Key stage 2 similar schools guidance

A guide for primary performance tables

December 2016

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What is similar schools?

The purpose of similar schools is to provide further context around key stage 2 performance and an insight into how schools are performing compared to those with similar intakes. A similar schools group is made up of a focus school grouped with 124 other schools with similar intakes based on key stage 1 prior attainment.

Each pupil's key stage 2 estimate is calculated based on the <u>actual</u> (RWM_EXP) attainment of all pupils nationally with similar prior attainment at key stage 1. For example, calculation of an estimated outcome for a pupil who scored an average of 15 points at key stage 1 will be based on the actual key stage 2 outcome of all pupils nationally that also scored an average of 15 points at key stage 1.

The technical annex provides a more detailed description of how pupils' estimated key stage 2 RWM_EXP attainment is calculated and the calculation of school estimates.

Pupil's actual KS1 average point score	Attainment of all pupils with an average point score of 15 at KS1 used to estimate performance at KS2	Pupil's estimated probability of reaching the expected standard in RWM
15 Points	→	43%
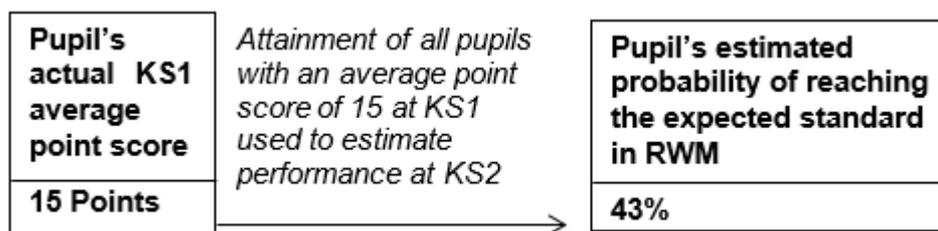
Once the similar school estimates have been calculated, a similar schools group is selected for each school by taking the 124 schools with the most similar estimates, 62 above and 62 below. This means that each school has a unique group.

The diagram below demonstrates how a school's similar schools group is selected.

Rank of school Estimate	School	School estimate
1	School 1	67.72
2	School 2	68.72
...	...	...
4468	School 251	61.05
4469	School 4469	61.05
4470	School 4470	61.05
4471	School 4471	61.04
4472	School 4472	61.04
4473	School 4473	61.04
...	...	...
4526	School 4526	60.4
4527	School 4527	60.4
4528	School 4528	60.4
4529	School 4529	60.3
4530	School 4530	60.2
4531	School 4531	60.1
4532	School 4532	60.1
4533	School 4533	60.1
4534	School 4534	60.1
4535	School 4535	60.1
...	...	...
4589	School 4589	59.7
4590	School 4590	59.6
4591	School 4591	59.5
4592	School 4592	59.4
4593	School 4593	59.3
...	...	...
14342	School 14342	16.2
14343	School 14343	8.1

School 4530's similar Schools group consisting of 125 schools

62 most similar schools with a higher estimate

62 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 needs to:

- have at least 65% of their pupils achieving RWM_EXP
- have RWM_EXP attainment that is at least 18 percentage points higher than the focus school
- be located within 75 miles of 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 11 percentage points of the focus school.

If a school has RWM_EXP attainment that is 83% or higher it is not possible for there to be a better performing school based on the criteria set out above. In these instances any additional, better performing school has to meet the following criteria:

- 100% RWM_EXP attainment
- located within 75 miles of the focus school
- the school's similar school estimate must be within 11 percentage points of the focus school

Below is an example of a similar schools comparison showing how the percentage of pupils reaching the expected standard in the focus school compares with others in the similar schools group.

School name and type	Local authority	% of pupils meeting the expected standard	School position within group	Progress score, description and confidence interval			% of pupils achieving at a higher standard	Average score in reading	Average score in maths
				Reading	Writing	Maths			
School 1 (Maintained School) ■ [Add]	Kent	100%	1	6.3 Well above national average (2.6 to 10)	2.5 Average (-1.2 to 6.2)	4.2 Well above national average (1 to 7.4)	8%	110	108
School 2 Primary School (Maintained School) [Add]	Norfolk	100%	1	5.3 Well above national average (2.2 to 8.4)	2.9 Average (-0.2 to 6)	0.9 Average (-1.7 to 3.5)	0%	109	105
School 3 School (Maintained School) ■ [Add]	Buckinghamshire	100%	1	6.3 Well above national average (3 to 9.6)	4.4 Well above national average (1.1 to 7.7)	3.8 Well above national average (1 to 6.6)	7%	110	108
School 4 School (Maintained School) ■ [Add]	Derbyshire	93%	4	3.8 Well above national average (0.5 to 7.1)	2.6 Average (-0.7 to 5.9)	1.7 Average (-1.1 to 4.5)	7%	108	106
School 5 School (Maintained School) [Add]	Cumbria	89%	5	6.5 Well above national average (3.6 to 9.4)	3 Above national average (0.1 to 5.9)	3.2 Well above national average (0.7 to 5.7)	5%	109	107
School 6 Primary School (Maintained School) [Add]	Gloucestershire	87	5	…ove …nal …ge … to …2)	0 Average (-2.3 to 2.3)	4.8 Well above national average (2.9 to 6.7)	10%	109	109
School 7 Voluntary Aided Primary School (Maintained School) [Add]	Sunderland	83%	7	4.8 Well above national average (3.2 to 6.4)	0.8 Average (-0.8 to 2.4)	3.2 Well above national average (1.8 to 4.6)	14%	109	108
School 8 (Maintained School) ◆ [Add]	East Sussex	18%	125	-1.9 Average (-4.9 to 1.1)	-11 Well below national average (-14 to -8)	-3.4 Well below national average (-5.9 to -0.9)	0%	102	101

Callouts:
- School 1: **Better performing school within 75 miles**
- School 4: **School with similar percentage of disadvantaged pupils in the cohort**
- School 6: **This school has the 7th highest attainment in the group**
- School 8: **Focus school**

Average scaled scores

The similar schools page also shows each schools average scaled scores in reading and in mathematics.

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From 2016 levels are no longer used. Test results are reported using scaled scores ranging from 80 to 120. The average scaled score is calculated as the mean scaled score of all pupils awarded a scaled score. Pupils who did not take the test or took the test but did not receive a scaled score are excluded.

The average scaled score have been added to offer further context to the measure. Users can also select specific schools for wider comparison on the website by clicking the 'Add' next to the school name and then clicking the 'view comparison list' button.

Technical Annex

Calculating pupil estimates

Behind the key stage 2 similar schools measure sits a statistical model used to identify schools with the most similar intakes. The model generates an estimate of attainment for each pupil achieving the expected standard or higher in reading, writing and mathematics.

The estimated key stage 2 attainment outcome is expressed as a probability of achieving the attainment measure, and is based on the performance nationally of all pupils in the same key stage 1 prior attainment group.

Pupil eligibility for inclusion in the similar schools models

Pupils are included in the key stage 2 similar schools model if:

- they are eligible for inclusion in the school-level headline attainment indicator 'Percentage of pupils reaching the expected standard in reading, writing and mathematics
- their key stage 2 attainment can be matched to their attainment at key stage 1 in at least one subject (reading, writing or mathematics)
- they attend a state-funded maintained mainstream school (including academies)

Methodology for pupil similar schools calculation

The first step is to work out the proportion of pupils achieving at least the expected standard in each prior attainment group. This proportion is then taken as the probability of a pupil to achieve the expected standard or higher given their prior attainment group.

All students in the same prior attainment group are assumed to have the same chance of achieving the expected standard.

The chart below shows the estimated probability of achieving the expected standard in reading, writing and mathematics for different levels of prior attainment. The key stage 1 average point score bandings correspond with those used to calculate progress in each subject.
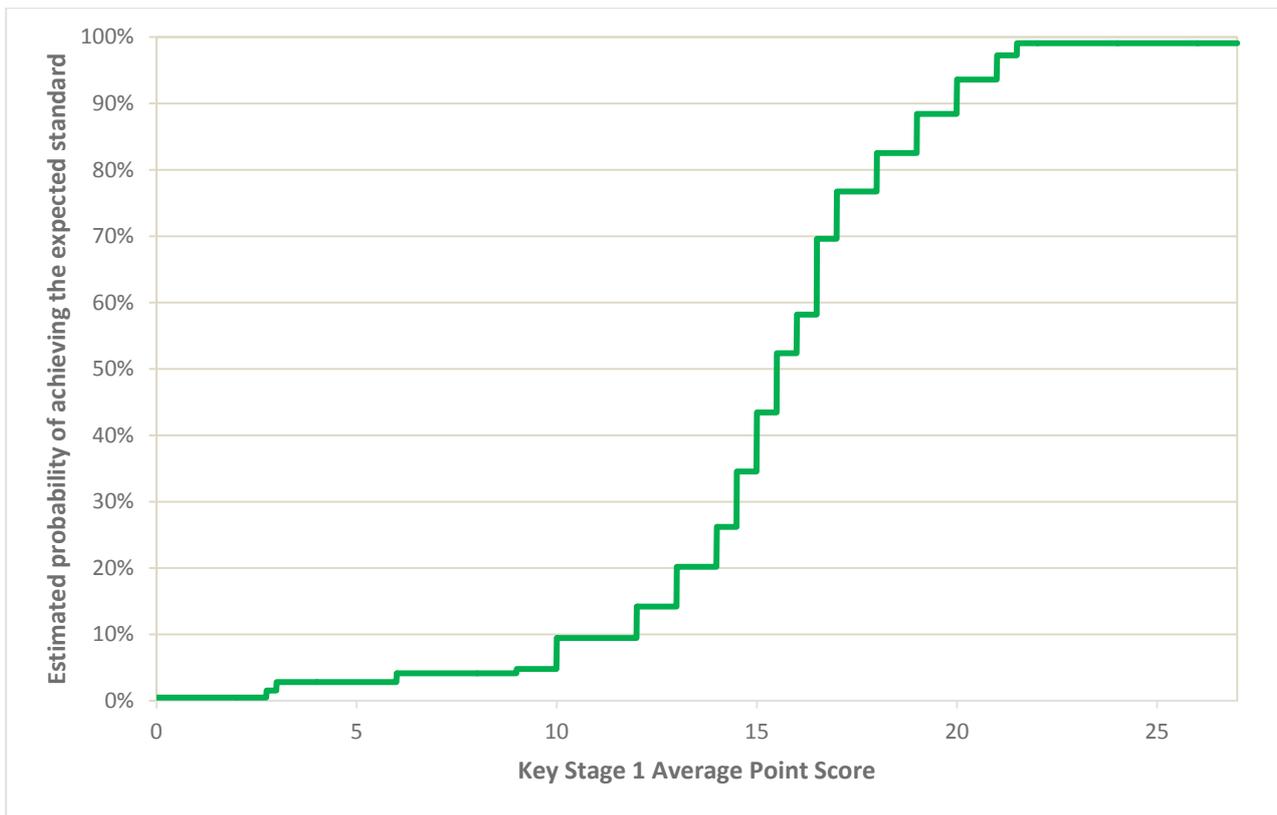
Worked example 1

A pupil at the end of key stage 2 has the following prior attainment:

Surname	Drake
Forename	Bob
Key stage1 average point score	16.33

The first step to calculating Bob's estimated key stage 2 attainment is to assign him to his prior attainment group.

A key stage 1 average point score of 16.33 is >=16 and <16.5, putting Bob in prior attainment group 14 (see also the primary accountability guidance).

The proportion of pupils achieving the expected standard in this prior attainment group is 0.581993 (to 6 decimal places). This is Bob's estimate.

Therefore, Bob's likelihood of achieving at least the expected standard in reading, writing and mathematics is 58.1993% (to 4 decimal places), so he is more likely than not to achieve the expected standard.

Calculating school estimates

The similar school estimate for a school is then calculated as the average similar school estimate of all pupils in the school.

School eligibility for inclusion in similar schools

All state-funded maintained mainstream schools will be included in similar schools, provided they have at least one eligible pupil in the measure.

Schools will be excluded from similar schools groupings if their results are suppressed in performance tables under the small numbers/suppression rules.

Methodology for similar school estimates

The school key stage 2 similar school estimate, EP_s, is given by:

$$EP_s = \frac{\sum_{p=1}^{n_s} EP_p}{n_s},$$

where:

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

Continuation of worked example 1

Let us then say that Bob is one of 100 pupils in his school's key stage 2 cohort, who have a range of key stage2 similar schools estimates:

Pupil #	Pupil name	Similar School estimate
1	Bob	58.1993%
2	Carl	86.1453%
⋮	⋮	⋮
100	Karolina	71.1645%
	Average	**85.9545%**

To calculate $\overline{EP}_p$, the average similar schools estimate for all eligible pupils within the school key stage 2 cohort is calculated using the formula below:

$$EP_s = \frac{\sum_{p=1}^{n_s} EP_p}{n_s} = \frac{(58.1993\% + 86.1453\% + \cdots + 71.1645\%)}{100} = 85.9545\% \text{ (to 4 d.p.)}$$

We then round this to 2 decimal places. Hence the final key stage 2 similar schools estimate for this school, EP_s, is 85.95%.

The school's group will then be made up of 124 schools with the closest estimates to 85.95%, with 62 schools above and 62 below.

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