Grade comparisons of mathematics in the International Baccalaureate Diploma Programme and GCSE

Background

The International Baccalaureate (IB) commissioned Ecctis to conduct a comparative analysis focused on the demand of mathematics assessments in the IB Diploma Programme (DP) and the General Certificate of Secondary Education (GCSE).

The DP, with its comprehensive set of courses and requirements, is pursued by many students worldwide, with over 100,000 candidates in 2023. A significant number of these students seek to gain entry to higher education institutions in the United Kingdom (UK).

In addition to **Level 3** qualifications, such as A levels and the DP, UK universities sometimes require a **Level 2** qualification[1] in mathematics, such as the GCSE or Middle Years Programme (MYP).[2] Many DP students do not hold a GCSE or MYP qualification, as these were likely not offered by their school. This makes it important for UK higher education institutions to understand how mathematics achievement in the DP compares to that of the GCSE.

Common entry requirements for UK higher education institutions and professionally accredited degrees include GCSE mathematics grades 4, 5 and 6 (or equivalent). However, GCSE and DP mathematics are positioned at different levels, with the DP mathematics specifications and assessments for standard level (SL), and especially for higher level (HL), exceeding the demands of the GCSE.

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[1] For more information on the qualification levels set by the UK government, reference "What qualification levels mean".

[2] See previous research: International Baccalaureate Middle Years Programme (MYP): Grade Comparisons with the General Certificate of Secondary Education (GCSE).

Therefore, the analysis determined the lowest DP grade that demonstrated a level of mathematics achievement sufficient to meet the requirements of GCSE grades 4–6.

In this study, the researchers conducted a comprehensive comparative analysis of the syllabus content, assessment objectives, examination papers, markschemes and grade descriptors, focusing on a grade comparison analysis. The analysis considered both tiers of the GCSE (foundation and higher) and all subjects and levels offered in DP mathematics.

- Mathematics: analysis and approaches SL
- Mathematics: analysis and approaches HL
- Mathematics: applications and interpretation SL
- Mathematics: applications and interpretation HL

Key findings

A curriculum and assessment comparative analysis of mathematics in the DP and GCSE concluded:

- the specifications and assessments for DP mathematics SL subjects are significantly more demanding than those for GCSE mathematics, exceeding both the higher tier and, to an even greater extent, the foundation tier
- HL grade 2 shows more demand than SL grade 2, but both meet the requirements for a GCSE grade 4
- **a DP mathematics grade 2 (for either SL or HL)** demonstrates a level of mathematics achievement that is sufficient to meet the requirements of the **GCSE grades examined in this study (4–6).**
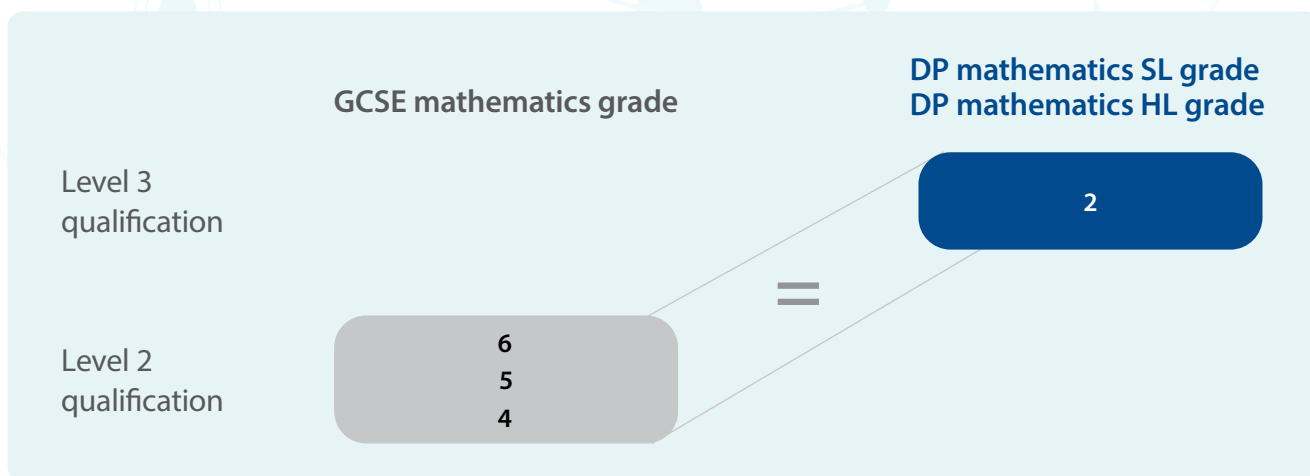

GCSE mathematics grade

DP mathematics SL grade
DP mathematics HL grade

Level 3 qualification

2

Level 2 qualification

6
5
4

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Figure 1: Grade comparison of DP and GCSE mathematics
Note: GCSE mathematics is graded 9 to 1 (highest to lowest) and DP mathematics is graded 7 to 1 (highest to lowest).

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