



Department
for Education

Key stage 4 similar schools

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

January 2018

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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 assessment. The pupil estimates can then be averaged for all key stage 4 pupils in a school to calculate the school estimate.

Once the similar 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 2017 is then compared across the similar schools group alongside information on their prior attainment and progress. The summary diagrams on pages 4 and 5 shows 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 measures can be found in the [Secondary accountability measures guidance](#).

Expiry or review date

This technical guide will next be reviewed before January 2019.

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:

School name and type	Local authority	Attainment 8 score	School position within group	Progress 8 score, description & confidence interval	Average points score at key stage 2 ¹
School 279	Local authority 1				

School 279 is the focus school

The average Attainment 8 score per pupil for this school for 2017 is 51.9

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

Progress 8 and prior attainment provided for further comparison

¹ Average point score at key stage 2 as it is shown on the school performance tables website = Mean key stage 2 fine grade score multiplied by 6

Example of a similar schools group table, showing how the focus school's Attainment 8 score compares to their similar schools²:

School name and type	Local authority	Attainment 8 score	School position within group	Progress 8 score, description & confidence interval	Average points score at key stage 2 ³
School 280	Local authority 1	61.8	1	1.15 Well above national average (0.90 to 1.39)	27.4
School 281	Local authority 2	56	2	0.59 Well above national average (0.45 to 0.72)	27.4
School 282	Local authority 3	54.8		0.43 Above national average (0.27 to 0.58)	27.4
School 283	Local authority 4	54.6		Average (0.19 to 0.58)	27.4
School 284	Local authority 5	54.3		Average (0.15 to 0.65)	27.4
School 285	Local authority 6	53.4		Average (0.15 to 0.65)	27.4
School 286	Local authority 7	53.3		Average (0.15 to 0.48)	27.5
School 274				Average (0.08 to 0.35)	27.4
School 27				Average (0.02 to 0.30)	27.4
School 28				(0.33)	27.4
School 26				Average (0.03 to 0.41)	27.5
School 27			12	0.14 Average (-0.02 to 0.30)	27.4
School 27			13	0.19 Above national average (-0.02 to 0.34)	27.4
School 27			14	0.10 A	27.4
School 27			15	0.11 A	27.4
School 27			16	0.05 A	27.4
School 28			17	0.11 A	27.4
School 28			18	0.05 A	27.4
School 276		52	19	0.03 A	27.4
School 277	Local authority 19	52.1	19	0.03 A	27.4
School 278	Local authority 20	52	20	0.03 A	27.4
School 279	Local authority 21	51.9	21	0.03 A	27.4
School 259	Local authority 22	51.8	22	0.04 A	27.5
School 260	Local authority 23	51.7	23	0.01 Average (0.13 to 0.16)	27.4
School 261	Local authority 24	51.6	24	0.03 Average (-0.13 to 0.18)	27.4
School 262	Local authority 25	51.5	25	-0.03 Average (-0.18 to 0.12)	27.4
School 263	Local authority 26	51.4	26	-0.05 Average (-0.18 to 0.12)	27.4
School 264	Local authority 27	51.3	27	-0.03 Average (-0.18 to 0.12)	27.4
School 265	Local authority 28	51.2	28	0.00 Average (-0.14 to 0.15)	27.4
School 266	Local authority 29	51.1	29	0.00 Average (-0.14 to 0.14)	27.4
School 267	Local authority 30		30	-0.03 Average (-0.18 to 0.12)	27.5
School 268	Local authority 31		31	-0.03 Average (-0.18 to 0.12)	27.4
School 290	Local authority 32		32	-0.03 Average (-0.18 to 0.12)	27.4
School 291	Local authority 33		33	-0.05 Average (-0.26 to 0.16)	27.4
School 292	Local authority 34		34	-0.06 Average (-0.24 to 0.13)	27.4
School 293	Local authority 35		35	-0.05 Average (-0.19 to 0.09)	27.4
School 294	Local authority 36		36	-0.05 Average (-0.20 to 0.09)	27.4
School 295	Local authority 37		37	-0.07 Average (-0.25 to 0.11)	27.4
School 296	Local authority 38		38	-0.10 Average (-0.25 to 0.05)	27.4
School 297	Local authority 39	50.1	39	-0.13 Average (-0.30 to 0.05)	27.4
School 302	Local authority 40	50	40	-0.14 Average (-0.28 to 0.00)	27.4
School 303	Local authority 41	49.9	41	-0.15 Average (-0.36 to 0.07)	27.4
School 300	Local authority 42	49.8	42	-0.28 Below national average (-0.49 to -0.08)	27.4
School 309	Local authority 43	49.7	43	-0.17 Below national average (-0.32 to -0.02)	27.4
School 310	Local authority 44	49.6	44	-0.21 Below national average (-0.37 to -0.06)	27.5
School 311	Local authority 45	49.5	45	-0.23 Below national average (-0.42 to -0.03)	27.4
School 312	Local authority 46	49.4	46	-0.23 Below national average (-0.37 to -0.08)	27.4
School 313	Local authority 47	49.3	47	-0.24 Below national average (-0.40 to -0.09)	27.4
School 306	Local authority 48	49.2	48	-0.24 Below national average (-0.40 to -0.09)	27.4
School 307	Local authority 49	49.1	49	-0.24 Below national average (-0.40 to -0.09)	27.4
School 308	Local authority 50	49	50	-0.26 Below national average (-0.40 to -0.09)	27.4
School 301	Local authority 51	48.9	51	-0.47 Below national average (-0.67 to -0.26)	27.4
School 398	Local authority 52	48.8	52	-0.57 Well below national average (-0.72 to -0.42)	27.4
School 399	Local authority 53	48.7	53	-0.65 Well below national average (-0.82 to -0.49)	27.4
School 304	Local authority 54	48.6	54	-0.65 Well below national average (-0.82 to -0.49)	27.4
School 305	Local authority 55	48.5	55	-0.75 Well below national average (-0.82 to -0.49)	27.4

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

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

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

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

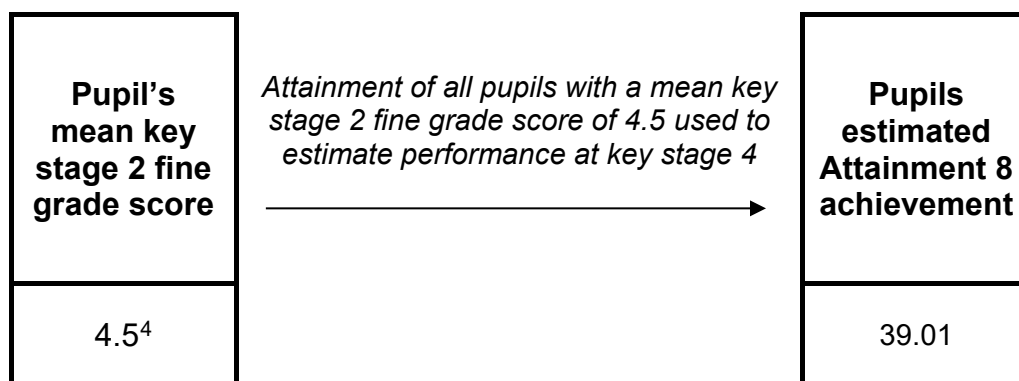
Schools below the focus school in this table have a lower Attainment 8 score

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

² The use of the question mark icon indicates this school is a better performing school or has a similar disadvantaged cohort to the focus school. This is explained in the table above.
³ Average point score at key stage 2 as it is shown on the school performance tables website = Mean key stage 2 fine grade score multiplied by 6

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 2017. Each pupil's key stage 4 estimate is calculated based on the actual 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 a mean key stage 2 fine grade of 4.5 will be based on the actual key stage 4 outcome of all pupils nationally that also scored a mean key stage 2 fine grade of 4.5



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 overleaf demonstrates how a school's similar schools group is selected.

⁴ This value is multiplied by 6 when shown at school level on the school performance tables website

School 279's
Similar School's
group consisting
of 55 schools

Rank of school estimate	School	School estimate
1	School 1	72.92
2	School 2	71.50
↕	↕	↕
246	School 246	52.13
247	School 247	52.12
248	School 248	52.11
249	School 249	52.10
250	School 250	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
↕	↕	↕
298	School 298	51.88
299	School 299	51.87
300	School 300	51.87
301	School 301	51.87
302	School 302	51.86
↕	↕	↕
3122	School 3122	21.25
3123	School 3123	20.04

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 collaborate⁵. To be highlighted as such, a school needs to:

- have achieved both elements of the Progress 8 floor standard: their Progress 8 score is equal to or above -0.5 and the upper band of the 95% confidence interval is above zero
- have an average Attainment 8 score per pupil that is at least 8 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 1	60.0	1
School 261	Local Authority 3	54.8	2
School 262	Local Authority 4	54.6	3
School 255	Local Authority 5	54.2	4
School 264	Local Authority 6	54.3	5
School 254	Local Authority 7	53.4	
School 265	Local Authority 8	53.4	
School 263	Local Authority 9	53.4	
School 253	Local Authority 10	53.4	
School 267	Local Authority 11	53.4	
School 259	Local Authority 12	52.9	
School 252	Local Authority 13	52.8	
School 268	Local Authority 14	52.1	
School 269	Local Authority 15	52.1	
School 270	Local Authority 16	51.7	10
School 257	Local Authority 17	51.5	11
School 271	Local Authority 18	51.4	12
School 272	Local Authority 19	51.3	13
School 273	Local Authority 20	51.2	14
School 274	Local Authority 21	51	15
School 291	Local Authority 22	51.9	16
School 256	Local Authority 23	51.8	17
School 290	Local Authority 24	51.7	18
School 301	Local Authority 26	51.6	19
School 278	Local Authority 27	51.5	20
School 277	Local Authority 28	50	21
School 276	Local Authority 29	50.9	22
School 275	Local Authority 30	50.8	23
School 250	Local Authority 31	50.6	24
School 279	Local Authority 32	51.9	25

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

The focus school

⁵ These are indicated on the website with a '?' symbol, which when clicked reveals a pop out box explaining that this school is a better performing school within a 75 mile radius to the focus school.

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 5 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 does not necessarily mean that this school is the highest attaining school in the country, but that it 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.

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 school⁶.

⁶ These are indicated on the website with a '?' symbol, which when clicked reveals a pop out box explaining that this school has a similar percentage of disadvantaged pupils to 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 outcome in both reading and maths key stage 2 tests / teacher assessments
- they attend a state-funded mainstream school (including academies, free schools and city technology colleges)

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.

Mean KS2 fine grade score bandings → KS2 fine level

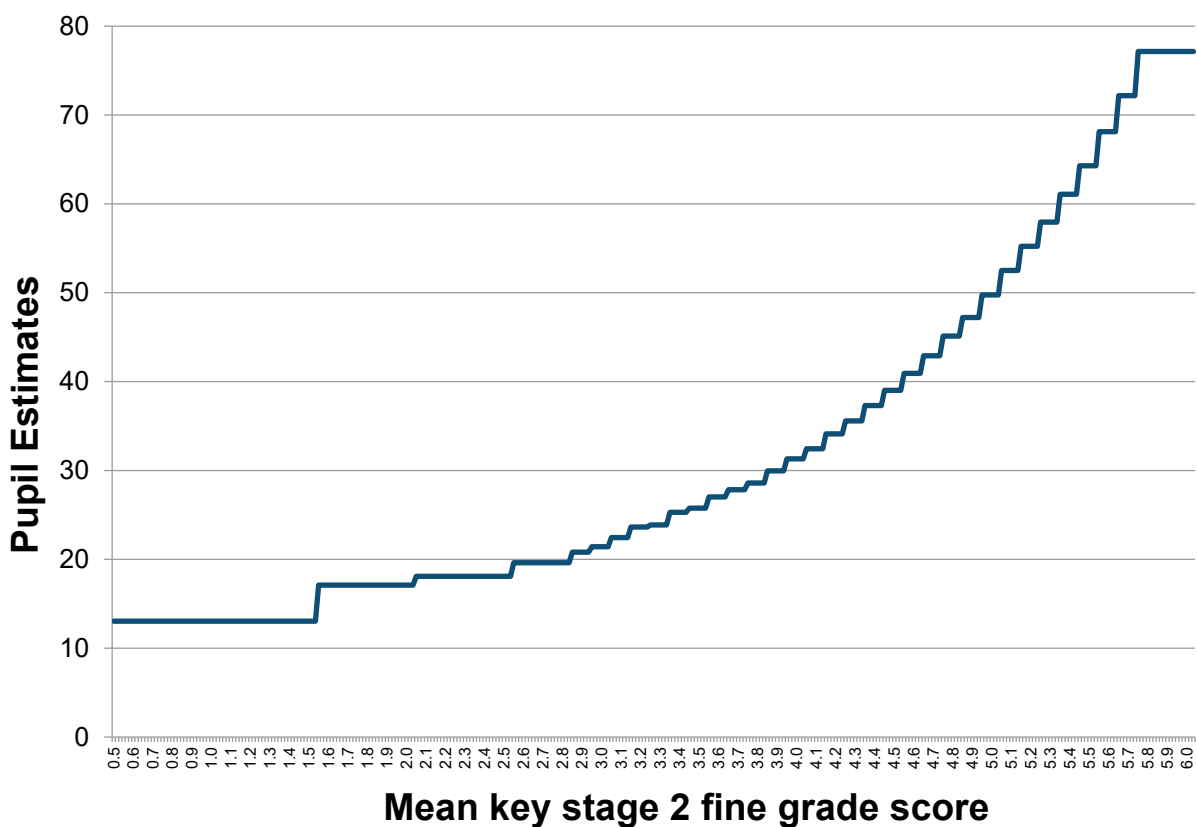
Less than or equal to 1.5 (≤ 1.5)	1.5
Between 1.6 and 2.0 (≥ 1.6 & ≤ 2.0)	2.0
Between 2.1 and 2.5 (≥ 2.1 & ≤ 2.5)	2.5
Between 2.6 and 2.8 (≥ 2.6 & ≤ 2.8)	2.8
More than or equal to 5.8 (≥ 5.8)	5.8
All other fine grade scores	fine level = fine grade score (rounded to 1 decimal place)

In 2017, 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.

We provide further information on converting test marks to fine grades in the ['Secondary Accountability Measures guide'](#).

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

2017 pupil estimates are shown in the chart and table below. 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	13.04
2.0	17.10
2.5	18.09
2.8	19.61
2.9	20.81
3.0	21.42
3.1	22.45
3.2	23.64
3.3	23.86
3.4	25.30
3.5	25.76
3.6	27.02
3.7	27.84
3.8	28.58
3.9	29.95
4.0	31.30
4.1	32.45

Key stage 2 fine level	Attainment 8 estimate
4.2	34.12
4.3	35.57
4.4	37.30
4.5	39.01
4.6	40.93
4.7	42.90
4.8	45.12
4.9	47.21
5.0	49.76
5.1	52.51
5.2	55.23
5.3	57.94
5.4	61.09
5.5	64.29
5.6	68.12
5.7	72.18
5.8	77.15

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 57.94. Gillian's pupil estimate (E_p) is hence 57.94 (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 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	57.94
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:

$$E_s = \frac{\sum_{p=1}^{n_s} E_p}{n_s} = \frac{(57.94 + 35.57 + \dots + 27.02)}{100} = 45.34 \text{ (to 2 d.p.)}$$

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.



Department
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