Progression from GCSE to A Level, 2020–2022

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Introduction

In this report we investigate the progression of students from GCSE to A level in the same (or related) subject. That is, for a range of subjects, we calculate the proportion of GCSE students who continue to study the subject at A level. To understand possible sources of variation, we also break down progression rates by GCSE grade and student gender. Finally, we consider relationships between GCSE and A level grades for those students who do progress. To evaluate whether there have been any changes in progression over time, we refer to previous versions of this analysis (Carroll & Gill, 2023; Gill, 2019).

A student's decision to study a subject beyond GCSE may be influenced by various factors (see, for example, Vidal Rodeiro (2007)), including enjoyment of the subject, attainment, and usefulness for career plans. Alongside these more personal factors, there may also be constraints imposed by the school or college, such as whether the subject is offered, and whether the school restricts entry onto A level courses based on GCSE attainment. Accordingly, we do not attempt to explain the reasons for any differences observed in subject progression here; instead, we focus on reporting progression rates.

Data and Methods

The data for these analyses was taken from the National Pupil Database (NPD), maintained by the Department for Education. Access to the data was provided via the Office for National Statistics Secure Research Service, and all analyses were carried out in the secure environment.

We extracted GCSE results for all students who were in Year 11 in the 2019/2020 school year from the 2020 Key Stage 4 (KS4) database. Note that this sample included *all* GCSEs awarded to these students, i.e., both those taken in 2020 and any taken early. GCSEs graded X[1] were excluded from the dataset. We then used unique pupil identifier numbers to match the students to any A level results recorded in the 2022 Key Stage 5 (KS5) database. Note that as A levels are studied over two years, this should have included all A levels taken by this cohort, but if any students delayed taking A levels (e.g., through repeating a year or delaying the start of their course) these results would *not* be included.

A student was deemed to have progressed if they had both a GCSE and an A level result for the same subject. Note that A levels graded X were included in analyses of overall progression rates, but were excluded from analysis of grade-to-grade progression; numbers of candidates to whom this applied were very low, so this should have little effect on estimated progression rates.

Some GCSE subjects are not offered in the same form at A level. The most prominent example is Science: at GCSE, most students in 2020 took a Combined Science qualification

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[1] Grade X indicates that no grade could be awarded. Reasons for a grade X being recorded include not all components being completed, an internal assessment sample not being provided on request, or a script being unavailable for marking.

(worth two GCSEs) rather than separate sciences[2], while only separate sciences are offered at A level. We therefore investigated progression from GCSE Combined Science (referred throughout as "Double Science") to each of A level Biology, Chemistry and Physics. We also investigated progression from GCSE Maths to A level Further Maths. We restricted analysis to the most popular GCSE subjects, with entries of over 10,000 students.

We calculated overall progression rates first (i.e., the proportion of all GCSE students for a given subject progressing to an A level in that subject). Alongside this, we estimated separate rates for those students that obtained a relatively high GCSE grade (9–4). Both these analyses were broken down by gender. We then calculated progression rates from each GCSE grade (i.e., what percentage of GCSE students gaining a particular grade went on to study an A level in that subject?). To understand the relationship between attainment at GCSE and A level, we estimated Pearson correlations between achieved grades, and calculated cumulative percentages of students obtaining each A level grade from each GCSE grade. To calculate correlations, GCSE grades were converted directly to the equivalent number (i.e., grade 9 = 9, grade 8 = 8, …, grade U = 0), while A level grades were numbered sequentially so that A* = 6, A = 5, …, E = 1, and U = 0.

To ensure outputs met standards for statistical disclosure control (i.e., ensuring no cell counts <10), we aggregated categories where necessary. This primarily affected progression from lower GCSE grades: A levels are typically taken by high-attaining students, so lower GCSE grades were aggregated. Likewise, when considering progression from particular GCSE grades to particular A level grades, aggregation was used at higher and lower attainment levels, as it was relatively uncommon for the lowest GCSE grades to be associated with the highest A level grades and *vice versa*. Specific instances of aggregation applied are noted alongside each results table.

GCSE grades awarded in 2020 differed from those awarded in previous years due to the impact of the Covid-19 pandemic. Public examinations were cancelled and, ultimately, grades were awarded as whichever was the higher of a grade awarded by the student's school (centre-assessed grades, or "CAGs") and a statistically adjusted grade (based on CAGs, but adjusted to reflect the school's previous grade distribution).

A level grades awarded in 2022 also differed from those awarded in previous years due to the impact of the Covid-19 pandemic. However, examinations took place in summer 2022 and grade boundaries were set to reflect a midpoint between 2021 and pre-pandemic grading. A level results in 2022 were overall higher than in 2019, but not as high as in 2020 or 2021.

As such, 2020 GCSE grades and 2022 A level grades included in the present analyses were awarded via the methods described above, and this should be taken into account when interpreting grade-to-grade progression and relationships between GCSE and A level attainment.

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[2] See here for details on entries for GCSEs in the summer 2020 exam series:
https://www.gov.uk/government/statistics/provisional-entries-for-gcse-as-and-a-level-summer-2020-exam-series/provisional-entries-for-gcse-as-and-a-level-summer-2020-exam-series

Results

Table 1 shows the number of Year 11 students in 2020 who took each GCSE subject, and the percentage of these students (overall and broken down by gender) who went on to take an A level in the same subject. It also shows the numbers of students achieving GCSE grades 9–4 and the progression rate amongst these students (overall and broken down by gender).

The highest progression rates were in Psychology (29%), Biology (25%), Chemistry (23%), and Sociology (21%). These four subjects were the same as those showing the highest progression rates in 2020 A level students (Carroll & Gill, 2023). These were also the subject with the highest progression rates amongst female students (Psychology, 33%; Biology, 32%; Chemistry, 25%; Sociology 24%). For male students, the highest progression rates were for Physics (24%), Chemistry (20%), and Psychology, Biology and Business Studies (19%). These were also the subjects that showed the highest progression rates for male students in earlier analyses (Gill, 2019; Carroll & Gill, 2023). The subjects with the largest differences in progression between male and female students were Physics (17 percentage points higher progression for male students), Psychology (14 percentage points higher for female students), Biology (13 percentage points higher for female students), and Sociology (12 percentage points higher for female students).

Amongst students who achieved high GCSE grades (9–4), the highest progression rates were seen for Psychology (36%), Sociology (26%), Business Studies (18%), Computing (20%) and History (18%). Note, however, that Chemistry and Biology, which showed high overall progression rates, were excluded from this particular analysis, as nearly all progressing students had a high grade so presenting such figures would result in disclosive figures for students with lower (below 4) grades. Their absence from this list does *not* indicate lower progression rates among high attainers.

Table 1. Overall progression rates from GCSE to A level by subject.

Progression	N GCSE students	N at 9-4	Percentage of students progressing					
			All	9-4	All female	Female 9-4	All male	Male 9-4
Art & Design#	60,150	51,000	6	–	7	–	4	–
Art & Design (Fine Art)#	68,613	59,716	13	15	15	–	9	–
Art & Design (Photography)#	36,015	31,388	9	10	11	–	6	–
Art & Design (Textiles)#	10,811	9,463	11	–	11	–	2	–
Biology#	162,401	153,992	25	–	32	–	19	–
Business Studies	91,467	73,037	19	23	18	21	19	24
Chemistry#	158,343	151,570	23	–	25	–	20	–
Computing#	76,446	60,955	16	20	11	–	17	–
Double Sci. - Biology#	409,453	263,386	4	6	5	–	3	–
Double Sci. - Chemistry#	409,455	263,388	2	–	3	–	2	–
Double Sci. - Physics#	409,453	263,386	1	–	1	–	2	–
Drama#	58,126	50,367	12	14	14	–	9	–
English Language#	584,005	464,620	2	–	3	–	1	–
English Literature#	563,807	445,610	5	6	8	–	2	–
French#	124,951	102,475	5	–	6	–	3	–
Geography	256,772	193,707	12	16	13	16	12	17
German#	40,867	35,474	5	–	6	–	4	–
History	275,391	204,644	13	18	14	18	13	18
Mathematics#	578,481	443,089	12	16	9	–	15	–
Maths - Further Maths#	578,096	442,704	2	–	1	–	3	–
Media/Film/Tv Studies#	29,156	23,529	13	16	15	–	10	–
Music#	34,724	30,856	10	–	10	–	10	–
PE#	74,096	63,132	13	15	15	–	12	–
Physics#	157,333	151,192	16	–	7	–	24	–
Psychology	14,658	11,634	29	36	33	40	19	26
Religious Studies	225,151	179,270	5	7	7	8	3	4
Sociology	21,804	16,943	21	26	24	30	12	17
Spanish#	104,859	85,722	7	–	8	–	4	–
Statistics#	23,418	18,512	0	–	0	–	0	–

Subjects marked with a hash symbol have had percentages progressing from high GCSE grades and/or gender breakdowns suppressed in order to avoid disclosive figures in underlying counts. Suppressed values are indicated by dashes.

Figures 1a and 1b (single GCSEs) and Figure 2 (Double Science) show progression from GCSE to A level, by GCSE grade and gender. Note that in all GCSE subjects (other than Maths/Further Maths) grades at or below 5 were aggregated due to low cell counts (or 5-5 for Double Science). For the Maths to Further Maths progression, aggregation occurred at grades 6 or below, while for Statistics, GCSE grades at 8 or above were aggregated. No gender breakdowns are presented for Art & Design (Textiles) and Statistics.

For many subjects, the differences in progression rates between male and female students were small, although for many subjects, the differences increased as GCSE grades increased (i.e., the largest gender differences were among the highest attainers). This was particularly evident in Science and Maths progressions.

Male students were more likely to progress across all GCSE grades in Computing, Maths and Physics (including Double Science to Physics). Further Maths also showed higher progression rates for males, but with differences only emerging at GCSE grades 8 and 9. These subjects are the same as those found by Gill (2019) and Carroll & Gill (2023) to show higher progression rates for male students.

More subjects showed higher progression rates for female than for male students. Those with the largest differences included Biology (including Double Science to Biology), English Literature, Psychology and Sociology. Again, these were the same subjects found by Gill (2019) and Carroll & Gill (2023) to show higher progression rates for female students. A further notable pattern here was that Modern Foreign Languages (French, German and Spanish) showed slightly higher progression rates for female students across most grades considered.
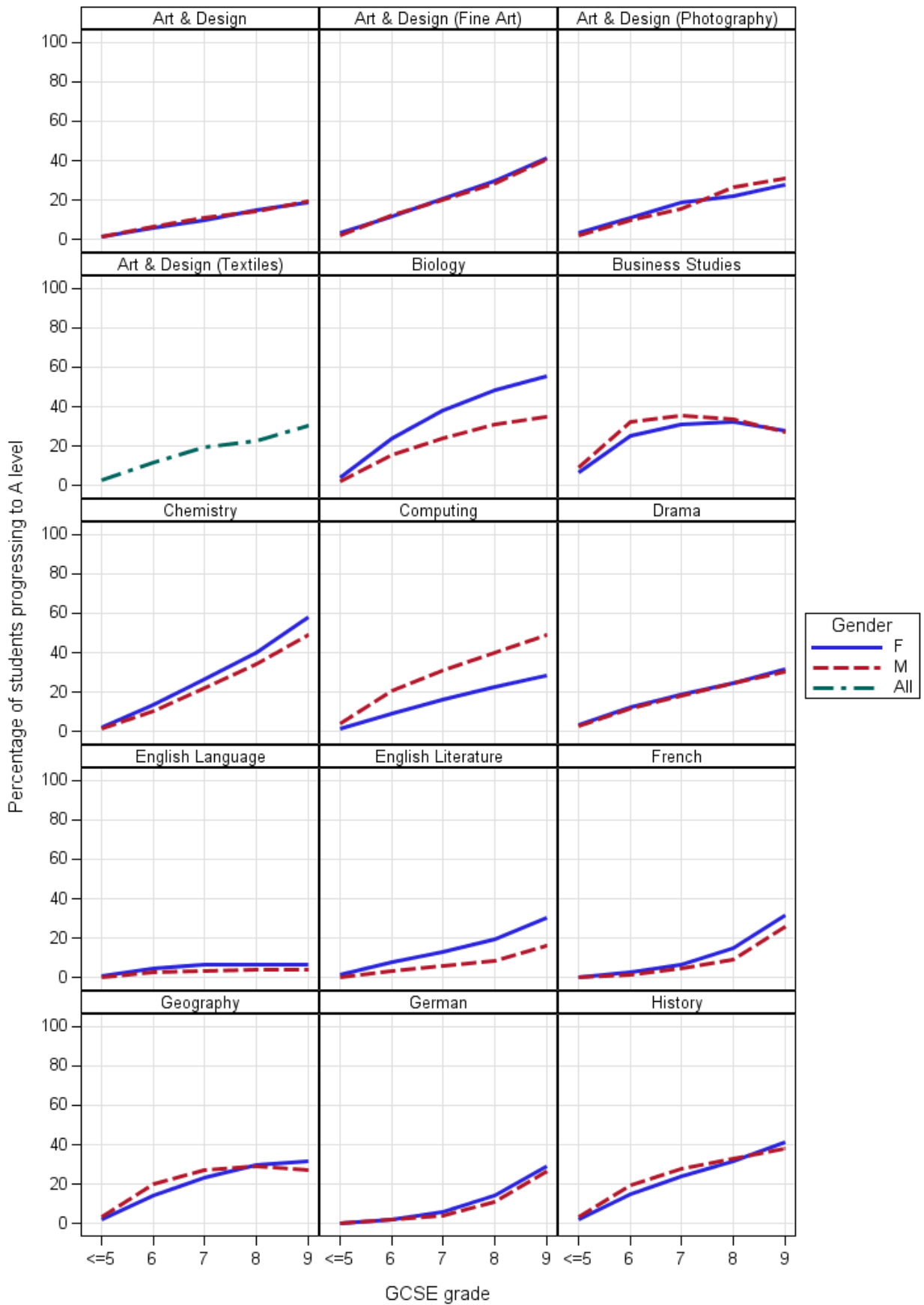
Figure 1a. Percentages of students progressing to A level from each GCSE subject, broken down by gender. No gender breakdown is presented for Statistics due to low cell counts.
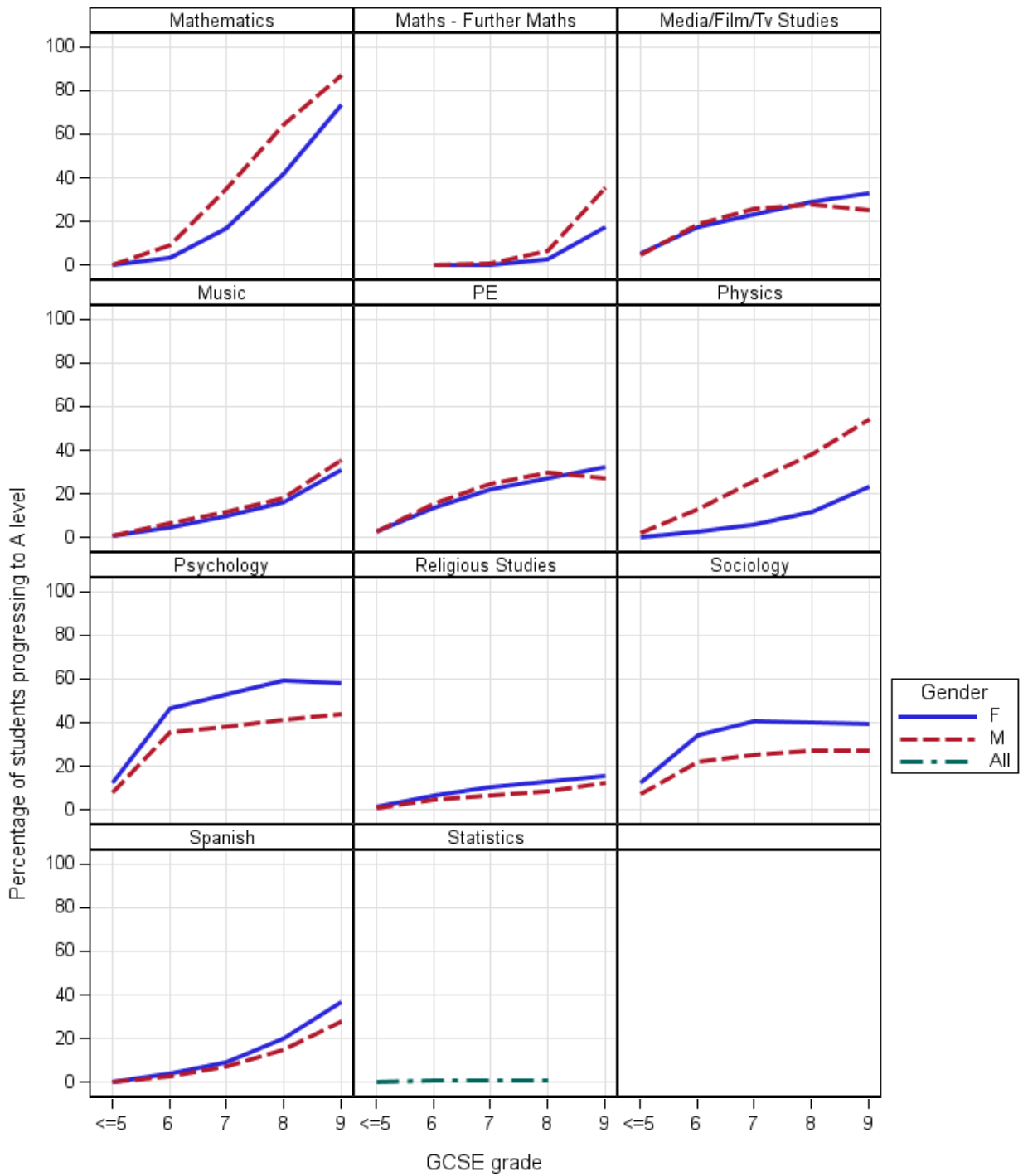
Figure 1b. Percentages of students progressing to A level from each GCSE subject, broken down by gender (continued). No gender breakdown is presented for Art & Design (Textiles) due to low cell counts.
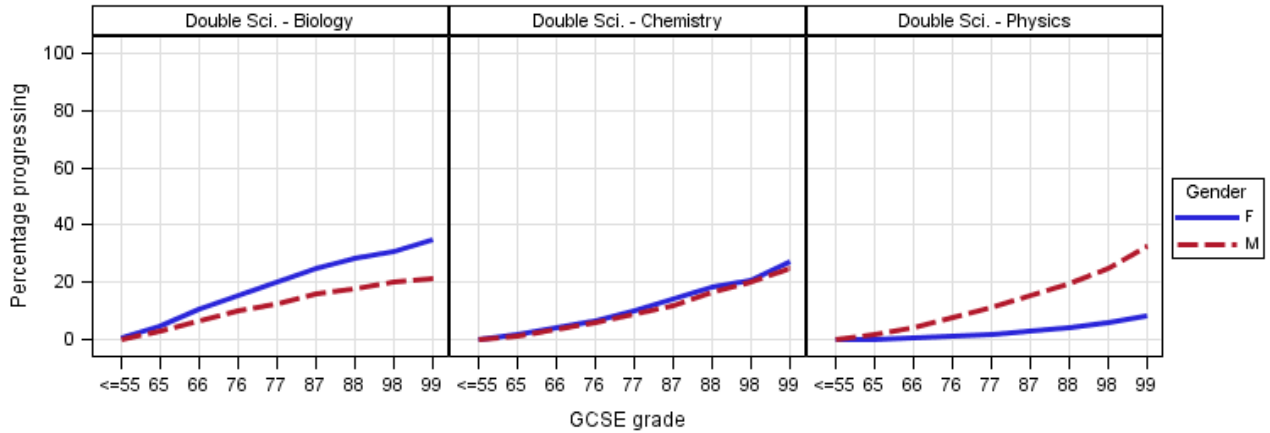
Figure 2. Percentages of students progressing to A level from each GCSE grade for Double Science GCSE, broken down by gender.

Table 2 presents cumulative percentages of candidates who achieved particular A level grades, given their GCSE grade. To prevent low cell counts but maintain comparability across subjects, aggregation was applied more widely here, with GCSE grades 8 and 9 combined, and those at grade 5 and below. Similarly, A level grades A* and A were combined, as were grades D, E and U. Even with this, for some subjects it was necessary to apply further aggregation to prevent low cell counts – these are marked in Table 2. As an example, to aid interpretation, the tables shows that for Biology, of those progressing students who obtained GCSE grade 8 or above, 61% went onto achieved at least grade A at A level, 83% at least grade B, 95% at least grade C, etc.

As expected, higher GCSE grades were associated with higher A level grades. For example, in Art & Design, 69% of those students progressing from a GCSE grade 8 or 9 obtained an A* or an A grade at A level, compared to 37% of those who progressed from GCSE grade 7 and only 16% of those who progressed from GCSE grade 6.

The highest rates of obtaining A*/A were seen in Art & Design, Art & Design (Fine Art), Art & Design (Textiles), German, Further Maths, Psychology and Sociology, all of which showed >65% of those who progressed from GCSE grade 8 or 9 to gain A*/A. Conversely, the lowest rates were seen in progression from Double Science to Biology, Chemistry and Physics, all of which showed <40% of students progressing from GCSE grade 9-9, 9-8 or 8-8 to gain the top grades at A level.

Note that percentages of students obtaining A*/A grades at A level were lower than those reported in Carroll & Gill (2023). However, this can be explained by the grading approach followed in 2022 and described briefly on Page 4.

Table 2. Cumulative percentages of candidates progressing from a given GCSE grade to a given A level grade.

Progression	GCSE grade	Cumulative % obtaining A level grade			
		A*/A	B	C	D/E/U
Art & Design	8 or above	69	92	99	100
	7	37	76	95	100
	6	16	54	87	100
	5 or below	7	29	66	100
Art & Design (Fine Art)	8 or above	72	94	99	100
	7	37	76	94	100
	6	16	54	86	100
	5 or below	7	28	67	100
Art & Design (Photography)	8 or above	55	88	98	100
	7	31	71	94	100
	6	17	56	89	100
	5 or below	7	33	71	100
Art & Design (Textiles)#	8 or above	75	94	100	
	7	42	82	100	
	6	27	61	100	
	5 or below	14	45	100	
Biology	8 or above	61	83	95	100
	7	18	46	76	100
	6	7	24	52	100
	5 or below	2	11	29	100
Business Studies	8 or above	55	89	98	100
	7	33	74	94	100
	6	18	60	88	100
	5 or below	8	35	69	100
Chemistry	8 or above	57	79	92	100
	7	15	39	65	100
	6	6	21	43	100
	5 or below	3	10	26	100
Computing	8 or above	61	83	94	100
	7	24	55	79	100
	6	11	32	61	100
	5 or below	5	17	40	100
Double Sci. - Biology†	8-8 or above	35	64	85	100
	87	13	36	67	100
	77	7	26	55	100
	76	4	17	45	100
	6-6 or below	2	8	26	100

Table 2 (continued): Cumulative percentages of candidates progressing from a given GCSE grade to a given A level grade.

Progression	GCSE grade	Cumulative % obtaining A level grade			
		A*/A	B	C	D/E/U
Double Sci. - Chemistry[†]	8-8 or above	33	59	80	100
	87	10	32	58	100
	77	5	23	46	100
	76	4	15	37	100
	6-6 or below	2	10	26	100
Double Sci. - Physics[†]	8-8 or above	33	59	82	100
	87	9	28	57	100
	77	5	21	47	100
	76	2	13	36	100
	6-6 or below	1	8	23	100
Drama	8 or above	64	92	99	100
	7	33	74	95	100
	6	16	55	86	100
	5 or below	4	28	66	100
English Language	8 or above	50	86	98	100
	7	23	66	92	100
	6	8	44	81	100
	5 or below	3	22	63	100
English Literature	8 or above	60	89	98	100
	7	23	63	90	100
	6	10	39	77	100
	5 or below	3	18	52	100
French[†]	8 or above	60	84	95	100
	7	11	38	75	100
	6 and below	5	20	45	100
Geography	8 or above	60	88	97	100
	7	23	63	89	100
	6	10	41	75	100
	5 or below	3	19	53	100
German[†]	8 or above	67	87	97	100
	7	10	45	75	100
	6 and below	6	20	49	100
History	8 or above	56	88	97	100
	7	23	62	89	100
	6	10	41	77	100
	5 or below	3	22	56	100
Mathematics	8 or above	60	77	89	100
	7	16	34	56	100
	6	6	17	35	100
	5 or below	4	11	25	100

Table 2 (continued): Cumulative percentages of candidates progressing from a given GCSE grade to a given A level grade.

Progression	GCSE grade	Cumulative % obtaining A level grade			
		A*/A	B	C	D/E/U
Maths - Further Maths†	8 or above	68	83	93	100
	7 and below	18	38	55	100
Media/Film/Tv Studies	8 or above	56	92	99	100
	7	31	78	96	100
	6	15	59	88	100
	5 or below	5	33	70	100
Music†	8 or above	62	85	96	100
	7	19	50	79	100
	6 and below	6	26	60	100
PE	8 or above	56	82	95	100
	7	25	56	83	100
	6	12	37	68	100
	5 or below	3	17	46	100
Physics†	8 or above	57	80	93	100
	7	13	36	66	100
	6 and below	4	16	40	100
Psychology	8 or above	68	91	98	100
	7	35	72	91	100
	6	17	51	80	100
	5 or below	8	30	63	100
Religious Studies	8 or above	56	86	97	100
	7	25	64	89	100
	6	12	45	77	100
	5 or below	7	28	61	100
Sociology	8 or above	69	91	98	100
	7	44	80	96	100
	6	26	63	88	100
	5 or below	11	39	72	100
Spanish†	8 or above	61	85	96	100
	7	15	44	77	100
	6 and below	6	21	45	100

Subjects marked with the hash symbol indicate where A level grades C, D, E and U have been aggregated (rather than D, E and U, as elsewhere) due to low cell counts.

† Subjects marked with the dagger symbol indicate that aggregation of GCSE grades has occurred at grade 6/6-6 or below (or for the Maths to Further Maths progression, 7 or below) due to low cell counts.

Table 3 presents the Pearson correlation coefficients between the grades achieved at GCSE and A level in the same (or closely related) subject. The means and standard deviations of GCSE and A level grades (derived from numerical grade 'scores') amongst progressing candidates are also provided. The highest correlations were for Modern Foreign Languages (German, 0.648; Spanish, 0.612; French, 0.611), Statistics (0.648), and individual sciences (Biology, 0.634; Physics, 0.633; Chemistry, 0.603). The lowest correlations were between Maths and Further Maths (0.418), Business Studies (0.491) and Art & Design (Photography), which were the only subjects to show correlations weaker than 0.5. These patterns were very similar to those found by Carroll & Gill (2023).

Table 3. Pearson correlations between grade achieved at GCSE and grade achieved at A level (in the same or related subject).

Progression	Number of progressing students	Pearson correlation	SD of GCSE grade	SD of A level grade	Mean GCSE grade	Mean A level grade
Art & Design	3,420	0.601	1.36	1.32	7.13	4.23
Art & Design (Fine Art)	8,916	0.607	1.35	1.30	7.36	4.40
Art & Design (Photography)	3,280	0.492	1.36	1.25	6.91	4.02
Art & Design (Textiles)	1,156	0.524	1.32	1.22	7.09	4.43
Biology	41,295	0.634	1.15	1.48	7.66	3.94
Business Studies	16,983	0.491	1.39	1.23	6.49	3.83
Chemistry	36,149	0.603	1.09	1.54	7.92	3.91
Computing	12,230	0.593	1.37	1.54	7.28	3.81
Double Sci. - Biology	15,750	0.577	1.15	1.49	7.06	2.79
Double Sci. - Chemistry	9,283	0.542	1.14	1.56	7.37	2.82
Double Sci. - Physics	6,055	0.578	1.16	1.55	7.39	2.84
Drama	7,116	0.587	1.36	1.22	7.29	4.22
English Language	13,060	0.534	1.25	1.18	6.75	3.69
English Literature	28,147	0.608	1.29	1.32	7.33	4.03
French	5,975	0.611	1.01	1.37	8.20	4.22
Geography	31,641	0.592	1.30	1.33	7.14	3.88
German	2,104	0.648	1.00	1.33	8.22	4.41
History	36,299	0.577	1.35	1.29	7.23	3.91
Mathematics	71,176	0.600	0.96	1.67	7.98	3.96
Maths - Further Maths	10,968	0.418	0.52	1.38	8.75	4.75
Media/Film/Tv Studies	3,722	0.548	1.43	1.18	6.63	3.88
Music	3,481	0.595	1.14	1.37	8.00	4.24
PE	9,649	0.557	1.30	1.44	7.19	3.80
Physics	24,711	0.633	1.08	1.54	7.98	3.97
Psychology	4,254	0.585	1.44	1.40	6.75	3.93
Religious Studies	12,039	0.538	1.36	1.30	7.37	4.02
Sociology	4,541	0.529	1.48	1.33	6.42	3.99
Spanish	6,968	0.612	1.03	1.37	8.12	4.27
Statistics	84	0.648	1.41	1.69	6.39	3.10

References

Carroll, M., & Gill, T. (2023). *Progression from GCSE to A level, 2018–2020.* Statistics Report Series No. 129. Cambridge University Press & Assessment, Cambridge, UK.

Gill, T. (2019). *Progression from GCSE to A level, 2017.* Statistics Report Series No. 124. Cambridge Assessment, Cambridge, UK.

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Appendix

An appendix containing tables with the counts underlying values in the main report is available alongside this report from www.cambridgeassessment.org.uk/our-research/all-published-resources/statistical-reports/.

The following tables are included:

Table A1. Numbers of candidates contributing to overall progression rates from GCSE to A Level by subject. Supplementary to Table 1.

Table A2. Numbers of students progressing to A Level from each GCSE grade, for reformed GCSE subjects. Supplementary to Figure 1a and Figure 1b.

Table A3. Numbers of students progressing to A Level from each GCSE grade, for Double Science GCSE. Supplementary to Figure 2.

Table A4. Numbers of candidates progressing from a given GCSE grade to a given A Level grade. Supplementary to Table 2.