

## A Level Results for the UK - England, Wales and Northern Ireland.

### Context

This is the first year since 2019 that results have been based on examinations. In an attempt to mitigate the impact of the pandemic on young people's education, some changes were made to the arrangements for the exams.

The changes included advanced notice of exam content for all subjects, including STEM subjects.<sup>1</sup> Further changes revolved around the relaxation of practical elements of science courses, including teacher discretion on the number of hands-on practical activities from a previous minimum of twelve. Students still had to demonstrate the competence in all the Common Practical Assessment Criteria (CPAC).

It was predicted prior to the exam results that there would decline in results from 2021 and 2020, when results were based on Teacher assessments, but would be higher than the last time that examinations took place in 2019. Ofqual has stated that the aim for a return to normal exam arrangements in 2023.

The results did indeed take a large dip for all subjects, including STEM and non-STEM, for the proportion of young people attaining A\* to C grades.

### STEM Subjects

#### A\* to A 2019 to 2022

Subject	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Biology	24.1	37.5	45.1	34.9
Chemistry	29.1	42.9	48.6	39.4
Computing	17.9	36.6	44.5	35.4
Design and Technology	16.3	32.8	42.2	30.8
Economics	28.9	41.2	46.7	38.3
ICT	15.4	28.6	46.3	31.2
Mathematics	41.0	50.3	55.2	48.2
Mathematics (Further)	53.5	71.7	75.5	67.8
Physics	27.9	41.9	46.8	39.5
Other sciences <sup>2</sup>	22.5	35.7	41.3	33.5

- Overall, 2022 results are much higher than 2019 when examinations last took place.

<sup>1</sup> Defined list of STEM Subjects - Biology, Chemistry, Computing, Design and Technology, Economics, ICT, Mathematics, Mathematics (Further), Physics & Other sciences as used in previously in our output

<sup>2</sup> Other sciences includes all science subjects except Biology, Chemistry and Physics.

- However, there were some large decreases in the proportion of young people attaining the highest grades as was widely expected.
- There were large decreases in the in proportion of young people attaining A\* to A in ICT (-15.1%P), Design and Technology (-11.4%P) and Biology (-10.2%P).

### A\* to C 2019 to 2022

Subject	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Biology	67.3	84.4	86.7	76.0
Chemistry	72.2	86.6	86.4	76.3
Computing	63.3	84.7	87.2	76.5
Design and Technology	68.2	86.4	88.1	81.1
Economics	80.7	90.7	90.4	86.0
ICT	66.7	88.1	89.1	80.5
Mathematics	75.6	86.9	86.3	79.1
Mathematics (Further)	86.6	96.0	95.4	92.2
Physics	70.5	84.4	85.2	77.6
Other sciences	69.7	87.9	86.2	77.0

- The proportion of young people attaining a C or above for STEM subjects is above 2019 levels across the board
- However, all subjects have declined since 2020 and 2021 as expected, but the percentage point decrease varies across STEM subjects.
- There were large decreases in Biology (-10.7%P), Chemistry (-10.1%P) and Computing (-10.7%P)

### STEM and Non-STEM grade comparison - 2019 to 2022.

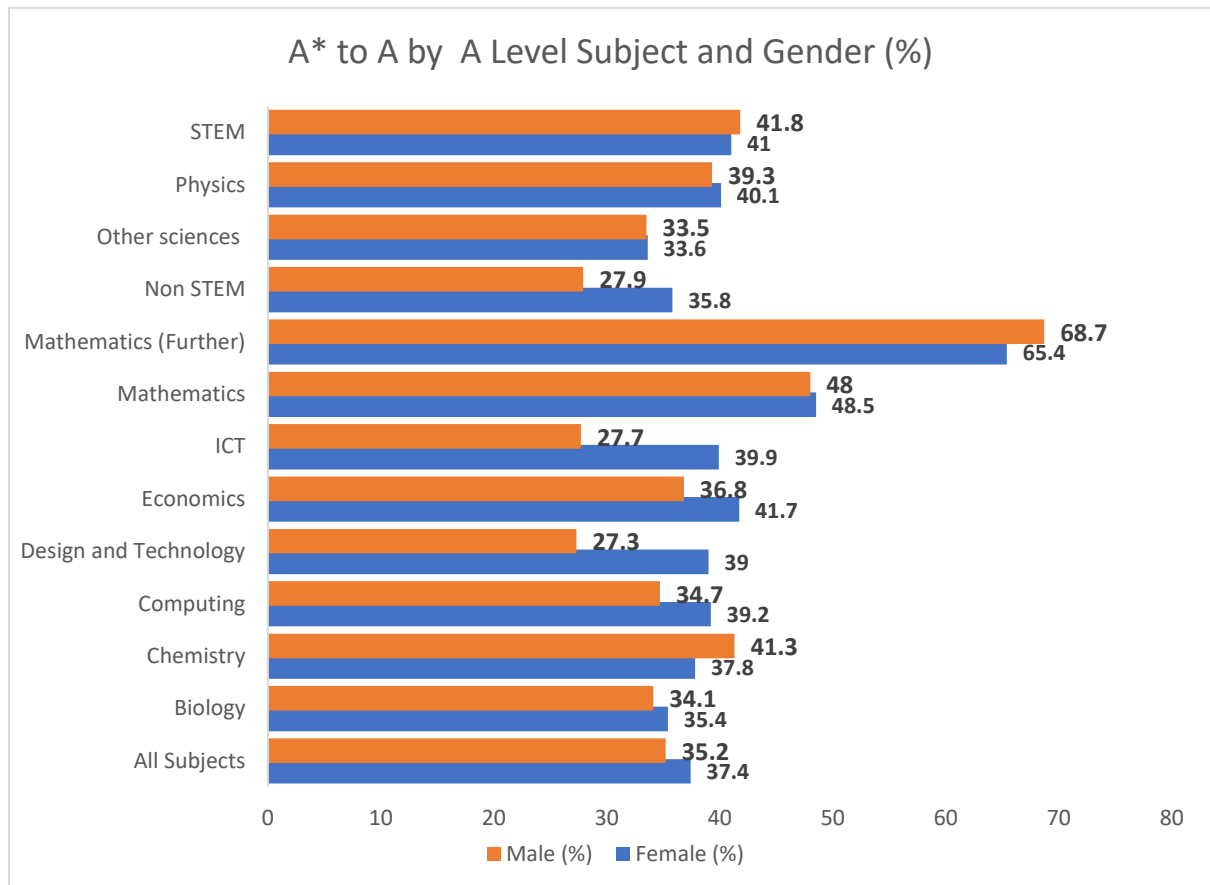
		2019	2020	2021	2022	2019 to 2020 (%p)	2020 to 2021 (%P)	2021 to 2022 (%P)
A* to A (%)	STEM Subjects	22.5	35.7	41.3	41.5	13.2	5.6	0.2
	Non-STEM	21.3	34.3	40.9	32.9	13	6.6	-8
	All Subjects	25.5	38.5	44.8	36.4	13	6.3	-8.4
A* to C (%)	STEM Subjects	69.7	87.9	86.2	79	18.2	-1.7	-7.2
	Non-STEM	77.9	88.8	89.5	85	10.9	0.7	-4.5
	All Subjects	75.8	88	88.5	82.6	12.2	0.5	-5.9

- Due to the high level of entries in mathematics and further mathematics and the relatively high attainment levels in those subjects, the overall STEM figure is skewed, resulting in a 2022 figure in line with 2021, masking the drop in attainment in all STEM subjects.
- The proportion of young people attaining an A\* to A has declined substantially across non-STEM subjects.
- The proportion of young people attaining an A\*-C has declined across the board, with STEM seeing a larger drop when compared to non-STEM subjects.
- The proportion of young people attaining an A\*-C in STEM subjects is below that of non-STEM subjects.
- 2022 results are significantly above the 2019 figure when examinations last took place.

### Gender

As we look to increase female participation in STEM and more widely in the engineering workforce, it is important to understand grade distribution by gender. Below are shown the A Level results for STEM subjects by gender.

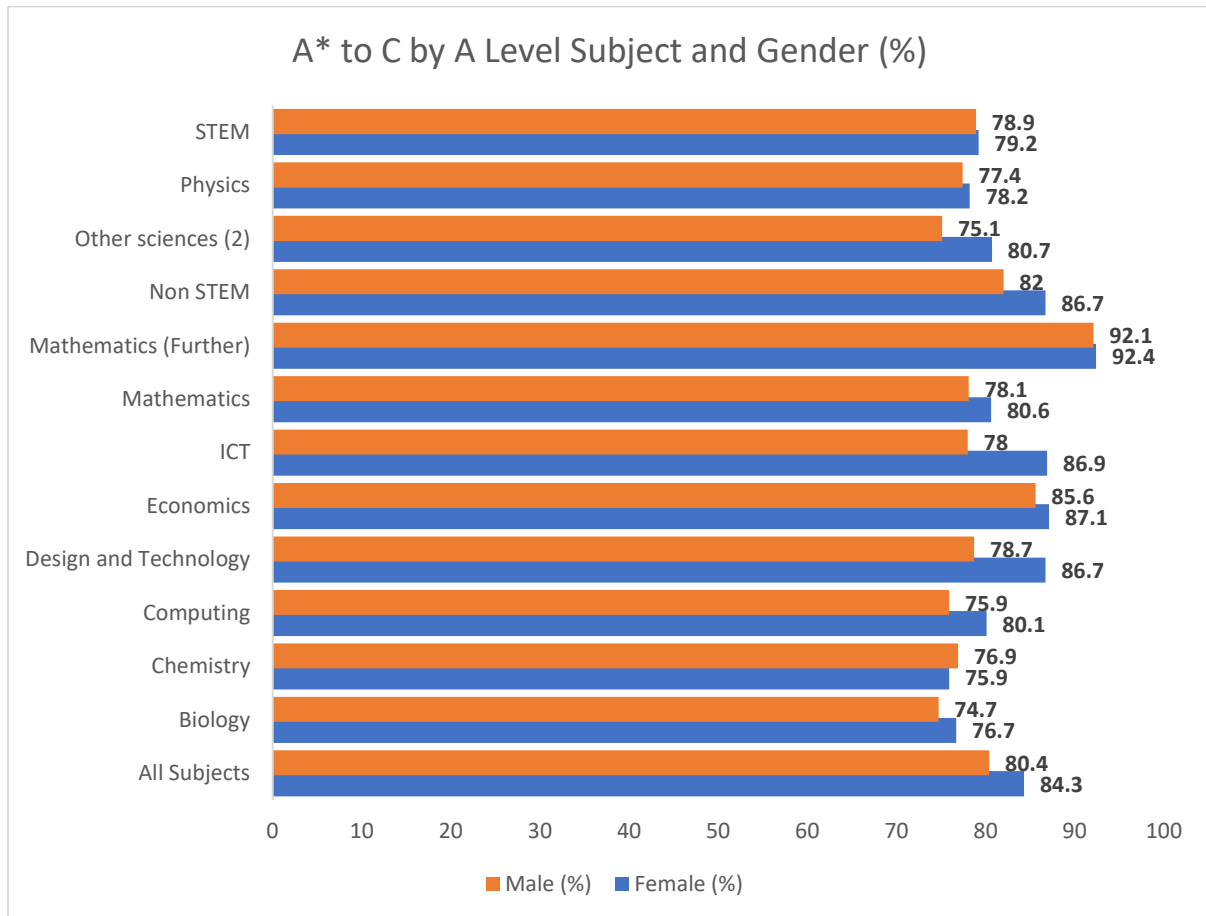
### A\* to A for STEM Subjects by Gender



- Females outperform males in the majority of STEM A Level subjects for the proportion attaining A\*to A grades.
- Females outperform males in Physics, ICT, Economics and Design and Technology
- Males outperform Females in Further Mathematics and Chemistry.

- For the rest of the STEM subjects Females and Males are generally in line with one another.
- There is a larger gap in favour of females in non-STEM subjects.

### A\* to C for STEM Subjects by Gender



- Looking at the distribution of grades A\* to C in STEM subjects by gender we can see females are generally performing better than males.
- Females outperform boys in Other Sciences, Mathematics, ICT, Economics, Design and Technology, Computing and Biology.
- In all other STEM subjects' males are either in line with or narrowly below females, with the exception of Chemistry
- There is a larger gap in favour of females in non-STEM subjects for the proportions attaining A\* to C at A Level.

### Scottish Higher Results

As with the situation in the rest of the UK, this is the first set of results based on examinations since 2019. The Scottish Qualification Authority announced a series of measures to support and minimise the impact of the pandemic on young people's educational outcomes. The measures included including course assessment modifications

and revision support, as well as wider support from across the education system at a national, regional, local and school/college level.<sup>3</sup>

Scottish Highers are roughly equivalent to A Levels in England, Wales and Northern Ireland. Unfortunately, due to the way the results are released there is no gender breakdown therefore we are unable to see if there is any gender disparity.

**Proportion of young people attaining A, A to B and A to C in Scottish Highers by STEM and non-STEM 2022, with 2021 comparison in brackets**

	A (%)	A to B (%)	A to C (%)
STEM <sup>4</sup>	36.7 (44.1)	57.6 (64.2)	75.6 (81.9)
Non-STEM	34.0 (49.2)	59.8 (69.8)	80.4 (87.3)
All Subjects	34.8 (47.6)	59.1 (69.8)	78.9 (87.3)

- The proportion of young people attaining an A in STEM is above that of non-STEM subjects.
- The proportion of young people attaining A to B and A to C in STEM subjects is below that of non-STEM subjects.
- STEM saw smaller declines than non-STEM subjects between 2021 (Teacher assessed) and 2022 Examinations based assessment.

**Results by STEM subjects in Scottish Highers 2022 with 2021 comparison in brackets**

	A (%)	A to B (%)	A to C (%)
Administration and IT	34.8 (48.7)	60.4 (73.9)	80.1 (90.9)
Applications of Mathematics	23.6 (N/A)	43.7 (N/A)	69 (N/A)
Biology	30.4 (37.2)	52.8 (58.3)	75.3 (78.1)
Chemistry	34.9 (43.4)	59 (63.2)	78.3 (81.4)
Computing Science	36 (49.2)	54.3 (69)	71.2 (86.2)
Design and Manufacture	17.5 (30.1)	38.6 (56.9)	67.5 (81.3)
Economics	50 (63.1)	69.9 (81.1)	81.4 (92.6)
Engineering Science	27.4 (40.1)	48.9 (62.4)	69.2 (83.1)

<sup>3</sup> [https://www.sqa.org.uk/sqa/files\\_ccc/nq2022-chief-examining-officer-report.pdf](https://www.sqa.org.uk/sqa/files_ccc/nq2022-chief-examining-officer-report.pdf)

<sup>4</sup> List of STEM Subjects previously defined as STEM in Scotland: Administration and IT, Applications of Mathematics, Biology, Chemistry, Computing Science, Design and Manufacture, Economics, Engineering Science, Environmental Science, Fashion and Textile Technology, Health and Food Technology, Mathematics and Physics

Environmental Science	20.2 (35)	42.2 (60.2)	68.8 (80.6)
Fashion and Textile Technology	19.4 (51)	44.4 (76.5)	72.2 (94.1)
Health and Food Technology	16.5 (46.7)	41 (71.1)	67.9 (89.5)
Mathematics	45.9 (47.1)	62.7 (64.6)	75.3 (80.1)
Physics	37 (42.5)	59.9 (62.7)	77.9 (80.8)

- There were some large declines across all the grade distribution in STEM subjects.
- The subjects which saw largest declines include Environmental Science, Fashion and Textile Technology, Design and Manufacture and Health and Food Technology.
- Core Science subjects saw some of the smallest declines compared to 2021.