



Department  
for Education

# **Progress 8 measure in 2016**

**Technical guide for maintained  
secondary schools, academies and free  
schools**

**March 2014**

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# Summary

## Introduction

The new secondary school accountability system begins in 2016. It includes two new measures, Attainment 8 and Progress 8<sup>1</sup>. This document explains how these measures will be calculated.

Progress 8 captures the progress a pupil makes from the end of primary school to the end of key stage 4 (KS4). Progress 8 is a type of value added measure, which means that pupils' results at the end of KS4 are compared to the actual achievements of other pupils with the same prior attainment. Progress 8 will be used as the floor standard measure.

## Expiry or review date

This advice will next be reviewed before March 2015 in relation to the 2017 Progress 8 measure.

## Who is this advice for?

This advice is for:

- Local authorities
- School leaders, school staff and governing bodies in all maintained schools, academies and free schools.

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# Calculating Attainment 8 and Progress 8

## Qualifications included the measures

Progress 8 is based on pupils' performance across 8 subjects, called Attainment 8.

These subjects are:

1. A double weighted **mathematics** element that will contain the point score of the pupil's English Baccalaureate (EBacc) mathematics qualification;
2. An English element based on the highest point score in a pupil's EBacc **English language** or **English literature** qualification. This will be double weighted provided a pupil has taken both qualifications. In 2016 combined English qualification can be included and double weighted.
3. An element which can include the three highest point scores from any of the following: science, computer science, history and geography, and languages **EBacc** qualifications. More information about what qualifications count can be found [here](#). The qualifications can count in any combination and there is no requirement to take qualifications in each of the 'pillars' of the EBacc.
4. The remaining element contains the three highest point scores in any three **other** subjects, including English language or literature (if not counted above), further EBacc qualifications, other GCSEs, or any other approved, high value academic or vocational qualifications. The full list of qualifications that count can be found [here](#).

## Point scores

From 2016, the point score scale for the Progress 8 measures in 2016 will change from the current 16-58 scale to a 1-8 point scale, where 1 is equivalent to a Grade G GCSE and an increase in one point represents an increase of one GCSE grade up to 8, which is equivalent to an A\* GCSE.

The new point scores for different types of qualifications can be found in **Annex A**.

If a pupil has not taken the maximum number of qualifications that count in each group then they will receive a point score of zero for that empty slot.

## Discounting

Discounting ensures that, where a pupil has taken two or more qualifications with an overlap in curriculum, the performance tables only give credit once for teaching a single course of study. Guidance on discounting rules can be found [here](#).

Level 2 and Level 3 qualifications in the same subject will not both count in the Attainment 8 measure. Where a pupil takes both a GCSE and an AS qualification in the same subject, the AS level result will always be included, and the GCSE will not count.

Level 3 qualifications not included in the EBacc list can only count in the 'other' element. Free Standing Maths Qualifications will only count in the 'other' element, and will only count if a pupil has not taken an EBacc mathematics qualification.

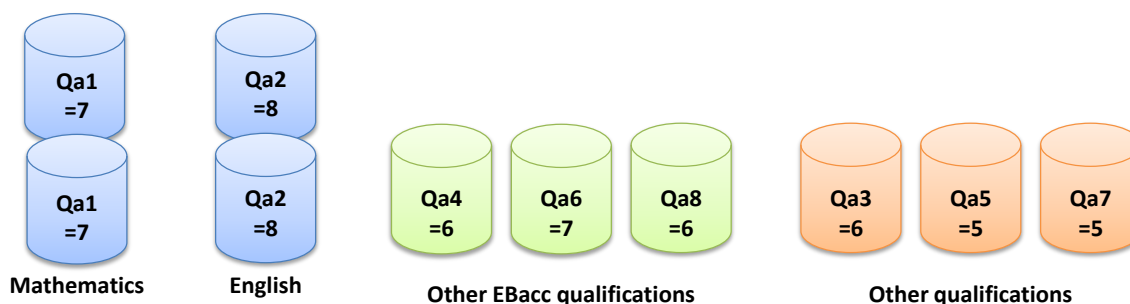
## Worked Example A

Table 1 sets out how the Attainment 8 score would be calculated for a particular pupil, Gillian.

Table 1: Key stage 4 results for Gillian

ID	Qualification	Grade	Points	Included in the measure	Element	Doubled?	Total points
Qa1	GCSE mathematics	A	7	✓	Maths	✓	14
Qa2	GCSE English language	A*	8	✓	English	✓	16
Qa3	GCSE English literature	B	6	✓	Other	✗	6
Qa4	GCSE additional science	B	6	✓	EBacc	✗	6
Qa5	GCSE art	C	5	✓	Other	✗	5
Qa6	GCSE core science	A	7	✓	EBacc	✗	7
Qa7	GCSE French	C	5	✓	Other	✗	5
Qa8	GCSE Spanish	B	6	✓	EBacc	✗	6
Qa9	GCSE religious studies	D	4	✗			

Referring to the IDs of qualifications above, the following illustrates the calculation of the Attainment 8 score for Gillian:



$$\begin{aligned}
 \text{Attainment 8 score} &= (Qa1 + Qa1) + (Qa2 + Qa2 \text{ as taken English literature}) \\
 &\quad + Qa4 + Qa6 + Qa8 + Qa3 + Qa5 + Qa7 \\
 &= (7 + 7) + (8 + 8) + 6 + 7 + 6 + 6 + 5 + 5 \\
 &= \mathbf{65}
 \end{aligned}$$

Dividing the Attainment 8 score by 10 gives a pupil's average grade. In this case it is 6.5, between GCSE grades A and B.

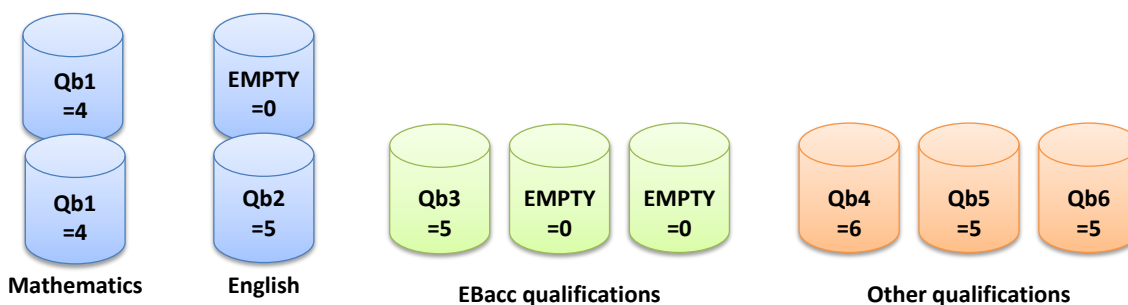
## Worked Example B

Table 2 sets out how the Attainment score would be calculated for another pupil, Hardip.

Table 2: Key stage 4 results for Hardip

ID	Qualification	Grade	Points	Included in the measure	Element	Doubled?	Total points
Qb1	GCSE Mathematics	D	4	✓	Maths	✓	8
Qb2	GCSE English Language	C	5	✓	English	✗	5
Qb3	GCSE History	C	5	✓	EBacc	✗	5
Qb4	BTEC First Award in Hospitality	Merit	6	✓	Other	✗	6
Qb5	BTEC First Award in Sport	Pass	5	✓	Other	✗	5
Qb6	Cambridge National Certificate in Business and Enterprise	Pass	5	✓	Other	✗	5
Qb7	Cambridge National Certificate in ICT	Pass	5	✗			

Referring to the IDs of qualifications above, the following illustrates the calculation of the Attainment 8 score for Hardip:



$$\begin{aligned}
 \text{Attainment 8 score} &= (Qb1 + Qb1) + (Qb2 + 0) \\
 &\quad + Qb3 + 0 + 0 + Qb4 + Qb5 + Qb6 \\
 &= (4 + 4) + (5 + 0) + 5 + 0 + 0 + 6 + 5 + 5 \\
 &= \mathbf{34}
 \end{aligned}$$

Dividing the Attainment 8 score by 10 gives a pupil's average grade. In this case it is 3.4, between GCSE grades D and E.

Hardip has not taken English literature, so his score for English language is not doubled. Furthermore, he has taken only one EBacc subject, so he scores zero for two of the three EBacc slots. Only three of his four vocational subjects are counted.

## Calculating Progress 8

A pupil's Progress 8 score is defined as their Attainment 8 score, minus their estimated Attainment 8 score. The estimated Attainment 8 score is the average Attainment 8 score of all pupils nationally with the same prior attainment at key stage 2 (KS2).

A pupil's prior attainment is defined as the average of their KS2 English and mathematics results, in fine grades.

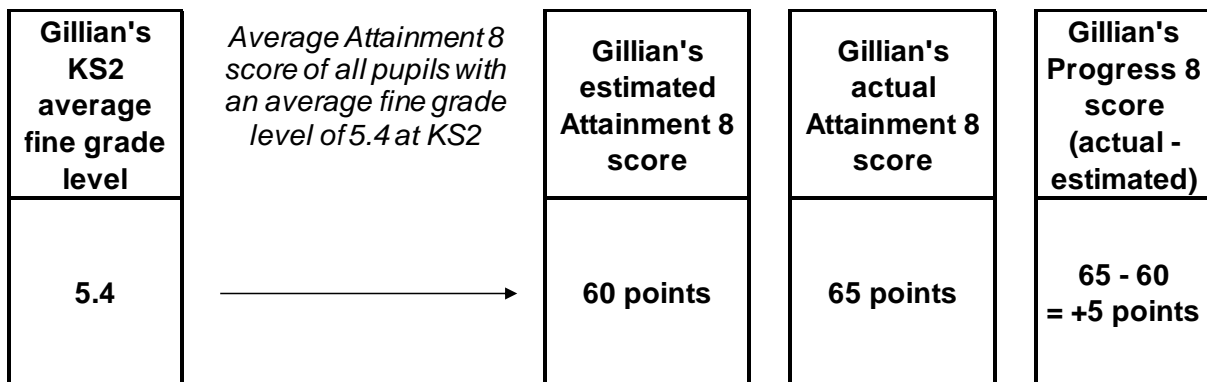
The following adjustments are made for pupils with incomplete test results:

- If a pupil does not have a test result in a subject then their teacher assessment level is used.
- If a pupil has a result in one subject but not in the other, then prior attainment is taken as the result for the available subject.
- If a pupil does not have a test score or teacher assessment result for either subject then they are excluded from the measure. These pupils' scores will still appear in attainment measures (unless the pupil has arrived from a non-English speaking country in Year 10 or Year 11). Teachers will need to be able to demonstrate to Ofsted and parents that such pupils are making appropriate progress.

### Worked Example A - continued

As we saw, Gillian has an Attainment 8 score of 65. Her KS2 fine grade scores were 5.5 and 5.3 in mathematics and English, an average of 5.4. The national average Attainment 8 score for pupils with Gillian's KS2 results is 60.

Gillian's Progress 8 score is the difference between her actual Attainment 8 score and the estimated Attainment 8 score, that is,  $65 - 60 = +5$ .



Dividing her Progress 8 score by 10 gives an average score of + 0.5 grades, which means that Gillian has achieved an average of half a grade better per subject than other pupils with the same prior attainment.

## Calculating a school Progress 8 score

The school's Progress 8 score is the mean average of its pupils' Progress 8 scores.

### Worked Example A – continued

Let us then say that Gillian is one of 142 pupils in her school's KS4 cohort, who gain a range of Progress 8 scores:

Pupil #	Pupil name	VA score
1	Gillian	+0.5
2	Lindsay	-0.2
M	M	N
142	Hardip	+1.1
<b>Sum</b>		<b>+36.5</b>

The school's Progress 8 score is therefore  $36.5/142 = 0.257$ . We will round this to one decimal place in performance tables, and as such this school would have a published Progress 8 score of +0.3.

## Floor Standards

A school will be below the floor standard if their Progress 8 score is below -0.5, unless the confidence interval suggests that the school's underlying performance may not be below average. If a school's performance falls below this floor standard, then the school will come under scrutiny through inspection.



## Confidence intervals

Confidence intervals show the range of scores within which each school's underlying performance can be confidently said to lie. The results of schools with a small cohort tend to have wider confidence intervals; this reflects the fact that the performance of a small number of pupils taking their KS4 exams can have a disproportionate effect on the school's overall results.

Information about how confidence intervals will be calculated is described in **Annex B**.

## Future considerations from 2017

Two adjustments to the Progress 8 methodology may be introduced in 2017:

- In 2017, new GCSE qualifications in English and mathematics will be included in the Progress 8 measure. These qualifications will have a new grading scale that uses the numbers 1 to 9 to identify levels of performance (as will other reformed GCSEs once they are introduced). We will adjust the 1-8 points scale to ensure parity across subjects.
- In the 'Update on Progress 8 measure and reforms to secondary school accountability framework' document released in January 2014, we explored the idea of using ex ante models.<sup>2</sup> These models would set estimated Attainment 8 scores based on the performance of earlier cohorts. We will make a final decision on doing this for 2017 in the light of Ofqual's decisions on standard setting for reformed GCSEs.

## Next Steps

We will provide schools with provisional Attainment 8 and Progress 8 data based on 2014 results to give an indication of how they are currently performing on these measures.

Schools will also have the opportunity to opt-in to use the Progress 8 measure one year early in 2015. We will explain how schools can do this in the Summer term of 2013/14.

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## Annex A – New point score scales

This annex explains the point score scale that will be used in 2016 performance tables. The new point score scale is based on the points currently awarded for each qualification but scores will change to a 1-8 scale. For all level 1, level 2 and AS level qualifications, this can be calculated using this formula:

$$2016 \text{ point score} = \frac{\left( \frac{\text{current point score}}{\text{GCSE size equivalent}} \right) - 10}{6}$$

The tables on the following page contain the 2016 performance tables points for a level and grade structure combination.

It is important to note that the key factor in the grade structure is the number of grades – not the names of grades. For example, a pass/merit/distinction/distinction\* and a Grade C/ Grade B/ Grade A/ Grade A\* structure both have four grades.

**Table A.1 New point score scales for level 1 and 2 qualifications**

Level 1 grade structure	Example grade	2016 Points
Pass only general	Pass	2.50
Pass only NVQ	Pass	3.00
2 grade scheme	Pass	2.00
	Credit	3.50
3 grade scheme	Pass	1.50
	Merit	3.00
	Distinction	4.00
4 grade scheme	G	1.00
	F	2.00
	E	3.00
	D	4.00
5 grade scheme	E	1.00
	D	1.75
	C	2.50
	B	3.25
	A	4.00
7 Grade Scheme	GG	1.00
	FG	1.50
	FF	2.00
	EF	2.50
	EE	3.00
	DE	3.50
	DD	4.00

Level 2 grade structure	Example grade	2016 Points
Pass only general	Pass	6.00
Pass only NVQ	Pass	6.50
2 grade scheme	Pass	5.50
	Credit	7.00
3 grade scheme	Pass	5.00
	Merit	6.50
	Distinction	7.50
4 grade scheme	C	5.00
	B	6.00
	A	7.00
	A*	8.00
5 grade scheme	E	5.00
	D	5.50
	C	6.00
	B	6.50
	A	7.00
7 Grade Scheme	Pass Pass	5.00
	Merit Pass	5.50
	Merit Merit	6.00
	Distinction Merit	6.50
	Distinction Distinction	7.00
	Distinction* Distinction	7.50
	Distinction* Distinction*	8.00
8 Grade Scheme	CD	4.50
	CC	5.00
	BC	5.50
	BB	6.00
	AB	6.50
	AA	7.00
	A*A	7.50
	A*A*	8.00

**Table A.2 New point score scales for AS levels and double AS levels**

AS level grade	2016 Points	Double AS levels grade	2016 Points
E	4.50	EE	4.50
D	5.75	ED	5.13
C	7.00	DD	5.75
B	8.25	DC	6.38
A	9.50	CC	7.00
		CB	7.63
		BB	8.25
		BA	8.88
		AA	9.50

**Table A.3 New point score scales for graded music examinations**

Graded music level	Grade	Points
Grade 6	Pass	7.00
	Merit	8.00
	Distinction	8.00
Grade 7	Pass	7.00
	Merit	8.00
	Distinction	8.00
Grade 8	Pass	8.00
	Merit	8.00
	Distinction	8.00

**Table A.4 New point score scales for free standing mathematics qualifications**

Free standing mathematics qualification grade	Points
E	2.75
D	3.50
C	4.25
B	5.00
A	5.75

## Worked examples of how to use these tables

### Example A - Calculating the points for a GCSE qualification

GCSEs can be both level 1 and level 2 qualifications.

Grades D/E/F/G are at level 1, which makes for a 4 grade structure, and the left hand side of Table A1 gives the points of between 1 and 4.

Grades A\*/A/B/C are at level 2, which makes for a 4 grade structure, and the right hand side of Table A.1 gives the points of between 5 and 8.

GCSE grade	2016 Points
G	1.00
F	2.00
E	3.00
D	4.00
C	5.00
B	6.00
A	7.00
A*	8.00

### Example B - Calculating the points for a BTEC First Award

BTEC First Awards can be both level 1 and level 2 qualifications.

At level 1, there is a pass only grade structure, and the left hand side of Table A1 gives the points of 2.5.

Grades Distinction\*/Distinction/Merit/Pass are at level 2, which makes for a 4 grade structure, and the right hand side of Table A.1 gives the points of between 5 and 8.

BTEC First Award grade	2016 Points
Level 1 Pass	2.50
Level 2 Pass	5.00
Level 2 Merit	6.00
Level 2 Distinction	7.00
Level 2 Distinction*	8.00

### Example C - Calculating the points for an OCR Cambridge National Certificate

OCR Cambridge National Certificates can be both level 1 and level 2 qualifications.

Grades level 1 distinction/ level 1 merit/ level 1 pass are at level 1, which makes for a 3 grade structure, and the right hand side of Table A.1 gives the points of between 1.5 and 4.

Grades level 2 distinction\*/ level 2 distinction/ level 2 merit/ level 2 pass are at level 2, which makes for a 4 grade structure, and the right hand side of Table A.1 gives the points of between 5 and 8.

<b>OCR Cambridge National Certificate grade</b>	<b>2016 Points</b>
Level 1 Pass	1.50
Level 1 Merit	3.00
Level 1 Distinction	4.00
Level 2 Pass	5.00
Level 2 Merit	6.00
Level 2 Distinction	7.00
Level 2 Distinction*	8.00

## Annex B – Confidence Intervals

A 95% confidence interval will be calculated around each school Progress 8 score, defining the range of values within which we are statistically confident that the true value of the Progress 8 score for the school lies.

The confidence interval, denoted  $[LowCI_s, UppCI_s]$ , is given by the formula:

$$[LowCI_s, UppCI_s] = [P8_s - CI_s, P8_s + CI_s],$$

where:

$LowCI_s$	is the lower confidence limit for the school's Progress 8 score
$UppCI_s$	is the upper confidence limit for the school's Progress 8 score
$P8_s$	is the school's Progress 8 score
$CI_s$	is the size of the confidence interval for the school's Progress 8 score

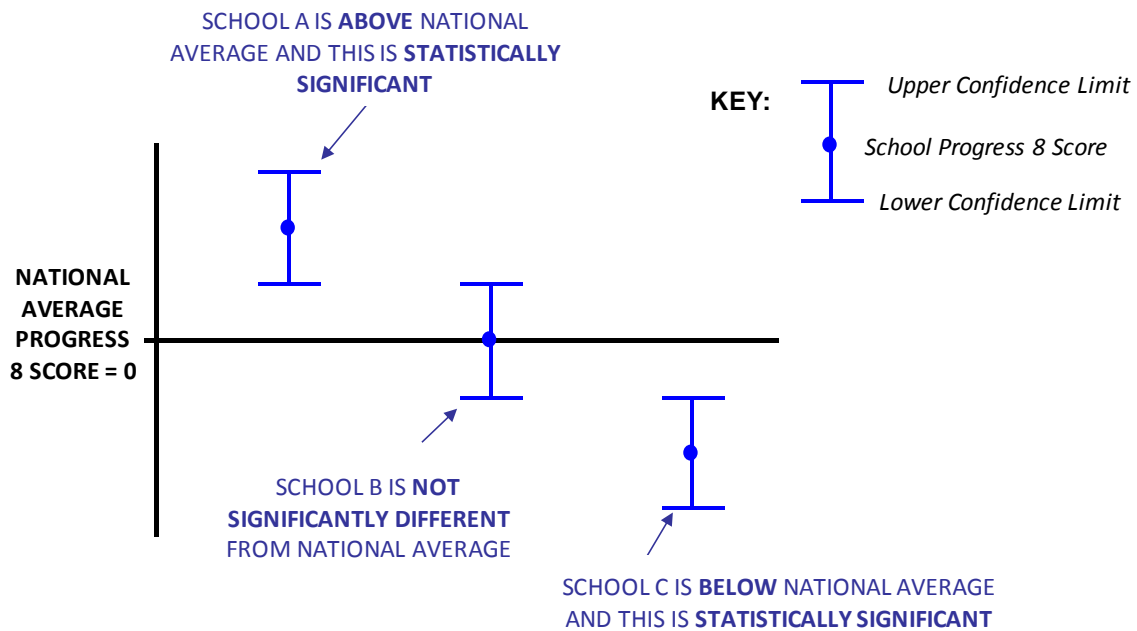
$$CI_s = 1.96 \times \frac{\sigma_N}{\sqrt{n_s}}$$

where:

1.96	is the critical value for a 95% confidence interval;
$\sigma_N$	is the standard deviation of the Progress 8 scores for all eligible pupils <u>nationally</u> ;
$n_s$	is the number of eligible pupils that belong to the school

The national average Progress 8 score of all maintained mainstream school scores will be 0.

- When a school has their lower confidence interval limit higher than zero ( $LowCI_s > 0$ ), the school's Progress 8 score is above average and the result is statistically significant.
- When a school has their lower confidence interval limit higher than zero ( $UppCI_s < 0$ ), the school's Progress 8 score is below average and the result is statistically significant.
- In the other case when the confidence interval straddles zero ( $LowCI_s < 0 < UppCI_s$ ), we cannot say with confidence whether the school's Progress 8 score is above or below average, and say the result is not statistically significant.



### Worked example A – continued

We can calculate the size of the confidence interval for the school's Progress 8 score using  $CI_s$  :

$$CI_s = 1.96 \times \frac{\sigma_N}{\sqrt{n_s}} = 1.96 \times \frac{1.14}{\sqrt{100}} = 1.96 \times 0.114 = 0.2$$

We derive the confidence interval for the school's Progress 8 score:

$$= [+0.3 - 0.2, +0.3 + 0.2] = [+0.1, +0.5]$$

As  $LowCI_s > 0$ , we can say that the school's Progress 8 score is above the national average Progress 8 score, and say this result is statistically significant.





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