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How reliable are component grades as predictors of qualification grades?

Research Report

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Introduction

The main purpose of the analysis presented in this report is to give some idea of how much assessment students may need to undertake in summer 2021 in order for the grade they are given to be a reasonably reliable indicator of their ability in a subject. This is important because there is a good chance that students will be examined on reduced syllabus content only, or that there will be disruption to exams next year due to COVID19. Therefore, it is worth knowing what impact this is likely to have on the reliability of the grades they receive.

Data and methods

The data for this analysis was taken from the summer 2019 GCSE and A level results tables in the ISP warehouse. These tables include the marks and grades achieved by each candidate on each component and the overall grade achieved in the qualification. Only components entered by at least 200 candidates were included in the analysis.

The main analysis focused on the relationship between grades achieved on individual components and grades achieved on the whole qualification. This was investigated by calculating the following measures:

1) Proportion of students taking each component who achieved the same component grade as overall qualification grade
2) Proportion of students achieving a component grade within one grade of the qualification grade
3) Measure 1), after re-grading students so that the within centre rank order of students at component level matched the rank order at qualification level.
4) Measure 2), after re-grading students as above
5) Correlation between component mark and overall grade
6) Correlation between component grade and overall grade

The purpose of the re-grading in measures 3) and 4) was to allow comparisons with the metric used by Ofqual to evaluate the summer 2020 algorithm (Ofqual, 2020). Their evaluation involved running the algorithm on 2019 data to see how accurately it was able to generate the grades the students actually achieved. However, a fundamental component of the algorithm when it was used in the 2020 session was each school's rank order of their students within each subject, which was not available in the 2019 data. Instead, Ofqual assumed that the teacher rank order would have been the same as the actual rank order, and calculated their measures of accuracy accordingly. Measures 3) and 4) are analogous to the Ofqual metric, as they ensure that the prediction (component grade) within each centre has the same rank order of students as the final qualification grade. In effect, these are measures of how accurately single components predict the grade distribution in each centre.

Each of the six measures was also calculated a second time, after adjusting component level grade boundaries so that the percentage of students achieving each grade was as close as possible to the percentages in the whole qualification. This simulated a situation where students are graded based on their performance in one component only, whilst ensuring the overall standard remains the same as if they took whole qualification.

Finally, an investigation was undertaken of what happens to the accuracy of prediction of qualification grade using a single component, as the length of the component exam paper gets shorter. There is the possibility that in summer 2021 students will be assessed on only some of

the curriculum content and it is therefore important to investigate what might happen to the prediction accuracy in such a situation.

To do this, item level data for a Mathematics GCSE higher tier component (J560/04) and a Computer Science A level component (H446/02) was taken from the ISP warehouse. This data included the performance of students on each individual item in the exam paper. To simulate a shorter exam paper, items were removed one by one (at random) from the data and students' marks were re-calculated using the remaining items only. Students were then re-graded using the new marks. For this analysis to work, it was necessary to recalculate the component grade boundaries after removing each item, to ensure that the percentages achieving each grade remained as close as possible to the percentages in the qualification as a whole. The new grades were then used to calculate each of the measures of prediction accuracy.

Results

Table 1 presents summary statistics for each measure across all GCSE components in 2019, using the original, unadjusted data. Table 2 presents the same data, after the adjustment of component level grade boundaries so that the component grade distribution matched the overall distribution as closely as possible. Tables 3 and 4 show the results for A level components. The results for all of the components separately are shown in the appendix.

Note that the results for components in the GCSEs in Combined Sciences (J250 and J260) were consistently lower than for other GCSEs, because of differences in the way that the components and overall qualifications were graded. There were 18 different grades available for the whole qualification (9-9, 9-8, 8-8, 8-7 etc.), but each component only used grades 9 to 1. This meant that students would only count as achieving the same grade when their component grade (e.g. 3) matched the same double grade at qualification level (e.g. 3-3).

Table 1: Summary statistics of prediction accuracy (GCSE components, unadjusted grade boundaries)

Measure	N	Mean	Median	S.D.	Min	Max
% same grade	143	48.37	49.12	15.15	16.07	74.85
% within 1 grade	143	90.18	93.73	9.86	50.37	100.00
% same grade (2)	143	61.31	64.33	17.90	12.27	89.82
% within 1 grade (2)	143	96.04	99.22	7.79	49.91	100.00
Correlation mark-grade	143	0.90	0.92	0.05	0.77	0.97
Correlation grade-grade	143	0.90	0.91	0.05	0.76	0.97

(2) = After within centre sorting

Table 2: Summary statistics of prediction accuracy (GCSE components, adjusted grade boundaries)

Measure	N	Mean	Median	S.D.	Min	Max
% same grade	143	51.60	52.20	13.65	24.46	75.04
% within 1 grade	143	93.18	95.10	6.27	74.18	100.00
% same grade (2)	143	69.41	73.61	14.64	37.72	90.25
% within 1 grade (2)	143	98.52	99.60	2.34	89.20	100.00
Correlation mark-grade	143	0.90	0.92	0.05	0.77	0.97
Correlation grade-grade	143	0.90	0.91	0.05	0.76	0.97

(2) = After within centre sorting

For GCSEs, the mean percentage of students within a component with the same grade as in the whole qualification was under 50%. This percentage varied quite widely by component (from 16.07% to 74.85%). The mean percentage within one grade was 90.18%. Correlations of component marks (or grades) and overall qualification grades were mostly very high, with a mean of 0.90. After adjusting the component level boundaries (Table 2) the percentage means all increased, with the mean percentage at the same grade increasing to 51.6%.

It is worth noting that all GCSEs consisted of either two or three components, usually with an approximately even split between components in terms of how much weight they carried in the total assessment mark.

Table 3: Summary statistics of prediction accuracy (A level components, unadjusted grade boundaries)

Measure	N	Mean	Median	S.D.	Min	Max
% same grade	161	49.72	49.65	13.11	8.01	76.03
% within 1 grade	161	91.53	94.92	9.30	28.97	100.00
% same grade (2)	161	61.40	64.87	15.16	7.28	86.88
% within 1 grade (2)	161	96.06	98.87	7.91	27.22	100.00
Correlation mark-grade	161	0.83	0.84	0.08	0.56	0.96
Correlation grade-grade	161	0.82	0.82	0.09	0.53	0.94

(2) = After within centre sorting

Table 4: Summary statistics of prediction accuracy (A level components, adjusted grade boundaries)

Measure	N	Mean	Median	S.D.	Min	Max
% same grade	161	55.11	53.81	9.94	32.03	76.51
% within 1 grade	161	95.50	96.74	4.16	78.43	100.00
% same grade (2)	161	70.27	70.67	8.98	45.42	87.33
% within 1 grade (2)	161	98.90	99.53	1.60	91.15	100.00
Correlation mark-grade	161	0.83	0.84	0.08	0.56	0.96
Correlation grade-grade	161	0.82	0.82	0.09	0.54	0.95

(2) = After within centre sorting

For A levels, the mean percentage with the same grade (or within one grade) were slightly higher than the equivalent results for GCSEs (49.72% and 91.53% respectively). This is likely to be partly because there are fewer possible grades for A levels (6) than for GCSEs (9). However, the mean correlations were lower, which may be partly because A levels tended to consist of a larger number of components (usually three or four) than GCSEs (either two or three), and therefore an individual component was worth less as a proportion of the whole qualification, on average.

Non-exam assessment

It is worth reporting the results for the non-exam assessment (NEA) components separately, because if it is not possible for students to sit exams in summer 2021 then (for subjects that have any NEA) this may be an important part of the grading process.

Tables 5 and 6 present the prediction accuracy for the NEA components only, for GCSEs and A levels respectively. This was using the data after having adjusted the component grade

boundaries so that the component grade distribution was as close as possible to the overall grade distribution.

The results, in terms of the percentages achieving the same or one grade different and the correlations, were very similar to the overall results (see Tables 2 and 4). However, the percentages getting the same grade after the within centre sorting were lower.

Table 5: Summary statistics of prediction accuracy (GCSE NEA components, adjusted grade boundaries)

Measure	N	Mean	Median	S.D.	Min	Max
% same grade	21	51.37	54.14	12.94	30.83	69.76
% within 1 grade	21	91.06	95.97	8.52	74.18	99.54
% same grade (2)	21	62.92	65.26	11.65	45.79	78.75
% within 1 grade (2)	21	96.63	98.90	3.93	89.20	100.00
Correlation mark-grade	21	0.89	0.93	0.06	0.77	0.96
Correlation grade-grade	21	0.90	0.93	0.07	0.76	0.96

(2) = After within centre sorting

Table 6: Summary statistics of prediction accuracy (A level NEA components, adjusted grade boundaries)

Measure	N	Mean	Median	S.D.	Min	Max
% same grade	25	54.38	50.00	13.88	35.64	76.51
% within 1 grade	25	94.32	95.46	5.14	84.24	100.00
% same grade (2)	25	64.44	62.59	11.77	45.57	81.44
% within 1 grade (2)	25	97.98	98.59	2.39	91.15	100.00
Correlation mark-grade	25	0.81	0.77	0.10	0.56	0.93
Correlation grade-grade	25	0.80	0.76	0.11	0.54	0.94

(2) = After within centre sorting

The summary statistics in Tables 5 and 6 conceal a significant amount of variation in the percentage achieving the same grade in different subjects (see appendix for detailed results). The results include all NEA components, including components in the NEA-only Art and Design specifications. These specifications all consisted of two NEA components only, both worth 50% of the whole qualification. As such, it is not surprising that the prediction accuracy for the Art and Design components was much higher than for other NEA (which were mostly worth less than 50% of the whole qualification). If Art and Design components are removed from the calculation of means then the figures in Table 5 fall to 38.6% students achieving the same grade, 82.9% within one grade and correlations of 0.83 and 0.84. In Table 6 the figures fall to 44.3% achieving the same grade, 91.1% within one grade and correlations of 0.74 and 0.72. These figures are all considerably lower than the means in Tables 2 and 4.

A more informative comparison was generated by comparing the prediction accuracy of each NEA component with the accuracy of the other (non-NEA) components in the same qualification. The results of this are presented in Tables 7 and 8. These tables show, for each assessment code with an NEA component, the number of components in the whole qualification, how many of these were NEA and the proportion of the whole qualification that each NEA component was worth. For example, for H459 there were 4 components in total, 2 of which were NEA. These NEA components were both worth 30% of the whole qualification. This percentage figure is important because the larger the percentage, the more likely it is that the component grades will be a good predictor of qualification grades. Three measures were compared between the NEA

and non-NEA components in each qualification: percentage same grade; percentage within one grade; and correlations between component grade and final grade. Where there were multiple non-NEA (or NEA) components, the means of these measures were calculated.

Comparing the average values between NEA and non-NEA we can see that for both GCSEs and A levels non-NEA components were a better predictor. For GCSEs, the average percentage of students achieving the same grade in non-NEA components was 42.5%, compared with 38.6% of students in the NEA components. For A levels, the equivalent figures were 49.1% and 44.3% respectively. However, there were some big differences between different subjects. In particular, the results for Design and Technology (for both GCSEs and A levels), showed better prediction accuracy for NEA components than for non-NEA components. This is likely to be partly because the percentage of the whole qualification per NEA component was higher for these qualifications (50%) than for the other qualifications in the tables.

Some qualifications include two NEA components. In these qualifications, there would be the potential to use the results from both NEA components (e.g. by adding up the marks from both) in awarding grades in summer 2021, if no exams were possible. This would be likely to improve the prediction accuracy compared to just using one NEA component. However, there is no guarantee that pupils would be able to complete both NEA components, if Covid-19 significantly disrupted learning.

Table 7: Comparison of prediction accuracy for NEA and non-NEA components (GCSEs, specifications with partial NEA only)

Assessment code	Subject	Total no. of components	NEA components	% of qual per NEA	NEA % same grade	Non-NEA % same grade	NEA % within 1 grade	Non-NEA % within 1 grade	NEA corr grade-grade	Non-NEA corr grade-grade
J200	Media Studies	3	1	30	30.83	44.18	74.18	89.30	0.76	0.89
J309	Food Prep. and Nutrition	3	2	25	40.26	46.70	85.40	92.67	0.86	0.91
J310	D & T	2	1	50	50.00	38.72	94.18	83.62	0.93	0.88
J316	Drama	3	2	30	36.44	43.98	81.72	89.84	0.81	0.88
J536	Music	3	2	30	39.52	38.64	82.63	83.38	0.86	0.87
J587	Physical Education	3	1	40	34.25	41.19	78.08	85.26	0.78	0.84
Average					**38.61**	**42.53**	**82.88**	**87.78**	**0.84**	**0.88**

Table 8: Comparison of prediction accuracy for NEA and non-NEA components (A levels, specifications with partial NEA only)

Assessment code	Subject	Total no. of components	NEA components	% of qual per NEA	NEA % same grade	Non-NEA % same grade	NEA % within 1 grade	Non-NEA % within 1 grade	NEA corr grade-grade	Non-NEA corr grade-grade
H404	D & T Design Engineering	3	1	50	50.00	35.13	95.13	80.23	0.86	0.70
H406	D & T: Product Design	3	1	50	58.70	37.34	98.43	85.11	0.87	0.67
H409	Media Studies	3	1	30	44.15	54.18	92.38	97.27	0.68	0.78
H410	Film Studies	3	1	30	51.49	53.98	95.46	96.37	0.75	0.77
H446	Computer Science	3	1	20	40.08	61.12	88.18	98.62	0.76	0.90
H459	Drama and Theatre	4	2	30	42.82	43.73	89.99	89.05	0.65	0.65
H470	English Language	3	1	20	45.11	58.94	92.61	98.18	0.67	0.81
H472	English Literature	3	1	20	45.84	55.46	92.38	97.54	0.73	0.82
H474	English Lang. & Lit.	4	1	20	43.08	48.59	91.96	93.74	0.68	0.71
H481	Geography	4	1	20	42.14	48.72	88.53	94.56	0.72	0.80
H543	Music	3	2	30	39.08	50.92	87.03	96.32	0.68	0.82
H555	Physical Education	4	1	30	36.87	46.00	85.86	92.79	0.70	0.79
H505	History	4	1	20	43.58	48.25	91.72	93.87	0.74	0.75
Average					**44.32**	**49.13**	**91.11**	**93.27**	**0.72**	**0.76**

What effect does removing items have on reliability?

Figure 1 shows the impact of removing individual items from the Maths GCSE higher tier paper (J560/04) on the percentage of students with the same component grade as overall grade and the percentage within one grade of their overall grade. This shows the results for both the unadjusted data and for the data after within centre sorting. The results are also shown in Table 9, along with the correlations between component marks and final grade and component grade and final grade. This paper consisted of 30 items worth between 1 and 6 marks. The maximum available mark for the paper was 100.

The horizontal axis shows the percentage of marks remaining after removing each additional item, but only every second item is labelled, to avoid cluttering the axis too much.

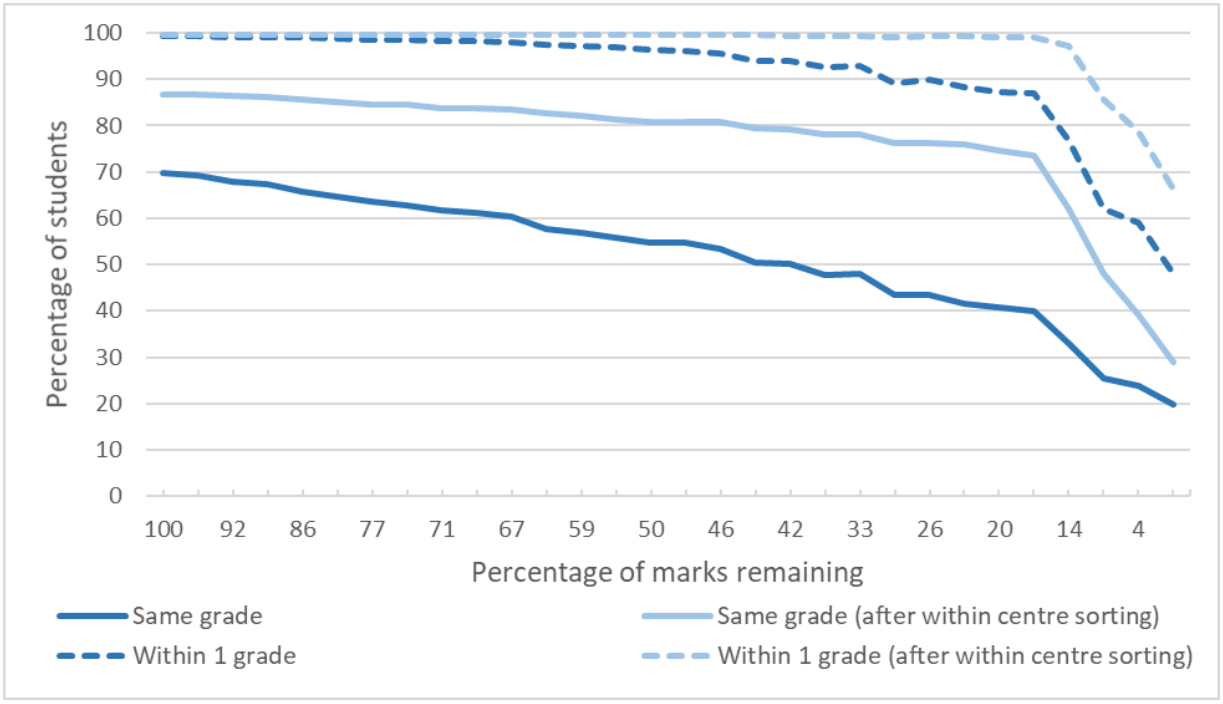

Figure 1: Impact of removing items on measures of prediction accuracy (component J560/04)

This shows a steady, but not rapid decline in the percentage of students achieving the same grade. For example, with two thirds of the marks remaining the percentage with the same grade was still over 60% (60.27%). The fall was considerably slower for the measure after within centre sorting. It is worth noting that the prediction accuracy reported by Ofqual for Mathematics GCSE was 73.5% with the same grade and 99.2% within one grade (see Table E.9 in Ofqual, 2020). For J560/04 to produce more accurate predictions (after within-centre sorting) only required around 20% of the total marks (19% for percentage same grade, 22% for percentage within one grade). In other words, the algorithm used by Ofqual in summer 2020 appears to be about as accurate as using a single 20-mark maths test.

The percentage within one grade fell very slowly, with 96.33% of students within one grade using just half of the paper. In Table 9 we can see that the correlations of component mark or grade and overall grade also fell very slowly: using just 50% of the paper, the mark-to-grade correlation was 0.90 and the grade-to-grade correlation was 0.88.

Table 9: Impact of removing items on measures of prediction accuracy (component J560/04)

Items removed	% of max marks remaining	% same grade	% within 1 grade	% same grade (after within centre sorting)	% within 1 grade (after within centre sorting)	Correlation mark-grade	Correlation grade-grade
n/a	100	69.69	99.27	86.71	99.60	0.94	0.93
1	98	69.31	99.29	86.68	99.63	0.94	0.93
2	92	68.00	99.16	86.46	99.62	0.94	0.93
3	89	67.28	99.10	86.25	99.61	0.94	0.93
4	86	65.66	98.94	85.57	99.59	0.94	0.92
5	82	64.77	98.75	85.04	99.56	0.93	0.92
6	77	63.57	98.52	84.56	99.52	0.93	0.91
7	74	62.78	98.51	84.52	99.50	0.93	0.91
8	71	61.62	98.34	83.79	99.49	0.92	0.91
9	69	61.17	98.33	83.85	99.56	0.92	0.91
10	67	60.27	98.08	83.51	99.55	0.92	0.91
11	62	57.66	97.43	82.68	99.53	0.91	0.90
12	59	56.79	97.08	82.01	99.46	0.91	0.89
13	56	55.76	96.95	81.21	99.45	0.90	0.89
14	50	54.68	96.33	80.77	99.59	0.90	0.88
15	48	54.74	96.12	80.89	99.49	0.89	0.88
16	46	53.36	95.68	80.90	99.47	0.89	0.87
17	43	50.38	94.04	79.46	99.46	0.87	0.86
18	42	50.09	93.88	79.24	99.42	0.87	0.86
19	37	47.81	92.63	78.13	99.40	0.86	0.84
20	33	48.11	92.88	78.13	99.39	0.86	0.85
21	27	43.47	89.19	76.17	99.13	0.83	0.81
22	26	43.42	89.90	76.30	99.27	0.82	0.81
23	22	41.66	88.38	75.84	99.29	0.81	0.80
24	20	40.70	87.16	74.56	99.02	0.80	0.79
25	19	40.06	86.83	73.60	99.08	0.79	0.79
26	14	33.06	76.64	61.86	97.25	0.69	0.71
27	10	25.41	61.84	48.08	85.50	0.52	0.54
28	4	23.94	58.99	39.21	78.55	0.48	0.48
29	1	19.92	48.09	29.02	66.31	0.28	0.28

Figure 2 and Table 10 present the results of removing items from GCSE Computer Science component H446/02. This paper consisted of 38 items worth between 1 and 9 marks. The maximum available mark for the paper was 140.

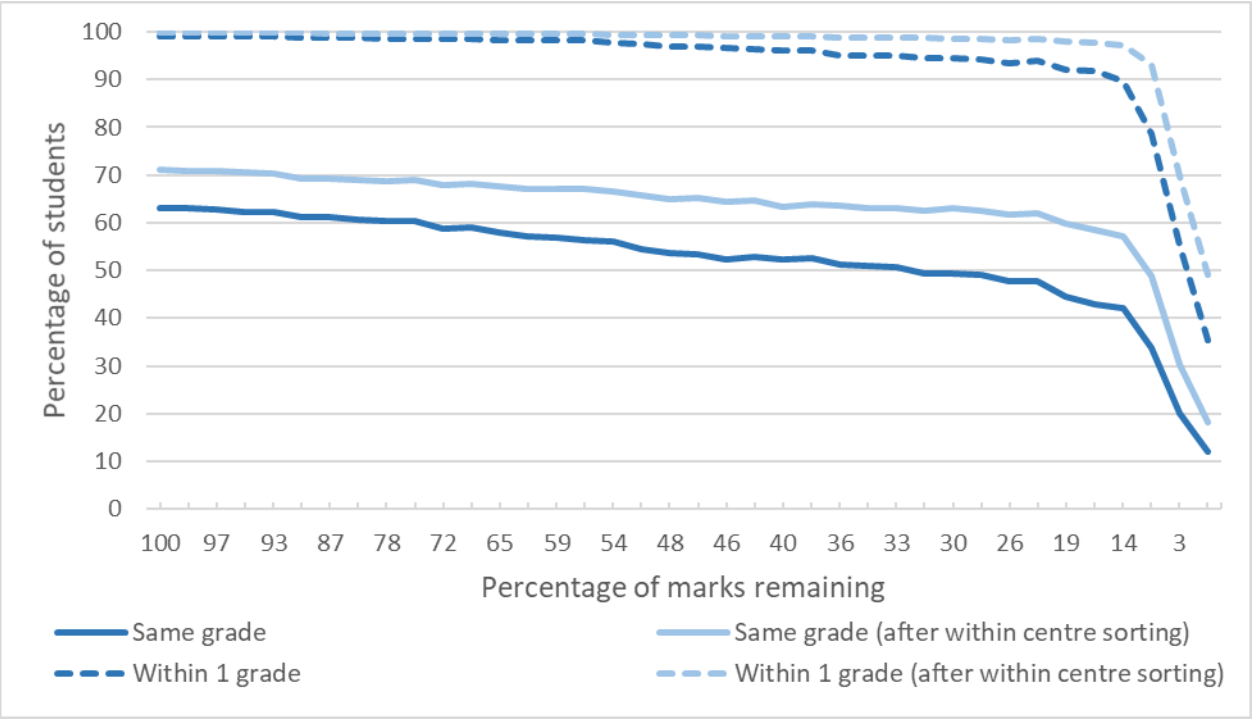

Figure 2: Impact of removing items on measures of prediction accuracy (component H446/02)

Again, the decline in prediction accuracy was steady until there were very few items left. With only half of the marks remaining 54.5% of students achieved the same grade and 97.3% were within one grade. The correlation of marks with grades was 0.89 and the correlation of grades with grades was 0.88.

Compared to the prediction accuracy of the summer 2020 algorithm for Computing A level[1] (49.2% achieving same grade and 97.2% within one grade), just 14% of the marks (20 marks) would be enough to achieve greater levels of accuracy (57.1% same grade, 97.24% within one grade).

[1] see Table E.8 in Ofqual, 2020

Table10: Impact of removing items on measures of prediction accuracy (component H446/02)

Items removed	% of max marks remaining	% same grade	% within 1 grade	% same grade (after within centre sorting)	% within 1 grade (after within centre sorting)	Correlation mark-grade	Correlation grade-grade
n/a	100	63.10	99.13	71.01	99.79	0.92	0.91
1	98	63.14	98.99	70.87	99.74	0.92	0.91
2	97	62.89	99.01	70.78	99.74	0.92	0.91
3	94	62.25	98.95	70.45	99.76	0.92	0.91
4	93	62.23	98.95	70.41	99.74	0.92	0.91
5	91	61.30	98.90	69.26	99.77	0.92	0.90
6	87	61.10	98.73	69.30	99.67	0.92	0.90
7	81	60.52	98.69	68.91	99.70	0.92	0.90
8	78	60.33	98.60	68.67	99.67	0.92	0.90
9	76	60.48	98.64	69.05	99.65	0.91	0.90
10	72	58.85	98.55	67.97	99.60	0.91	0.90
11	71	58.90	98.57	68.20	99.65	0.91	0.90
12	65	57.92	98.36	67.57	99.58	0.91	0.89
13	63	57.03	98.27	67.13	99.58	0.91	0.89
14	59	56.82	98.19	67.15	99.55	0.91	0.89
15	58	56.44	98.31	66.96	99.55	0.90	0.89
16	54	55.95	97.70	66.52	99.41	0.90	0.88
17	50	54.52	97.33	65.65	99.44	0.89	0.88
18	48	53.63	96.89	65.02	99.25	0.89	0.87
19	47	53.35	96.91	65.09	99.23	0.89	0.87
20	46	52.31	96.58	64.28	99.11	0.88	0.87
21	43	52.91	96.42	64.72	99.01	0.88	0.87
22	40	52.21	96.09	63.24	99.01	0.88	0.86
23	39	52.54	96.04	63.85	98.95	0.88	0.86
24	36	51.28	95.06	63.53	98.66	0.87	0.86
25	34	50.83	95.08	63.04	98.83	0.87	0.85
26	33	50.62	95.01	63.10	98.76	0.86	0.85
27	31	49.38	94.61	62.62	98.69	0.86	0.85
28	30	49.34	94.61	63.05	98.55	0.86	0.85
29	29	48.98	94.29	62.61	98.57	0.86	0.84
30	26	47.83	93.36	61.66	98.27	0.85	0.83
31	22	47.79	93.97	62.04	98.50	0.85	0.83
32	19	44.38	92.19	59.91	97.89	0.83	0.81
33	18	43.01	91.68	58.45	97.78	0.82	0.80
34	14	42.19	89.68	57.13	97.24	0.80	0.79
35	9	33.82	78.58	48.94	93.18	0.67	0.65
36	3	20.09	55.30	30.18	69.89	0.53	0.49
37	1	11.95	35.37	18.22	49.09	0.27	0.26

Discussion

The average percentage of students who would have received the same grade from using just one component or from using the whole qualification was around 50%, both for GCSEs and for A levels. This figure increased slightly (51.6% for GCSEs, 55.1% for A levels) after adjusting component grade boundaries so that the cumulative percentages at component level were as close as possible to the percentages at qualification level (as is the most likely scenario if not all exams can take place in summer 2021).

The average percentage of students within one grade was 93.2% for GCSE components and 95.5% for A level components (after adjusting component boundaries). The reporting of the percentage of students within one grade is an often-used metric when judging the reliability of grade predictions, because it takes account of the fact that, since no test is perfectly reliable, there will always be some students who do not receive their 'true' grade. According to Wheadon & Stockford (2011), a figure of 95% of students receiving a grade within one of their true grade seems like "a reasonable point of reference". In the results reported here, more than half of the GCSE components (73 out of 143) and around two thirds of the A level components (107 out of 161) exceeded this figure, with over 95% of students achieving a component grade within one of their qualification grade (after adjusting grade boundaries on the component).

The results presented here also showed a higher prediction accuracy than the accuracy of teacher forecast grades (which, prior to 2015, were provided by centres to exam boards before an exam session). For example, the accuracy of forecast grades for GCSEs in 2014 was 43.6% accurate and 87.3% within one grade (Gill & Benton, 2015a), and for A levels was 43.1% accurate and 88.1% within one grade (Gill & Benton, 2015b). This suggests that using the results of one component generates more accurate predictions than using teacher forecasts.

The results also showed that NEA grades were mostly less reliable than the grades in non-NEA components from the same qualification. Even after regrading NEA components to ensure equivalent standards, the mean percentages achieving the same grade were only 38.6% for GCSE NEA components and 44.3% for A level NEA. Only 4 A level NEA components and none of the GCSE NEA components achieved the benchmark figure of 95% of students within one grade of their qualification grade. Therefore, using NEA grades to predict final grades would be likely to be less accurate than using grades from an examined component.

Finally, it is interesting to make some comparisons between the predictive accuracy reported here and the predictive accuracy of the summer 2020 algorithm, as reported by Ofqual (see Tables E.8 and E.9 in Ofqual, 2020). The average accuracy of the algorithm across all GCSE subjects (assuming perfect rank ordering of students within a school) was 52.8% and across all A level subjects was 52.4%. This compares with figures of 69.4% (see Table 2 in this report) and 70.3% (Table 4) average accuracy using the grade from one component if, for the sake of comparability, we also assume perfect ranks orders within schools. This suggests that getting students to sit at least one exam should lead to more accurate estimates of the grade distribution in each school than using an algorithm such as the one employed in summer 2020.

In fact, even a shortened paper would be likely to produce more accurate results than an algorithm. The results in Tables 9 and 10 showed greater levels of predictive accuracy than the algorithm from using just 20% of a GCSE Mathematics paper or just 14% of a GCSE Computer Science paper. In each case, this related to a test of just 20 marks being able to achieve the same level of accuracy as the summer 2020 algorithm.

Some limitations of this analysis should be mentioned. In particular, we don't know that the results presented here (in terms of the percentage of students achieving the same grade and the correlations) would be replicated next summer if, for example, only one exam were possible. These results were based on the outcomes of students who had studied all of the material for all components, which would not be the case if there were disruption caused by Covid-19. Furthermore, the impact of learning loss from any disruption is likely to be different for different groups of students. In particular, disadvantaged students are likely to suffer more from any disruption, as are those in regions with greater prevalence of Covid-19. The results presented in this report say nothing about how this differential learning loss would affect outcomes.

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Appendix: Component level prediction accuracy

Table A1: Prediction accuracy measures by component (GCSEs)

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
J170/01	Art, Craft & Design	4208	68.4	99.4	78.0	100.0	0.96	0.96
J170/02	Art, Craft & Design	4203	55.1	95.9	67.2	99.2	0.93	0.94
J171/01	Art & Design: Fine Art	10837	69.9	99.3	78.9	99.9	0.96	0.96
J171/02	Art & Design: Fine Art	10834	57.6	95.9	69.2	98.8	0.93	0.94
J172/01	Art & Design: Graph. Comm.	872	67.0	99.5	75.9	100.0	0.96	0.96
J172/02	Art & Design: Graph. Comm.	872	55.0	96.4	67.3	99.7	0.93	0.94
J173/01	Art & Design: Photography	2710	64.9	99.2	74.0	99.9	0.94	0.94
J173/02	Art & Design: Photography	2708	52.5	94.8	65.1	98.9	0.91	0.91
J174/01	Art & Design: Textile Design	973	67.3	99.1	72.5	99.6	0.96	0.96
J174/02	Art & Design: Textile Design	973	54.8	95.1	62.6	97.9	0.93	0.93
J175/01	Art & Design: 3D Design	511	62.0	98.2	74.6	99.8	0.95	0.95
J175/02	Art & Design: 3D Design	511	49.1	88.8	59.3	95.1	0.90	0.91
J198/01	Ancient History	894	58.4	96.9	70.9	99.2	0.97	0.97
J198/02	Ancient History	895	56.6	95.6	70.9	98.9	0.96	0.96
J199/11	Classical Civilisation	3026	52.5	96.1	66.0	99.0	0.94	0.94
J199/12	Classical Civilisation	584	53.1	94.9	67.0	99.7	0.91	0.90
J199/21	Classical Civilisation	1498	51.7	94.9	68.2	99.1	0.93	0.92
J199/22	Classical Civilisation	1550	51.0	95.0	69.9	99.4	0.93	0.92
J199/23	Classical Civilisation	560	52.1	95.0	63.0	98.8	0.94	0.94
J200/01	Media Studies	3477	40.8	86.5	59.5	96.9	0.88	0.88
J200/02	Media Studies	3478	34.2	79.5	39.6	90.3	0.90	0.89
J200/03	Media Studies	3490	27.6	68.5	36.1	80.7	0.77	0.76
J203/01	Psychology	4214	61.7	97.6	73.5	99.7	0.96	0.96
J203/02	Psychology	4211	60.4	98.3	75.6	99.8	0.96	0.95
J204/01	Business	14099	50.7	93.5	69.1	99.8	0.92	0.92
J204/02	Business	14081	50.5	92.6	63.4	99.1	0.92	0.93
J205/01	Economics	3940	53.6	96.3	71.8	99.8	0.94	0.93
J205/02	Economics	3940	56.3	97.4	74.0	99.7	0.95	0.94
J247/01	Biology A	1584	67.7	99.1	80.2	99.8	0.92	0.91
J247/02	Biology A	1564	73.9	99.6	84.1	99.9	0.94	0.93
J247/03	Biology A	7856	65.1	98.5	82.1	99.4	0.93	0.92
J247/04	Biology A	7855	63.1	98.3	83.0	99.5	0.93	0.92
J248/01	Chemistry A	1413	73.9	99.5	83.6	100.0	0.92	0.91
J248/02	Chemistry A	1410	72.7	99.6	81.1	99.9	0.92	0.91
J248/03	Chemistry A	7204	66.0	98.9	83.0	99.5	0.93	0.93
J248/04	Chemistry A	7203	68.6	98.9	83.7	99.3	0.94	0.93
J249/01	Physics A	1220	71.9	99.3	83.4	99.9	0.89	0.87
J249/02	Physics A	1219	66.4	99.0	80.4	99.7	0.88	0.86
J249/03	Physics A	7129	66.1	98.8	84.5	99.5	0.94	0.93
J249/04	Physics A	7130	65.4	98.4	83.7	99.5	0.94	0.93
J250/01	Combined Science A	10146	31.0	90.9	43.8	99.5	0.87	0.86
J250/02	Combined Science A	10096	29.7	90.3	44.5	99.4	0.86	0.85
J250/03	Combined Science A	10120	34.7	95.3	50.4	99.9	0.89	0.87
J250/04	Combined Science A	10097	29.3	89.0	32.4	97.6	0.90	0.89
J250/05	Combined Science A	10126	34.8	95.1	51.1	99.9	0.88	0.87
J250/06	Combined Science A	10084	35.5	95.2	50.1	99.8	0.89	0.87
J250/07	Combined Science A	6793	25.8	81.7	40.7	93.1	0.81	0.79
J250/08	Combined Science A	6791	24.3	76.5	39.1	91.8	0.79	0.76
J250/09	Combined Science A	6793	28.0	84.8	38.9	94.0	0.84	0.83
J250/10	Combined Science A	6791	27.5	83.1	38.5	92.2	0.85	0.83
J250/11	Combined Science A	6793	24.1	79.3	41.7	93.8	0.80	0.77
J250/12	Combined Science A	6793	27.2	83.0	43.0	95.1	0.82	0.80
J257/01	Biology B	592	69.8	99.2	78.4	99.7	0.91	0.89
J257/02	Biology B	587	66.8	98.5	76.5	100.0	0.91	0.89
J257/03	Biology B	1750	67.0	98.3	82.2	99.2	0.94	0.93
J257/04	Biology B	1751	58.4	96.3	78.6	98.7	0.90	0.90

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
J258/01	Chemistry B	481	67.6	99.4	83.6	100.0	0.91	0.89
J258/02	Chemistry B	480	66.0	100.0	81.0	100.0	0.91	0.90
J258/03	Chemistry B	1766	67.3	99.0	85.2	99.3	0.94	0.93
J258/04	Chemistry B	1765	64.0	98.1	81.5	99.4	0.93	0.92
J259/01	Physics B	518	67.6	99.6	81.9	100.0	0.90	0.89
J259/02	Physics B	519	69.4	99.6	87.1	100.0	0.91	0.88
J259/03	Physics B	1570	66.2	98.4	81.5	99.2	0.93	0.93
J259/04	Physics B	1569	66.8	99.0	82.7	99.4	0.94	0.93
J260/01	Combined Science B	2478	33.9	95.7	44.3	99.8	0.89	0.85
J260/02	Combined Science B	2470	34.6	96.8	45.6	99.8	0.89	0.86
J260/03	Combined Science B	2469	33.0	94.2	43.4	99.4	0.88	0.86
J260/04	Combined Science B	2466	33.0	95.4	43.8	99.2	0.88	0.86
J260/05	Combined Science B	1423	27.8	86.3	44.3	95.7	0.83	0.81
J260/06	Combined Science B	1421	29.9	85.9	38.9	91.5	0.87	0.83
J260/07	Combined Science B	1421	27.2	81.6	40.7	92.5	0.80	0.77
J260/08	Combined Science B	1420	27.7	83.8	42.7	93.7	0.82	0.78
J270/01	Citizenship Studies	2772	31.4	76.1	40.7	93.6	0.84	0.83
J270/02	Citizenship Studies	2751	57.3	98.4	73.1	99.9	0.96	0.95
J270/03	Citizenship Studies	2752	38.3	88.7	53.1	98.7	0.93	0.92
J276/01	Computer Science	54655	51.8	96.9	64.3	99.7	0.95	0.95
J276/02	Computer Science	54637	54.7	97.6	62.4	99.5	0.97	0.96
J282/01	Latin	6948	58.0	94.6	64.3	98.3	0.92	0.90
J282/02	Latin	620	50.6	91.6	62.9	95.8	0.88	0.87
J282/03	Latin	5695	48.4	92.6	61.7	98.2	0.85	0.85
J282/04	Latin	958	46.7	90.2	58.5	94.6	0.85	0.84
J282/05	Latin	5667	55.0	92.1	68.3	96.5	0.88	0.87
J282/06	Latin	956	36.5	83.9	46.5	93.4	0.81	0.79
J292/01	Classical Greek	1161	70.6	95.2	73.5	95.5	0.90	0.92
J292/02	Classical Greek	1003	59.7	92.4	66.9	94.7	0.82	0.84
J292/04	Classical Greek	931	58.9	91.2	66.2	93.8	0.82	0.82
J309/01	Food Preparation & Nutrition	3672	20.2	66.0	17.4	70.0	0.91	0.90
J309/02	Food Preparation & Nutrition	3688	26.7	69.5	31.1	77.0	0.84	0.84
J309/04	Food Preparation & Nutrition	3691	16.1	50.4	12.3	49.9	0.87	0.86
J310/01	Design & Technology	6430	37.1	82.5	48.7	94.7	0.88	0.88
J310/02	Design & Technology	6462	46.2	91.3	54.7	97.4	0.94	0.93
J316/01	Drama	8927	35.7	80.0	44.0	89.0	0.86	0.86
J316/03	Drama	8902	27.6	66.0	32.0	75.0	0.77	0.77
J316/04	Drama	8902	35.3	84.1	44.1	93.2	0.88	0.88
J351/01	English Language	13261	52.0	95.0	81.0	99.9	0.93	0.93
J351/02	English Language	13233	52.1	95.7	75.1	99.8	0.95	0.94
J352/01	English Literature	11612	50.1	94.2	79.8	99.9	0.93	0.93
J352/02	English Literature	11603	48.9	93.7	75.4	99.8	0.94	0.93
J383/01	Geography A	6691	47.3	90.8	65.4	99.3	0.94	0.93
J383/02	Geography A	6678	40.5	86.6	49.4	97.6	0.93	0.92
J383/03	Geography A	6683	49.0	93.7	68.8	99.7	0.94	0.94
J384/01	Geography B	19383	50.3	93.3	70.7	99.8	0.94	0.94
J384/02	Geography B	19376	49.1	92.9	70.9	99.8	0.94	0.94
J384/03	Geography B	19350	42.3	88.2	63.0	99.4	0.91	0.91
J410/02	History A	3540	53.8	96.5	75.3	99.9	0.96	0.95
J410/06	History A	1144	51.3	95.2	67.1	99.6	0.96	0.96
J410/07	History A	773	55.2	95.6	68.7	100.0	0.96	0.96
J410/08	History A	1047	31.3	74.4	37.8	92.5	0.87	0.86
J410/09	History A	2621	32.6	78.2	44.7	95.7	0.91	0.91
J410/10	History A	1987	36.3	79.5	46.6	97.6	0.91	0.89
J410/11	History A	1047	31.3	73.2	40.5	90.7	0.86	0.85
J410/12	History A	2618	33.5	79.3	55.2	96.7	0.88	0.88
J410/13	History A	1986	33.3	77.7	41.9	96.7	0.87	0.87
J411/11	History B	5657	47.8	91.0	76.5	99.9	0.93	0.92
J411/12	History B	4849	42.2	85.7	53.6	98.7	0.93	0.92
J411/13	History B	218	46.8	92.7	58.3	98.6	0.94	0.95

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
J411/14	History B	1892	40.9	82.6	48.3	92.6	0.93	0.93
J411/15	History B	2515	45.9	88.7	59.2	99.0	0.94	0.93
J411/17	History B	474	39.7	85.9	53.0	98.1	0.92	0.92
J411/18	History B	796	42.8	84.5	50.1	95.1	0.95	0.95
J411/21	History B	16518	31.9	72.1	51.0	93.8	0.84	0.83
J411/33	History B	1545	41.7	86.9	55.0	98.8	0.93	0.92
J411/36	History B	221	29.4	71.9	26.2	80.1	0.91	0.89
J411/39	History B	14281	45.4	88.7	63.9	99.3	0.93	0.92
J536/01	Music	7009	28.2	62.8	27.4	64.1	0.84	0.84
J536/03	Music	7005	28.2	64.1	27.4	66.2	0.85	0.85
J536/05	Music	6979	21.2	58.7	20.6	62.3	0.87	0.87
J560/01	Mathematics	27865	73.5	99.7	89.8	100.0	0.93	0.92
J560/02	Mathematics	27727	74.9	99.8	89.5	100.0	0.94	0.92
J560/03	Mathematics	27609	72.6	99.8	89.1	100.0	0.93	0.92
J560/04	Mathematics	16947	69.5	99.2	86.4	99.6	0.94	0.93
J560/05	Mathematics	16938	66.6	99.0	86.1	99.6	0.93	0.93
J560/06	Mathematics	16940	69.1	99.2	85.4	99.5	0.94	0.94
J587/01	Physical Education	21795	33.9	79.7	42.0	89.8	0.87	0.86
J587/02	Physical Education	21802	35.9	77.4	48.5	91.7	0.82	0.81
J587/03	Physical Education	21835	33.2	77.0	45.7	91.1	0.78	0.78
J625/01	Religious Studies	7937	42.3	88.5	60.2	99.0	0.92	0.91
J625/02	Religious Studies	5393	41.2	84.9	56.1	94.7	0.92	0.91
J625/03	Religious Studies	1325	37.1	82.0	41.3	94.4	0.91	0.91
J625/04	Religious Studies	864	44.2	91.6	65.7	99.2	0.93	0.93
J625/05	Religious Studies	384	47.1	91.9	74.0	99.5	0.93	0.93
J625/06	Religious Studies	7638	53.6	96.2	66.4	99.6	0.96	0.95
J625/07	Religious Studies	282	35.1	90.8	33.0	99.3	0.97	0.96

Table A2: Prediction accuracy measures by component (GCSEs, adjusted grade boundaries)

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
J170/01	Art, Craft & Design	4208	68.9	99.4	78.6	100.0	0.96	0.96
J170/02	Art, Craft & Design	4203	56.6	96.6	69.4	99.7	0.93	0.94
J171/01	Art & Design: Fine Art	10837	69.8	99.3	78.7	99.9	0.96	0.96
J171/02	Art & Design: Fine Art	10834	58.2	96.5	70.1	99.1	0.93	0.94
J172/01	Art & Design: Graph. Comm.	872	67.4	99.5	77.1	100.0	0.96	0.96
J172/02	Art & Design: Graph. Comm.	872	56.7	96.4	67.7	99.7	0.93	0.94
J173/01	Art & Design: Photography	2710	65.2	99.3	74.7	100.0	0.94	0.94
J173/02	Art & Design: Photography	2708	54.1	96.0	68.6	99.3	0.91	0.91
J174/01	Art & Design: Textile Design	973	67.3	99.0	73.6	99.6	0.96	0.96
J174/02	Art & Design: Textile Design	973	57.0	96.1	65.3	98.3	0.93	0.93
J175/01	Art & Design: 3D Design	511	61.4	98.0	75.3	99.8	0.95	0.95
J175/02	Art & Design: 3D Design	511	48.7	90.0	61.3	98.2	0.90	0.90
J198/01	Ancient History	894	59.4	97.2	72.3	99.4	0.97	0.97
J198/02	Ancient History	895	56.5	95.9	72.5	99.4	0.96	0.96
J199/11	Classical Civilisation	3026	54.7	96.8	69.0	99.1	0.94	0.94
J199/12	Classical Civilisation	584	53.6	95.7	69.2	99.7	0.91	0.90
J199/21	Classical Civilisation	1498	51.1	94.8	68.1	99.1	0.93	0.92
J199/22	Classical Civilisation	1550	50.6	95.2	70.5	99.3	0.93	0.92
J199/23	Classical Civilisation	560	52.3	95.7	64.1	99.1	0.94	0.94
J200/01	Media Studies	3477	43.3	88.3	61.9	97.8	0.88	0.88
J200/02	Media Studies	3478	45.0	90.3	62.6	97.8	0.90	0.89
J200/03	Media Studies	3490	30.8	74.2	46.9	89.2	0.77	0.76
J203/01	Psychology	4214	63.7	98.7	78.7	99.9	0.96	0.96
J203/02	Psychology	4211	61.4	98.5	76.7	99.9	0.96	0.96
J204/01	Business	14099	52.8	94.9	76.7	99.9	0.92	0.93
J204/02	Business	14081	56.3	95.8	78.6	99.9	0.92	0.93
J205/01	Economics	3940	53.9	96.5	73.0	99.8	0.94	0.93
J205/02	Economics	3940	57.5	98.2	75.9	99.9	0.95	0.94
J247/01	Biology A	1584	67.0	99.4	79.4	99.9	0.92	0.91
J247/02	Biology A	1564	73.6	99.7	83.8	99.9	0.94	0.93
J247/03	Biology A	7856	65.7	98.7	83.2	99.6	0.93	0.92
J247/04	Biology A	7855	63.4	98.4	83.3	99.5	0.93	0.92
J248/01	Chemistry A	1413	74.4	99.5	84.2	100.0	0.92	0.91
J248/02	Chemistry A	1410	73.0	99.6	81.6	99.9	0.92	0.91
J248/03	Chemistry A	7204	66.5	98.8	84.2	99.4	0.93	0.93
J248/04	Chemistry A	7203	69.6	99.0	85.0	99.3	0.94	0.93
J249/01	Physics A	1220	71.7	99.7	83.1	99.9	0.89	0.88
J249/02	Physics A	1219	68.5	99.3	82.6	99.8	0.88	0.86
J249/03	Physics A	7129	66.1	99.1	84.8	99.5	0.94	0.93
J249/04	Physics A	7130	66.1	98.6	84.3	99.5	0.94	0.93
J250/01	Combined Science A	10146	31.1	92.2	43.6	99.7	0.87	0.86
J250/02	Combined Science A	10096	30.3	92.0	43.6	99.8	0.86	0.85
J250/03	Combined Science A	10120	32.9	93.7	45.3	99.7	0.89	0.87
J250/04	Combined Science A	10097	35.3	95.8	46.9	99.8	0.90	0.89
J250/05	Combined Science A	10126	33.0	94.2	45.7	99.9	0.88	0.87
J250/06	Combined Science A	10084	34.0	94.3	46.7	99.8	0.89	0.87
J250/07	Combined Science A	6793	26.3	83.2	40.1	95.1	0.81	0.79
J250/08	Combined Science A	6791	24.5	79.0	39.7	94.3	0.79	0.77
J250/09	Combined Science A	6793	29.3	87.3	41.5	96.1	0.84	0.82
J250/10	Combined Science A	6791	29.4	88.0	42.3	96.5	0.85	0.83
J250/11	Combined Science A	6793	24.6	80.2	37.7	95.1	0.80	0.77
J250/12	Combined Science A	6793	27.4	84.1	42.2	95.0	0.82	0.79
J257/01	Biology B	592	68.9	99.8	80.1	99.8	0.91	0.90
J257/02	Biology B	587	69.8	98.8	79.6	100.0	0.91	0.89
J257/03	Biology B	1750	68.9	98.4	84.1	99.2	0.94	0.93
J257/04	Biology B	1751	59.7	97.0	80.6	99.3	0.90	0.90
J258/01	Chemistry B	481	68.8	99.6	86.3	100.0	0.91	0.89
J258/02	Chemistry B	480	67.3	100.0	83.5	100.0	0.91	0.89
J258/03	Chemistry B	1766	67.4	99.3	84.9	99.4	0.94	0.93

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
J258/04	Chemistry B	1765	64.4	98.4	82.0	99.2	0.93	0.92
J259/01	Physics B	518	70.1	99.4	84.9	100.0	0.90	0.88
J259/02	Physics B	519	69.4	99.6	86.7	100.0	0.91	0.88
J259/03	Physics B	1570	67.6	98.8	83.9	99.4	0.93	0.93
J259/04	Physics B	1569	67.4	99.0	84.4	99.4	0.94	0.93
J260/01	Combined Science B	2478	33.0	96.0	42.6	99.8	0.89	0.86
J260/02	Combined Science B	2470	33.2	96.5	42.8	99.7	0.89	0.87
J260/03	Combined Science B	2469	32.8	95.1	42.4	99.7	0.88	0.85
J260/04	Combined Science B	2466	32.5	96.3	42.9	99.7	0.88	0.85
J260/05	Combined Science B	1423	28.3	86.6	43.5	95.6	0.83	0.81
J260/06	Combined Science B	1421	31.6	91.8	42.2	97.0	0.87	0.85
J260/07	Combined Science B	1421	26.7	83.0	40.2	94.2	0.80	0.76
J260/08	Combined Science B	1420	28.5	84.6	42.4	94.3	0.82	0.78
J270/01	Citizenship Studies	2772	34.8	80.9	62.2	97.8	0.84	0.83
J270/02	Citizenship Studies	2751	61.7	99.0	81.9	99.9	0.96	0.95
J270/03	Citizenship Studies	2752	49.1	94.0	75.8	99.7	0.93	0.92
J276/01	Computer Science	54655	55.3	96.8	71.7	99.7	0.95	0.95
J276/02	Computer Science	54637	63.2	99.3	76.2	99.9	0.97	0.96
J282/01	Latin	6948	61.9	97.2	74.6	99.4	0.92	0.91
J282/02	Latin	620	52.6	92.6	64.2	97.3	0.88	0.88
J282/03	Latin	5695	55.3	92.6	73.2	98.1	0.85	0.85
J282/04	Latin	958	52.1	91.5	62.7	95.7	0.85	0.84
J282/05	Latin	5667	57.5	94.6	71.7	98.2	0.88	0.87
J282/06	Latin	956	40.3	81.6	56.3	93.1	0.81	0.80
J292/01	Classical Greek	1161	71.3	97.1	74.5	97.5	0.90	0.91
J292/02	Classical Greek	1003	60.0	93.1	68.1	95.0	0.82	0.84
J292/04	Classical Greek	931	59.1	91.3	66.4	93.9	0.82	0.82
J309/01	Food Preparation & Nutrition	3672	46.7	92.7	57.2	97.1	0.91	0.91
J309/02	Food Preparation & Nutrition	3688	36.9	82.3	51.4	91.9	0.84	0.84
J309/04	Food Preparation & Nutrition	3691	43.6	88.5	55.4	95.0	0.87	0.88
J310/01	Design & Technology	6430	38.7	83.6	52.9	95.4	0.88	0.88
J310/02	Design & Technology	6462	50.0	94.2	62.9	98.9	0.94	0.93
J316/01	Drama	8927	40.9	87.2	52.8	96.0	0.86	0.86
J316/03	Drama	8902	32.0	76.2	45.8	91.2	0.77	0.77
J316/04	Drama	8902	44.0	89.8	58.3	97.7	0.88	0.88
J351/01	English Language	13261	52.0	94.8	83.2	99.9	0.93	0.93
J351/02	English Language	13233	54.2	96.8	83.3	99.9	0.95	0.94
J352/01	English Literature	11612	50.6	95.2	83.9	99.9	0.93	0.93
J352/02	English Literature	11603	51.0	95.6	84.3	99.9	0.94	0.93
J383/01	Geography A	6691	50.3	93.3	76.4	99.8	0.94	0.93
J383/02	Geography A	6678	47.6	92.9	72.8	99.8	0.93	0.93
J383/03	Geography A	6683	52.3	94.7	78.2	99.8	0.94	0.94
J384/01	Geography B	19383	52.9	95.1	78.7	99.9	0.94	0.94
J384/02	Geography B	19376	52.2	95.0	79.0	99.9	0.94	0.94
J384/03	Geography B	19350	45.1	88.6	75.0	99.7	0.91	0.91
J410/02	History A	3540	55.2	97.2	79.7	99.9	0.96	0.95
J410/06	History A	1144	55.4	97.1	77.6	99.9	0.96	0.96
J410/07	History A	773	60.3	97.2	81.0	100.0	0.96	0.95
J410/08	History A	1047	40.4	83.5	69.3	99.1	0.87	0.87
J410/09	History A	2621	40.5	86.5	70.4	99.5	0.91	0.91
J410/10	History A	1987	41.9	87.8	74.8	99.5	0.91	0.90
J410/11	History A	1047	35.3	80.2	72.7	99.1	0.86	0.85
J410/12	History A	2618	37.5	80.7	71.3	98.6	0.88	0.88
J410/13	History A	1986	38.4	81.7	70.0	99.2	0.87	0.87
J411/11	History B	5657	48.0	91.7	77.8	100.0	0.93	0.92
J411/12	History B	4849	47.3	92.0	78.3	99.9	0.93	0.92
J411/13	History B	218	56.0	97.7	88.5	100.0	0.94	0.95
J411/14	History B	1892	48.8	91.1	71.8	99.8	0.93	0.93
J411/15	History B	2515	49.2	93.9	77.4	100.0	0.94	0.93
J411/17	History B	474	46.0	92.6	77.0	99.8	0.92	0.92

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
J411/18	History B	796	51.0	92.7	79.4	99.4	0.95	0.95
J411/21	History B	16518	33.6	76.8	65.2	98.8	0.84	0.83
J411/33	History B	1545	45.8	91.1	73.7	99.6	0.93	0.92
J411/36	History B	221	52.0	90.5	81.4	100.0	0.91	0.91
J411/39	History B	14281	47.7	91.2	75.7	99.9	0.93	0.92
J536/01	Music	7009	39.2	82.0	48.9	90.0	0.84	0.86
J536/03	Music	7005	39.9	83.3	48.8	90.7	0.85	0.86
J536/05	Music	6979	38.6	83.4	47.1	91.1	0.87	0.87
J560/01	Mathematics	27865	73.8	99.6	90.2	100.0	0.93	0.92
J560/02	Mathematics	27727	75.0	99.8	90.0	100.0	0.94	0.92
J560/03	Mathematics	27609	72.4	99.7	89.0	100.0	0.93	0.92
J560/04	Mathematics	16947	69.7	99.3	86.7	99.6	0.94	0.93
J560/05	Mathematics	16938	67.2	99.1	86.5	99.6	0.93	0.93
J560/06	Mathematics	16940	70.3	99.4	87.3	99.7	0.94	0.94
J587/01	Physical Education	21795	43.6	88.6	57.1	97.3	0.87	0.87
J587/02	Physical Education	21802	38.8	82.0	55.4	96.2	0.82	0.82
J587/03	Physical Education	21835	34.3	78.1	48.2	93.0	0.78	0.78
J625/01	Religious Studies	7937	44.0	90.3	72.2	99.5	0.92	0.91
J625/02	Religious Studies	5393	44.4	89.5	68.8	98.3	0.92	0.91
J625/03	Religious Studies	1325	46.5	90.5	74.6	99.8	0.91	0.90
J625/04	Religious Studies	864	48.0	94.2	73.6	99.7	0.93	0.93
J625/05	Religious Studies	384	47.1	93.2	78.6	99.5	0.93	0.93
J625/06	Religious Studies	7638	58.9	97.8	78.6	99.8	0.96	0.95
J625/07	Religious Studies	282	67.0	98.9	88.7	100.0	0.97	0.96

Table A3: Prediction accuracy measures by component (A levels)

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
H240/01	Mathematics A	7149	69.3	99.1	83.5	99.9	0.93	0.94
H240/02	Mathematics A	7143	68.7	99.1	84.9	99.9	0.94	0.94
H240/03	Mathematics A	7143	67.5	98.7	83.3	100.0	0.91	0.94
H404/01	D & T: Design Engineering	306	25.5	72.5	35.0	82.7	0.73	0.71
H404/02	D & T: Design Engineering	306	32.0	75.5	44.1	90.8	0.70	0.69
H404/03	D & T: Design Engineering	308	41.9	85.1	44.8	88.6	0.87	0.86
H406/01	D & T: Product Design	953	36.9	82.4	45.4	91.2	0.71	0.70
H406/02	D & T: Product Design	954	35.5	83.9	48.3	94.9	0.68	0.66
H406/03	D & T: Product Design	954	45.4	92.8	48.5	94.9	0.89	0.88
H407/11	Ancient History	341	71.6	99.4	80.1	99.7	0.92	0.90
H407/12	Ancient History	214	63.6	99.5	69.2	99.5	0.87	0.84
H407/21	Ancient History	334	60.5	98.8	73.7	100.0	0.88	0.85
H408/11	Classical Civilisation	2961	53.5	95.5	65.3	98.6	0.84	0.81
H408/21	Classical Civilisation	1483	51.5	96.1	64.7	99.2	0.84	0.82
H408/22	Classical Civilisation	697	51.1	95.6	66.0	99.0	0.82	0.80
H408/23	Classical Civilisation	342	47.7	94.2	68.1	98.2	0.79	0.77
H408/24	Classical Civilisation	439	47.6	95.0	64.5	98.2	0.81	0.80
H408/31	Classical Civilisation	872	52.6	96.6	66.5	99.4	0.85	0.82
H408/32	Classical Civilisation	874	53.7	98.4	65.4	99.4	0.85	0.83
H408/33	Classical Civilisation	865	52.8	97.1	68.9	98.6	0.84	0.82
H408/34	Classical Civilisation	351	60.7	98.3	70.1	99.1	0.87	0.84
H409/01	Media Studies	2624	49.9	95.4	63.6	99.0	0.79	0.77
H409/02	Media Studies	2622	52.1	96.0	64.2	99.1	0.82	0.80
H409/03	Media Studies	2625	34.7	83.9	43.0	93.8	0.71	0.69
H410/01	Film Studies	635	45.2	96.2	54.6	98.7	0.86	0.84
H410/02	Film Studies	634	49.4	95.0	62.5	99.4	0.75	0.73
H410/03	Film Studies	639	34.1	82.9	37.9	90.3	0.76	0.74
H414/01	Geology	483	66.3	98.6	73.7	99.8	0.93	0.92
H414/02	Geology	482	68.9	100.0	77.6	100.0	0.94	0.93
H414/03	Geology	481	44.3	92.7	59.9	98.8	0.86	0.83
H415/01	Law	6065	50.4	94.9	69.5	99.6	0.88	0.86
H415/02	Law	6051	51.8	95.5	67.3	99.4	0.89	0.87
H415/03	Law	6054	47.8	92.5	66.3	99.2	0.85	0.84
H420/01	Biology A	21127	61.4	99.1	73.6	99.9	0.94	0.92
H420/02	Biology A	21126	58.1	98.3	72.0	99.9	0.93	0.92
H420/03	Biology A	21119	53.7	96.7	74.6	99.8	0.90	0.89
H422/01	Biology B	247	69.2	100.0	79.8	100.0	0.95	0.94
H422/02	Biology B	246	61.8	97.2	72.0	100.0	0.94	0.93
H422/03	Biology B	246	48.8	91.1	67.5	100.0	0.88	0.87
H431/01	Business	1091	47.5	94.0	65.3	99.5	0.82	0.80
H431/02	Business	1090	44.9	93.4	57.8	99.1	0.83	0.82
H431/03	Business	1090	42.6	92.4	54.7	97.8	0.87	0.85
H432/01	Chemistry A	22459	71.3	99.8	81.7	100.0	0.96	0.94
H432/02	Chemistry A	22453	70.5	99.9	81.9	100.0	0.95	0.94
H432/03	Chemistry A	22435	66.1	99.3	79.4	99.9	0.94	0.93
H433/01	Chemistry B	2870	74.6	99.8	85.1	100.0	0.96	0.95
H433/02	Chemistry B	2870	72.0	99.9	82.8	100.0	0.95	0.94
H433/03	Chemistry B	2867	63.2	99.5	79.0	100.0	0.93	0.92
H443/01	Latin	1128	62.5	97.0	67.9	98.7	0.84	0.85
H443/02	Latin	1128	49.3	86.0	53.7	88.7	0.82	0.82
H443/03	Latin	1128	48.3	92.3	55.4	96.3	0.83	0.82
H443/04	Latin	1128	52.7	94.9	60.5	96.8	0.83	0.81
H444/01	Classical Greek	215	61.4	98.6	63.3	98.6	0.85	0.84
H444/02	Classical Greek	215	54.4	93.5	54.4	94.4	0.79	0.78
H444/03	Classical Greek	215	44.2	93.0	42.8	95.3	0.70	0.66
H444/04	Classical Greek	215	55.3	94.9	59.5	94.9	0.74	0.71
H446/01	Computer Science	5741	58.0	98.1	66.7	99.4	0.91	0.89
H446/02	Computer Science	5740	61.5	98.8	68.7	99.7	0.92	0.91
H446/03	Computer Science	5728	30.2	74.1	33.9	82.0	0.77	0.76

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
H459/11	Drama & Theatre	680	23.8	68.2	24.9	69.6	0.77	0.74
H459/21	Drama & Theatre	679	23.1	62.2	24.3	69.2	0.56	0.53
H459/31	Drama & Theatre	687	8.0	29.0	7.3	27.2	0.68	0.62
H459/46	Drama & Theatre	205	25.9	66.3	28.8	72.7	0.70	0.68
H460/01	Economics	3100	49.3	94.8	65.9	99.4	0.87	0.85
H460/02	Economics	3098	50.0	95.0	69.9	99.2	0.87	0.85
H460/03	Economics	3099	53.0	96.7	72.9	99.9	0.87	0.86
H470/01	English Language	1755	52.1	96.4	69.6	99.6	0.81	0.79
H470/02	English Language	1752	51.0	96.7	62.0	99.3	0.86	0.84
H470/03	English Language	1758	31.5	76.3	32.8	86.0	0.70	0.68
H472/01	English Literature	9682	51.5	95.2	66.0	99.2	0.85	0.84
H472/02	English Literature	9678	53.1	95.8	72.9	99.4	0.82	0.81
H472/03	English Literature	9694	37.9	84.2	46.1	93.1	0.74	0.73
H474/01	English Language & Lit	1156	41.0	87.5	61.6	97.1	0.68	0.65
H474/02	English Language & Lit	1155	40.1	86.0	52.8	94.3	0.78	0.75
H474/03	English Language & Lit	1155	41.3	90.5	52.3	97.7	0.78	0.76
H474/04	English Language & Lit	1156	36.6	83.7	48.1	92.3	0.69	0.68
H481/01	Geography	4967	44.3	91.9	65.7	98.5	0.81	0.80
H481/02	Geography	4966	42.9	90.4	65.2	98.4	0.80	0.78
H481/03	Geography	4963	49.6	94.9	68.0	99.3	0.86	0.84
H481/04	Geography	4971	36.8	83.3	48.8	94.1	0.74	0.72
H543/02	Music	304	28.9	73.4	27.6	77.0	0.73	0.71
H543/04	Music	305	37.7	83.6	45.2	88.9	0.67	0.65
H543/05	Music	326	26.4	69.0	25.5	71.8	0.85	0.83
H555/01	Physical Education	5047	41.5	88.9	47.7	93.8	0.86	0.84
H555/02	Physical Education	5048	40.3	87.5	49.6	93.8	0.81	0.79
H555/03	Physical Education	5048	37.7	84.8	48.1	94.1	0.76	0.75
H555/04	Physical Education	5048	33.5	80.0	39.4	88.8	0.72	0.71
H556/01	Physics A	10000	68.4	99.6	78.8	99.9	0.95	0.94
H556/02	Physics A	9990	71.8	99.9	80.9	100.0	0.96	0.95
H556/03	Physics A	9993	61.3	98.8	75.4	99.8	0.93	0.92
H557/01	Physics B	1629	66.1	99.6	81.6	100.0	0.95	0.93
H557/02	Physics B	1628	71.9	99.8	82.0	100.0	0.96	0.95
H557/03	Physics B	1628	53.4	96.4	73.5	99.7	0.90	0.89
H567/01	Psychology	5578	44.4	91.8	58.5	98.9	0.84	0.81
H567/02	Psychology	5572	54.1	97.1	76.1	99.8	0.88	0.86
H567/03	Psychology	5568	47.0	93.2	63.4	98.4	0.88	0.86
H573/01	Religious Studies	8158	45.5	93.3	58.7	98.3	0.86	0.84
H573/02	Religious Studies	8147	50.1	95.1	67.5	99.2	0.84	0.82
H573/03	Religious Studies	6916	49.9	94.9	65.4	99.1	0.85	0.83
H573/04	Religious Studies	209	43.1	90.4	46.9	96.7	0.81	0.79
H573/06	Religious Studies	908	48.3	96.4	70.2	99.4	0.81	0.79
H580/01	Sociology	3754	47.0	93.0	64.4	99.1	0.83	0.80
H580/02	Sociology	3753	53.8	96.6	73.4	99.8	0.86	0.84
H580/03	Sociology	3749	52.4	96.4	63.6	99.4	0.88	0.86
H600/01	Art, Craft & Design	388	76.0	99.7	81.2	99.7	0.93	0.94
H600/02	Art, Craft & Design	388	64.7	99.0	71.4	100.0	0.90	0.91
H601/01	Art & Design: Fine Art	2533	74.3	99.3	78.6	99.8	0.93	0.93
H601/02	Art & Design: Fine Art	2531	66.8	98.2	74.2	99.2	0.90	0.90
H602/01	Art & Design: Graph. Comm	510	73.5	99.8	78.8	100.0	0.92	0.93
H602/02	Art & Design: Graph. Comm	510	60.4	98.0	68.4	99.4	0.89	0.89
H603/01	Art & Design: Photography	1790	73.2	99.7	78.9	99.9	0.93	0.92
H603/02	Art & Design: Photography	1790	63.2	98.3	72.6	99.9	0.88	0.87
H604/01	Art & Design: Textile Design	429	73.7	99.3	78.1	100.0	0.91	0.92
H604/02	Art & Design: Textile Design	429	64.1	97.4	69.7	98.8	0.88	0.87
H640/01	Mathematics B (MEI)	6252	71.6	99.7	86.9	100.0	0.95	0.94
H640/02	Mathematics B (MEI)	6250	66.7	99.2	84.0	100.0	0.94	0.93
H640/03	Mathematics B (MEI)	6252	64.7	99.2	84.3	100.0	0.93	0.93
H245/Y540	Further Mathematics A	1415	60.2	96.8	71.9	98.6	0.89	0.89
H245/Y541	Further Mathematics A	1414	64.3	98.4	75.9	99.5	0.89	0.90

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
H245/Y542	Further Mathematics A	999	56.9	94.7	69.4	98.0	0.85	0.84
H245/Y543	Further Mathematics A	1233	61.6	95.5	76.7	98.8	0.85	0.86
H245/Y544	Further Mathematics A	458	48.3	87.6	59.2	94.1	0.75	0.73
H245/Y545	Further Mathematics A	342	63.5	94.2	74.3	96.8	0.84	0.84
H505/Y100	History	11009	39.0	86.6	52.8	95.5	0.74	0.75
H505/Y101	History	203	43.8	93.1	69.5	99.0	0.76	0.75
H505/Y102	History	489	43.6	87.5	59.3	97.5	0.76	0.73
H505/Y105	History	878	43.7	92.1	62.2	98.3	0.81	0.80
H505/Y106	History	2156	41.7	90.6	60.2	98.2	0.79	0.77
H505/Y107	History	1463	45.4	91.8	64.9	98.1	0.78	0.76
H505/Y108	History	1490	40.5	89.9	61.8	98.7	0.76	0.74
H505/Y110	History	836	41.3	91.6	61.4	98.2	0.78	0.77
H505/Y112	History	796	39.2	87.7	47.9	97.5	0.77	0.75
H505/Y113	History	2333	40.3	87.5	53.8	97.4	0.79	0.77
H505/Y203	History	636	30.0	72.3	36.5	82.2	0.75	0.73
H505/Y207	History	218	46.3	89.0	67.0	99.5	0.66	0.64
H505/Y212	History	884	36.4	84.0	50.3	96.7	0.72	0.70
H505/Y213	History	1705	33.6	80.0	52.6	94.1	0.70	0.69
H505/Y215	History	297	31.3	74.4	44.4	92.6	0.66	0.65
H505/Y216	History	645	35.2	85.0	42.9	95.7	0.76	0.73
H505/Y218	History	286	32.9	87.4	49.7	95.1	0.70	0.69
H505/Y219	History	1507	33.0	80.1	45.2	90.0	0.74	0.73
H505/Y221	History	2131	33.5	79.9	48.1	90.2	0.73	0.71
H505/Y222	History	733	31.7	79.5	48.2	91.8	0.72	0.71
H505/Y223	History	1235	37.7	80.2	59.9	95.9	0.67	0.66
H505/Y306	History	771	52.3	96.0	66.7	99.6	0.80	0.77
H505/Y312	History	771	52.7	95.2	66.7	99.2	0.83	0.81
H505/Y314	History	449	47.4	96.0	68.8	99.6	0.83	0.80
H505/Y315	History	487	52.4	96.1	67.4	99.2	0.85	0.83
H505/Y316	History	432	50.5	94.9	60.2	99.3	0.86	0.84
H505/Y317	History	232	45.7	96.1	62.9	99.6	0.79	0.77
H505/Y318	History	3238	51.7	96.3	68.3	99.8	0.86	0.84
H505/Y319	History	3426	50.1	95.5	63.0	99.3	0.84	0.82
H505/Y321	History	406	53.0	96.8	71.2	99.3	0.83	0.79
H645/Y420	Further Mathematics B	1586	53.7	97.2	53.8	98.5	0.94	0.93
H645/Y421	Further Mathematics B	552	44.4	93.3	46.7	95.5	0.88	0.89
H645/Y422	Further Mathematics B	264	33.3	87.5	29.5	92.0	0.88	0.85
H645/Y431	Further Mathematics B	932	36.1	86.3	37.4	95.2	0.81	0.79
H645/Y432	Further Mathematics B	1081	35.3	85.8	36.5	93.8	0.82	0.80
H645/Y433	Further Mathematics B	576	38.2	84.2	49.3	94.4	0.78	0.77
H645/Y434	Further Mathematics B	252	34.1	83.3	30.6	92.5	0.82	0.80
H645/Y435	Further Mathematics B	411	41.8	88.6	50.9	93.2	0.81	0.81

Table A4: Prediction accuracy measures by component (A levels)

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
H240/01	Mathematics A	7149	69.6	99.2	84.2	100.0	0.93	0.94
H240/02	Mathematics A	7143	69.0	99.2	85.0	99.9	0.94	0.94
H240/03	Mathematics A	7143	68.2	98.8	84.7	100.0	0.91	0.94
H404/01	D & T: Design Engineering	306	38.2	82.0	51.0	93.8	0.73	0.71
H404/02	D & T: Design Engineering	306	32.0	78.4	45.4	92.8	0.70	0.70
H404/03	D & T: Design Engineering	308	50.0	95.1	57.8	98.4	0.87	0.86
H406/01	D & T: Product Design	953	38.7	86.5	50.9	95.0	0.71	0.69
H406/02	D & T: Product Design	954	36.0	83.8	49.3	95.0	0.68	0.66
H406/03	D & T: Product Design	954	58.7	98.4	66.1	99.1	0.89	0.87
H407/11	Ancient History	341	71.8	99.1	80.6	99.7	0.92	0.90
H407/12	Ancient History	214	60.7	99.5	66.4	99.5	0.87	0.85
H407/21	Ancient History	334	60.5	99.1	76.3	100.0	0.88	0.85
H408/11	Classical Civilisation	2961	57.1	97.6	70.1	99.2	0.84	0.81
H408/21	Classical Civilisation	1483	54.8	97.3	68.3	99.7	0.84	0.81
H408/22	Classical Civilisation	697	56.2	96.7	69.9	99.4	0.82	0.80
H408/23	Classical Civilisation	342	55.6	97.7	75.1	99.7	0.79	0.75
H408/24	Classical Civilisation	439	51.9	97.5	67.0	99.3	0.81	0.80
H408/31	Classical Civilisation	872	53.0	98.1	68.6	99.7	0.85	0.82
H408/32	Classical Civilisation	874	56.9	99.0	68.1	99.9	0.85	0.83
H408/33	Classical Civilisation	865	55.1	98.3	69.9	99.4	0.84	0.81
H408/34	Classical Civilisation	351	62.7	98.9	74.1	100.0	0.87	0.82
H409/01	Media Studies	2624	52.1	96.9	66.9	99.6	0.79	0.77
H409/02	Media Studies	2622	56.3	97.6	69.7	99.6	0.82	0.79
H409/03	Media Studies	2625	44.2	92.4	57.2	98.6	0.71	0.68
H410/01	Film Studies	635	58.7	98.9	74.8	99.8	0.86	0.82
H410/02	Film Studies	634	49.2	93.8	62.9	98.9	0.75	0.72
H410/03	Film Studies	639	51.5	95.5	67.3	98.9	0.76	0.75
H414/01	Geology	483	67.3	99.4	76.0	99.8	0.93	0.92
H414/02	Geology	482	68.5	100.0	78.0	100.0	0.94	0.92
H414/03	Geology	481	49.7	94.6	66.9	99.4	0.86	0.84
H415/01	Law	6065	53.1	96.6	73.5	99.7	0.88	0.86
H415/02	Law	6051	56.0	97.4	75.4	99.8	0.89	0.87
H415/03	Law	6054	49.8	94.8	70.8	99.7	0.85	0.83
H420/01	Biology A	21127	64.8	99.5	81.3	100.0	0.94	0.92
H420/02	Biology A	21126	63.1	99.2	80.4	100.0	0.93	0.92
H420/03	Biology A	21119	56.1	97.5	77.7	99.9	0.90	0.89
H422/01	Biology B	247	70.9	99.6	83.4	100.0	0.95	0.95
H422/02	Biology B	246	63.4	99.2	80.5	100.0	0.94	0.93
H422/03	Biology B	246	50.0	90.7	74.0	100.0	0.88	0.86
H431/01	Business	1091	50.3	94.9	70.7	99.6	0.82	0.80
H431/02	Business	1090	50.8	96.1	70.4	99.6	0.83	0.82
H431/03	Business	1090	52.7	98.3	73.1	99.8	0.87	0.84
H432/01	Chemistry A	22459	72.1	99.8	83.0	100.0	0.96	0.94
H432/02	Chemistry A	22453	71.3	99.9	82.9	100.0	0.95	0.94
H432/03	Chemistry A	22435	67.7	99.5	82.3	100.0	0.94	0.93
H433/01	Chemistry B	2870	74.9	99.8	85.1	100.0	0.96	0.95
H433/02	Chemistry B	2870	73.2	99.9	84.1	100.0	0.95	0.94
H433/03	Chemistry B	2867	64.3	99.5	81.1	100.0	0.93	0.92
H443/01	Latin	1128	66.1	97.3	71.5	98.8	0.84	0.86
H443/02	Latin	1128	59.8	95.2	65.8	96.9	0.82	0.82
H443/03	Latin	1128	54.6	95.9	64.2	98.4	0.83	0.82
H443/04	Latin	1128	53.1	96.1	62.4	97.9	0.83	0.81
H444/01	Classical Greek	215	69.8	99.5	71.6	99.5	0.85	0.84
H444/02	Classical Greek	215	64.7	96.7	69.8	98.1	0.79	0.77
H444/03	Classical Greek	215	55.3	95.8	58.6	97.2	0.70	0.69
H444/04	Classical Greek	215	51.2	96.7	58.6	97.7	0.74	0.70
H446/01	Computer Science	5741	59.1	98.1	67.8	99.4	0.91	0.89
H446/02	Computer Science	5740	63.1	99.1	71.0	99.8	0.92	0.91
H446/03	Computer Science	5728	40.1	88.2	49.5	94.1	0.77	0.76

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
H459/11	Drama & Theatre	680	50.0	95.7	56.5	98.4	0.77	0.75
H459/21	Drama & Theatre	679	35.6	84.2	46.5	94.1	0.56	0.54
H459/31	Drama & Theatre	687	47.5	89.8	54.7	96.5	0.68	0.64
H459/46	Drama & Theatre	205	40.0	88.3	58.0	95.6	0.70	0.65
H460/01	Economics	3100	52.8	96.8	72.9	99.7	0.87	0.85
H460/02	Economics	3098	54.0	97.0	74.3	99.8	0.87	0.85
H460/03	Economics	3099	54.1	97.3	75.5	99.9	0.87	0.86
H470/01	English Language	1755	56.5	97.2	74.8	99.8	0.81	0.79
H470/02	English Language	1752	61.4	99.1	75.4	99.8	0.86	0.83
H470/03	English Language	1758	45.1	92.6	62.1	98.5	0.70	0.67
H472/01	English Literature	9682	57.1	98.0	75.1	99.8	0.85	0.83
H472/02	English Literature	9678	53.8	97.1	74.2	99.7	0.82	0.81
H472/03	English Literature	9694	45.8	92.4	62.6	98.2	0.74	0.73
H474/01	English Language & Lit	1156	43.1	89.8	64.2	98.2	0.68	0.65
H474/02	English Language & Lit	1155	50.2	95.8	72.5	99.7	0.78	0.74
H474/03	English Language & Lit	1155	52.5	95.6	72.1	99.1	0.78	0.75
H474/04	English Language & Lit	1156	43.1	92.0	60.6	98.2	0.69	0.68
H481/01	Geography	4967	46.7	93.9	69.6	99.2	0.81	0.79
H481/02	Geography	4966	46.4	93.2	70.1	99.3	0.80	0.78
H481/03	Geography	4963	53.1	96.6	72.6	99.7	0.86	0.84
H481/04	Geography	4971	42.1	88.5	57.7	97.5	0.74	0.72
H543/02	Music	304	39.5	88.2	48.0	94.4	0.73	0.71
H543/04	Music	305	38.7	85.9	45.6	91.1	0.67	0.65
H543/05	Music	326	50.9	96.3	57.7	96.9	0.85	0.82
H555/01	Physical Education	5047	50.9	96.1	59.5	98.6	0.86	0.84
H555/02	Physical Education	5048	45.6	92.5	56.6	97.2	0.81	0.79
H555/03	Physical Education	5048	41.5	89.7	54.2	96.6	0.76	0.75
H555/04	Physical Education	5048	36.9	85.9	48.3	94.5	0.72	0.70
H556/01	Physics A	10000	68.8	99.7	79.8	99.9	0.95	0.94
H556/02	Physics A	9990	72.3	99.9	81.2	100.0	0.96	0.95
H556/03	Physics A	9993	62.4	99.0	76.6	99.9	0.93	0.92
H557/01	Physics B	1629	67.2	99.6	82.3	100.0	0.95	0.93
H557/02	Physics B	1628	73.8	99.9	85.1	100.0	0.96	0.95
H557/03	Physics B	1628	54.1	96.3	75.2	99.8	0.90	0.89
H567/01	Psychology	5578	50.1	94.9	75.7	99.6	0.84	0.82
H567/02	Psychology	5572	56.8	97.6	79.0	99.9	0.88	0.86
H567/03	Psychology	5568	56.3	98.1	80.6	99.9	0.88	0.86
H573/01	Religious Studies	8158	53.2	97.2	69.5	99.5	0.86	0.84
H573/02	Religious Studies	8147	51.5	95.8	68.8	99.4	0.84	0.82
H573/03	Religious Studies	6916	51.9	96.4	69.1	99.4	0.85	0.83
H573/04	Religious Studies	209	54.1	92.8	69.4	99.0	0.81	0.78
H573/06	Religious Studies	908	50.0	96.3	73.1	99.4	0.81	0.80
H580/01	Sociology	3754	51.6	95.2	73.6	99.3	0.83	0.80
H580/02	Sociology	3753	57.7	97.9	77.4	99.9	0.86	0.85
H580/03	Sociology	3749	59.6	98.7	77.2	99.9	0.88	0.86
H600/01	Art, Craft & Design	388	75.8	99.7	81.4	99.7	0.93	0.94
H600/02	Art, Craft & Design	388	64.2	99.2	71.1	100.0	0.90	0.90
H601/01	Art & Design: Fine Art	2533	76.5	99.4	81.2	99.8	0.93	0.93
H601/02	Art & Design: Fine Art	2531	67.8	98.6	75.3	99.4	0.90	0.90
H602/01	Art & Design: Graph. Comm	510	73.1	100.0	79.4	100.0	0.92	0.92
H602/02	Art & Design: Graph. Comm	510	60.6	98.4	69.2	99.6	0.89	0.88
H603/01	Art & Design: Photography	1790	74.6	99.8	81.3	100.0	0.93	0.92
H603/02	Art & Design: Photography	1790	63.0	98.5	73.0	99.9	0.88	0.87
H604/01	Art & Design: Textile Design	429	72.5	99.8	79.7	100.0	0.91	0.91
H604/02	Art & Design: Textile Design	429	66.4	97.7	72.7	98.8	0.88	0.87
H640/01	Mathematics B (MEI)	6252	71.9	99.8	87.3	100.0	0.95	0.94
H640/02	Mathematics B (MEI)	6250	67.6	99.3	85.5	100.0	0.94	0.93
H640/03	Mathematics B (MEI)	6252	65.0	99.1	84.6	100.0	0.93	0.93
H245/Y540	Further Mathematics A	1415	62.3	98.2	74.3	99.2	0.89	0.88
H245/Y541	Further Mathematics A	1414	65.1	98.5	77.2	99.6	0.89	0.90

Component	Subject	Entry size	% same grade	% within 1 grade	% same grade (after sorting)	% within 1 grade (after sorting)	Correlation mark-grade	Correlation grade-grade
H245/Y542	Further Mathematics A	999	57.0	95.2	69.7	98.4	0.85	0.84
H245/Y543	Further Mathematics A	1233	62.7	96.8	78.5	99.4	0.85	0.86
H245/Y544	Further Mathematics A	458	50.2	88.9	63.3	94.3	0.75	0.74
H245/Y545	Further Mathematics A	342	64.3	93.9	74.9	96.8	0.84	0.84
H505/Y100	History	11009	43.6	91.7	60.7	98.0	0.74	0.74
H505/Y101	History	203	48.8	94.6	73.4	99.5	0.76	0.76
H505/Y102	History	489	48.3	94.5	69.3	99.2	0.76	0.73
H505/Y105	History	878	47.9	93.3	67.4	99.3	0.81	0.79
H505/Y106	History	2156	47.5	94.4	69.3	99.6	0.79	0.76
H505/Y107	History	1463	48.5	94.2	68.2	98.8	0.78	0.76
H505/Y108	History	1490	46.0	92.9	69.4	99.4	0.76	0.74
H505/Y110	History	836	45.3	94.9	70.8	99.2	0.78	0.77
H505/Y112	History	796	51.4	95.4	72.2	99.6	0.77	0.76
H505/Y113	History	2333	47.6	93.4	67.0	99.1	0.79	0.77
H505/Y203	History	636	42.5	90.6	60.5	98.9	0.75	0.73
H505/Y207	History	218	45.9	90.8	67.0	100.0	0.66	0.64
H505/Y212	History	884	47.1	93.0	69.6	99.1	0.72	0.71
H505/Y213	History	1705	41.0	88.4	65.2	98.7	0.70	0.68
H505/Y215	History	297	41.4	89.9	66.7	98.7	0.66	0.65
H505/Y216	History	645	47.8	92.6	72.7	99.4	0.76	0.74
H505/Y218	History	286	43.0	95.1	65.0	99.0	0.70	0.67
H505/Y219	History	1507	47.6	92.9	67.6	99.3	0.74	0.71
H505/Y221	History	2131	44.0	90.2	64.2	98.9	0.73	0.71
H505/Y222	History	733	44.1	91.7	68.1	99.9	0.72	0.70
H505/Y223	History	1235	41.0	85.1	62.9	98.9	0.67	0.65
H505/Y306	History	771	52.8	96.4	68.0	100.0	0.80	0.77
H505/Y312	History	771	53.4	95.5	67.2	99.4	0.83	0.81
H505/Y314	History	449	52.3	97.3	77.3	99.6	0.83	0.81
H505/Y315	History	487	53.8	96.9	71.3	99.6	0.85	0.83
H505/Y316	History	432	55.6	98.1	75.9	99.8	0.86	0.84
H505/Y317	History	232	47.8	96.1	67.7	99.6	0.79	0.76
H505/Y318	History	3238	55.7	97.9	73.9	99.9	0.86	0.84
H505/Y319	History	3426	54.5	97.3	73.0	99.8	0.84	0.82
H505/Y321	History	406	56.9	98.8	73.9	100.0	0.83	0.81
H645/Y420	Further Mathematics B	1586	74.0	99.7	81.2	99.9	0.94	0.93
H645/Y421	Further Mathematics B	552	63.9	98.0	73.7	99.5	0.88	0.90
H645/Y422	Further Mathematics B	264	56.4	97.3	65.9	98.5	0.88	0.86
H645/Y431	Further Mathematics B	932	47.4	90.6	67.2	97.1	0.81	0.78
H645/Y432	Further Mathematics B	1081	50.2	92.6	66.4	97.5	0.82	0.81
H645/Y433	Further Mathematics B	576	44.1	85.9	63.9	96.2	0.78	0.76
H645/Y434	Further Mathematics B	252	50.8	91.3	66.3	96.0	0.82	0.81
H645/Y435	Further Mathematics B	411	60.3	95.1	69.3	97.8	0.81	0.82