



Department
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Independent Evaluation of the National Tutoring Programme Year 2: Impact Evaluation

Technical appendix

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Technical Appendix

This appendix provides further detail regarding the methodology undertaken as part of the independent impact evaluation of the National Tutoring Programme Year 2.

All analysis described in this appendix was carried out in the Secure Research Service, part of the Office for National Statistics. This work contains statistical data from ONS which is Crown Copyright. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates.

Appendix A: Data sources

This analysis drew on a range of administrative data sets, outlined in the table below.

Data source	Analytical use
<u>Summer 2022 School Census</u>	<p>This table was made available by the DfE data sharing team to provide pupil characteristics (gender, ethnicity, language, SEN, FSM, IDACI). This allowed us to define our analysis populations (including the PP and/or PLA subgroup) and to account for outcome bias associated with these characteristics. In addition, data on pupil participation in the SLT route of the NTP appear in census data for the 2021/22 academic year.</p>
<u>KS2 2021/22 ATTAINMENT DATA</u>	<p>This table was made available by the DfE data sharing team to provide outcome variables (maths and reading KS2 scores), baseline variables (maths and reading KS1 scores) and allow us to define pupils for the PP and/or PLA subgroup analysis.</p>
<u>KS4 2021/22 ATTAINMENT DATA</u>	<p>Similarly to the KS2 data, this table was made available by the DfE data sharing team to provide outcome variables (maths and English language GCSEs points), baseline variables (maths and reading KS2 scores) allow us to define PLA for the PP and/or PLA subgroup analysis.</p>
<u>Get Information About Schools (GIAS)</u>	<p>An extract of GIAS was uploaded into the SRS to allow school level characteristics (Ofsted Rating, Establishment Type, Region, Urban/Rural) to be used for statistical matching.</p>

<p>NFER RC data</p>	<p>NFER undertook primary data collection from a population of Research Champion (RC) schools. All state primary schools in England were invited to become an RC school. Schools were eligible for inclusion as an RC school if they undertook standardised English or maths assessments with any pupils in Years 1 to 6 in 2021-22¹ and routinely uploaded this data to the relevant assessment provider's online repository. In addition to the baseline and endpoint standardised assessment data, pupil level participation data was collected from schools. This included NTP route and subject of tuition.</p>
<p>Randstad Data Hub</p>	<p>Randstad collected tuition participation and dosage data for pupils participating in the Academic Mentors (AM) and Tuition Partners (TP) routes of the National Tutoring Programme (NTP) in 2021/2022. This data was shared with DfE data sharing team and made available in a pseudo-anonymised format for NFER to analyse in the ONS SRS² environment.</p>

¹ Provided by Renaissance Learning, Rising Stars/Hodder, GL Assessment or NFER.

² <https://www.ons.gov.uk/aboutus/whatwedo/statistics/requestingstatistics/secureresearchservice>

Appendix B: Methodology

Data preparation

KS2 population analysis

The school census data was reduced to only include pupils in year 6 during the 2021/22 academic year.

From the KS2 data, the following variables were matched into the census subset using the pupil matching reference (PMR): the scaled scores in maths and reading, the KS1 points scores for reading and maths, and the KS1 prior attainment group. A flag was created to identify pupils in the PP and/or PLA subgroup as those in the 'Low' group for prior attainment or those who had ever been recorded as eligible for free school meals (FSM) in the last 6 years (or both).

From the Randstad Hub data, the following variables were matched into the census subset using the PMR: hours of TP literacy tuition, hours of TP numeracy tuition, hours of AM literacy tuition, and hours of AM numeracy tuition. Hours recorded as 'English' tuition were included in the literacy hours and hours recorded as 'Maths' were included in the numeracy hours. These notations more commonly appear in secondary schools so were not prevalent in the year 6 data.

The school level data set was also reduced to only include schools with year 6 pupils. The following variables were calculated from the school census: proportion of PP pupils, proportion of EAL pupils, proportion of SEN pupils, number of year 6 pupils, number of analysis population year 6 pupils, number of analysis population pupils selected for TP numeracy tuition, number of analysis population pupils selected for TP literacy tuition, number of analysis population pupils selected for AM numeracy tuition, number of analysis population pupils selected for AM literacy tuition, number of analysis population pupils selected for SLT tuition.

From these variables, the school level intervention groups were defined. SLT intervention schools were those where at least one Y6 analysis pupil was selected for SLT tuition and SLT comparison schools were those where no Y6 analysis pupils were selected for SLT tuition. TP/AM maths intervention schools were those where at least one Y6 analysis pupil was selected for TP numeracy and/or AM numeracy tuition and TP/AM maths comparison schools were those where no analysis pupils were selected for TP numeracy or AM numeracy tuition. TP/AM English intervention schools were those where at least one Y6 analysis pupil was selected for TP literacy and/or AM literacy tuition and TP/AM English comparison schools were those where no analysis pupils were selected for TP literacy or AM literacy tuition.

KS4 population analysis

Data preparation followed a similar procedure to the KS2 data, which is described above. The only differences were:

- KS4 attainment data was used instead of KS2 attainment. The variables obtained from this data were: GCSE maths points, GCSE English Language points, prior KS2 reading score, prior KS2 maths score.
- Year 11 pupils were used instead of Year 6 pupils.

Research Champion analysis

Relevant data from the school census, Randstad, KS1, KS2 and GIAS data sets were merged into the NFER RC data set.

The standardised assessment data from three of the four providers in the NFER RC data were on the same scale (mean of 100, SD of 15), while data from the remaining provider (Renaissance Learning) was converted to the same scale. Where pupils had more than two assessments recorded, assessments that were before 01/09/2021 or after 25/07/2022 were removed. If pupils still had more than two assessments, the two assessments from the same provider that were furthest apart in time were prioritised. Pupils were only included in an analysis if they had non-missing scores for both baseline and endpoint, and if these scores were from tests taken more than 180 days apart.

From the KS2 data, the following variables were matched into the NFER RC data using the pupil matching reference (PMR): the KS2 scaled scores in maths and reading, the KS1 points scores for reading and maths. Prior lower attainment (PLA) pupils were identified using the KS1 points scores for reading and maths.

From the Randstad Hub data, the following variables were matched into the NFER RC data using the PMR: hours of TP literacy tuition, hours of TP numeracy tuition, hours of AM literacy tuition, and hours of AM numeracy tuition. Hours recorded as 'English' tuition were included in the literacy hours and hours recorded as 'Maths' were included in the numeracy hours. These notations more commonly appear in secondary schools so were not prevalent in the RC data.

The school level data set was also reduced to only include schools in the NFER RC data set. The following variables were calculated from the school census: proportion of PP pupils, proportion of EAL pupils, proportion of SEN pupils, number of pupils, number of analysis population pupils, number of analysis population pupils selected for TP numeracy tuition, number of analysis population pupils selected for TP literacy tuition, number of analysis population pupils selected for AM numeracy tuition, number of analysis population pupils selected for AM literacy tuition, number of analysis population pupils selected for SLT tuition.

Note that for RC schools, we have participation data from two sources; NFER RC data and Randstad Hub data for TP/AM or School Census for SLT. Where disagreement exists between these sources, NFER RC data has been used. Tables 1-Table 5 below describe the agreement between the data sources as number of pupils and % of the total number of pupils.

Table 1: Agreement between NFER RC data and Randstad Hub data for TP and/or AM numeracy

		NFER RC data	
		Tutoring participant	Non-participant
Randstad Hub data	Tutoring participant	1144 (3.6%)	940 (3.0%)
	Non-participant	634 (2.0%)	28890 (91.4%)

Table 2: Agreement between NFER RC data and Randstad Hub data for TP/ and/or AM literacy

		NFER RC data	
		Tutoring participant	Non-participant
Randstad Hub data	Tutoring participant	1187 (3.8%)	550 (1.7%)
	Non-participant	774 (2.4%)	29097 (92.1%)

Table 3: Agreement between NFER RC data and Randstad Hub data for TP (literacy and/or or numeracy)

		NFER RC data	
		Tutoring participant	Non-participant
Randstad Hub data	Tutoring participant	1602 (5.1%)	836 (2.6%)
	Non-participant	690 (2.2%)	28480 (90.1%)

Table 4: Agreement between NFER RC data and Randstad Hub data for AM (literacy and/or or numeracy)

		NFER RC data	
		Tutoring participant	Non-participant
Randstad Hub data	Tutoring participant	619 (2.0%)	456 (1.4%)
	Non-participant	316 (1.0%)	30217 (95.6%)

Table 5: Agreement between NFER RC data and School Census data for SLT. Subject of tuition is not recorded in school census data.

		NFER RC data	
		Tutoring participant	Non-participant
School Census	Tutoring participant	2733 (8.6%)	3028 (9.6%)
	Non-participant	1031 (3.3%)	24816 (78.5%)

School level matching

Three matches were conducted for the different routes (AM/TP literacy, AM/TP numeracy, SLT) at KS2, and then similarly at KS4, leading to six matches. Each of these matches was then performed again, but now restricted to the PP and/or PLA pupil subgroup, so that in all there were twelve school-level matches for the population analyses. Additionally a further eight school-level matches were conducted for the Research Champion analyses (four NTP routes investigated for both all pupils and the PP/PLA subgroup). For each match common support was first enforced in all matching variables.

All matches were conducted using entropy balancing (Hainmueller, 2012), balancing the mean of each variable between schools in the intervention and comparison groups. The variables included in entropy balancing were the following school-level variables:

- School's average baseline score amongst all pupils in the corresponding analysis
- Whether school is urban or rural
- Concentration of the 'other' NTP route(s)
- Proportion of PP pupils at the school
- Proportion of SEN pupils at the school

- Proportion of EAL pupils at the school

Weights for comparison schools were estimated at a school level in the matching, then included in regression modelling. Matching was undertaken using the *eba/* package in R (Hainmueller, 2022).

Balance after matching is shown in Appendix C, for the KS2 (Table 7-Table 12), KS4 (Table 21-Table 26) and RC (Table 35-Table 42) analyses.

Pupil level matching

Prior to each match the sample was restricted to those pupils who participated in the relevant subject for NTP Year 1³. For example, when investigating the impact of AM/TP English tuition in NTP Year 2, only pupils who participated in AM/TP English in Year 1 were including in matching. This meant that there were separate matches for SLT for the English and maths outcomes, even though the intervention (NTP Year 2 SLT, subject unknown) was the same in both matches, because the pupils to be matched were different for each outcome.

Four matches were conducted for the different route (AM/TP, SLT) and outcome (reading, maths) combinations at KS2, and then similarly at KS4, leading to eight matches. Each of these matches was then performed again, but now restricted to the PP and/or PLA pupil subgroup, so that in all there were sixteen pupil-level matches. For each match common support was first enforced in all matching variables.

All matches were conducted using entropy balancing, balancing the mean of each variable between pupils in the intervention and comparison groups. The variables included in entropy balancing were a mixture of pupil- and school-level variables:

- PP eligibility
- SEN status
- Whether pupil speaks EAL
- Whether pupil's ethnicity is White British
- Gender
- Pupil's baseline score (KS1 or KS2, maths or reading, as appropriate)
- Whether school is urban or rural

³ Using the AM and/or TP routes; there was no SLT option in NTP Year 1.

- Latest overall Ofsted rating of school
- School region (GOR)
- School type

Weights for comparison schools were estimated at a pupil level in the matching, then included in regression modelling. Matching was again undertaken using the *ebal* package in R (Hainmueller, 2022).

Balance after matching for each of the sixteen matches is shown in Appendix C for KS2 (Table 13-Table 20) and KS4 (Table 27-Table 34). It should be noted that while good balance has been achieved in the observed characteristics, this does not by itself resolve the issue that there may be differences in unobserved characteristics between the groups (though restriction to NTP Year 1 pupils should help with this).

Modelling

For RQ1 the pupil- and school-level analyses were performed using linear mixed effects models, with school as a random effect and all other variables were included as fixed effects. Covariates included in both pupil- and school-level models were all the variables described in the pupil and school-level matching sections above, plus year group (for RC analysis only) and IDACI quintile.

Where there was missing covariate data the missing indicator method was used: an additional level indicating missingness was added to categorical covariates, while continuous covariates had the missing value replaced by the mean, with a further binary variable indicating their missingness added. Weights were taken from the entropy balancing and applied at a pupil or school level as appropriate.

All mixed effects models were calculated using the *lme4* package in R (Bates *et al.*, 2015). Significance testing of the intervention group coefficient at a 5% significance threshold via Satterthwaite's degrees of freedom method was performed using the package *lmerTest* in R (Kuznetsova, Brockhoff and Christensen, 2017).

Prediction models

The modelling used to predict receipt of tutoring for the pupil-level analysis will be described in this section. This modelling was conducted at a point when the pupil-level analysis was not restricted to pupils tutored in NTP Year 1. As will be seen below, predictive accuracy was not sufficient to proceed with pupil-level matching across the population. None of the results described elsewhere in the technical appendix or in the main report are therefore based on pupil-level matching across the population. The

approach is described here for completeness and to quantify how limited the available variables were, in terms of their ability to predict receipt of tuition.

Prediction modelling was performed for the population of KS2 Year 6 pupils. This approach involved using train and test methodology to fit prediction models to intervention pupils in intervention schools, for the three intervention group definitions (SLT, AM/TP maths, AM/TP English) and separately for all pupils and for only PP/PLA pupils. In each of these six scenarios the model types applied to attempt to predict selection into tuition were:

- A probit model (to mirror the approach in the NTP year 1 evaluation)
- Logistic regression
- Decision trees
- Random Forests
- Gradient Boosting Machines

The pupil and school variables used as predictors were:

- Gender
- FSM
- SEN
- EAL
- Ethnicity
- KS1 reading points score
- KS1 maths points score
- IDACI
- School Phase

Up to four hyperparameters were varied in a grid formation and five-fold cross validation was applied. The best approach was selected as that which minimised the False Discovery Rate (FDR) and False Omission Rate (FOR) and are shown in Table A8.

Table 6: For each prediction model, the selected learner, the number of pupils who were actually participating (T) or not participating (F) and who were predicted to be participating or not participating, and FDR & FOR

Intervention	Population	Best Learner	N Actual T PredT	N ActualT PredF	N ActualF PredT	N ActualF PredF	FDR (%)	FOR (%)
SLT	PP/PLA	Random Forest	10449	7280	7290	11418	41	39
SLT	All pupils	Gradient Boosting	16184	14588	14588	43593	47	25
TP/AM English	PP/PLA	Gradient Boosting	536	982	982	2953	65	25
TP/AM English	All pupils	Gradient Boosting	807	1684	1685	7587	68	18
TP/AM Maths	PP/PLA	Gradient Boosting	1273	1622	1622	4108	56	28
TP/AM Maths	All pupils	Gradient Boosting	2062	2953	2953	12775	59	19

For this analysis rates of less than 10% would be considered good, though rates of less than 20% would be considered acceptable. As can be seen in the table, even the best learners did not produce sufficiently low FDR and FOR for us to proceed with using the prediction models to select comparison pupils from the comparison schools. Based on these figures the prediction modelling approach was abandoned for this evaluation and similar analysis was not repeated for KS4 Year 11 pupils.

Appendix C: Matching balance tables

In this appendix the balance of characteristics between the intervention and comparison groups before and after ‘matching’ (weighting using entropy balancing) is displayed. Each match that was performed as part of the RQ1 analyses corresponds to one of Table 7-Table 34, including matches at KS2 (Table 7-Table 20) and KS4 (Table 21-Table 34) level. Additionally the balance for the eight matches performed for the Research Champion school-level analyses are displayed in Table 35-Table 42.

In all of the balance tables below the entries of columns 3-5 are of the form ‘% (N)’ for categorical variables or the mean for continuous variables. Entries displayed as ‘X’ were suppressed to ensure statistical disclosure control. This is a requirement when using the ONS’s Secure Research Service for analysis and is enforced for school counts below 3 and pupil counts below 10. Column 3 summarises the characteristics of the intervention group, with the table headings describing the NTP route and level (pupil versus school) that defines the intervention. Columns 4 and 5 describe the same schools and pupils, the difference being that column 5 includes weights calculated from entropy balancing. The individuals characterised in each table are pupils for pupil-level matches and schools for school-level matches.

The more similar the percentages (or means) in columns 3 and 5 are, the better the balance for that characteristic. It can be seen that generally the balance is very good for the RQ1 analyses (Table 7-Table 34), with near-perfect balance for those characteristics included in each match. Balance for some Research Champion characteristics (Table 35-Table 42) such as region and school type is somewhat poor, which may be due to the relatively small number of schools involved in those matches. This might be considered another reason

Table 7: balance of characteristics before and after matching for the SLT route in the RQ1 KS2 school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	40% (4148)	37% (2118)	38% (3959)
School type	Free Schools	1% (127)	2% (99)	2% (178)
School type	Local authority maintained schools	57% (5917)	56% (3234)	58% (5997)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Special schools	2% (172)	5% (283)	2% (231)
School phase	All-through	1% (80)	1% (61)	2% (160)
School phase	Middle deemed primary	X	X	X
School phase	Middle deemed secondary	1% (66)	1% (30)	1% (56)
School phase	Not applicable	3% (320)	9% (529)	5% (502)
School phase	Primary	95% (9890)	89% (5111)	93% (9640)
School phase	Secondary	X	X	X
School region	East Midlands	9% (979)	10% (570)	9% (947)
School region	East of England	11% (1120)	13% (730)	11% (1182)
School region	London	12% (1275)	10% (546)	12% (1270)
School region	North East	5% (522)	5% (309)	6% (621)
School region	North West	16% (1640)	15% (846)	16% (1652)
School region	South East	14% (1466)	15% (871)	14% (1427)
School region	South West	10% (1077)	12% (712)	11% (1118)
School region	West Midlands	11% (1121)	10% (566)	11% (1093)
School region	Yorkshire and the Humber	11% (1164)	10% (584)	10% (1054)
Urban or rural school	Rural	24% (2491)	36% (2036)	24% (2491)
Urban or rural school	Urban	76% (7873)	64% (3698)	76% (7873)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Good	66% (6861)	66% (3777)	66% (6890)
School Ofsted rating	Missing	15% (1536)	14% (789)	13% (1374)
School Ofsted rating	Outstanding	12% (1212)	12% (695)	11% (1187)
School Ofsted rating	Requires improvement	7% (708)	7% (426)	8% (837)
School Ofsted rating	Serious Weaknesses	0% (22)	0% (22)	0% (34)
School Ofsted rating	Special Measures	0% (25)	0% (25)	0% (42)
School TP/AM numeracy concentration	Mean	4.2	2.44	4.2
School TP/AM literacy concentration	Mean	1.97	1.64	1.97
School % PP pupils	Mean	0.31	0.27	0.31
School % EAL pupils	Mean	0.19	0.15	0.19
School % SEN pupils	Mean	0.22	0.26	0.22
School % male pupils	Mean	0.52	0.53	0.52
School % white British pupils	Mean	0.69	0.74	0.69
School average KS1 maths score	Mean	7.7	7.5	7.7
School average KS1 reading score	Mean	7.74	7.56	7.74

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School number of Y6 pupils	Mean	44.29	35.84	40.84
Total N schools		10364	5734	5734
Total N pupils		458978	205493	205493

Table 8: balance of characteristics before and after matching for the AM/TP literacy route in the RQ1 KS2 school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	42% (516)	39% (5751)	41% (495)
School type	Free Schools	1% (13)	1% (213)	1% (17)
School type	Local authority maintained schools	56% (680)	57% (8475)	56% (686)
School type	Special schools	1% (7)	3% (449)	2% (18)
School phase	All-through	1% (16)	1% (125)	1% (12)
School phase	Middle deemed primary	X	X	X
School phase	Middle deemed secondary	2% (19)	1% (77)	0% (5)
School phase	Not applicable	1% (12)	6% (840)	3% (39)
School phase	Primary	96% (1168)	93% (13836)	95% (1159)
School phase	Secondary	X	X	X
School region	East Midlands	11% (138)	9% (1411)	9% (105)
School region	East of England	9% (113)	12% (1738)	10% (122)
School region	London	15% (181)	11% (1641)	14% (168)
School region	North East	6% (68)	5% (763)	6% (75)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	North West	18% (221)	15% (2267)	16% (200)
School region	South East	10% (120)	15% (2217)	13% (157)
School region	South West	8% (98)	11% (1692)	9% (113)
School region	West Midlands	11% (135)	10% (1552)	12% (141)
School region	Yorkshire and the Humber	12% (142)	11% (1607)	11% (135)
Urban or rural school	Rural	17% (209)	29% (4321)	17% (209)
Urban or rural school	Urban	83% (1007)	71% (10567)	83% (1007)
School Ofsted rating	Good	66% (800)	66% (9842)	66% (807)
School Ofsted rating	Missing	15% (184)	14% (2141)	14% (175)
School Ofsted rating	Outstanding	9% (114)	12% (1795)	11% (135)
School Ofsted rating	Requires improvement	9% (111)	7% (1023)	8% (92)
School Ofsted rating	Serious Weaknesses	X	0% (39)	X
School Ofsted rating	Special Measures	X	0% (48)	X
School SLT concentration	Mean	28.09	23.83	28.09
School % PP pupils	Mean	0.35	0.29	0.35
School % EAL pupils	Mean	0.21	0.17	0.21
School % SEN pupils	Mean	0.22	0.24	0.22
School % male pupils	Mean	0.51	0.52	0.52

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School % white British pupils	Mean	0.65	0.71	0.66
School average KS1 maths score	Mean	7.72	7.62	7.7
School average KS1 reading score	Mean	7.74	7.67	7.74
School number of Y6 pupils	Mean	48.73	40.67	44.27
Total N schools		1216	14888	14888
Total N pupils		59253	605480	605480

Table 9: balance of characteristics before and after matching for the AM/TP numeracy route in the RQ1 KS2 school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	41% (818)	39% (5450)	40% (817)
School type	Free Schools	1% (29)	1% (197)	1% (26)
School type	Local authority maintained schools	58% (1165)	57% (7990)	57% (1158)
School type	Special schools	0% (7)	3% (449)	1% (18)
School phase	All-through	1% (30)	1% (111)	1% (20)
School phase	Middle deemed primary	X	X	X
School phase	Middle deemed secondary	1% (23)	1% (73)	0% (9)
School phase	Not applicable	1% (13)	6% (839)	2% (41)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School phase	Primary	97% (1950)	93% (13055)	97% (1949)
School phase	Secondary	X	X	X
School region	East Midlands	9% (185)	10% (1364)	9% (180)
School region	East of England	9% (191)	12% (1661)	10% (208)
School region	London	15% (293)	11% (1529)	14% (286)
School region	North East	6% (118)	5% (713)	6% (116)
School region	North West	17% (342)	15% (2145)	16% (329)
School region	South East	12% (242)	15% (2096)	13% (262)
School region	South West	8% (170)	12% (1620)	9% (189)
School region	West Midlands	12% (245)	10% (1442)	11% (225)
School region	Yorkshire and the Humber	12% (233)	11% (1516)	11% (224)
Urban or rural school	Rural	18% (370)	30% (4160)	18% (370)
Urban or rural school	Urban	82% (1649)	70% (9926)	82% (1649)
School Ofsted rating	Good	65% (1321)	66% (9323)	67% (1346)
School Ofsted rating	Missing	15% (296)	14% (2028)	14% (290)
School Ofsted rating	Outstanding	10% (208)	12% (1701)	11% (228)
School Ofsted rating	Requires improvement	9% (186)	7% (948)	7% (144)
School Ofsted rating	Serious Weaknesses	0% (4)	0% (40)	0% (5)
School Ofsted rating	Special Measures	0% (4)	0% (46)	0% (6)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School SLT concentration	Mean	30	23.32	30
School % PP pupils	Mean	0.33	0.29	0.33
School % EAL pupils	Mean	0.21	0.17	0.21
School % SEN pupils	Mean	0.2	0.24	0.2
School % male pupils	Mean	0.51	0.52	0.51
School % white British pupils	Mean	0.66	0.71	0.66
School average KS1 maths score	Mean	7.77	7.6	7.77
School average KS1 reading score	Mean	7.82	7.65	7.81
School number of Y6 pupils	Mean	49.76	40.06	44.21
Total N schools		2019	14086	14086
Total N pupils		100470	564303	564303

Table 10: balance of characteristics before and after matching for the SLT route in the RQ1 KS2 school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	40% (4047)	37% (2185)	38% (3872)
School type	Free Schools	1% (124)	2% (99)	2% (170)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Local authority maintained schools	57% (5747)	56% (3300)	58% (5817)
School type	Special schools	2% (168)	5% (286)	2% (226)
School phase	All-through	1% (77)	1% (63)	2% (154)
School phase	Middle deemed primary	X	X	X
School phase	Middle deemed secondary	1% (65)	1% (31)	1% (56)
School phase	Not applicable	3% (312)	9% (533)	5% (490)
School phase	Primary	95% (9624)	89% (5240)	93% (9381)
School phase	Secondary	X	X	X
School region	East Midlands	9% (940)	10% (587)	9% (922)
School region	East of England	11% (1085)	13% (749)	11% (1144)
School region	London	12% (1260)	10% (561)	12% (1260)
School region	North East	5% (515)	5% (308)	6% (596)
School region	North West	16% (1609)	15% (856)	16% (1595)
School region	South East	14% (1413)	16% (915)	14% (1405)
School region	South West	10% (1026)	12% (731)	11% (1083)
School region	West Midlands	11% (1101)	10% (576)	11% (1063)
School region	Yorkshire and the Humber	11% (1137)	10% (587)	10% (1019)
Urban or rural school	Rural	23% (2345)	35% (2047)	23% (2345)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Urban or rural school	Urban	77% (7741)	65% (3823)	77% (7741)
School Ofsted rating	Good	66% (6684)	66% (3851)	66% (6697)
School Ofsted rating	Missing	15% (1488)	14% (823)	13% (1351)
School Ofsted rating	Outstanding	12% (1169)	12% (726)	11% (1156)
School Ofsted rating	Requires improvement	7% (698)	7% (425)	8% (810)
School Ofsted rating	Serious Weaknesses	0% (22)	0% (22)	0% (32)
School Ofsted rating	Special Measures	0% (25)	0% (23)	0% (39)
School TP/AM numeracy concentration	Mean	5.78	3.48	5.78
School TP/AM literacy concentration	Mean	2.74	2.16	2.74
School % PP pupils	Mean	0.31	0.27	0.31
School % EAL pupils	Mean	0.19	0.15	0.19
School % SEN pupils	Mean	0.22	0.26	0.22
School % male pupils	Mean	0.51	0.53	0.52
School % white British pupils	Mean	0.69	0.74	0.69
School average KS1 maths score	Mean	7.69	7.5	7.69

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School average KS1 reading score	Mean	7.73	7.56	7.73
School number of Y6 pupils	Mean	44.74	36.18	41.14
Total N schools		10086	5870	5870
Total N pupils		451243	212390	212390
School type	Academies	42% (516)	39% (5716)	41% (495)

Table 11: balance of characteristics before and after matching for the AM/TP literacy route in the RQ1 KS2 school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Free Schools	1% (13)	1% (210)	1% (17)
School type	Local authority maintained schools	56% (680)	57% (8368)	56% (685)
School type	Special schools	1% (7)	3% (447)	2% (18)
School phase	All-through	1% (16)	1% (124)	1% (12)
School phase	Middle deemed primary	X	X	X
School phase	Middle deemed secondary	2% (19)	1% (77)	0% (5)
School phase	Not applicable	1% (12)	6% (834)	3% (39)
School phase	Primary	96% (1168)	93% (13696)	95% (1159)
School phase	Secondary	X	X	X
School region	East Midlands	11% (138)	9% (1389)	9% (104)
School region	East of England	9% (113)	12% (1720)	10% (123)
School region	London	15% (181)	11% (1640)	14% (168)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	North East	6% (68)	5% (755)	6% (75)
School region	North West	18% (221)	15% (2245)	16% (199)
School region	South East	10% (120)	15% (2208)	13% (159)
School region	South West	8% (98)	11% (1659)	9% (113)
School region	West Midlands	11% (135)	10% (1542)	12% (141)
School region	Yorkshire and the Humber	12% (142)	11% (1583)	11% (134)
Urban or rural school	Rural	17% (209)	28% (4185)	17% (209)
Urban or rural school	Urban	83% (1007)	72% (10556)	83% (1007)
School Ofsted rating	Good	66% (800)	66% (9736)	66% (807)
School Ofsted rating	Missing	15% (184)	14% (2127)	14% (175)
School Ofsted rating	Outstanding	9% (114)	12% (1781)	11% (135)
School Ofsted rating	Requires improvement	9% (111)	7% (1012)	8% (91)
School Ofsted rating	Serious Weaknesses	X	0% (39)	X
School Ofsted rating	Special Measures	X	0% (46)	X
School SLT concentration	Mean	35.81	32.85	35.81
School % PP pupils	Mean	0.35	0.29	0.35
School % EAL pupils	Mean	0.21	0.17	0.21
School % SEN pupils	Mean	0.22	0.24	0.22

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School % male pupils	Mean	0.51	0.52	0.52
School % white British pupils	Mean	0.65	0.71	0.66
School average KS1 maths score	Mean	7.72	7.61	7.7
School average KS1 reading score	Mean	7.74	7.66	7.74
School number of Y6 pupils	Mean	48.73	41	44.42
Total N schools		1216	14741	14741
Total N pupils		59253	604384	604384

Table 12: balance of characteristics before and after matching for the AM/TP numeracy route in the RQ1 KS2 school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	41% (818)	39% (5415)	40% (816)
School type	Free Schools	1% (29)	1% (194)	1% (26)
School type	Local authority maintained schools	58% (1165)	57% (7883)	57% (1158)
School type	Special schools	0% (7)	3% (447)	1% (18)
School phase	All-through	1% (30)	1% (110)	1% (19)
School phase	Middle deemed primary	X	X	X
School phase	Middle deemed secondary	1% (23)	1% (73)	0% (9)
School phase	Not applicable	1% (13)	6% (833)	2% (41)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School phase	Primary	97% (1950)	93% (12915)	97% (1948)
School phase	Secondary	X	X	X
School region	East Midlands	9% (185)	10% (1342)	9% (179)
School region	East of England	9% (191)	12% (1643)	10% (208)
School region	London	15% (293)	11% (1528)	14% (287)
School region	North East	6% (118)	5% (705)	6% (116)
School region	North West	17% (342)	15% (2123)	16% (328)
School region	South East	12% (242)	15% (2087)	13% (265)
School region	South West	8% (170)	11% (1587)	9% (189)
School region	West Midlands	12% (245)	10% (1432)	11% (225)
School region	Yorkshire and the Humber	12% (233)	11% (1492)	11% (222)
Urban or rural school	Rural	18% (370)	29% (4024)	18% (370)
Urban or rural school	Urban	82% (1649)	71% (9915)	82% (1649)
School Ofsted rating	Good	65% (1321)	66% (9217)	67% (1344)
School Ofsted rating	Missing	15% (296)	14% (2014)	14% (291)
School Ofsted rating	Outstanding	10% (208)	12% (1687)	11% (230)
School Ofsted rating	Requires improvement	9% (186)	7% (937)	7% (143)
School Ofsted rating	Serious Weaknesses	0% (4)	0% (40)	0% (5)
School Ofsted rating	Special Measures	0% (4)	0% (44)	0% (6)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School SLT concentration	Mean	38.69	32.26	38.69
School % PP pupils	Mean	0.33	0.29	0.33
School % EAL pupils	Mean	0.21	0.17	0.21
School % SEN pupils	Mean	0.2	0.24	0.2
School % male pupils	Mean	0.51	0.52	0.51
School % white British pupils	Mean	0.66	0.71	0.66
School average KS1 maths score	Mean	7.77	7.6	7.77
School average KS1 reading score	Mean	7.82	7.65	7.81
School number of Y6 pupils	Mean	49.76	40.41	44.37
Total N schools		2019	13939	13939
Total N pupils		100470	563207	563207

Table 13: balance of characteristics before and after matching for the SLT route in the RQ1 pupil-level analysis with KS2 reading score as the outcome (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	45% (2217)	44% (2089)	46% (2285)
School type	Free Schools	1% (56)	1% (49)	1% (60)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Local authority maintained schools	53% (2653)	55% (2592)	53% (2629)
School type	Special schools	X	X	X
School region	Missing	1% (49)	X	X
School region	East Midlands	5% (265)	7% (310)	7% (345)
School region	East of England	11% (546)	13% (605)	13% (635)
School region	London	19% (956)	14% (686)	16% (806)
School region	North East	8% (376)	9% (406)	9% (424)
School region	North West	18% (914)	15% (718)	15% (767)
School region	South East	7% (370)	12% (546)	11% (544)
School region	South West	9% (454)	10% (463)	9% (466)
School region	West Midlands	10% (475)	7% (331)	7% (331)
School region	Yorkshire and the Humber	12% (573)	14% (667)	13% (657)
Urban or rural school	Missing	1% (49)	X	X
Urban or rural school	Rural	9% (459)	14% (676)	11% (552)
Urban or rural school	Urban	90% (4470)	86% (4056)	89% (4423)
School Ofsted rating	Missing	14% (716)	16% (739)	15% (738)
School Ofsted rating	Good	66% (3293)	66% (3115)	64% (3202)
School Ofsted rating	Outstanding	8% (408)	10% (450)	10% (503)
School Ofsted rating	Requires improvement	11% (534)	9% (421)	11% (524)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Serious Weaknesses	0% (14)	X	X
School Ofsted rating	Special Measures	0% (13)	X	X
Pupil eligible for PP	Missing	X	X	X
Pupil eligible for PP	No	44% (2203)	56% (2660)	44% (2194)
Pupil eligible for PP	Yes	56% (2775)	44% (2066)	56% (2780)
Pupil gender	Female	48% (2379)	46% (2175)	48% (2379)
Pupil gender	Male	52% (2599)	54% (2559)	52% (2599)
Pupil has SEN	No	75% (3757)	77% (3640)	75% (3757)
Pupil has SEN	Yes	25% (1221)	23% (1094)	25% (1221)
Pupil speaks EAL	Yes	25% (1222)	24% (1120)	25% (1222)
Pupil speaks EAL	No	75% (3756)	76% (3614)	75% (3756)
Pupil is white British	No	39% (1928)	37% (1742)	39% (1928)
Pupil is white British	Yes	61% (3050)	63% (2992)	61% (3050)
Pupil KS1 reading score	Mean	7.24	7.32	7.24
Total N schools		961	787	787
Total N pupils		4978	4734	4734

Table 14: balance of characteristics before and after matching for the SLT route in the RQ1 pupil-level analysis with KS2 maths score as the outcome (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	39% (2540)	40% (2115)	39% (2545)
School type	Free Schools	1% (84)	1% (75)	1% (94)
School type	Local authority maintained schools	59% (3853)	58% (3076)	59% (3845)
School type	Special schools	X	X	X
School region	Missing	0% (10)	X	X
School region	East Midlands	6% (375)	9% (471)	8% (489)
School region	East of England	11% (731)	12% (622)	11% (686)
School region	London	17% (1100)	13% (711)	14% (926)
School region	North East	6% (381)	5% (273)	6% (371)
School region	North West	19% (1222)	17% (891)	18% (1138)
School region	South East	12% (764)	14% (717)	14% (908)
School region	South West	7% (469)	10% (515)	10% (617)
School region	West Midlands	8% (519)	10% (530)	11% (687)
School region	Yorkshire and the Humber	14% (917)	10% (537)	10% (662)
Urban or rural school	Missing	X	X	X
Urban or rural school	Rural	11% (729)	19% (979)	11% (743)
Urban or rural school	Urban	89% (5749)	81% (4288)	89% (5742)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Missing	11% (710)	14% (754)	12% (809)
School Ofsted rating	Good	70% (4563)	69% (3626)	69% (4452)
School Ofsted rating	Outstanding	10% (656)	9% (452)	9% (570)
School Ofsted rating	Requires improvement	8% (511)	8% (399)	9% (592)
School Ofsted rating	Serious Weaknesses	X	X	1% (53)
School Ofsted rating	Special Measures	X	X	0% (12)
Pupil eligible for PP	Missing	X	X	X
Pupil eligible for PP	No	47% (3050)	62% (3265)	47% (3047)
Pupil eligible for PP	Yes	53% (3436)	38% (2003)	53% (3438)
Pupil gender	Female	56% (3654)	57% (2982)	56% (3654)
Pupil gender	Male	44% (2834)	43% (2293)	44% (2834)
Pupil has SEN	No	79% (5119)	81% (4283)	79% (5119)
Pupil has SEN	Yes	21% (1369)	19% (992)	21% (1369)
Pupil speaks EAL	Yes	21% (1347)	22% (1135)	21% (1347)
Pupil speaks EAL	No	79% (5141)	78% (4140)	79% (5141)
Pupil is white British	No	35% (2296)	35% (1837)	35% (2296)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Pupil is white British	Yes	65% (4192)	65% (3438)	65% (4192)
Pupil KS1 maths score	Mean	7.37	7.41	7.37
Total N schools		1334	978	978
Total N pupils		6488	5275	5275

Table 15: balance of characteristics before and after matching for the AM/TP literacy route in the RQ1 KS2 pupil-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	39% (521)	46% (4863)	42% (558)
School type	Free Schools	1% (18)	1% (133)	1% (13)
School type	Local authority maintained schools	57% (767)	53% (5578)	57% (756)
School type	Special schools	X	X	X
School region	Missing	2% (30)	0% (30)	X
School region	East Midlands	7% (87)	6% (601)	7% (89)
School region	East of England	10% (140)	12% (1322)	13% (180)
School region	London	21% (287)	17% (1798)	19% (260)
School region	North East	5% (71)	9% (935)	9% (120)
School region	North West	18% (243)	16% (1746)	17% (227)
School region	South East	8% (111)	10% (1031)	9% (115)
School region	South West	9% (122)	9% (918)	8% (101)
School region	West Midlands	13% (168)	7% (790)	7% (88)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	Yorkshire and the Humber	6% (77)	14% (1438)	11% (149)
Urban or rural school	Missing	2% (30)	0% (30)	X
Urban or rural school	Rural	10% (130)	11% (1180)	13% (175)
Urban or rural school	Urban	88% (1176)	89% (9399)	86% (1153)
School Ofsted rating	Missing	15% (205)	14% (1516)	15% (200)
School Ofsted rating	Good	68% (908)	66% (7013)	68% (908)
School Ofsted rating	Outstanding	8% (101)	10% (1009)	9% (120)
School Ofsted rating	Requires improvement	9% (120)	10% (1010)	8% (103)
School Ofsted rating	Serious Weaknesses	X	0% (44)	X
School Ofsted rating	Special Measures	X	0% (17)	X
Pupil eligible for PP	Missing	X	X	X
Pupil eligible for PP	No	44% (592)	54% (5753)	44% (593)
Pupil eligible for PP	Yes	56% (743)	46% (4847)	56% (743)
Pupil gender	Female	45% (600)	47% (4957)	45% (600)
Pupil gender	Male	55% (736)	53% (5652)	55% (736)
Pupil has SEN	No	73% (980)	77% (8120)	73% (980)
Pupil has SEN	Yes	27% (356)	23% (2489)	27% (356)
Pupil speaks EAL	Yes	26% (353)	25% (2639)	26% (353)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Pupil speaks EAL	No	74% (983)	75% (7970)	74% (983)
Pupil is white British	No	42% (565)	38% (4027)	42% (565)
Pupil is white British	Yes	58% (771)	62% (6582)	58% (771)
Pupil KS1 reading score	Mean	7.11	7.36	7.11
Total N schools		260	1487	1487
Total N pupils		1336	10609	10609

Table 16: balance of characteristics before and after matching for the AM/TP numeracy route in the RQ1 KS2 pupil-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	38% (1227)	41% (4225)	38% (1227)
School type	Free Schools	1% (46)	1% (128)	1% (41)
School type	Local authority maintained schools	61% (1990)	57% (5891)	61% (1993)
School type	Special schools	X	X	X
School region	Missing	X	0% (38)	X
School region	East Midlands	7% (218)	7% (690)	5% (172)
School region	East of England	8% (270)	13% (1377)	11% (372)
School region	London	19% (612)	14% (1429)	17% (549)
School region	North East	4% (122)	6% (614)	6% (184)
School region	North West	19% (635)	17% (1702)	18% (580)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	South East	13% (422)	14% (1392)	13% (428)
School region	South West	8% (270)	8% (832)	7% (231)
School region	West Midlands	10% (330)	9% (916)	10% (312)
School region	Yorkshire and the Humber	12% (384)	13% (1293)	13% (433)
Urban or rural school	Missing	X	0% (38)	X
Urban or rural school	Rural	10% (320)	17% (1702)	10% (316)
Urban or rural school	Urban	90% (2943)	83% (8543)	90% (2945)
School Ofsted rating	Missing	12% (382)	13% (1379)	12% (398)
School Ofsted rating	Good	70% (2270)	68% (6985)	70% (2276)
School Ofsted rating	Outstanding	11% (374)	9% (966)	10% (314)
School Ofsted rating	Requires improvement	7% (220)	8% (864)	8% (254)
School Ofsted rating	Serious Weaknesses	X	0% (51)	0% (13)
School Ofsted rating	Special Measures	X	0% (38)	0% (10)
Pupil eligible for PP	Missing	X	X	X
Pupil eligible for PP	No	48% (1569)	59% (6027)	48% (1568)
Pupil eligible for PP	Yes	52% (1695)	41% (4249)	52% (1695)
Pupil gender	Female	58% (1908)	55% (5660)	58% (1908)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Pupil gender	Male	42% (1357)	45% (4623)	42% (1357)
Pupil has SEN	No	80% (2605)	80% (8177)	80% (2605)
Pupil has SEN	Yes	20% (660)	20% (2106)	20% (660)
Pupil speaks EAL	Yes	24% (798)	19% (1934)	24% (798)
Pupil speaks EAL	No	76% (2467)	81% (8349)	76% (2467)
Pupil is white British	No	40% (1305)	32% (3298)	40% (1305)
Pupil is white British	Yes	60% (1960)	68% (6985)	60% (1960)
Pupil KS1 maths score	Mean	7.41	7.42	7.41
Total N schools		648	1669	1669
Total N pupils		3265	10283	10283

Table 17: balance of characteristics before and after matching for the SLT route in the RQ1 pupil-level analysis with KS2 reading score as the outcome (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	44% (1488)	45% (1275)	45% (1534)
School type	Free Schools	1% (46)	1% (38)	1% (46)
School type	Local authority maintained schools	53% (1805)	54% (1545)	53% (1789)
School type	Special schools	X	X	X
School region	Missing	1% (33)	X	X
School region	East Midlands	6% (193)	6% (177)	7% (243)
School region	East of England	9% (311)	11% (322)	12% (419)
School region	London	21% (693)	14% (414)	16% (536)
School region	North East	8% (272)	8% (241)	9% (294)
School region	North West	19% (634)	16% (445)	16% (539)
School region	South East	7% (230)	11% (302)	10% (352)
School region	South West	9% (295)	10% (293)	9% (315)
School region	West Midlands	9% (300)	8% (232)	7% (235)
School region	Yorkshire and the Humber	12% (413)	15% (434)	13% (439)
Urban or rural school	Missing	1% (33)	X	X
Urban or rural school	Rural	8% (275)	11% (329)	10% (337)
Urban or rural school	Urban	91% (3066)	88% (2531)	90% (3035)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Missing	14% (486)	16% (448)	15% (511)
School Ofsted rating	Good	66% (2212)	65% (1855)	63% (2140)
School Ofsted rating	Outstanding	8% (273)	9% (263)	10% (326)
School Ofsted rating	Requires improvement	11% (384)	10% (291)	12% (389)
School Ofsted rating	Serious Weaknesses	X	X	X
School Ofsted rating	Special Measures	X	X	X
Pupil gender	Female	48% (1632)	47% (1336)	48% (1632)
Pupil gender	Male	52% (1742)	53% (1526)	52% (1742)
Pupil has SEN	No	70% (2376)	69% (1965)	70% (2376)
Pupil has SEN	Yes	30% (998)	31% (897)	30% (998)
Pupil speaks EAL	Yes	23% (786)	24% (675)	23% (786)
Pupil speaks EAL	No	77% (2588)	76% (2187)	77% (2588)
Pupil is white British	No	38% (1279)	39% (1111)	38% (1279)
Pupil is white British	Yes	62% (2095)	61% (1751)	62% (2095)
Pupil KS1 reading score	Mean	6.95	6.83	6.95
Total N schools		869	681	681
Total N pupils		3374	2862	2862

Table 18: balance of characteristics before and after matching for the SLT route in the RQ1 pupil-level analysis with KS2 maths score as the outcome (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	0% (14)	X
School type	Academies	40% (1681)	41% (1207)	40% (1671)
School type	Free Schools	1% (50)	1% (43)	2% (63)
School type	Local authority maintained schools	58% (2437)	57% (1684)	58% (2432)
School type	Special schools	X	X	X
School region	Missing	X	0% (14)	X
School region	East Midlands	5% (225)	8% (242)	7% (290)
School region	East of England	10% (415)	12% (346)	11% (457)
School region	London	19% (778)	14% (409)	14% (596)
School region	North East	6% (259)	6% (171)	6% (252)
School region	North West	19% (772)	14% (426)	15% (641)
School region	South East	11% (472)	15% (429)	15% (636)
School region	South West	8% (318)	10% (305)	10% (415)
School region	West Midlands	8% (353)	11% (320)	11% (479)
School region	Yorkshire and the Humber	14% (577)	10% (287)	10% (400)
Urban or rural school	Missing	X	0% (14)	X
Urban or rural school	Rural	10% (408)	16% (477)	10% (403)
Urban or rural school	Urban	90% (3761)	83% (2458)	90% (3764)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Missing	11% (453)	14% (424)	12% (499)
School Ofsted rating	Good	69% (2898)	69% (2036)	69% (2865)
School Ofsted rating	Outstanding	10% (434)	8% (232)	8% (347)
School Ofsted rating	Requires improvement	8% (351)	8% (237)	10% (422)
School Ofsted rating	Serious Weaknesses	X	1% (16)	1% (31)
School Ofsted rating	Special Measures	1% (29)	X	X
Pupil gender	Female	55% (2315)	53% (1566)	55% (2315)
Pupil gender	Male	45% (1857)	47% (1383)	45% (1857)
Pupil has SEN	No	74% (3077)	72% (2133)	74% (3077)
Pupil has SEN	Yes	26% (1095)	28% (816)	26% (1095)
Pupil speaks EAL	Yes	21% (888)	22% (661)	21% (888)
Pupil speaks EAL	No	79% (3284)	78% (2288)	79% (3284)
Pupil is white British	No	37% (1539)	37% (1081)	37% (1539)
Pupil is white British	Yes	63% (2633)	63% (1868)	63% (2633)
Pupil KS1 maths score	Mean	7.04	6.86	7.04
Total N schools		1185	849	849
Total N pupils		4172	2949	2949

Table 19: balance of characteristics before and after matching for the AM/TP literacy route in the RQ1 KS2 pupil-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	40% (371)	46% (2912)	43% (394)
School type	Free Schools	2% (15)	1% (75)	X
School type	Local authority maintained schools	56% (519)	52% (3277)	56% (514)
School type	Special schools	X	X	X
School region	Missing	2% (19)	0% (21)	X
School region	East Midlands	7% (61)	6% (367)	7% (65)
School region	East of England	9% (87)	11% (703)	13% (119)
School region	London	24% (221)	17% (1039)	19% (180)
School region	North East	5% (49)	9% (577)	9% (85)
School region	North West	16% (152)	18% (1119)	18% (165)
School region	South East	8% (77)	8% (508)	7% (69)
School region	South West	10% (90)	9% (551)	8% (70)
School region	West Midlands	12% (115)	8% (499)	7% (62)
School region	Yorkshire and the Humber	6% (53)	14% (905)	11% (105)
Urban or rural school	Missing	2% (19)	0% (21)	X
Urban or rural school	Rural	9% (81)	10% (602)	12% (108)
Urban or rural school	Urban	89% (824)	90% (5666)	88% (811)
School Ofsted rating	Missing	16% (145)	14% (893)	15% (136)
School Ofsted rating	Good	66% (607)	66% (4136)	67% (621)
School Ofsted rating	Outstanding	8% (77)	9% (560)	9% (81)
School Ofsted rating	Requires improvement	10% (94)	10% (659)	9% (81)
School Ofsted rating	Serious Weaknesses	X	0% (30)	X

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Special Measures	X	0% (11)	X
Pupil gender	Female	45% (417)	48% (3013)	45% (417)
Pupil gender	Male	55% (507)	52% (3276)	55% (507)
Pupil has SEN	No	67% (621)	69% (4334)	67% (621)
Pupil has SEN	Yes	33% (303)	31% (1955)	33% (303)
Pupil speaks EAL	Yes	26% (237)	24% (1498)	26% (237)
Pupil speaks EAL	No	74% (687)	76% (4791)	74% (687)
Pupil is white British	No	43% (400)	38% (2405)	43% (400)
Pupil is white British	Yes	57% (524)	62% (3884)	57% (524)
Pupil KS1 reading score	Mean	6.79	6.91	6.79
Total N schools		238	1297	1297
Total N pupils		924	6289	6289

Table 20: balance of characteristics before and after matching for the AM/TP numeracy route in the RQ1 KS2 pupil-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	39% (804)	41% (2314)	39% (805)
School type	Free Schools	2% (31)	1% (67)	1% (26)
School type	Local authority maintained schools	59% (1228)	58% (3249)	60% (1230)
School type	Special schools	X	X	X
School region	Missing	X	0% (18)	X
School region	East Midlands	6% (118)	7% (368)	5% (110)
School region	East of England	8% (159)	12% (677)	11% (229)
School region	London	22% (450)	15% (832)	18% (367)
School region	North East	4% (87)	6% (349)	6% (120)
School region	North West	17% (356)	17% (943)	18% (363)
School region	South East	13% (272)	13% (734)	12% (256)
School region	South West	9% (187)	8% (475)	7% (151)
School region	West Midlands	11% (218)	9% (528)	10% (200)
School region	Yorkshire and the Humber	10% (216)	13% (725)	13% (264)
Urban or rural school	Missing	X	0% (18)	X
Urban or rural school	Rural	8% (167)	14% (809)	8% (165)
Urban or rural school	Urban	92% (1896)	85% (4822)	92% (1897)
School Ofsted rating	Missing	11% (234)	13% (711)	12% (244)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Good	69% (1421)	68% (3863)	69% (1434)
School Ofsted rating	Outstanding	12% (247)	9% (509)	9% (192)
School Ofsted rating	Requires improvement	7% (148)	9% (514)	9% (178)
School Ofsted rating	Serious Weaknesses	X	0% (28)	X
School Ofsted rating	Special Measures	X	0% (24)	X
Pupil gender	Female	57% (1168)	53% (3002)	57% (1168)
Pupil gender	Male	43% (896)	47% (2647)	43% (896)
Pupil has SEN	No	74% (1531)	72% (4043)	74% (1531)
Pupil has SEN	Yes	26% (533)	28% (1606)	26% (533)
Pupil speaks EAL	Yes	24% (505)	20% (1105)	24% (505)
Pupil speaks EAL	No	76% (1559)	80% (4544)	76% (1559)
Pupil is white British	No	42% (858)	34% (1916)	42% (858)
Pupil is white British	Yes	58% (1206)	66% (3733)	58% (1206)
Pupil KS1 maths score	Mean	7.05	6.91	7.05
Total N schools		561	1434	1434
Total N pupils		2064	5649	5649

Table 21: balance of characteristics before and after matching for the SLT route in the RQ1 KS4 school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	71% (2004)	57% (535)	64% (1809)
School type	Free Schools	6% (182)	8% (79)	8% (217)
School type	Independent schools	X	X	X
School type	Local authority maintained schools	20% (556)	23% (221)	25% (696)
School type	Special schools	2% (62)	11% (106)	3% (75)
School phase	All-through	4% (112)	3% (32)	4% (115)
School phase	Middle deemed secondary	X	X	X
School phase	Not applicable	7% (209)	36% (340)	12% (330)
School phase	Secondary	89% (2483)	60% (570)	84% (2357)
School region	East Midlands	9% (240)	8% (79)	10% (276)
School region	East of England	11% (306)	11% (104)	11% (315)
School region	London	15% (414)	15% (145)	16% (452)
School region	North East	5% (133)	5% (47)	5% (130)
School region	North West	15% (410)	13% (122)	12% (350)
School region	South East	15% (412)	17% (159)	16% (448)
School region	South West	10% (275)	10% (98)	10% (273)
School region	West Midlands	12% (342)	12% (111)	11% (314)
School region	Yorkshire and the Humber	10% (273)	8% (78)	9% (247)
Urban or rural school	Rural	14% (388)	13% (122)	14% (388)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Urban or rural school	Urban	86% (2417)	87% (821)	86% (2417)
School Ofsted rating	Good	57% (1598)	56% (528)	58% (1627)
School Ofsted rating	Missing	15% (422)	16% (154)	16% (444)
School Ofsted rating	Outstanding	14% (398)	15% (141)	13% (371)
School Ofsted rating	Requires improvement	12% (342)	11% (105)	11% (321)
School Ofsted rating	Serious Weaknesses	1% (24)	1% (7)	1% (21)
School Ofsted rating	Special Measures	1% (21)	1% (8)	1% (21)
School TP/AM maths concentration	Mean	2.59	1.66	2.59
School TP/AM English concentration	Mean	1.98	1.57	1.98
School % PP pupils	Mean	0.29	0.38	0.29
School % EAL pupils	Mean	0.17	0.15	0.17
School % SEN pupils	Mean	0.2	0.42	0.2
School % male pupils	Mean	0.53	0.59	0.53
School % white British pupils	Mean	0.67	0.69	0.66
School average KS2 maths score	Mean	102.81	99.8	102.81

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School average KS2 reading score	Mean	102.65	99.86	102.65
School number of Y6 pupils	Mean	166.97	117.8	157.65
Total N schools		2805	943	943
Total N pupils		468357	111089	111089

Table 22: balance of characteristics before and after matching for the AM/TP English route in the RQ1 KS4 school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	71% (530)	67% (1978)	71% (532)
School type	Free Schools	6% (46)	7% (210)	7% (52)
School type	Independent schools	X	X	X
School type	Local authority maintained schools	22% (165)	21% (608)	20% (153)
School type	Special schools	1% (6)	5% (155)	1% (10)
School phase	All-through	3% (22)	4% (123)	5% (35)
School phase	Middle deemed secondary	X	X	X
School phase	Not applicable	5% (34)	17% (489)	6% (45)
School phase	Secondary	92% (691)	79% (2340)	89% (668)
School region	East Midlands	8% (61)	9% (261)	9% (68)
School region	East of England	12% (89)	10% (310)	10% (78)
School region	London	19% (139)	14% (412)	15% (109)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	North East	5% (38)	5% (139)	5% (37)
School region	North West	14% (108)	14% (419)	14% (107)
School region	South East	12% (92)	16% (473)	15% (110)
School region	South West	9% (70)	10% (303)	9% (71)
School region	West Midlands	13% (100)	12% (341)	12% (89)
School region	Yorkshire and the Humber	7% (51)	10% (295)	11% (80)
Urban or rural school	Rural	14% (106)	13% (397)	14% (106)
Urban or rural school	Urban	86% (642)	87% (2556)	86% (642)
School Ofsted rating	Good	59% (444)	56% (1651)	56% (420)
School Ofsted rating	Missing	14% (106)	16% (464)	15% (115)
School Ofsted rating	Outstanding	11% (82)	15% (454)	14% (108)
School Ofsted rating	Requires improvement	14% (103)	11% (339)	13% (94)
School Ofsted rating	Serious Weaknesses	1% (6)	1% (23)	1% (5)
School Ofsted rating	Special Measures	1% (7)	1% (22)	1% (6)
School SLT concentration	Mean	33.72	30.12	33.72
School % PP pupils	Mean	0.29	0.31	0.29
School % EAL pupils	Mean	0.18	0.16	0.18
School % SEN pupils	Mean	0.17	0.27	0.17

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School % male pupils	Mean	0.53	0.54	0.52
School % white British pupils	Mean	0.65	0.68	0.66
School average KS2 maths score	Mean	103.11	101.9	103.13
School average KS2 reading score	Mean	102.9	101.81	102.9
School number of Y6 pupils	Mean	174.97	150.33	166.3
Total N schools		748	2953	2953
Total N pupils		130878	443931	443931

Table 23: balance of characteristics before and after matching for the AM/TP maths route in the RQ1 KS4 school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	71% (583)	67% (1957)	71% (586)
School type	Free Schools	5% (40)	8% (222)	7% (60)
School type	Independent schools	X	X	X
School type	Local authority maintained schools	23% (190)	20% (584)	20% (163)
School type	Special schools	1% (6)	6% (173)	1% (11)
School phase	All-through	3% (26)	4% (119)	5% (39)
School phase	Middle deemed secondary	X	X	X

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School phase	Not applicable	4% (32)	18% (538)	6% (47)
School phase	Secondary	93% (761)	78% (2280)	89% (733)
School region	East Midlands	8% (66)	9% (259)	9% (73)
School region	East of England	12% (100)	11% (311)	10% (84)
School region	London	18% (148)	14% (404)	15% (123)
School region	North East	5% (37)	5% (143)	5% (41)
School region	North West	15% (123)	14% (417)	14% (118)
School region	South East	12% (101)	16% (473)	15% (120)
School region	South West	8% (68)	10% (305)	9% (77)
School region	West Midlands	15% (120)	11% (334)	12% (96)
School region	Yorkshire and the Humber	7% (57)	10% (292)	11% (88)
Urban or rural school	Rural	13% (103)	14% (406)	13% (103)
Urban or rural school	Urban	87% (717)	86% (2532)	87% (717)
School Ofsted rating	Good	59% (483)	56% (1645)	56% (459)
School Ofsted rating	Missing	15% (127)	15% (449)	15% (125)
School Ofsted rating	Outstanding	11% (91)	16% (458)	14% (118)
School Ofsted rating	Requires improvement	13% (107)	12% (339)	13% (106)
School Ofsted rating	Serious Weaknesses	1% (6)	1% (25)	1% (6)
School Ofsted rating	Special Measures	1% (6)	1% (22)	1% (7)
School SLT concentration	Mean	33.95	29.65	33.95

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School % PP pupils	Mean	0.3	0.31	0.3
School % EAL pupils	Mean	0.19	0.16	0.19
School % SEN pupils	Mean	0.17	0.29	0.17
School % male pupils	Mean	0.52	0.55	0.52
School % white British pupils	Mean	0.64	0.69	0.65
School average KS2 maths score	Mean	103.07	101.58	103.07
School average KS2 reading score	Mean	102.87	101.5	102.83
School number of Y6 pupils	Mean	179.06	146.57	166.01
Total N schools		820	2938	2938
Total N pupils		146828	430610	430610

Table 24: balance of characteristics before and after matching for the SLT route in the RQ1 KS4 school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	71% (2004)	57% (535)	64% (1809)
School type	Free Schools	6% (182)	8% (79)	8% (217)
School type	Independent schools	X	X	X
School type	Local authority maintained schools	20% (556)	23% (221)	25% (696)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Special schools	2% (62)	11% (106)	3% (75)
School phase	All-through	4% (112)	3% (32)	4% (115)
School phase	Middle deemed secondary	X	X	X
School phase	Not applicable	7% (209)	36% (340)	12% (330)
School phase	Secondary	89% (2483)	60% (570)	84% (2357)
School region	East Midlands	9% (240)	8% (79)	10% (276)
School region	East of England	11% (306)	11% (104)	11% (315)
School region	London	15% (414)	15% (145)	16% (452)
School region	North East	5% (133)	5% (47)	5% (130)
School region	North West	15% (410)	13% (122)	12% (350)
School region	South East	15% (412)	17% (159)	16% (448)
School region	South West	10% (275)	10% (98)	10% (273)
School region	West Midlands	12% (342)	12% (111)	11% (314)
School region	Yorkshire and the Humber	10% (273)	8% (78)	9% (247)
Urban or rural school	Rural	14% (388)	13% (122)	14% (388)
Urban or rural school	Urban	86% (2417)	87% (821)	86% (2417)
School Ofsted rating	Good	57% (1598)	56% (528)	58% (1627)
School Ofsted rating	Missing	15% (422)	16% (154)	16% (444)
School Ofsted rating	Outstanding	14% (398)	15% (141)	13% (371)
School Ofsted rating	Requires improvement	12% (342)	11% (105)	11% (321)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Serious Weaknesses	1% (24)	1% (7)	1% (21)
School Ofsted rating	Special Measures	1% (21)	1% (8)	1% (21)
School TP/AM numeracy concentration	Mean	2.59	1.66	2.59
School TP/AM literacy concentration	Mean	1.98	1.57	1.98
School % PP pupils	Mean	0.29	0.38	0.29
School % EAL pupils	Mean	0.17	0.15	0.17
School % SEN pupils	Mean	0.2	0.42	0.2
School % male pupils	Mean	0.53	0.59	0.53
School % white British pupils	Mean	0.67	0.69	0.66
School average KS2 maths score	Mean	102.81	99.8	102.81
School average KS2 reading score	Mean	102.65	99.86	102.65
School number of Y6 pupils	Mean	166.97	117.8	157.65
Total N schools		2805	943	943
Total N pupils		468357	111089	111089

Table 25: balance of characteristics before and after matching for the AM/TP English route in the RQ1 KS4 school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	71% (530)	67% (1978)	71% (532)
School type	Free Schools	6% (46)	7% (210)	7% (52)
School type	Independent schools	X	X	X
School type	Local authority maintained schools	22% (165)	21% (608)	20% (153)
School type	Special schools	1% (6)	5% (155)	1% (10)
School phase	All-through	3% (22)	4% (123)	5% (35)
School phase	Middle deemed secondary	X	X	X
School phase	Not applicable	5% (34)	17% (489)	6% (45)
School phase	Secondary	92% (691)	79% (2340)	89% (668)
School region	East Midlands	8% (61)	9% (261)	9% (68)
School region	East of England	12% (89)	10% (310)	10% (78)
School region	London	19% (139)	14% (412)	15% (109)
School region	North East	5% (38)	5% (139)	5% (37)
School region	North West	14% (108)	14% (419)	14% (107)
School region	South East	12% (92)	16% (473)	15% (110)
School region	South West	9% (70)	10% (303)	9% (71)
School region	West Midlands	13% (100)	12% (341)	12% (89)
School region	Yorkshire and the Humber	7% (51)	10% (295)	11% (80)
Urban or rural school	Rural	14% (106)	13% (397)	14% (106)
Urban or rural school	Urban	86% (642)	87% (2556)	86% (642)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Good	59% (444)	56% (1651)	56% (420)
School Ofsted rating	Missing	14% (106)	16% (464)	15% (115)
School Ofsted rating	Outstanding	11% (82)	15% (454)	14% (108)
School Ofsted rating	Requires improvement	14% (103)	11% (339)	13% (94)
School Ofsted rating	Serious Weaknesses	1% (6)	1% (23)	1% (5)
School Ofsted rating	Special Measures	1% (7)	1% (22)	1% (6)
School SLT concentration	Mean	33.72	30.12	33.72
School % PP pupils	Mean	0.29	0.31	0.29
School % EAL pupils	Mean	0.18	0.16	0.18
School % SEN pupils	Mean	0.17	0.27	0.17
School % male pupils	Mean	0.53	0.54	0.52
School % white British pupils	Mean	0.65	0.68	0.66
School average KS2 maths score	Mean	103.11	101.9	103.13
School average KS2 reading score	Mean	102.9	101.81	102.9
School number of Y6 pupils	Mean	174.97	150.33	166.3
Total N schools		748	2953	2953

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Total N pupils		130878	443931	443931

Table 26: balance of characteristics before and after matching for the AM/TP maths route in the RQ1 KS4 school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	71% (583)	67% (1957)	71% (586)
School type	Free Schools	5% (40)	8% (222)	7% (60)
School type	Independent schools	X	X	X
School type	Local authority maintained schools	23% (190)	20% (584)	20% (163)
School type	Special schools	1% (6)	6% (173)	1% (11)
School phase	All-through	3% (26)	4% (119)	5% (39)
School phase	Middle deemed secondary	X	X	X
School phase	Not applicable	4% (32)	18% (538)	6% (47)
School phase	Secondary	93% (761)	78% (2280)	89% (733)
School region	East Midlands	8% (66)	9% (259)	9% (73)
School region	East of England	12% (100)	11% (311)	10% (84)
School region	London	18% (148)	14% (404)	15% (123)
School region	North East	5% (37)	5% (143)	5% (41)
School region	North West	15% (123)	14% (417)	14% (118)
School region	South East	12% (101)	16% (473)	15% (120)
School region	South West	8% (68)	10% (305)	9% (77)
School region	West Midlands	15% (120)	11% (334)	12% (96)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	Yorkshire and the Humber	7% (57)	10% (292)	11% (88)
Urban or rural school	Rural	13% (103)	14% (406)	13% (103)
Urban or rural school	Urban	87% (717)	86% (2532)	87% (717)
School Ofsted rating	Good	59% (483)	56% (1645)	56% (459)
School Ofsted rating	Missing	15% (127)	15% (449)	15% (125)
School Ofsted rating	Outstanding	11% (91)	16% (458)	14% (118)
School Ofsted rating	Requires improvement	13% (107)	12% (339)	13% (106)
School Ofsted rating	Serious Weaknesses	1% (6)	1% (25)	1% (6)
School Ofsted rating	Special Measures	1% (6)	1% (22)	1% (7)
School SLT concentration	Mean	33.95	29.65	33.95
School % PP pupils	Mean	0.3	0.31	0.3
School % EAL pupils	Mean	0.19	0.16	0.19
School % SEN pupils	Mean	0.17	0.29	0.17
School % male pupils	Mean	0.52	0.55	0.52
School % white British pupils	Mean	0.64	0.69	0.65
School average KS2 maths score	Mean	103.07	101.58	103.07

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School average KS2 reading score	Mean	102.87	101.5	102.83
School number of Y6 pupils	Mean	179.06	146.57	166.01
Total N schools		820	2938	2938
Total N pupils		146828	430610	430610

Table 27: balance of characteristics before and after matching for the SLT route in the RQ1 pupil-level analysis with KS4 English Language GCSE points as the outcome (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	75% (4312)	78% (2509)	75% (4302)
School type	Free Schools	5% (310)	5% (169)	5% (304)
School type	Local authority maintained schools	19% (1097)	16% (516)	19% (1108)
School type	Special schools	X	X	X
School region	Missing	X	1% (26)	0% (15)
School region	East Midlands	8% (443)	9% (298)	8% (435)
School region	East of England	11% (627)	13% (426)	11% (608)
School region	London	19% (1086)	17% (539)	19% (1078)
School region	North East	5% (261)	5% (175)	5% (283)
School region	North West	17% (948)	14% (453)	15% (854)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	South East	10% (596)	14% (455)	14% (809)
School region	South West	7% (415)	6% (203)	6% (358)
School region	West Midlands	13% (754)	11% (340)	12% (677)
School region	Yorkshire and the Humber	10% (594)	10% (306)	11% (616)
Urban or rural school	Missing	X	1% (26)	0% (15)
Urban or rural school	Rural	9% (490)	13% (424)	8% (474)
Urban or rural school	Urban	91% (5234)	86% (2771)	91% (5242)
School Ofsted rating	Missing	15% (882)	14% (439)	13% (732)
School Ofsted rating	Good	55% (3153)	58% (1855)	57% (3290)
School Ofsted rating	Outstanding	11% (659)	12% (392)	13% (731)
School Ofsted rating	Requires improvement	17% (970)	17% (534)	17% (976)
School Ofsted rating	Serious Weaknesses	0% (28)	X	X
School Ofsted rating	Special Measures	1% (39)	X	X
Pupil eligible for PP	Missing	X	X	0% (12)
Pupil eligible for PP	No	54% (3112)	57% (1823)	54% (3088)
Pupil eligible for PP	Yes	46% (2619)	43% (1391)	46% (2631)
Pupil gender	Female	47% (2688)	46% (1471)	47% (2688)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Pupil gender	Male	53% (3043)	54% (1750)	53% (3043)
Pupil has SEN	No	82% (4684)	81% (2616)	82% (4684)
Pupil has SEN	Yes	18% (1047)	19% (605)	18% (1047)
Pupil speaks EAL	Yes	21% (1181)	17% (552)	21% (1181)
Pupil speaks EAL	No	79% (4550)	83% (2669)	79% (4550)
Pupil is white British	No	39% (2243)	34% (1097)	39% (2243)
Pupil is white British	Yes	61% (3488)	66% (2124)	61% (3488)
Pupil KS2 reading score	Mean	102.39	102.02	102.39
Total N schools		689	317	317
Total N pupils		5731	3221	3221

Table 28: balance of characteristics before and after matching for the SLT route in the RQ1 pupil-level analysis with KS4 maths GCSE points as the outcome (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	1% (52)
School type	Academies	76% (5440)	73% (2140)	75% (5380)
School type	Free Schools	5% (367)	7% (205)	7% (487)
School type	Local authority maintained schools	18% (1291)	19% (559)	17% (1218)
School type	Special schools	X	X	0% (10)
School region	Missing	1% (49)	1% (22)	1% (52)
School region	East Midlands	8% (602)	11% (324)	9% (656)
School region	East of England	10% (725)	12% (357)	10% (747)
School region	London	18% (1296)	16% (483)	17% (1217)
School region	North East	4% (313)	6% (175)	5% (385)
School region	North West	17% (1191)	12% (357)	11% (814)
School region	South East	11% (807)	13% (370)	13% (915)
School region	South West	5% (384)	9% (269)	10% (690)
School region	West Midlands	13% (908)	11% (335)	14% (983)
School region	Yorkshire and the Humber	12% (873)	8% (240)	10% (689)
Urban or rural school	Missing	1% (49)	1% (22)	1% (52)
Urban or rural school	Rural	9% (679)	10% (286)	9% (673)
Urban or rural school	Urban	90% (6420)	89% (2624)	90% (6423)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Missing	15% (1105)	14% (398)	14% (1025)
School Ofsted rating	Good	55% (3929)	56% (1633)	55% (3943)
School Ofsted rating	Outstanding	12% (884)	14% (409)	14% (1000)
School Ofsted rating	Requires improvement	15% (1102)	15% (453)	15% (1100)
School Ofsted rating	Serious Weaknesses	1% (68)	X	1% (67)
School Ofsted rating	Special Measures	1% (60)	X	0% (12)
Pupil eligible for PP	Missing	X	X	0% (14)
Pupil eligible for PP	No	52% (3724)	56% (1629)	52% (3701)
Pupil eligible for PP	Yes	48% (3422)	44% (1297)	48% (3434)
Pupil gender	Female	56% (3990)	54% (1591)	56% (3990)
Pupil gender	Male	44% (3158)	46% (1341)	44% (3158)
Pupil has SEN	No	84% (5994)	84% (2476)	84% (5994)
Pupil has SEN	Yes	16% (1154)	16% (456)	16% (1154)
Pupil speaks EAL	Yes	20% (1395)	17% (507)	20% (1395)
Pupil speaks EAL	No	80% (5753)	83% (2425)	80% (5753)
Pupil is white British	No	38% (2750)	33% (970)	38% (2750)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Pupil is white British	Yes	62% (4398)	67% (1962)	62% (4398)
Pupil KS2 maths score	Mean	102.41	102.54	102.41
Total N schools		742	327	327
Total N pupils		7148	2932	2932

Table 29: balance of characteristics before and after matching for the AM/TP English route in the RQ1 KS4 pupil-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	64% (474)	80% (8313)	64% (472)
School type	Free Schools	7% (54)	5% (475)	6% (44)
School type	Local authority maintained schools	28% (210)	15% (1614)	29% (215)
School type	Special schools	X	X	X
School region	Missing	X	0% (43)	X
School region	East Midlands	6% (46)	9% (991)	9% (63)
School region	East of England	16% (117)	11% (1178)	10% (77)
School region	London	19% (139)	15% (1564)	17% (128)
School region	North East	5% (38)	3% (333)	3% (24)
School region	North West	14% (107)	17% (1805)	20% (150)
School region	South East	10% (76)	13% (1318)	12% (88)
School region	South West	8% (60)	8% (800)	7% (51)
School region	West Midlands	6% (43)	14% (1422)	12% (88)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	Yorkshire and the Humber	15% (112)	10% (997)	9% (64)
Urban or rural school	Missing	X	0% (43)	X
Urban or rural school	Rural	17% (122)	9% (967)	15% (111)
Urban or rural school	Urban	83% (616)	90% (9441)	84% (621)
School Ofsted rating	Missing	10% (76)	17% (1738)	12% (87)
School Ofsted rating	Good	58% (428)	54% (5678)	55% (402)
School Ofsted rating	Outstanding	10% (76)	13% (1356)	15% (111)
School Ofsted rating	Requires improvement	21% (158)	15% (1580)	17% (127)
School Ofsted rating	Serious Weaknesses	X	0% (45)	X
School Ofsted rating	Special Measures	X	1% (54)	X
Pupil eligible for PP	Missing	X	X	X
Pupil eligible for PP	No	41% (300)	60% (6266)	41% (300)
Pupil eligible for PP	Yes	59% (438)	40% (4179)	59% (438)
Pupil gender	Female	40% (297)	46% (4767)	40% (297)
Pupil gender	Male	60% (441)	54% (5684)	60% (441)
Pupil has SEN	No	76% (562)	82% (8609)	76% (562)
Pupil has SEN	Yes	24% (176)	18% (1842)	24% (176)
Pupil speaks EAL	Yes	20% (144)	19% (1974)	20% (144)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Pupil speaks EAL	No	80% (594)	81% (8477)	80% (594)
Pupil is white British	No	39% (285)	36% (3745)	39% (285)
Pupil is white British	Yes	61% (453)	64% (6706)	61% (453)
Pupil KS2 reading score	Mean	101.63	102.48	101.63
Total N schools		200	804	804
Total N pupils		738	10451	10451

Table 30: balance of characteristics before and after matching for the AM/TP maths route in the RQ1 KS4 pupil-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	68% (810)	78% (8741)	67% (800)
School type	Free Schools	5% (64)	5% (575)	6% (71)
School type	Local authority maintained schools	26% (315)	16% (1789)	26% (312)
School type	Special schools	X	X	X
School region	Missing	X	1% (79)	1% (10)
School region	East Midlands	8% (99)	10% (1133)	10% (114)
School region	East of England	13% (150)	11% (1220)	10% (121)
School region	London	18% (210)	16% (1762)	18% (217)
School region	North East	4% (49)	4% (437)	4% (50)
School region	North West	18% (210)	16% (1822)	18% (209)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	South East	12% (148)	12% (1289)	11% (137)
School region	South West	7% (87)	7% (747)	6% (73)
School region	West Midlands	8% (90)	14% (1515)	12% (144)
School region	Yorkshire and the Humber	12% (146)	11% (1187)	10% (118)
Urban or rural school	Missing	X	1% (79)	1% (10)
Urban or rural school	Rural	12% (148)	11% (1231)	12% (138)
Urban or rural school	Urban	87% (1041)	88% (9881)	88% (1046)
School Ofsted rating	Missing	12% (147)	16% (1803)	15% (178)
School Ofsted rating	Good	60% (720)	54% (6091)	57% (678)
School Ofsted rating	Outstanding	12% (144)	13% (1485)	13% (158)
School Ofsted rating	Requires improvement	15% (182)	14% (1579)	13% (160)
School Ofsted rating	Serious Weaknesses	X	1% (164)	X
School Ofsted rating	Special Measures	X	1% (69)	X
Pupil eligible for PP	Missing	X	X	X
Pupil eligible for PP	No	42% (501)	59% (6578)	42% (500)
Pupil eligible for PP	Yes	58% (693)	41% (4604)	58% (693)
Pupil gender	Female	59% (700)	54% (6087)	59% (700)
Pupil gender	Male	41% (494)	46% (5104)	41% (494)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Pupil has SEN	No	82% (978)	85% (9520)	82% (978)
Pupil has SEN	Yes	18% (216)	15% (1671)	18% (216)
Pupil speaks EAL	Yes	17% (207)	19% (2082)	17% (207)
Pupil speaks EAL	No	83% (987)	81% (9109)	83% (987)
Pupil is white British	No	38% (458)	36% (3978)	38% (458)
Pupil is white British	Yes	62% (736)	64% (7213)	62% (736)
Pupil KS2 maths score	Mean	101.51	102.78	101.51
Total N schools		248	820	820
Total N pupils		1194	11191	11191

Table 31: balance of characteristics before and after matching for the SLT route in the RQ1 pupil-level analysis with KS4 English Language GCSE points as the outcome (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	74% (2502)	78% (1601)	74% (2500)
School type	Free Schools	6% (205)	5% (109)	5% (177)
School type	Local authority maintained schools	20% (675)	16% (334)	21% (698)
School type	Special schools	X	X	X
School region	Missing	X	1% (20)	0% (10)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School region	East Midlands	8% (263)	9% (179)	8% (261)
School region	East of England	10% (340)	12% (243)	10% (329)
School region	London	21% (711)	16% (321)	19% (653)
School region	North East	5% (156)	6% (120)	5% (178)
School region	North West	17% (588)	15% (315)	16% (543)
School region	South East	9% (308)	15% (309)	14% (481)
School region	South West	7% (229)	7% (149)	6% (215)
School region	West Midlands	13% (429)	10% (211)	11% (368)
School region	Yorkshire and the Humber	11% (363)	10% (198)	10% (350)
Urban or rural school	Missing	X	1% (20)	0% (10)
Urban or rural school	Rural	8% (281)	12% (254)	8% (262)
Urban or rural school	Urban	92% (3106)	87% (1791)	92% (3115)
School Ofsted rating	Missing	14% (487)	17% (341)	14% (469)
School Ofsted rating	Good	56% (1886)	57% (1171)	56% (1911)
School Ofsted rating	Outstanding	12% (410)	9% (193)	11% (356)
School Ofsted rating	Requires improvement	17% (566)	17% (359)	19% (650)
School Ofsted rating	Serious Weaknesses	1% (18)	X	X
School Ofsted rating	Special Measures	1% (21)	X	X
Pupil gender	Female	49% (1659)	48% (988)	49% (1659)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Pupil gender	Male	51% (1729)	52% (1077)	51% (1729)
Pupil has SEN	No	77% (2609)	76% (1573)	77% (2609)
Pupil has SEN	Yes	23% (779)	24% (492)	23% (779)
Pupil speaks EAL	Yes	23% (767)	17% (354)	23% (767)
Pupil speaks EAL	No	77% (2621)	83% (1711)	77% (2621)
Pupil is white British	No	44% (1478)	35% (731)	44% (1478)
Pupil is white British	Yes	56% (1910)	65% (1334)	56% (1910)
Pupil KS2 reading score	Mean	99.71	98.93	99.71
Total N schools		619	321	321
Total N pupils		3388	2065	2065

Table 32: balance of characteristics before and after matching for the SLT route in the RQ1 pupil-level analysis with KS4 maths GCSE points as the outcome (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	76% (3306)	70% (1286)	76% (3296)
School type	Free Schools	5% (227)	7% (126)	6% (265)
School type	Local authority maintained schools	18% (762)	23% (419)	17% (735)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Special schools	X	X	X
School region	Missing	1% (28)	1% (15)	1% (23)
School region	East Midlands	9% (380)	8% (151)	8% (328)
School region	East of England	10% (413)	11% (198)	10% (442)
School region	London	18% (797)	19% (343)	19% (824)
School region	North East	4% (187)	5% (94)	5% (200)
School region	North West	16% (693)	15% (277)	14% (607)
School region	South East	11% (475)	11% (201)	10% (449)
School region	South West	6% (243)	10% (185)	10% (436)
School region	West Midlands	12% (505)	11% (211)	13% (583)
School region	Yorkshire and the Humber	14% (603)	9% (174)	10% (434)
Urban or rural school	Missing	1% (28)	1% (15)	1% (23)
Urban or rural school	Rural	8% (356)	12% (215)	8% (366)
Urban or rural school	Urban	91% (3940)	88% (1619)	91% (3935)
School Ofsted rating	Missing	16% (678)	15% (270)	15% (663)
School Ofsted rating	Good	55% (2390)	54% (1005)	54% (2344)
School Ofsted rating	Outstanding	11% (496)	13% (247)	13% (556)
School Ofsted rating	Requires improvement	16% (683)	17% (313)	17% (727)
School Ofsted rating	Serious Weaknesses	1% (36)	X	X
School Ofsted rating	Special Measures	1% (41)	X	X

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
Pupil gender	Female	56% (2405)	56% (1031)	56% (2405)
Pupil gender	Male	44% (1919)	44% (818)	44% (1919)
Pupil has SEN	No	80% (3466)	80% (1485)	80% (3466)
Pupil has SEN	Yes	20% (858)	20% (364)	20% (858)
Pupil speaks EAL	Yes	21% (902)	19% (349)	21% (902)
Pupil speaks EAL	No	79% (3422)	81% (1500)	79% (3422)
Pupil is white British	No	41% (1787)	37% (675)	41% (1787)
Pupil is white British	Yes	59% (2537)	63% (1174)	59% (2537)
Pupil KS2 maths score	Mean	100.3	100.31	100.3
Total N schools		674	310	310
Total N pupils		4324	1849	1849

Table 33: balance of characteristics before and after matching for the AM/TP English route in the RQ1 KS4 pupil-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	66% (346)	79% (4508)	66% (344)
School type	Free Schools	7% (37)	5% (267)	6% (31)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Local authority maintained schools	27% (141)	16% (913)	28% (144)
School type	Special schools	X	X	X
School region	Missing	X	0% (21)	X
School region	East Midlands	7% (35)	8% (479)	8% (42)
School region	East of England	16% (83)	11% (603)	11% (55)
School region	London	17% (89)	16% (941)	18% (93)
School region	North East	6% (32)	3% (186)	3% (17)
School region	North West	15% (78)	19% (1080)	21% (108)
School region	South East	10% (52)	11% (645)	12% (61)
School region	South West	9% (47)	7% (414)	7% (36)
School region	West Midlands	6% (33)	13% (769)	12% (63)
School region	Yorkshire and the Humber	14% (75)	10% (577)	9% (46)
Urban or rural school	Missing	X	0% (21)	X
Urban or rural school	Rural	16% (86)	8% (466)	15% (78)
Urban or rural school	Urban	84% (438)	91% (5228)	84% (442)
School Ofsted rating	Missing	11% (56)	16% (930)	12% (63)
School Ofsted rating	Good	58% (304)	55% (3150)	55% (287)
School Ofsted rating	Outstanding	10% (51)	12% (697)	15% (76)
School Ofsted rating	Requires improvement	22% (113)	15% (883)	17% (91)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Serious Weaknesses	X	0% (24)	X
School Ofsted rating	Special Measures	X	1% (31)	X
Pupil gender	Female	43% (226)	48% (2725)	43% (226)
Pupil gender	Male	57% (298)	52% (2990)	57% (298)
Pupil has SEN	No	73% (383)	77% (4382)	73% (383)
Pupil has SEN	Yes	27% (141)	23% (1333)	27% (141)
Pupil speaks EAL	Yes	18% (95)	20% (1163)	18% (95)
Pupil speaks EAL	No	82% (429)	80% (4552)	82% (429)
Pupil is white British	No	39% (203)	39% (2242)	39% (203)
Pupil is white British	Yes	61% (321)	61% (3473)	61% (321)
Pupil KS2 reading score	Mean	100.13	99.06	100.13
Total N schools		181	742	742
Total N pupils		524	5715	5715

Table 34: balance of characteristics before and after matching for the AM/TP maths route in the RQ1 KS4 pupil-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Missing	X	X	X
School type	Academies	69% (568)	78% (4774)	68% (562)
School type	Free Schools	6% (47)	5% (304)	6% (49)
School type	Local authority maintained schools	25% (211)	17% (1018)	25% (210)
School type	Special schools	X	X	X
School region	Missing	X	1% (52)	X
School region	East Midlands	8% (69)	9% (558)	10% (80)
School region	East of England	12% (96)	10% (624)	10% (85)
School region	London	19% (161)	17% (1034)	20% (163)
School region	North East	4% (37)	4% (248)	4% (33)
School region	North West	18% (151)	16% (960)	17% (139)
School region	South East	12% (98)	11% (674)	11% (91)
School region	South West	7% (56)	7% (429)	6% (50)
School region	West Midlands	7% (54)	13% (826)	12% (97)
School region	Yorkshire and the Humber	13% (104)	12% (747)	10% (84)
Urban or rural school	Missing	X	1% (52)	X
Urban or rural school	Rural	11% (89)	10% (618)	10% (81)
Urban or rural school	Urban	89% (737)	89% (5482)	89% (741)
School Ofsted rating	Missing	12% (100)	16% (1008)	15% (121)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School Ofsted rating	Good	60% (497)	54% (3321)	56% (466)
School Ofsted rating	Outstanding	11% (94)	12% (765)	13% (109)
School Ofsted rating	Requires improvement	16% (136)	15% (948)	14% (119)
School Ofsted rating	Serious Weaknesses	X	1% (63)	X
School Ofsted rating	Special Measures	X	1% (47)	X
Pupil gender	Female	58% (482)	54% (3330)	58% (482)
Pupil gender	Male	42% (346)	46% (2822)	42% (346)
Pupil has SEN	No	79% (656)	80% (4932)	79% (656)
Pupil has SEN	Yes	21% (172)	20% (1220)	21% (172)
Pupil speaks EAL	Yes	19% (154)	20% (1209)	19% (154)
Pupil speaks EAL	No	81% (674)	80% (4943)	81% (674)
Pupil is white British	No	41% (343)	39% (2369)	41% (343)
Pupil is white British	Yes	59% (485)	61% (3783)	59% (485)
Pupil KS2 maths score	Mean	100.08	100.19	100.08
Total N schools		224	741	741
Total N pupils		828	6152	6152

Table 35: balance of characteristics before and after matching for SLT literacy route in the Research Champion school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	39% (19)	41% (22)	41% (20)
School type	Local authority maintained schools	61% (30)	59% (32)	59% (29)
School region	East Midlands	12% (6)	15% (8)	16% (8)
School region	East of England	14% (7)	9% (5)	10% (5)
School region	London	X	X	X
School region	North East	X	X	X
School region	North West	18% (9)	17% (9)	15% (7)
School region	South East	8% (4)	9% (5)	10% (5)
School region	South West	10% (5)	19% (10)	16% (8)
School region	West Midlands	12% (6)	13% (7)	12% (6)
School region	Yorkshire and the Humber	14% (7)	11% (6)	14% (7)
Urban or rural school	Rural	33% (16)	33% (18)	33% (16)
Urban or rural school	Urban	67% (33)	67% (36)	67% (33)
School Ofsted rating	Good	73% (36)	72% (39)	74% (36)
School Ofsted rating	Missing	X	11% (6)	9% (5)
School Ofsted rating	Outstanding	12% (6)	9% (5)	10% (5)
School Ofsted rating	Requires improvement	X	7% (4)	7% (4)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School TP/AM literacy concentration	Mean	8.33	5.48	8.33
School % PP pupils	Mean	0.28	0.28	0.28
School % EAL pupils	Mean	0.17	0.13	0.17
School % SEN pupils	Mean	0.18	0.18	0.18
School % male pupils	Mean	0.52	0.51	0.51
School % white British pupils	Mean	0.75	0.76	0.71
School average baseline maths score	Mean	101.57	102.86	101.82
School average baseline reading score	Mean	101.09	102.23	101.09
School number of Y6 pupils	Mean	244.71	208.7	206.04
Total N schools		49	54	54
Total N pupils		11991	11270	11270

Table 36: balance of characteristics before and after matching for SLT numeracy route in the Research Champion school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	32% (12)	42% (19)	39% (15)
School type	Local authority maintained schools	68% (25)	58% (26)	61% (22)
School region	East Midlands	16% (6)	13% (6)	14% (5)
School region	East of England	11% (4)	9% (4)	X
School region	London	X	X	X
School region	North East	X	X	X
School region	North West	22% (8)	18% (8)	18% (7)
School region	South East	14% (5)	9% (4)	12% (4)
School region	South West	X	20% (9)	20% (7)
School region	West Midlands	14% (5)	13% (6)	15% (5)
School region	Yorkshire and the Humber	19% (7)	11% (5)	10% (4)
Urban or rural school	Rural	38% (14)	36% (16)	38% (14)
Urban or rural school	Urban	62% (23)	64% (29)	62% (23)
School Ofsted rating	Good	73% (27)	67% (30)	65% (24)
School Ofsted rating	Missing	X	11% (5)	11% (4)
School Ofsted rating	Outstanding	14% (5)	11% (5)	14% (5)
School Ofsted rating	Requires improvement	X	11% (5)	11% (4)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School TP/AM numeracy concentration	Mean	6.85	6.89	6.85
School % PP pupils	Mean	0.26	0.29	0.26
School % EAL pupils	Mean	0.12	0.15	0.12
School % SEN pupils	Mean	0.17	0.18	0.17
School % male pupils	Mean	0.5	0.52	0.52
School % white British pupils	Mean	0.8	0.74	0.78
School average baseline maths score	Mean	101.75	102.31	101.75
School average baseline reading score	Mean	101.44	102.25	102.11
School number of Y6 pupils	Mean	237.24	210.71	196.98
Total N schools		37	45	45
Total N pupils		8778	9482	9482

Table 37: balance of characteristics before and after matching for AM/TP literacy route in the Research Champion school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	37% (11)	39% (29)	44% (13)
School type	Local authority maintained schools	63% (19)	61% (46)	56% (17)
School region	East Midlands	13% (4)	15% (11)	X
School region	East of England	X	13% (10)	13% (4)
School region	London	X	X	X
School region	North East	X	X	X
School region	North West	27% (8)	13% (10)	19% (6)
School region	South East	X	11% (8)	X
School region	South West	X	17% (13)	15% (5)
School region	West Midlands	13% (4)	11% (8)	14% (4)
School region	Yorkshire and the Humber	20% (6)	9% (7)	12% (4)
Urban or rural school	Rural	27% (8)	37% (28)	27% (8)
Urban or rural school	Urban	73% (22)	63% (47)	73% (22)
School Ofsted rating	Good	73% (22)	71% (53)	75% (23)
School Ofsted rating	Missing	X	X	X
School Ofsted rating	Outstanding	X	13% (10)	12% (4)
School Ofsted rating	Requires improvement	13% (4)	X	X

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School SLT literacy concentration	Mean	13.74	12.09	13.74
School % PP pupils	Mean	0.34	0.26	0.34
School % EAL pupils	Mean	0.17	0.15	0.17
School % SEN pupils	Mean	0.18	0.18	0.18
School % male pupils	Mean	0.52	0.51	0.51
School % white British pupils	Mean	0.73	0.75	0.73
School average baseline maths score	Mean	101.17	102.44	99.93
School average baseline reading score	Mean	99.93	102.15	99.93
School number of Y6 pupils	Mean	251.2	215.47	223.57
Total N schools		30	75	75
Total N pupils		7536	16160	16160

Table 38: balance of characteristics before and after matching for AM/TP numeracy route in the Research Champion school-level analysis (all pupils)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	38% (11)	29% (12)	34% (10)
School type	Local authority maintained schools	62% (18)	71% (30)	66% (19)
School region	East Midlands	21% (6)	12% (5)	X
School region	East of England	X	12% (5)	X
School region	London	X	X	X
School region	North East	X	X	X
School region	North West	21% (6)	21% (9)	19% (5)
School region	South East	X	17% (7)	13% (4)
School region	South West	X	17% (7)	12% (4)
School region	West Midlands	21% (6)	10% (4)	21% (6)
School region	Yorkshire and the Humber	17% (5)	10% (4)	15% (4)
Urban or rural school	Rural	28% (8)	36% (15)	28% (8)
Urban or rural school	Urban	72% (21)	64% (27)	72% (21)
School Ofsted rating	Good	86% (25)	71% (30)	64% (19)
School Ofsted rating	Missing	X	X	X
School Ofsted rating	Outstanding	X	19% (8)	25% (7)
School Ofsted rating	Requires improvement	X	X	X

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School SLT numeracy concentration	Mean	9.22	4.98	9.22
School % PP pupils	Mean	0.31	0.26	0.31
School % EAL pupils	Mean	0.13	0.1	0.13
School % SEN pupils	Mean	0.16	0.18	0.16
School % male pupils	Mean	0.51	0.51	0.51
School % white British pupils	Mean	0.78	0.81	0.77
School average baseline maths score	Mean	100.97	102.23	100.97
School average baseline reading score	Mean	100.81	102.05	100.86
School number of Y6 pupils	Mean	221.03	220.36	228.27
Total N schools		29	42	42
Total N pupils		6410	9255	9255

Table 39: balance of characteristics before and after matching for the SLT literacy route in the Research Champion school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	39% (18)	41% (23)	46% (21)
School type	Local authority maintained schools	61% (28)	59% (33)	54% (25)
School region	East Midlands	11% (5)	14% (8)	17% (8)
School region	East of England	15% (7)	9% (5)	9% (4)
School region	London	9% (4)	X	X
School region	North East	X	X	X
School region	North West	20% (9)	16% (9)	14% (6)
School region	South East	X	11% (6)	9% (4)
School region	South West	11% (5)	18% (10)	16% (7)
School region	West Midlands	13% (6)	12% (7)	11% (5)
School region	Yorkshire and the Humber	13% (6)	12% (7)	17% (8)
Urban or rural school	Rural	33% (15)	34% (19)	33% (15)
Urban or rural school	Urban	67% (31)	66% (37)	67% (31)
School Ofsted rating	Good	76% (35)	70% (39)	73% (33)
School Ofsted rating	Missing	9% (4)	12% (7)	9% (4)
School Ofsted rating	Outstanding	11% (5)	11% (6)	10% (5)
School Ofsted rating	Requires improvement	X	7% (4)	8% (4)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School TP/AM literacy concentration	Mean	12.55	6.32	12.55
School % PP pupils	Mean	0.29	0.27	0.29
School % EAL pupils	Mean	0.17	0.13	0.17
School % SEN pupils	Mean	0.18	0.18	0.18
School % male pupils	Mean	0.51	0.51	0.51
School % white British pupils	Mean	0.74	0.76	0.71
School average baseline maths score	Mean	101.35	103.09	101.23
School average baseline reading score	Mean	100.74	102.53	100.74
School number of Y6 pupils	Mean	246.13	207.54	201.34
Total N schools		46	56	56
Total N pupils		11322	11622	11622

Table 40: balance of characteristics before and after matching for the SLT numeracy route in the Research Champion school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	34% (11)	40% (19)	41% (13)
School type	Local authority maintained schools	66% (21)	60% (29)	59% (19)
School region	East Midlands	16% (5)	15% (7)	18% (6)
School region	East of England	12% (4)	8% (4)	X
School region	London	X	X	X
School region	North East	X	X	X
School region	North West	25% (8)	17% (8)	18% (6)
School region	South East	X	12% (6)	X
School region	South West	X	19% (9)	21% (7)
School region	West Midlands	X	12% (6)	13% (4)
School region	Yorkshire and the Humber	22% (7)	10% (5)	X
Urban or rural school	Rural	44% (14)	33% (16)	44% (14)
Urban or rural school	Urban	56% (18)	67% (32)	56% (18)
School Ofsted rating	Good	75% (24)	67% (32)	62% (20)
School Ofsted rating	Missing	X	10% (5)	11% (4)
School Ofsted rating	Outstanding	12% (4)	12% (6)	12% (4)
School Ofsted rating	Requires improvement	X	10% (5)	15% (5)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School TP/AM numeracy concentration	Mean	9.59	9.1	9.59
School % PP pupils	Mean	0.27	0.27	0.27
School % EAL pupils	Mean	0.09	0.15	0.09
School % SEN pupils	Mean	0.17	0.18	0.17
School % male pupils	Mean	0.5	0.52	0.52
School % white British pupils	Mean	0.84	0.74	0.82
School average baseline maths score	Mean	101.3	102.68	101.3
School average baseline reading score	Mean	101.58	102.59	101.98
School number of Y6 pupils	Mean	227.53	215.48	187.04
Total N schools		32	48	48
Total N pupils		7281	10343	10343

Table 41: balance of characteristics before and after matching for the AM/TP literacy route in the Research Champion school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	33% (9)	41% (31)	46% (13)
School type	Local authority maintained schools	67% (18)	59% (45)	54% (14)
School region	East Midlands	X	14% (11)	X
School region	East of England	X	14% (11)	X
School region	London	X	8% (6)	X
School region	North East	X	X	X
School region	North West	26% (7)	13% (10)	20% (5)
School region	South East	X	9% (7)	X
School region	South West	X	17% (13)	14% (4)
School region	West Midlands	15% (4)	12% (9)	17% (4)
School region	Yorkshire and the Humber	22% (6)	9% (7)	14% (4)
Urban or rural school	Rural	19% (5)	37% (28)	19% (5)
Urban or rural school	Urban	81% (22)	63% (48)	81% (22)
School Ofsted rating	Good	78% (21)	72% (55)	76% (21)
School Ofsted rating	Missing	X	X	X
School Ofsted rating	Outstanding	X	12% (9)	X
School Ofsted rating	Requires improvement	X	X	X

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School SLT literacy concentration	Mean	11.53	12.31	11.53
School % PP pupils	Mean	0.36	0.26	0.36
School % EAL pupils	Mean	0.19	0.15	0.19
School % SEN pupils	Mean	0.18	0.18	0.18
School % male pupils	Mean	0.52	0.51	0.52
School % white British pupils	Mean	0.71	0.75	0.71
School average baseline maths score	Mean	100.26	102.6	99.44
School average baseline reading score	Mean	99.2	102.21	99.2
School number of Y6 pupils	Mean	258.15	215.59	229.36
Total N schools		27	76	76
Total N pupils		6970	16385	16385

Table 42: balance of characteristics before and after matching for the AM/TP numeracy route in the Research Champion school-level analysis (PP and/or PLA pupils only)

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School type	Academies	37% (10)	30% (13)	39% (10)
School type	Local authority maintained schools	63% (17)	70% (30)	61% (17)
School region	East Midlands	19% (5)	12% (5)	X
School region	East of England	X	12% (5)	X
School region	London	X	X	X
School region	North East	X	X	X
School region	North West	22% (6)	21% (9)	19% (5)
School region	South East	X	16% (7)	X
School region	South West	X	16% (7)	14% (4)
School region	West Midlands	19% (5)	12% (5)	22% (6)
School region	Yorkshire and the Humber	19% (5)	9% (4)	14% (4)
Urban or rural school	Rural	26% (7)	35% (15)	26% (7)
Urban or rural school	Urban	74% (20)	65% (28)	74% (20)
School Ofsted rating	Good	89% (24)	72% (31)	67% (18)
School Ofsted rating	Missing	X	X	X
School Ofsted rating	Outstanding	X	19% (8)	21% (6)
School Ofsted rating	Requires improvement	X	X	X

Variable	Level	Intervention group	Comparison group (unweighted)	Comparison group (weighted)
School SLT numeracy concentration	Mean	11.76	8.5	11.76
School % PP pupils	Mean	0.32	0.26	0.32
School % EAL pupils	Mean	0.14	0.09	0.14
School % SEN pupils	Mean	0.16	0.18	0.16
School % male pupils	Mean	0.5	0.51	0.51
School % white British pupils	Mean	0.77	0.81	0.75
School average baseline maths score	Mean	100.94	102.07	100.94
School average baseline reading score	Mean	100.58	101.95	100.67
School number of Y6 pupils	Mean	225.22	221.7	232.01
Total N schools		27	43	43
Total N pupils		6081	9533	9533

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