Department for Education

Key stage 4 performance measures and targeted RISE extension

Government consultation: technical guide

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Introduction

This technical guide is published to provide transparency on the data and analysis used to support the Key Stage 4 Performance Measures and Targeted RISE Extension consultation. It includes a range of analysis to help readers understand patterns in the number of subjects taken at key stage 4 by prior attainment, as well as a description and rationale for the methodology for the proposed best-fit progress measure for pupils with low prior attainment.

Data sources and methodology

In line with key stage 4 performance data, the source of data used for the analysis within this consultation and this technical guide is a matched dataset of school census records, prior attainment records (key stage 2 results), and qualification entries and results collected from awarding bodies.

All statistics within the consultation and this technical guide are based on pupils at the end of KS4 within state-funded mainstream schools in the 2023/24 academic year. Academic year 2023/24 is the latest year where prior attainment at KS2 is available, as KS4 pupils in 2024/25 academic year did not have the KS2 assessments needed to calculate prior attainment due to the COVID-19 pandemic. The coverage of analysis has been limited to pupils in state-funded mainstream schools.

For analysis on the number of filled Attainment 8 (A8)/Progress 8 (P8) slots or number of subjects entered, a qualification is counted when it is an approved KS4 qualification and a grade has been awarded. Qualifications are "discounted" such that where a pupil has entered multiple qualifications which have a substantial curriculum overlap, only the first qualification taken per subject group (discount code) is included.

When considering how many A8/P8 slots are filled, we are considering eight separate subject slots within the curriculum model.[1] A slot within A8/P8 is filled when a grade is achieved for the qualification entered (grade awarded has non-zero performance points). A slot within A8/P8 is considered empty if there is no qualification to fill the slot, if the qualification is ungraded (grade "U") or if no grade was awarded due to absence (grade "X").

[1] The 8 subject slots used here differs to the Progress 8 calculations where the difference in Attainment 8 between a pupil and the average for the prior attainment group is divided by 10.

Proposed Progress 8 curriculum model

The section provides worked examples and analysis for “Chapter 1 - Improving Progress 8 and Attainment 8 measures” in the consultation document.

The number of qualifications each pupil should enter is a professional judgement for schools led by what best meets the needs of an individual. Where more than eight subjects approved to count in performance tables are taken, the Progress 8 and Attainment 8 score for the pupil will be determined by assigning points to the pupils’ highest grades in each slot.

Worked examples of proposed Progress 8 curriculum model

Set out below are worked examples of the subjects that would count under each slot in the new proposed Progress 8 and Attainment 8 model, where two different categories out of humanities, creative subjects and languages are counted in the breadth slots 5 and 6.

Table 1: Pupil A enjoys humanities and modern foreign languages

English slot 1	Maths slot 2	Science slot 3	Science slot 4	Breadth slot 5	Breadth slot 6	Choice slot 7	Choice slot 8
English literature	Maths	Combined science	Combined science	French	History	Computer science	English language

Table 2: Pupil B enjoys creative subjects

English slot 1	Maths slot 2	Science slot 3	Science slot 4	Breadth slot 5	Breadth slot 6	Choice slot 7	Choice slot 8
English literature	Maths	Combined science	Combined science	Religious studies	Music	Performing arts technical award	English language

Table 3: Pupil C enjoys science subjects

English slot 1	Maths slot 2	Science slot 3	Science slot 4	Breadth slot 5	Breadth slot 6	Choice slot 7	Choice slot 8
English language	Maths	Biology	Chemistry	Geography	Art and design	Physics	English literature

Table 4: Pupil D enjoys physical activity

English slot 1	Maths slot 2	Science slot 3	Science slot 4	Breadth slot 5	Breadth slot 6	Choice slot 7	Choice slot 8
English language	Maths	Combined science	Combined science	Spanish	Drama	Physical education	English literature

Set out in Table 5 is a worked example of the subjects that would count under each slot in the new proposed Progress 8 and Attainment 8 model, but only if category D (science) is included for breadth slots 5 and 6.

Table 5: Pupil E enjoys science, technology, engineering and mathematics (STEM)

English slot 1	Maths slot 2	Science slot 3	Science slot 4	Breadth slot 5	Breadth slot 6	Choice slot 7	Choice slot 8
English language	Maths	Physics	Biology	Chemistry	Spanish	Computer science	English literature

Qualifications included within each slot for the proposed Progress 8 curriculum model

Many (although not all) GCSEs have an equivalent AS level which could be taken. AS levels can count in the appropriate slot of Progress 8 for their subject (e.g. maths AS levels count in the maths slot, or a French AS level in the breadth slot). If a GCSE and an AS level in the same subject has been taken, the AS level will count in Progress 8 and the GCSE will not count. Please see the full list of qualifications included in key stage 4 performance measures for more information.

Table 6: Qualifications included in improved Progress 8 and Attainment 8

	Slot name	Qualifications included
Slot 1	**English**	GCSE and equivalent AS levels: English language, English literature.[2]
Slot 2	**Maths**	GCSE and equivalent AS level maths.[3]
Slot 3 and slot 4	**Science**	GCSE: combined science. GCSE and equivalent AS levels: biology, chemistry, physics, computer science.
Slot 5 and slot 6	**Breadth**	Category A (humanities): GCSE and equivalent AS levels: history, geography, religious studies, ancient history. Category B (creative): GCSE and equivalent AS levels: art and design (all variants), music, dance, drama, drama and theatre, design and technology.[4] [If we allow technical awards within breadth slots, the following qualifications would be allowed: Category B (creative): Technical awards in performing arts (all variants), music practice, creative design and production, graphic design, art and design practice.] Category C (languages): GCSE and equivalent AS levels: French, Spanish, German, Italian, Chinese

[2] AS level English language and literature is also included, this does not have an equivalent GCSE.

[3] AS level further maths is also included, this does not have an equivalent GCSE.

[4] If we have category D for science, it is proposed that design and technology will move from category B to category D.

	Slot name	Qualifications included
		(spoken Mandarin and spoken Cantonese), Panjabi, Japanese, Urdu, Bengali, Arabic, Modern Hebrew, Modern Greek, Russian, Gujarati, Persian, Turkish, Biblical Hebrew, Polish, Portuguese, Latin, Classical Greek. [Category D (science): GCSE combined science. GCSE and equivalent AS levels: biology, chemistry, physics, computer science.][5]
Slot 7 and slot 8	**Choice**	GCSE and equivalent AS levels: physical education, sociology, economics, business, psychology, geology, engineering, film studies, statistics, media studies, electronics, classical civilisation. AS level: law, music technology, politics[6]. GCSE: citizenship studies, food preparation and nutrition, astronomy.[7] Level 3 free standing maths qualifications (FSMQ): additional mathematics. Vocational[8]: music technology, finance, enterprise, enterprise and marketing, business and enterprise, retail business, digital information technology, information technology (IT), information communication technology (ICT), study of hair and beauty, hair and beauty studies, interactive media, creative media production, creative iMedia, health and fitness, sport, sports studies (all variants), sports science, sport and coaching principles, hospitality and catering, food and cookery, travel and tourism, health and social care (all variants), child development and care in the early years, child development (all variants), animal care, land based studies,

[5] We will seek views on the need for a fourth category of science subjects, including computer science.

[6] Law, music technology and politics are available as AS levels and do not have an equivalent GCSE

[7] Citizenship, food preparation and nutrition, and astronomy are available as GCSEs and do not have an equivalent AS level.

[8] There are 46 technical awards currently approved to count towards key stage 4 performance measures across these subject areas. There are variations of performing arts technical awards with the same qualification number which have been counted as one qualification in the total.

	Slot name	Qualifications included
		constructing and maintaining the built environment, construction and the built environment (all variants), engineering manufacture, engineering, engineering design, engineering programmable systems. Any graded music: music performance, practical music, theory of music, popular music theory, rock and pop. GCSE and equivalent AS levels: English language, English literature **All subjects approved to count in slots 3, 4, 5 and 6 also count in slots 7 and 8.** [If we allow technical awards within breadth slots, a maximum of two technical awards would be allowed across the two breadth and two choice slots. If one technical award is within a breadth slot, only one of the choice slots can contain a technical award.]

Slot-filling in current and proposed Progress 8 curriculum model

The table below shows the proportion of pupils who would fill all slots in the proposed P8 curriculum model, **based on the entries of pupils in 2023/24.** We anticipate that pupils will be encouraged to make subject choices that align with the new curriculum model and that the actual proportion of pupils filling all slots in the Progress 8 measure would be higher than the figures given here.

All models below (proposed model and its variations) have an English slot (slot 1), a maths (slot 2), two science slots (slot 3 and 4), two breadth slots with subject criteria (slot 5 and 6) and two choice slots without subject criteria (slot 7 and 8). Slots in all models can only be filled by approved KS4 qualifications. Double weighting of English and maths slots are applied in all models below and follow the same rules as the current Progress 8 and Attainment 8. English slot is double weighted provided a pupil has taken both GCSE English language and GCSE English literature qualifications (or relevant AS level). Maths slot is double-weighted when the pupil has taken GCSE maths (or relevant AS level). The proposed models for A8/P8 have a maximum of two technical awards across the slots (current A8/P8 allows a maximum of three technical awards). The proposed model and possible variations of the proposed model are:

- **Proposed model** – 3 categories (humanities, creative, languages) for breadth slots 5 and 6, technical awards allowed to count in slots 5 to 8 (all breadth and choice slots).

- **Variation 1** – 3 categories (humanities, creative, languages) for breadth slots 5 and 6, technical awards allowed to count in slots 7 and 8 (two choice slots).

- **Variation 2** – 4 categories (humanities, creative, languages, science) for breadth slots 5 and 6, technical awards allowed to count in slots 5 to 8 (all breadth and choice slots), design & technology included in the creative category.

- **Variation 3** – 4 categories (humanities, creative, languages, science) for breadth slots 5 and 6, technical awards allowed to count in slots 7 and 8 (two choice slots), design & technology included in the creative category.

- **Variation 4** – 4 categories (humanities, creative, languages, science) for breadth slots 5 and 6, technical awards allowed to count in slots 5 to 8 (all breadth and choice slots), design & technology included in the science category.

- **Variation 5** – 4 categories (humanities, creative, languages, science) for breadth slots 5 and 6, technical awards allowed to count in slots 7 and 8 (two choice slots), design & technology included in the science category.

Table 7: Percentage of pupils who fill all A8/P8 slots across different proposed models

	All Pupils	Of those pupils who currently fill all A8/P8 slots	Of those pupils who do not currently fill all A8/P8 slots
Number of Pupils	615,000	524,000	91,000
Current A8/P8	85%	-	-
Proposed model with 3 categories including technical awards	63%	74%	4%
Variation 1 with 3 categories not including technical awards	61%	71%	3%
Variation 2 with 4 categories including technical awards	71%	82%	4%
Variation 3 with 4 categories not including technical awards	69%	80%	3%
Variation 4 with 4 categories including technical awards, and design and technology included in science slot	71%	82%	4%
Variation 5 with 4 categories not including technical awards, and design and technology included in science slot	69%	80%	4%

Source: Key stage 4 results data and pupil records

Based on 2023/24 entry patterns, between 61% and 71% of all pupils would fill all slots in the proposed A8/P8 curriculum models. While many pupils fill all the slots in current and proposed A8/P8 models, it is the case that 15% of pupils do not fill all the current A8/P8 slots and only a small number of these pupils fill all of the slots in the proposed A8/P8 curriculum models (4% or less of 91,000 pupils). We anticipate that, if the proposed model is introduced, pupils will be encouraged to make subject choices that align with the new curriculum model and that the actual proportion of pupils filling all slots in the proposed A8/P8 measure would be higher than the figures given here.

Slot-filling differences across prior attainment bands

Currently, 14% of pupils (80,900) with prior attainment data and included in the P8 measure fill less than 8 slots in A8/P8.[9] This rises to 33% of pupils with low prior attainment (LPA) that fill less than 8 slots in A8/P8, compared to 11% of mid prior attainment (MPA) and 4% of high prior attainment (HPA) pupils.

Of the 41,000 LPA pupils not filling all 8 slots in A8/P8:

- 25,100 (61%) had 7 or fewer qualifications eligible to be within a A8/P8 slot and are unable to fill all slots.
- 6,600 (16%) had 8+ scoring qualifications eligible to be within a A8/P8 slot but not in the right combination to get a full A8/P8 score.
- 3,000 (7%) had qualifications to fill all 8 A8/P8 slots and scored zero points in at least one.
- 6,300 (15%) had 8+ qualifications eligible to be within A8/P8 slots but not in the right combination to get a full A8/P8 score and scored non-zero points in 7 or less.

Having empty slots leads to missing a contribution to A8 and P8 which leads to lower A8 and P8 scores for pupils, in addition to any actual performance differences in their qualifications. For example, with P8, a pupil in prior attainment group (PAG) 5 is benchmarked against a PAG average A8 of 22. Each empty slot is equivalent to a -0.22 reduction in P8 for the pupil. To reach Progress 8 score of zero, a pupil would need to overcome this by performing 2 grades better across their other subjects. Pupils in mid and high PA groups with less than 8 subjects have more negative average P8 scores than pupils in the low PA groups. This is because the PAG average A8 used as a benchmark is higher as the prior attainment group increases, meaning more negative P8 values are possible (i.e. when A8 is zero).

For the one-third of LPA pupils who do not fill all their A8 slots, it is hard to measure whether pupils are doing well in the subjects they are taking because the empty slots dominate their P8 scores. Number of pupils and their average P8 scores by number of slots filled within A8/P8 are displayed for LPA pupils in Table 8, MPA pupils in Table 9 and HPA pupils in Table 10. We are consulting on how a proposed additional measure focused on pupils with low prior attainment can better recognise the achievements and progress of these pupils.

For LPA pupils with an identified special education need (SEN), 49% filled less than 8 slots in A8/P8. The proportion of pupils that fill less than 8 slots in A8/P8 was 66% of SEN LPA pupils that had an EHC plan and 44% of LPA pupils that received SEN support

[9] For pupil within Progress 8 measure (14% out of 574,033), the percentage of pupils filling all 8 A8/P8 slots is 1 percentage point lower than previous section which is looking at all pupils (15% out of 614,913). The 15% figure in the previous section covers all pupils, including those with no prior attainment who are not included in the Progress 8 measure.

(without an EHC plan), compared to 24% of LPA pupils with no known special education need.

Table 8: Pupils[10], average Attainment 8 (A8) and average Progress 8 (P8) for low prior attaining pupils by number of slots filled in Attainment 8/Progress 8 (A8/P8)

Number of A8 / P8 slots filled with scoring qualifications[11]	Number of low prior attaining pupils	Percentage of low prior attaining pupils	Average Attainment 8 of low prior attaining pupils	Average Progress 8 of low prior attaining pupils
0	5,151	4%	0.0	-2.40
1	2,219	2%	2.0	-2.15
2	2,596	2%	4.4	-2.01
3	2,277	2%	6.8	-1.81
4	2,884	2%	8.8	-1.60
5	4,038	3%	12.2	-1.32
6	5,646	5%	15.7	-0.95
7	16,204	13%	22.3	-0.35
8	82,149	67%	34.2	0.57
Total	123,164	100%	27.3	0.00
7 filled or less	41,015	33%	13.6	-1.16
8 slots filled	82,149	67%	34.2	0.57

Source: Key stage 4 results data and pupil records

[10] Pupils with prior attainment data and included in the Progress 8 measure

[11] A slot within Attainment 8/Progress 8 can be assigned with a qualification allowed within A8 slots that is scoring zero A8 points. For a slot to be considered filled by a qualification, the qualification must contribute to the overall score by having the A8 points for the grade achieved above zero (i.e. scoring).

Table 9: Pupils[12], average Attainment 8 (A8) and average Progress 8 (P8) for mid prior attaining pupils by number of slots filled in Attainment 8/Progress 8 (A8/P8)

Number of A8 / P8 slots filled with scoring qualifications[13]	Number of mid prior attaining pupils	Percentage of mid prior attaining pupils	Average Attainment 8 of mid prior attaining pupils	Average Progress 8 of mid prior attaining pupils
0	3,225	1%	0.0	-4.06
1	1,031	0%	2.8	-3.89
2	2,072	1%	6.7	-3.65
3	1,670	1%	9.9	-3.38
4	2,230	1%	12.9	-3.12
5	3,737	1%	18.1	-2.62
6	5,206	2%	23.1	-2.15
7	15,465	5%	30.9	-1.34
8	274,348	89%	49.5	0.29
Total	308,984	100%	46.3	0.00
7 filled or less	34,636	11%	21.0	-2.28
8 slots filled	274,348	89%	49.5	0.29

Source: Key stage 4 results data and pupil records

[12] Pupils with prior attainment data and included in the Progress 8 measure

[13] A slot within Attainment 8/Progress 8 can be assigned with a qualification allowed within A8 slots that is scoring zero A8 points. For a slot to be considered filled by a qualification, the qualification must contribute to the overall score by having the A8 points for the grade achieved above zero (i.e. scoring).

Table 10: Pupils[14], average Attainment 8 (A8) and average Progress 8 (P8) for high prior attaining pupils by number of slots filled in Attainment 8/Progress 8 (A8/P8)

Number of A8 / P8 slots filled with scoring qualifications[15]	Number of high prior attaining pupils	Percentage of high prior attaining pupils	Average Attainment 8 of high prior attaining pupils	Average Progress 8 of high prior attaining pupils
0	499	0%	0.0	-4.10
1	153	0%	3.9	-4.14
2	296	0%	9.7	-4.09
3	228	0%	15.6	-4.02
4	327	0%	19.7	-3.89
5	623	0%	26.4	-3.51
6	843	1%	30.7	-3.18
7	2,237	2%	41.7	-2.19
8	136,679	96%	67.6	0.14
Total	141,885	100%	66.1	0.03
7 filled or less	5,206	4%	28.6	-3.04
8 slots filled	136,679	96%	67.6	0.14

Source: Key stage 4 results data and pupil records

[14] Pupils with prior attainment data and included in the Progress 8 measure

[15] A slot within Attainment 8/Progress 8 can be assigned with a qualification allowed within A8 slots that is scoring zero A8 points. For a slot to be considered filled by a qualification, the qualification must contribute to the overall score by having the A8 points for the grade achieved above zero (i.e. scoring).

Number of entries for pupils taking triple science

Table 11 below shows a breakdown of the number and percentage of pupils with three separate scoring science subjects entered (i.e. taking triple science) by number of scoring subjects entered (i.e the grade achieved has performance points that could contribute towards the overall A8 score of the pupil). Science subjects counted are biology, chemistry and physics. If we included computer science alongside biology, chemistry and physics, the percentage of pupils with three separate science subjects would be higher.

Of pupils with more than 8 subject entries that scored performance points, 32.8% had three separate scoring science subjects. This compares to 6.6% of pupils with 8 scoring subjects entered and 2.0% of pupils with less than 8 scoring subjects entered. Overall, 95.9% of pupils taking three separate scoring science subjects had more than 8 entries in total.

Table 11: Number and percentage of pupils with three separate scoring[16] science subjects entered, by number of scoring subjects entered

Number of scoring subjects entered	Number of pupils	Number of pupils with three separate scoring science subjects entered	Percentage of pupils with at three separate scoring science subjects entered	Distribution of pupils with three separate scoring science subjects entered
Less than 8 entries	76,110	1,493	2.0%	0.7%
8 entries	91,317	6,027	6.6%	3.5%
More than 8 entries	447,486	146,745	32.8%	95.9%
Total	614,913	154,265	25.1%	100.0%

Source: Key stage 4 results data and pupil records

[16] A8 points for the grade achieved in qualification above zero.

Best-fit progress for low prior attaining pupils

The section provides worked examples and analysis for “Chapter 2: Wider academic performance measures” in the consultation document.

Methodology of best-fit progress for low prior attaining pupils

We calculate this proposed additional measure by taking a low prior attainment pupil’s reading and maths scores at the end of KS2 and then put the pupils in prior attainment groups, in the same way as it is done in Progress 8, apart from an adjustment that could be applied for pupils with a first language other than English and English is an additional language (EAL). The adjustment for EAL pupils would be to take the higher of their average score in reading and maths at the end of KS2 (which is the existing measure of prior attainment in Progress 8) or their maths score at the end of KS2, and using that score to assign the prior attainment groups for low prior attaining EAL pupils. The adjustment would ensure that low prior attaining EAL pupils are assigned to prior attaining groups that are more reflective of their expected attainment.

For each pupil, we calculate attainment scores from across 3 subjects up to across 8 subjects (with reserved slots for each of English and maths within the subjects), regardless of how many additional qualifications the pupils have taken. For example, when calculating a 5-subject attainment score, we would include the pupil’s grade in maths GCSE, their best grade from English literature or English language (if applicable), and then the three best remaining grades from the other subjects taken. If a pupil has not taken either English or maths, they would score zero points for the respective slot.

We then subtract the average attainment score for all pupils within the same prior attainment group for each number of subjects from pupils’ attainment scores to calculate six progress scores from 3 subjects (‘P3’) up to 8 subjects (‘P8’). We identify the highest among these six scores and use this as the pupil’s best-fit progress score. We then aggregate these scores for all pupils with low prior attainment, to produce an overall score for a school. We have considered other methodology options and consider this to be the best one but invite views on this in question 19 of the consultation.

The number of subjects for the highest score within best-fit progress is only the number that maximises the score, not a recommended number of subjects that the pupil should enter. Considering how to improve best-fit progress for a low prior attaining pupil should be considered alongside the impact on the P8 score for that pupil. The number of qualifications each pupil should enter remains a professional judgement for schools led by what best meets the needs of an individual, balancing curriculum breadth and number of subjects in which they can achieve well.

Worked examples for the calculation are given below.

Worked examples of best-fit progress for low prior attaining pupils

Example calculation: Pupil 1

Subjects taken and the grades achieved by Pupil 1:

- English literature – grade 5, corresponds to 5 points
- Art and design – grade 5, corresponds to 5 points
- English language – grade 5, corresponds to 5 points
- Maths – grade 3, corresponds to 3 points

Pupil 1 fills 4 slots in Attainment 8 / Progress 8.

- Attainment 8 score = 26
- Attainment 8 prior attainment group (PAG) average = 19.02
- Progress 8 (status quo) score = 0.70

Table 12: Example calculation of best-fit progress for Pupil 1

Number of subjects (N)	Attainment score for each number of subjects (Attainment N score)	Average Attainment N score for PAG	Attainment N score minus PAG average
3	13 (English language, maths, art and design)	6.65	6.35
4	18 (All 4)	8.86	**9.14**
5	18 (All 4)	10.72	7.28
6	18 (All 4)	12.30	5.70
7	18 (All 4)	13.60	4.40
8	18 (All 4)	14.58	3.42

This pupil has only taken 4 qualifications but does quite well in them relative to the average. Had they done a fifth qualification, they would have needed at least grade 2 in it for the pupil to have the 5-subject score used in the school's best-fit progress calculation.

Example calculation: Pupil 2

Subjects taken and the grades achieved by Pupil 2:

- English language – grade 3, corresponds to 3 points
- Maths – grade 4, corresponds to 4 points
- Sport technical award – Level 2 Merit, corresponds to 5.5 points
- Combined science – grade 3 / grade 3, corresponds to 3 / 3 points
- History – grade 1, corresponds to 1 point
- Design and technology – grade 1, corresponds to 1 point

Pupil 2 fills 7 slots in Attainment 8 / Progress 8.

- Attainment 8 score = 24.5
- Attainment 8 prior attainment group (PAG) average = 25.02
- Progress 8 (status quo) score = -0.05

Table 13: Example calculation of best-fit progress for Pupil 2

Number of subjects (N)	Attainment score for each number of subjects (Attainment N score)	Average Attainment N score for PAG	Attainment N score minus PAG average
3	English language, maths, sport technical award = 12.5	8.61	3.89
4	As above plus combined science (x1) = 15.5	11.42	4.08
5	As above plus combined science (x2) = 18.5	13.86	**4.64**
6	As above plus history = 19.5	15.99	3.51
7	As above plus design and technology = 20.5	17.83	2.67
8	As above = 20.5	19.31	1.19

This pupil has only filled 7 slots, so is penalised in Progress 8 by having an empty slot. They have the best difference from the PAG average when using 5 slots and are not penalised from having attempted history or design and technology but not doing as well in them. They would have needed at least a grade 3 instead of a grade 1 in either of these for the 6-subject score to be their best.

Example calculation: Pupil 3

Subjects taken and the grades achieved by Pupil 3:

- English literature – grade 2, corresponds to 2 points
- English language – grade 3, corresponds to 3 points
- Maths – grade 3, corresponds to 3 points
- Construction technical award – Level 1 Pass, corresponds to 1.25 points
- Combined science – grade 3 / grade 2, corresponds to 3 / 2 points (counting as two 2.5 points in the calculation)
- Business studies – grade 2, corresponds to 2 points
- Spanish – grade 2, corresponds to 2 points

Pupil 3 fills 8 slots in Attainment 8 / Progress 8.

- Attainment 8 score = 24.25
- Attainment 8 prior attainment group (PAG) average = 32.30
- Progress 8 (status quo) score = -0.81

Table 14: Example calculation of best-fit progress for Pupil 3

Number of subjects (N)	Attainment score for each number of subjects (Attainment N score)	Average Attainment N score for PAG	Attainment N score minus PAG average
3	English language, maths, combined science (x1) = 8.5	10.95	**-2.45**
4	English language, maths, combined science (x2) = 11	14.50	-3.50
5	As above plus Spanish = 13	17.64	-4.64
6	As above plus English literature = 15	20.45	-5.45
7	As above plus business studies = 17	22.94	-5.94
8	As above plus construction technical award = 18.25	25.02	-6.77

This pupil's best score comes from using three slots. They would have needed at least two extra grades in either English language, maths or combined science to have scored enough to move them up to the 4-subject score, or even bigger improvements in other subjects not currently in their top 4.

Example calculation: Pupil 4

Subjects taken and the grades achieved by Pupil 4:

- Maths – grade 6, corresponds to 6 points
- English literature – grade 4, corresponds to 4 points
- English language – grade 4, corresponds to 4 points
- Combined science – grade 6 / grade 6, corresponds to 6 / 6 points
- Design and technology – grade 5, corresponds to 5 points
- Multimedia – grade 4, corresponds to 4 points
- Geography – grade 4, corresponds to 4 points

Pupil 4 fills 8 slots in Attainment 8 / Progress 8.

- Attainment 8 score = 49
- Attainment 8 prior attainment group (PAG) average = 32.30
- Progress 8 (status quo) score = +1.67

Table 15: Example calculation of best-fit progress for Pupil 4

Number of subjects (N)	Attainment score for each number of subjects (Attainment N score)	Average Attainment N score for PAG	Attainment N score minus PAG average
3	Maths, English language, combined science (x1) = 16	10.95	5.05
4	Maths, English language, combined science (x2) = 22	14.50	7.50
5	As above, plus design and technology = 27	17.64	9.36
6	As above, plus English literature = 31	20.45	10.55
7	As above, plus multimedia = 35	22.94	12.06
8	As above, plus geography = 39	25.02	**13.98**

This pupil fills 8 slots, is doing well, and has their best score from using 8 slots. They would have needed to achieve two grades less in either English language, English literature, multimedia or geography before the 7-subject score would have been their best one.

Example calculations at school level

School A contains the pupils in examples 1 and 2. School B contains the pupils in examples 3 and 4.

Their average best-fit progress scores and Progress 8 scores for School A and B are calculated as follows:

Table 16: Example calculation of best-fit progress and Progress 8 for School A with pupils 1 and 2

Pupils in School A	Best-fit progress	Progress 8
1	9.14	0.70
2	4.64	-0.05
Average for School A (mean)	**6.89**	**0.32**

Table 17: Example calculation of best-fit progress and Progress 8 for School B with pupils 3 and 4

Pupils in School B	Best-fit progress	Progress 8
3	-2.45	-0.81
4	13.98	1.67
Average for School B (mean)	**5.77**	**0.43**

In this simple example, School A (+0.32) does less well on Progress 8 than school B (+0.43). This is likely because they do not have any pupils who fill all 8 slots. However, for the slots they do fill, their pupils have got some good results. School B does well in Progress 8 because they have more pupils filling all 8 slots, but overall do less well on best-fit progress than school A. We cannot directly compare the scores of Progress 8 and best-fit progress, but we can potentially infer something about schools based on their relative scores in each measure.

EAL adjustment in best-fit progress for low prior attaining pupils

Low prior attaining (LPA) pupils with English as an additional language (EAL) perform markedly better than others in Progress 8. The average LPA EAL Progress 8 score is +0.63, compared to -0.15 for LPA pupils with English as their first language. This is a gap of 0.78 P8 points between the average Progress 8 scores. The gap between EAL pupils and pupils with English as their first language narrows to 0.67 P8 points for middle prior attainers (MPA) and 0.44 P8 points for high prior attainers (HPA). LPA EAL pupils also tend to have larger differences between their KS2 maths and reading scores than both EAL pupils in middle and high prior attaining cohorts, and LPA pupils with English as their first language. There is also a more marked difference in the percentage of pupils filling all of their A8/P8 slots between EAL pupils and pupils with English as their first language in the LPA cohort than in the MPA and HPA cohorts. Both are indications that some LPA EAL pupils have a higher ability than their KS2 reading and maths average suggests.

Table 18: Number of pupils, % of pupils, average KS2 maths scores and averages KS2 reading scores by prior attainment band and first language

Prior attain-ment band	First language	Number of pupils	Percentage of all pupils with prior attainment data	Average KS2 maths scores	Average KS2 reading scores	Average difference between KS2 reading and maths scores
Low prior attainers	Other than English (EAL)	23,096	4%	94.7	90.0	4.6
Low prior attainers	English	99,121	17%	94.8	93.0	1.9
Middle prior attainers	Other than English (EAL)	47,738	8%	106.3	103.8	2.5
Middle prior attainers	English	259,279	45%	105.4	104.8	0.6
High prior attainers	Other than English (EAL)	22,004	4%	113.4	113.0	0.4
High prior attainers	English	119,243	21%	112.3	113.7	-1.4

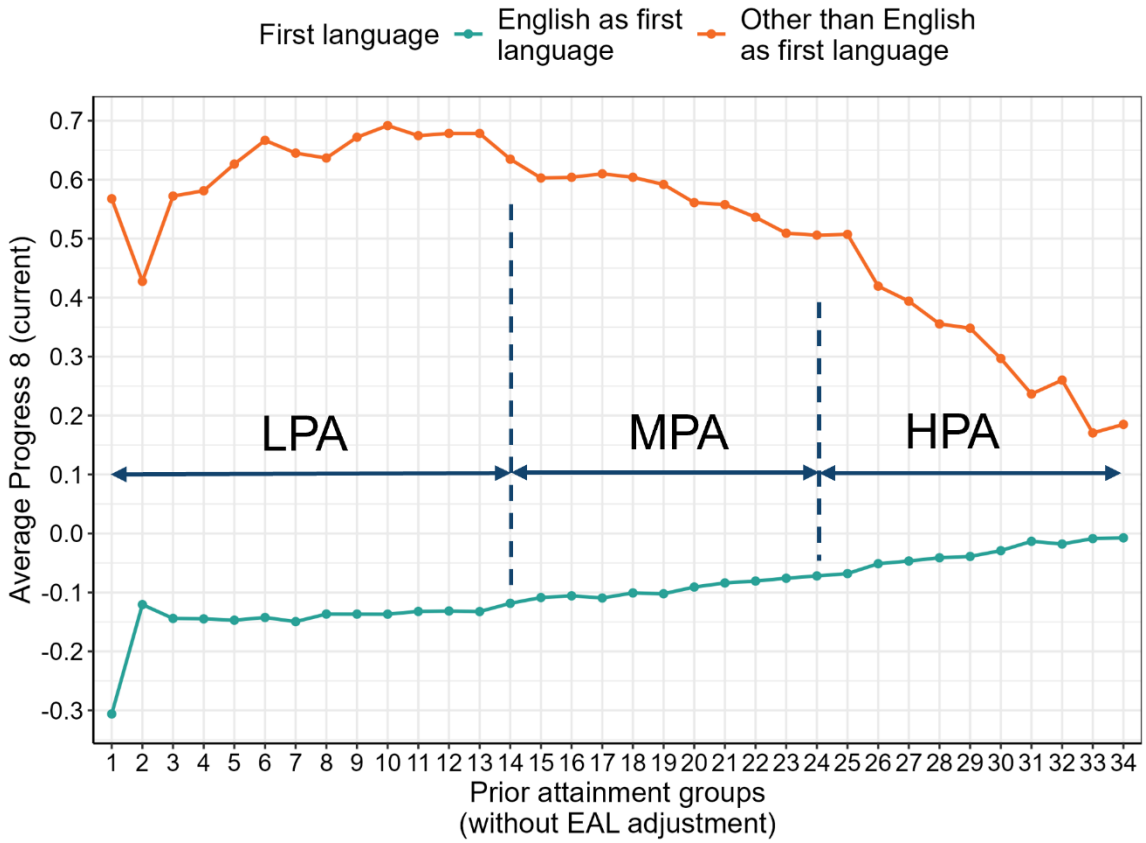
Source: Key stage 4 results data and pupil records

Table 19: Percentage of pupils filling all slots in Attainment 8/Progress 8, average Attainment 8 and averages Progress 8 by prior attainment band and first language

Prior attainment band	First language	Percentage of pupils filling all A8/P8 slots	Average Attainment 8	Average Progress 8
Low prior attainers	Other than English (EAL)	77%	32.7	0.63
Low prior attainers	English	65%	26.1	-0.15
Middle prior attainers	Other than English (EAL)	94%	51.9	0.57
Middle prior attainers	English	88%	45.4	-0.10
High prior attainers	Other than English (EAL)	98%	70.2	0.40
High prior attainers	English	96%	65.4	-0.04

Source: Key stage 4 results data and pupil records

Figure 1: Average Progress 8 by prior attainment group and first language



Source: Key stage 4 results data and pupil records

LPA EAL pupils with a substantially higher KS2 maths score than their KS2 reading score are currently assigned to a prior attainment group based on the average of their KS2 reading and maths scores. For some LPA EAL pupils, this could lead to being placed in a lower prior attainment groups (which have lower expected attainment) than their academic potential at the start of secondary school. The lower expected attainment values are used in the pupil's progress calculations and could contribute to the very high Progress 8 scores seen on average for LPA EAL pupils, especially when these pupils attain highly at KS4, presumably after any potential language barriers they had are reduced and they achieve more in line with their higher academic potential.

There could be a perceived issue with fairness here. There will be pupils with special educational needs taking fewer than 8 qualifications who are being compared against PAG averages that have been raised by EAL pupils allocated to prior attainment groups below their ability and academic potential; and EAL pupils with much higher maths than reading scores at KS2 likely having their expected attainment at KS4 under-estimated. It is also likely that not all EAL pupils have had their expected KS4 under-estimated, as there are some EAL pupils that have attainment below that expected for their prior attainment group (i.e. negative P8 scores). For these pupils, their current prior attainment group may be appropriate and should ideally remain unchanged.

By taking the higher of an EAL pupil's KS2 reading and maths average or their KS2 maths score as their prior attainment, EAL pupils with higher KS2 maths than reading scores could be assigned to higher prior attainment groups that are more reflective of their ability and academic potential at the end of KS2, and reduce the amount that their expected attainment is under-estimated. For the pupils that remain within the same prior attainment group, the PAG averages would be reduced to be more reflective of the expected attainment for the ability and academic potential of those pupils.

The tables 20 and 21 below break down how the EAL adjustment that could be applied in the best-fit progress measure for low prior attaining pupils (see section 2 of the consultation document and methodology section above) affects the number of EAL pupils in each PAG. The adjustment gives EAL pupils the higher of their KS2 maths or KS2 reading and maths average (which is the existing measure of prior attainment in Progress 8) – that is, where they have a higher maths score than reading, we use this as their prior attainment, which determines which PAG they are assigned to for the progress calculation.

The effect is that a number of EAL pupils move into higher prior attainment groups (PAG), or stop being considered low prior attaining (LPA) altogether by moving into mid or high prior attaining PAGs. It would mean approximately 31% of EAL LPA pupils would move out of the low prior attainment cohort, (which equates to 6% of the total LPA cohort). A further 31% of EAL LPA pupils (6% of total LPA cohort) would move to a higher LPA PAG, remaining in the low prior attainment cohort with a higher expected attainment for their progress calculations. This would lead to fairer comparisons and progress calculations for pupils remaining in the same prior attainment group in the LPA

cohort (including those with EAL), and those EAL pupils moving to higher LPA prior attainment groups would have expected attainment within progress calculations more reflective of their ability and academic potential.

Table 20: Number and percentage of EAL pupils within the low prior attaining (LPA) cohort for current prior attaininment groups (as used in Progress 8) and prior attainment groups after EAL adjustment

LPA prior attain-ment group (PAG)	Number of LPA pupils within current PAGs	Number of LPA pupils within EAL adjusted PAGs	Number of LPA EAL pupils within current PAGs	Percentage of LPA EAL pupils within current PAGs	Number of LPA EAL pupils within EAL adjusted PAGs	Percentage of LPA EAL pupils within EAL adjusted PAGs
1	6,688	6,468	2,361	35%	2,141	33%
2	6,950	6,348	1,531	22%	929	15%
3	4,112	3,681	838	20%	407	11%
4	5,287	5,095	1,067	20%	875	17%
5	6,721	5,995	1,287	19%	561	9%
6	8,244	8,124	1,513	18%	1,393	17%
7	6,509	6,087	1,229	19%	807	13%
8	7,658	7,164	1,393	18%	899	13%
9	8,877	8,565	1,525	17%	1,213	14%
10	10,271	9,804	1,758	17%	1,291	13%
11	11,935	11,388	2,017	17%	1,470	13%
12	13,964	13,277	2,361	17%	1,674	13%
13	16,681	15,766	2,764	17%	1,849	12%
14	9,267	8,169	1,452	16%	354	4%
All LPA pupils	123,164	115,931	23,096	19%	15,863	14%

Source: Key stage 4 results data and pupil records

Table 21: Number and percentage of low prior attaining (LPA) EAL pupils that remain in same prior attainment group (PAG), move to higher LPA PAG or move to higher PAG that is not LPA after EAL adjustment to prior attainment, by current prior attaininment group (as used in Progress 8)

Current LPA prior attainment group (PAG)	Number of EAL pupils that remain in same LPA PAG after EAL adjustment	Percentage of EAL pupils that remain in same LPA PAG after EAL adjustment	Number of EAL pupils that move to a higher LPA PAG after EAL adjustment	Percentage of EAL pupils that move to a higher LPA PAG after EAL adjustment	Number of EAL pupils that are no longer LPA when move to higher PAG after EAL adjustment	Percentage of EAL pupils that are no longer LPA when move to a higher PAG after EAL adjustment
1	2,141	91%	218	9%	2	0%
2	759	50%	762	50%	10	1%
3	239	29%	596	71%	3	0%
4	391	37%	659	62%	17	2%
5	355	28%	863	67%	69	5%
6	524	35%	838	55%	151	10%
7	394	32%	674	55%	161	13%
8	426	31%	742	53%	225	16%
9	490	32%	560	37%	475	31%
10	527	30%	556	32%	675	38%
11	614	30%	466	23%	937	46%
12	707	30%	228	10%	1,426	60%

Current LPA prior attainment group (PAG)	Number of EAL pupils that remain in same LPA PAG after EAL adjustment	Percentage of EAL pupils that remain in same LPA PAG after EAL adjustment	Number of EAL pupils that move to a higher LPA PAG after EAL adjustment	Percentage of EAL pupils that move to a higher LPA PAG after EAL adjustment	Number of EAL pupils that are no longer LPA when move to higher PAG after EAL adjustment	Percentage of EAL pupils that are no longer LPA when move to a higher PAG after EAL adjustment
13	780	28%	0	0%	1,984	72%
14	354	24%	0	0%	1,098	76%
All LPA pupils	8,701	38%	7,162	31%	7,233	31%

Source: Key stage 4 results data and pupil records

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