



# **Value-Added Progress Explained for Year 12**

***NZ System for NZ Schools***

**VA12** measures the value-added progress of NZ students in Year 12. These Year 12 students sat NCEA the previous year (in Year 11) and intend sitting NCEA at the end of Year 12.

## Frequently Asked Questions

### How is progress measured?

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

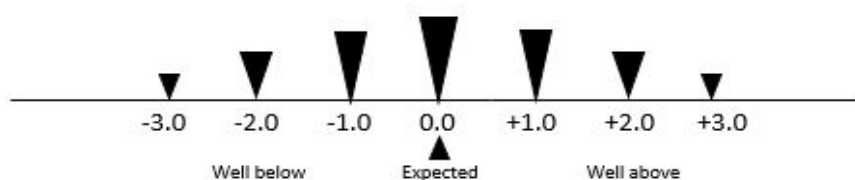
**START:** A baseline achievement score from NCEA performance the previous year anchors the **start** of the measurement.

**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.

## VA12 - Student Reports

- Student Report tables show how each student progressed in his/her subjects in Year 12.
- *Target graphs* use current NZ data to help schools monitor future achievement in Year 13.

Open the 'Student Reports' tab to see the full list of registered students. Select any student name to see the table of results.

### Student Table

For Example: **Name:** Emma Student

Student, Emma

Value Added Result Table - Student, Emma (03/02/2003) (Average Yr11 Achieved = 64.3)

Subject	Yr12 Expected	Yr12 Achieved	Difference	Yr12 Value Added
Accounting	58.6	63.8	5.1	0.3
Classical Studies	56.5	59.5	3.0	0.2
English	60.9	69.5	28.6	1.9
French	65.1	41.5	-23.6	-1.3
History	64.9	75.8	10.8	0.7
Mathematics	58.9	64.3	5.3	0.3
Averages:	60	64.3	4.3	0.3

Callouts:

- Baseline: Calculated Year 11 Achievement (64.3)
- Expected Yr 12 Score (60)
- Calculated Yr 12 Score (64.3)
- Calculated minus Expected (4.3)
- Progress Score 0.3 means slightly better than expected

Emma's Year 11 prior Achievement Score (64.3), which is an accumulation of standards, levels and grades, is found at the top of the table. To achieve this score, Emma gained an overall *Merit* average in Year 11, across all subjects. How Emma later performed in Year 12 is then compared to the average of other Year 12 NZ students who began with similar Year 11 results.

In Year 12, Emma was full time in Accounting, Classical Studies, English, French, History and Mathematics. This means she registered in NCEA for at least 14 credits in each subject.

Emma performed better than expected in all subjects except French (-1.3), where she achieved 1.3 standard deviations below the average of like students. In English, however, her value-added progress was close enough to be considered significantly high (1.9). In Classical Studies (0.2) and Accounting (0.3), Emma was slightly better than keeping pace.

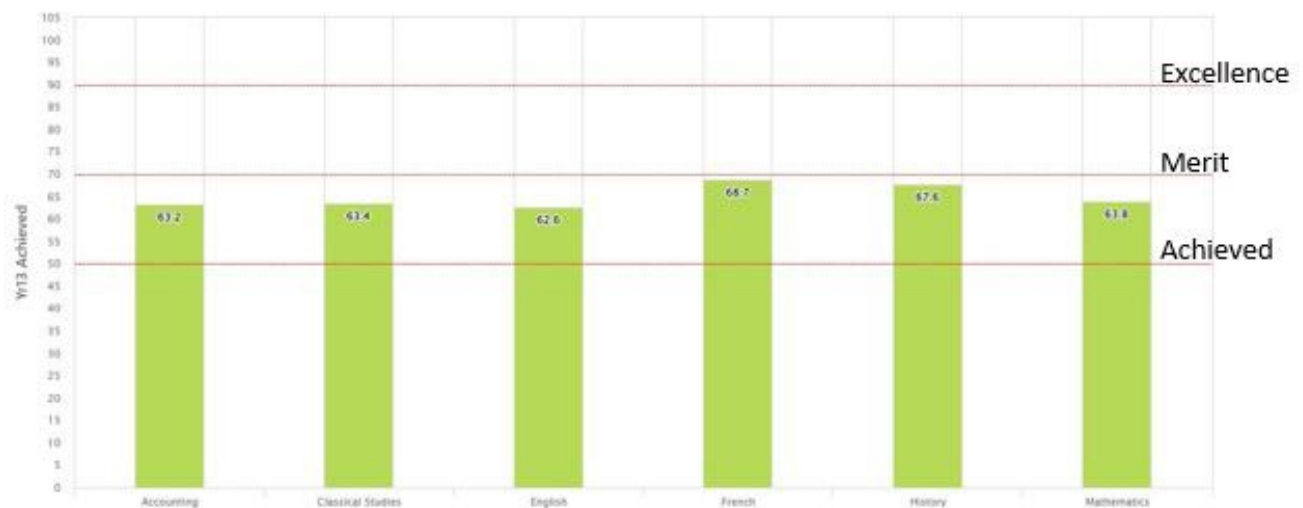
## Target Graphs (monitoring the next year)

Target graphs are provided in the Year 12 feedback to anticipate future expectation by using past Year 13 data. These graphs indicate how well NZ students with similar overall Year 12 achievement performed in Year 13 the previous year.

The purpose of target graphs is to help teachers monitor Emma through Year 13. Subjects chosen for the target graphs are based on Emma's selection when she was in Year 12. She may, or may not, take the same subjects in Year 13.

In the example, Emma's performance in Year 12 was above average (65.7). Her target graph shows that most students similar to Emma tended to gain overall *Merit* in French and History when they were in Year 13.

If Emma kept pace with others like her, she would be expected to pass Accounting, Classical Studies, English and Mathematics with these subjects gaining more *Merit* than *Achieved* standards.



Emma underperformed in Year 12 French, and since the target for Year 13 French reaches the Merit bar, to keep pace Emma is expected to gain at least *Merit* for each French standard in Year 13. If Emma chooses to take French in Year 13, her French teacher may be interested in investigating why Emma's French performance in Year 12 was well below her other subjects.

## VA12 - Subject Reports

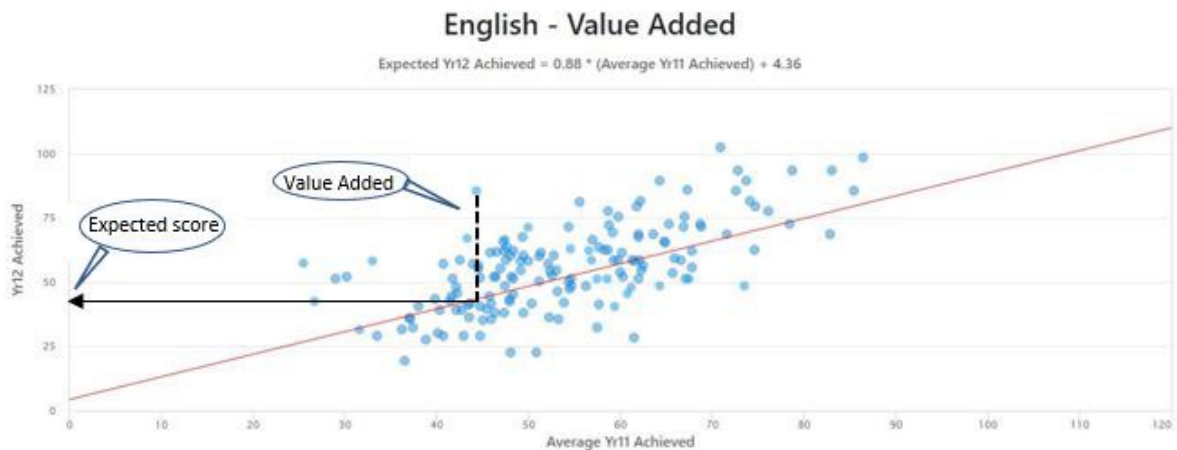
A subject graph plots the distribution of students and indicates how far a student is from expected performance. Select the 'Subject Reports' tab. Then select the subject.

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

Initially, every NZ student doing a full-time course (14 or more credits) in English is plotted on a scattergram as data points. Year 11 achievement is on the horizontal axis and Year 12 Achievement is on the vertical axis.

A 'line of best fit' (regression line) is drawn through the data of all the NZ Year 12 students. In our example, this forms the English regression line for all schools.

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

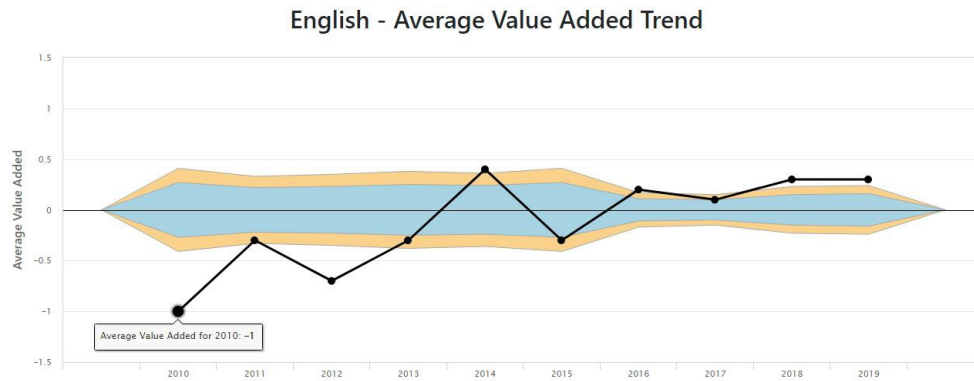
In the graph, over half the students across all performance levels did better than expected, so the class average is likely to show a significant positive value-added value for English.

The school may wish their teachers to discuss why a number of average and above average students did not perform as well as expected. Likewise, why did a number of students do significantly well?

## VA12 – Subject Trends Over Time

Longitudinal trend graphs show value-added averages (data point dot) per subject over a number of years.

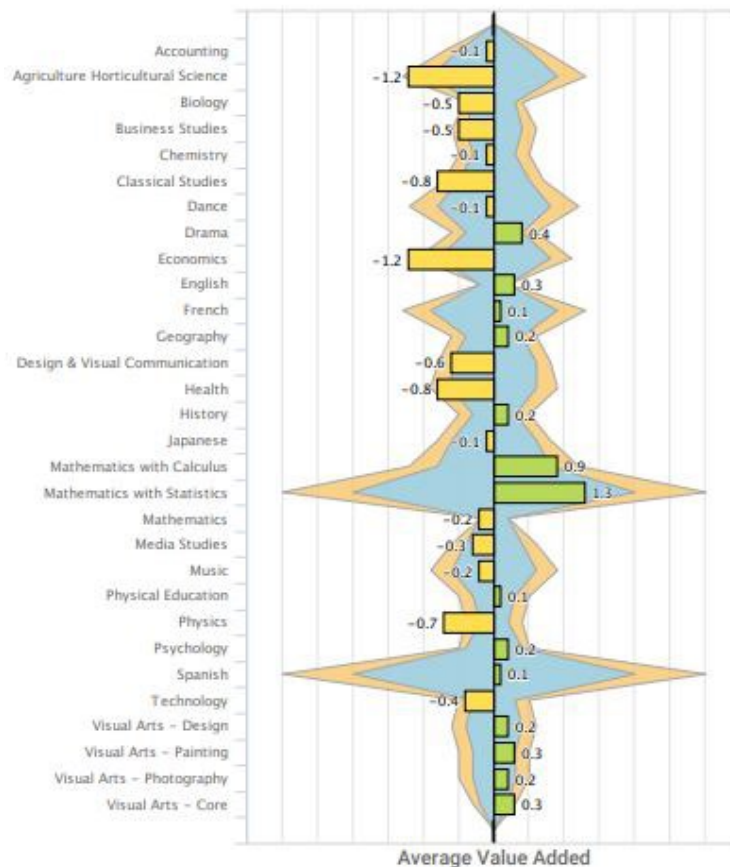
The background shaded area shows standard error, indicating whether the class average in any year is significant (beyond chance) or not. More students in a class depict a narrow background while fewer students in a class show a wider background.



In the English trend graph example, 2010 and 2012 were significantly below the NZ cohort in English. In 2014, 2016-2019 the school's Year 12 class was significantly higher in English than the NZ English cohort, with the 2017 Year 12 class significant at the 95% confidence level, but not at the 99% confidence level.

## VA12 - Institution Reports

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



For further information about the VA12 or VA13 projects,  
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