Key Stage 4 Similar Schools

Guide and technical note for local authorities, maintained schools, academies and free schools

February 2020

Contents

Introduction to similar schools

The purpose of similar schools is to provide further context around key stage 4 examination performance and an insight into how schools are performing compared to those with similar intakes (based on the level at which they were assessed at the end of key stage 2).

This information is provided to help schools identify others with similar ability pupils, with whom they might want to collaborate and share good practice. From a parent or governor's perspective, it gives an indication of what schools dealing with children of similar levels of ability have been able to achieve.

To identify schools with similar intakes, we estimated the Attainment 8 score for each pupil at the end of key stage 4. This estimate is based upon the attainment of pupils in key stage 2 tests and teacher assessments. The pupil estimates can then be averaged for all key stage 4 pupils in a school to calculate the school estimate.

Once the school estimates have been calculated, a similar schools group is selected for each school by taking the 54 schools with the most similar estimates, 27 above and 27 below. This means that each school will have a unique group of 55 schools (including the focus school).

Schools' average Attainment 8 score per pupil for 2019 is then compared across the similar schools group. The summary diagrams on pages 5 and 6 show how to interpret the similar schools comparisons.

The schools included in the measure are state-funded mainstream schools only.

Further information on Attainment 8 and other key stage 4 headline measure can be found in the Secondary accountability measures guidance.

Expiry or review date

This technical guide will next be reviewed before January 2021.

Who is this advice for?

This guidance is for:

- local authorities
- school leaders, school staff and governing bodies in all maintained schools, academies and free schools

Interpreting similar schools comparisons

Example of a similar schools' comparison, showing how the focus school's Attainment 8 score compares to their similar schools group[1]:

School name and type	Local authority	Attainment 8 score	School position within group	Progress 8 score, description & confidence interval	Entering EBacc	EBacc average point score	Average points score at key stage 2
School 279	Local authority X	51.9	21	-0.04 Average (-0.19 to 0.16)	93.3%	6.55	27.4

School 279 is the focus school

The average Attainment 8 score per pupil for this school for 2019 is 51.9

The school has the 21st highest Attainment 8 score per pupil in their similar schools group of 55 schools

Progress 8, EBacc entry, EBacc APS and prior attainment provided for further comparison

---

[1] Please note this is dummy data and therefore does not reflect actual KS4 attainment trends, it is included here to aid interpretation of the Similar schools measure only.

Example of a similar schools' group table, showing how the focus school's Attainment 8 score compares to their similar schools[2]:

School name and type	Local authority	Attainment 8 score	School position within group	Progress 8 score, description & confidence interval	Entering EBacc	EBacc average point score	Average points score at key stage 2
School 280	X	61.8	1	1.15 Well above national average (0.90 to 1.39)	91.20%	6.23	27.4
School 281	X	56	2	0.59 Well above national average (0.45 to 0.72)	91.50%	6.22	27.4
School 282	X	54.8	3	.43 Above national average (0.27 to 0.58)	93.60%	6.45	27.4
School 283	X	54.6	4	...ve national average (0.19 to 0.58)	94.10%	6.40	27.4
School 284	X	54.3		...to 0.65)	92.90%	6.75	27.4
School 285	X	53.4		...o 0.65)	95.00%	6.02	27.4
School 286	X	53.3		...o 0.48)	91.00%	5.99	27.5
School 274	X	53.2		...o 0.35)	89.80%	7.00	27.4
				...o 0.30)	93.20%	6.50	27.4
					94.60%	6.43	27.4
				...o 0.41)	93.70%	6.34	27.5
					91.90%	6.23	27.4
			13	0.19 Above natio...	93.30%	6.54	27.4
			14	0.10 Average	97.00%	6.66	27.4
			15	0.11 Average	92.50%	6.21	27.4
			16	0.05 Average	96.10%	7.03	27.4
			17	0.11 Average	92.40%	6.76	27.4
			18	0.05 Average	90.40%	6.12	27.4
			19	0.03 Average	92.60%	6.21	27.4
School 278		52	20	0.02 Aver...	93.10%	6.51	27.4
School 279	**X**	**51.9**	**21**	**0.08 Average**	**93.30%**	**6.55**	**27.4**
School 259	X	51.8	22	0.04 Average (-0...	91.20%	6.90	27.5
School 260	X	51.7	23	0.01 Average (0.13 to 0.16)	91.50%	6.21	27.4
School 261	X	51.6	24	0.03 Average (-0.13 to 0.18)	93.60%	7.03	27.4
School 262	X	51.5	25	-0.03 Average (-0.18 to 0.12)	94.10%	6.76	27.4
School 263	X	51.4	26	-0.05 Average (-0.18 to 0.12)	92.90%	6.12	27.4
School 264	X	51.3	27	-0.03 Average (-0.18 to 0.12)	95.00%	6.54	27.4
School 265	X	51.2	28	0.00 Average (-0.14 to 0.15)	91.00%	6.75	27.4
School 266	X	51.1	29	0.00 Average (-0.14 to 0.14)	89.80%	6.02	27.4
School 267	X	51	30	-0.03 Average (-0.18 to 0.12)	93.20%	5.99	27.5
School 268	X	50.9	31	-0.03 Average (-0.18 to 0.12)	94.60%	7.00	27.4
School 290	X	50.8	32	-0.03 Average (-0.18 to 0.12)	93.70%	6.50	27.4
School 291	X	50.7	33	-0.05 Average (-0.26 to 0.16)	91.90%	6.43	27.4
School 292	X			Average (-0.24 to 0.13)	93.30%	6.34	27.4
School 293	X			Average (-0.19 to 0.09)	97.00%	6.23	27.4
School 294	X			Average (-0.20 to 0.09)	92.50%	6.54	27.4
School 295	X			Average (-0.25 to 0.11)	93.20%	6.66	27.4
School 296	X			Average (-0.25 to 0.05)	94.60%	6.21	27.4
School 297	X			Average (-0.30 to 0.05)	93.70%	7.03	27.4
School 302	X			Average (-0.28 to 0.00)	91.90%	6.76	27.4
School 303	X			Average (-0.36 to 0.07)	93.30%	6.12	27.4
School 300	X	49.8	42	-0.28 Below national average (-0.49 to -0.08)	97.00%	6.54	27.4
School 309	X	49.7	43	-0.17 Below national average (-0.32 to -0.02)	92.50%	6.75	27.4
School 310	X	49.6	44	-0.21 Below national average (-0.37 to -0.06)	96.10%	6.02	27.5
School 311	X	49.5	45	-0.23 Below national average (-0.42 to -0.03)	92.40%	5.99	27.4
School 312	X	49.4	46	-0.23 Below national average (-0.37 to -0.08)	90.40%	7.00	27.4
School 313	X	49.3	47	-0.24 Below national average (-0.40 to -0.09)	92.60%	6.50	27.4
School 306	X	49.2	48	-0.24 Below national average (-0.40 to -0.09)	92.40%	6.43	27.4
School 307	X	49.1	49	-0.24 Below national average (-0.40 to -0.09)	90.40%	6.34	27.4
School 308	X	49	50	-0.26 Below national average (-0.40 to -0.09)	92.60%	6.75	27.4
School 301	X	48.9	51	-0.47 Below national average (-0.67 to -0.26)	93.10%	6.02	27.4
School 398	X	48.8	52	-0.57 Well below national average (-0.72 to -0.42)	93.30%	5.99	27.4
School 399	X	48.7	53	-0.65 Well below national average (-0.82 to -0.49)	91.20%	7.00	27.4
School 304	X	48.6	54	-0.65 Well below national average (-0.82 to -0.49)	91.30%	6.50	27.4
School 305	X	48.5	55	-0.75 Well below national average (-0.82 to -0.49)	92.20%	6.43	27.4

Schools above the focus school in this table have a higher Attainment 8 score

This school is better performing than the focus school and is located within 75 miles

This is the focus school and this page shows the attainment of the schools with the most similar intake to the focus school

The focus school has the 21st highest Attainment 8 score in their similar schools group of 55 schools
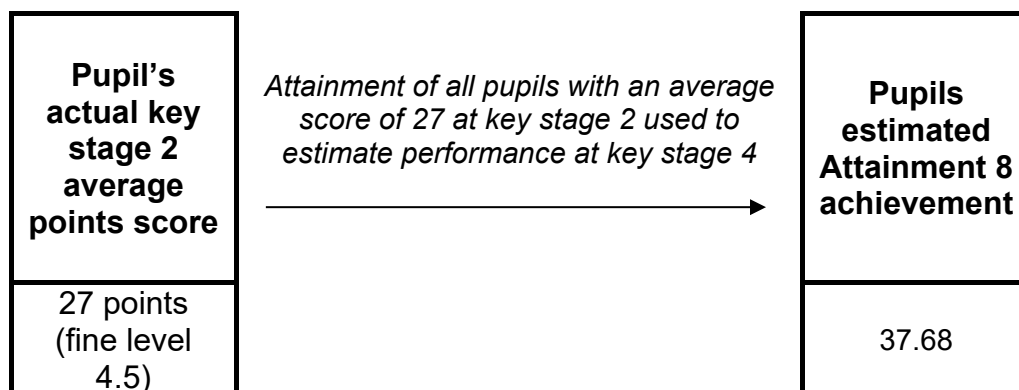
Schools below the focus school in this table have a lower Attainment 8 score

This school has a similar percentage of disadvantaged pupils in the cohort to the focus school

[2] For further explanation on better performing schools and similar disadvantaged cohorts, see page 10

Selecting similar school groups

A statistical model is used to estimate the Attainment 8 achievement for pupils at the end of key stage 4 in 2019. Each pupil's key stage 4 estimate is calculated based on the <u>actual</u> average Attainment 8 score of all pupils nationally with the same level of achievement at key stage 2. For example, calculation of an estimated outcome for a pupil who scored an average of 27 points at key stage 2 will be based on the actual key stage 4 outcome of all pupils nationally that also scored an average of 27 points at key stage 2.

Pupil's actual key stage 2 average points score	*Attainment of all pupils with an average score of 27 at key stage 2 used to estimate performance at key stage 4* →	**Pupils estimated Attainment 8 achievement**
27 points (fine level 4.5)		37.68

Section A of the technical annex provides a more detailed description of how pupils' estimated Attainment 8 score is calculated.

The individual pupil Attainment 8 score estimate is then averaged to calculate a school level estimate.

For more information on calculating school estimates, please see section B of the technical annex.

Once the school estimates have been calculated, a similar schools group is selected for each school by taking the 54 schools with the most similar estimates, 27 above and 27 below. This means that each school has a unique group.

The diagram on the next page demonstrates how a school's similar schools group is selected.

Rank of school estimate	School	School estimate
1	School 1	72.92
2	School 2	71.50
↕	↕	↕
251	School 251	52.13
252	School 252	52.12
253	School 253	52.11
254	School 254	52.10
255	School 255	52.10
↕	↕	↕
271	School 271	52.04
272	School 272	52.03
273	School 273	52.03
274	School 274	52.03
275	School 275	52.02
276	School 276	52.02
277	School 277	52.01
278	School 278	52.00
279	**School 279**	**51.99**
280	School 280	51.98
281	School 281	51.98
282	School 282	51.98
283	School 283	51.98
284	School 284	51.97
285	School 285	51.97
286	School 286	51.97
287	School 287	51.96
↕	↕	↕
303	School 303	51.88
304	School 304	51.87
305	School 305	51.87
306	School 306	51.87
307	School 307	51.86
↕	↕	↕
3122	School 3122	21.25
3123	School 3123	20.04

School 279's Similar School's group consisting of 55 schools including the focus school

27 most similar schools with a higher estimate

27 most similar schools with a lower estimate

Better performing similar schools

Where possible we have highlighted schools within each similar schools group that are both better performing than the focus school and within travelling distance should schools wish to collaborate. To be highlighted as such, a school should:

- **not** have a 'Well below average' Progress 8 banding[3].
- have an average Attainment 8 score per pupil that is at least 9 points (one standard deviation) higher than the focus school
- be located within 75 miles of the focus school

School	Local Authority	Attainment 8 score	School position within group
School 249	Local Authority X	63.0	1
School 261	Local Authority X	54.8	2
School 262	Local Authority X	54.6	3
School 255	Local Authority X	54.2	4
School 264	Local Authority X	54.3	5
School 254	Local Authority X	53.4	
School 265	Local Authority X	53.4	
School 263	Local Authority X	53.4	
School 253	Local Authority X	53.4	
School 267	Local Authority X	53.4	
School 259	Local Authority X	52.9	
School 252	Local Authority X	52.8	
School 268	Local Authority X	52.1	
School 269	Local Authority X	52.1	
School 270	Local Authority X	51.7	10
School 257	Local Authority X	51.5	11
School 271	Local Authority X	51.4	12
School 272	Local Authority X	51.3	13
School 273	Local Authority X	51.2	14
School 274	Local Authority X	51	15
School 291	Local Authority X	51.9	16
School 256	Local Authority X	51.8	17
School 290	Local Authority X	51.7	18
School 301	Local Authority X	51.6	19
School 278	Local Authority X	51.5	20
School 277	Local Authority X	50	21
School 276	Local Authority X	50.9	22
School 275	Local Authority X	50.8	23
School 250	Local Authority X	50.6	24
School 279	**Local Authority X**	**51.9**	**25**

School 249 is a better performing school because it has an Attainment 8 score that is at least 9 points higher than the focus school and is located within 75 miles

The focus school

[3] This replaces the condition based on achievement of the Progress 8 floor standard following removal of this measure in 2019. For more information on Progress 8 bandings and what they mean, please see the 'Progress scores for key stage 4: school and college performance tables' document here: https://www.gov.uk/government/publications/progress-8-school-performance-measure

If there are no schools within a group that meet the above criteria we have, where possible, found an additional better performing school outside of the group. The information for this school is displayed at the bottom of the group page.

This better performing school will meet the criteria set out above and to ensure that the school has a similar intake, the school's similar school estimate must be within 6 points (one standard deviation of the estimates) of the focus school. This better performing school will also have:

- an average Attainment 8 score per pupil that is higher than their estimate
- a higher difference between their average Attainment 8 score per pupil and their estimated score than the school of interest.

Where a school does not have a better performing school, this is likely because:

a.) the school has one of the highest average Attainment 8 scores per pupil in state funded mainstream schools, therefore allocating a better performing school based on the above criteria is not possible. Note, this does not necessarily mean that this school is the highest attaining school in the country.
   OR
b.) No 'better performing' school could be identified based on the criteria set out above, not necessarily due to high attainment but due to other factors, ie. no better performing school within 75 miles. This does not mean that a focus school does not have a better performing school, only that there is not one available based on the conditions for this measure.

Within each similar schools group, to provide an additional point for comparison, we have also highlighted any school that has a similar proportion of disadvantaged pupils; that is those schools within 2 percentage points difference (plus or minus) of the focus school.

Technical Annex

Behind the key stage 4 similar schools measure sits a statistical model used to identify schools with the most similar intakes. The model generates:

- **pupil estimates** (E_p): an estimated Attainment 8 score for each pupil that is based on the average national performance of all pupils in the same key stage 2 prior attainment group.
- **school estimates** (E_s): the average of all individual pupil Attainment 8 score estimates in a specific school.

Section A – Calculating pupil estimates

Pupil eligibility for inclusion in the similar school model

Pupils are included in the key stage 4 similar schools model if:
- their key stage 4 attainment can be matched to their attainment at key stage 2;
- they have an average key stage 2 fine grade score that is greater than zero;
- they do not have a missing or disregarded outcomes in both reading and maths key stage 2 tests / teacher assessments;
- they attend a state-funded mainstream school[4]

Pupil estimate methodology

First, mean key stage 2 fine grade score bandings are applied to determine key stage 2 fine levels (see table below). Banding has been applied where few pupils achieved a certain prior attainment score to produce more accurate estimated values.

---

[4] State-funded mainstream schools include sponsored academies, converter academies, community schools, voluntary aided schools, voluntary controlled schools, foundation schools, city technology colleges, 14-16 further education colleges, university technology colleges and studio schools.

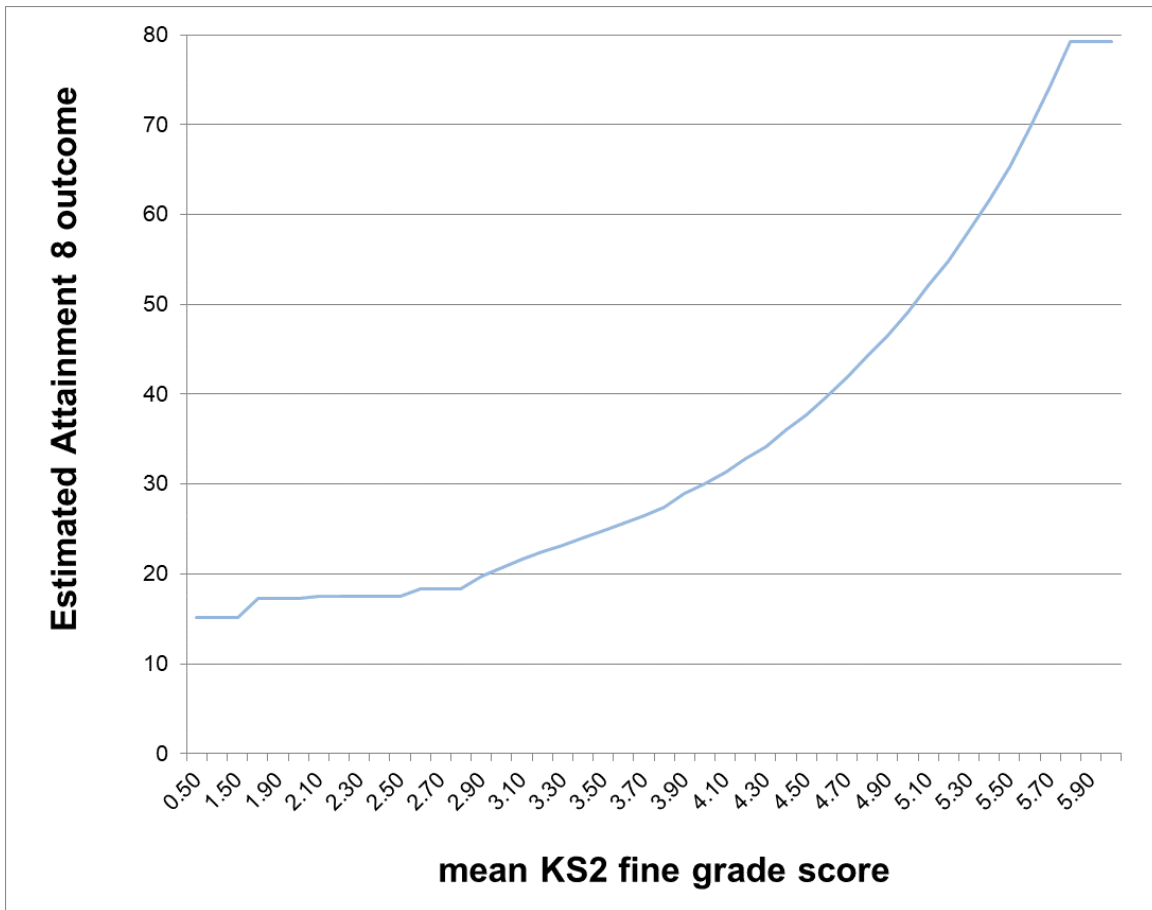**Mean KS2 fine grade score bandings** ⟶ **KS2 fine level**

Less than or equal to 1.5 (<=1.5)	1.5
Between 1.6 and 2.0 (>=1.6 & <=2.0)	2.0
Between 2.1 and 2.5 (>=2.1 & <=2.5)	2.5
Between 2.6 and 2.8 (>=2.6 & <=2.8)	2.8
More than or equal to 5.8 (>=5.8)	5.8
All other fine grade scores	fine level = fine grade score (rounded to 1 decimal place)

In 2019, a pupil's mean key stage 2 fine grade score is defined as the average of their key stage 2 reading and mathematics fine grade results. Fine level banding represents a pupil's prior attainment grouping, consistent with those used in the calculation of Progress 8.

(For further information on converting test marks to fine grades consult the 'Secondary accountability measures guidance')

Next, average Attainment 8 scores are calculated for each prior attainment group (or, key stage 2 fine level). These Attainment 8 averages are taken as a pupil's estimated Attainment 8 outcome. All pupils in the same prior attainment group are assumed to have the same pupil estimate.

2019 pupil estimates are shown in the chart and table on the next page. Each 'step' in the chart corresponds to the different prior attainment groupings. These estimates are the same as those used in Progress 8 calculations and are expressed as a number to 2 decimal places.

Key stage 2 fine level	Attainment 8 estimate
1.5	15.13
2	17.24
2.5	17.49
2.8	18.29
2.9	19.81
3	20.65
3.1	21.63
3.2	22.44
3.3	23.12
3.4	23.97
3.5	24.87
3.6	25.66
3.7	26.54
3.8	27.43
3.9	28.97
4	30.00
4.1	31.27

Key stage 2 fine level	Attainment 8 estimate
4.2	32.88
4.3	34.20
4.4	36.02
4.5	37.68
4.6	39.76
4.7	41.93
4.8	44.25
4.9	46.51
5	49.19
5.1	52.05
5.2	54.85
5.3	58.09
5.4	61.60
5.5	65.28
5.6	69.67
5.7	74.31
5.8	79.19

Worked example 1

Pupil Gillian Jones has the following prior attainment at the end of key stage:

Surname	Jones
Forename	Gillian
Mean KS2 fine grade score	5.3

First, Gillian is assigned to her fine level band which, in this case, equals her mean fine grade. Gillian hence has a key stage 2 fine level of 5.3; this is her prior attainment group.

Next, the average Attainment 8 score is calculated for all pupils nationally within Gillian's prior attainment group. The average score for pupils that also achieved a mean fine grade score of 5.3 at key stage 2 is **58.09**. Gillian's pupil estimate (E_p) is hence **58.09** (to 2 decimal places).

Section B – Calculating school estimates

School eligibility for inclusion in the similar schools model

Schools will be included in key stage 4 similar schools groupings if:

- they are classed as a state funded mainstream school;
- their results are not suppressed in performance tables under the small numbers/suppression rules.

Methodology for school estimates

School estimates (E_s) are calculated as the average pupil estimate for a specific school:

$$E_s = \frac{\sum_{p=1}^{n_s} E_p}{n_s} \, ,$$

where:

n_s	is the number of eligible pupils in the school
$\sum_{p=1}^{n_s} E_p$	is the sum of the estimates of eligible pupils in the school

A school's group will then be made up of 54 schools with the closest estimates to E_s (totalling 55 schools). In most school groups there will be 27 schools above and below the focus school.

Continuation of worked example 1

Gillian is one of 100 pupils in her school's key stage 4 cohort. They have a range of pupil estimates:

Pupil number	Pupil name	Pupil estimate
1	Gillian	**58.09**
2	Lindsay	35.57
⋮	⋮	⋮
100	David	27.02
	Average	**45.34**

The average estimate for all eligible pupils within the school key stage 4 cohort is calculated using the formula below:

$$E_s = \frac{\sum_{p=1}^{n_s} E_p}{n_s} = \frac{(58.09 + 35.57 + \cdots + 27.02)}{100} = 45.34 \ (to\ 2\ d.p.)$$

The final key stage 4 school estimate (E_s) for this school is 45.34. The school's group will then be made up of 54 schools with the closest estimates to 45.34, with 27 schools above and 27 below.