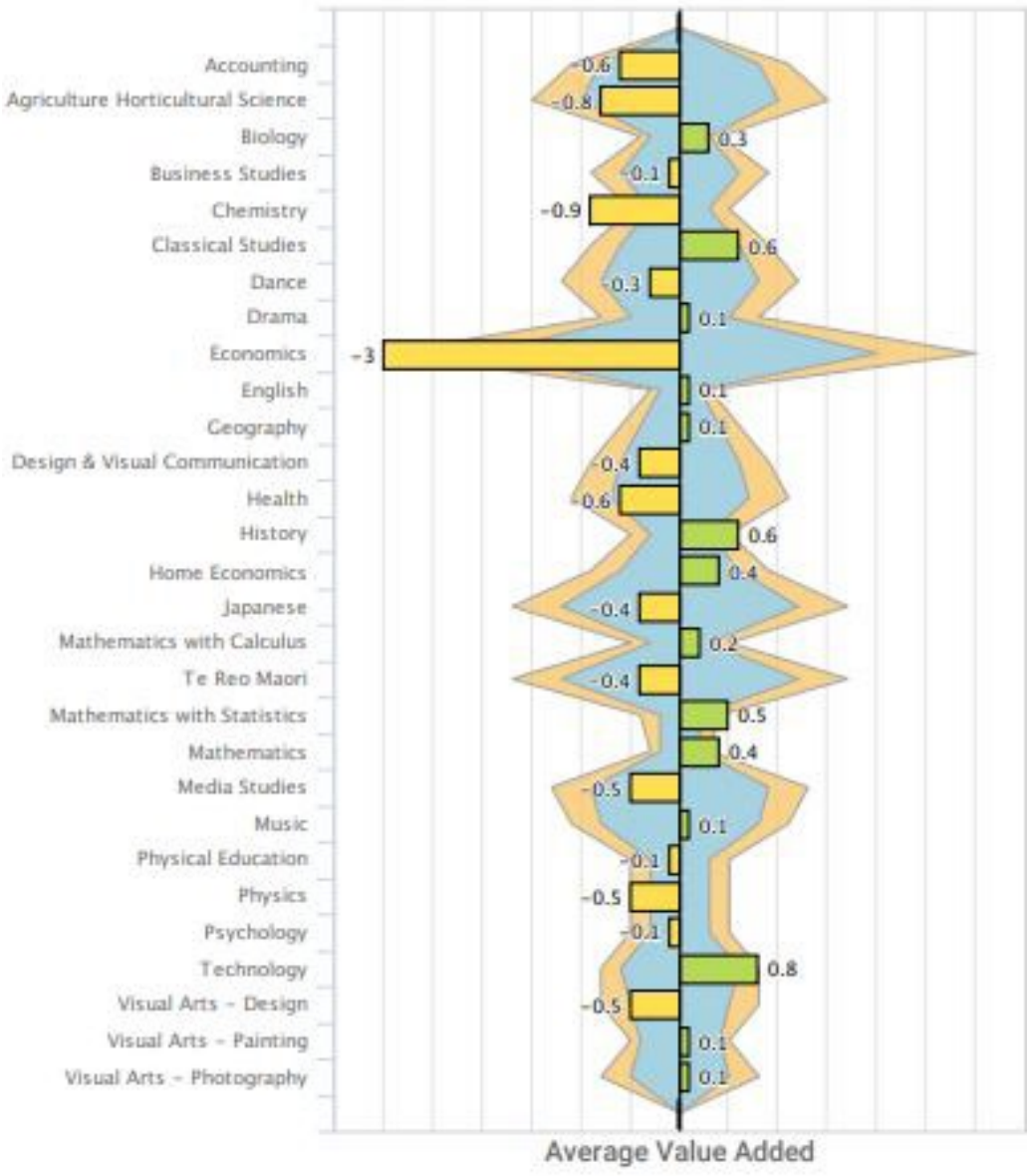
Longitudinal trend graphs show value-added averages (data point dots) per subject over a number of years. The background shaded area shows standard error, indicating whether the average in any year is significant (beyond chance) or not. More students in a class will depict a narrow background while fewer students in a class show a wider background.



The History graph example shows consistent improvement from 2012 to 2016, significantly low progress in 2017, then dramatic improvement resulting in significant progress in 2018 and 2019.

VA13 - Institution Reports

In the graph below, bars show the average value-added score for each subject.



In this school, History has a large number of students, so the background area is narrow. In the graph, the Year 13 History value-added average of 0.6 is a significantly high score shown by the bar for History being outside the inner shaded area. Mathematics with Statistics and Technology are also significantly high.

Music and Geography have fewer students, so the background area is wide and, in these subjects, a value-added average score of 0.1 is not significant, shown by subject bars being within the inner shaded area.

For further information about the VA12 or VA13 projects,
please contact CAM (Centre for Assessment and Monitoring).
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