

## Relative difficulties of GCSE and IGCSEs® in summer 2015



Candidates' results from 16 GCSE subjects from the summer 2015 series were analysed using a polytomous version of the Rasch model - the Partial Credit Model (PCM). These are large entry subjects that count towards the English Baccalaureate school performance measure. To facilitate the analysis, the GCSE letter grades were converted into numerical values representing ordered category scores: U was converted to 0, G to 1, and so on, with A\* converted to 8.

The PCM models mathematically the relationship between the ability of a candidate and the probability of obtaining a particular score (grade) on an examination (subject) with known grade difficulties. Candidates with higher abilities will be more likely to obtain higher scores (grades) on the subject than candidates with lower abilities. By minimising the differences between the observed scores and the model predicted scores, the abilities of the candidates and the grade difficulties of the subjects can be estimated.

For each subject or examination, item characteristic curves (ICCs) can be used to compare the relative difficulty or standards of the examination between the exam boards. Figure 1 compares the ICC for CIE IGCSE® English (the green line), the ICC for all GCSE English/English language and IGCSE® English (the blue line), and the ICC for all GCSEs (ie not including CIE IGCSE® (the red line)). Across the full ability range, the three ICCs are very similar, suggesting that standards are well aligned.

**Figure 1:** ICC analysis

