Written evidence submitted by the DfE

The Evidence Base for Proposed Reform of the Examination System at Key Stage 4

November 2012

1. SUMMARY

1.1. The Committee has requested the evidence base used in drawing up proposals for reform of the examination system at Key Stage 4. To inform their decisions on these proposals, Ministers have drawn on evidence in the following areas:

- **The importance of a core academic curriculum;**
- **Problems in the existing system;**
- **Stagnating standards over time;**
- **The failure of the current system to support lower attaining pupils.**

1.2. High performing jurisdictions often set a compulsory academic core whilst allowing schools the local freedom to implement it in the way they see fit. In particular, the subjects that make up the English Baccalaureate measure in the Key Stage 4 performance tables in England - English, mathematics, the sciences, history, geography, and languages – are compulsory in many high performing jurisdictions until age 16. As outlined in section 2, the introduction of this measure in the performance tables has had a positive effect on take up of core academic subjects in England. We now need to ensure that qualifications in these subjects are providing students with the level of knowledge and skills expected in our highest performing international competitors.

1.3. The structure of the existing qualifications market in England allows several Awarding Organisations (AOs), once recognised by Ofqual, to compete for market share. This oligopoly has created incentives for Awarding Organisations to drive down standards in order to win business from schools. The risks this poses to the education system were made clear in April 2012 when Ofqual reported on Awarding Organisation led seminars. Ofqual concluded that seminars concentrating on specific qualifications gave rise to a real risk that inappropriate information about the future content of secure exams is disclosed and that this could lead to a narrowing of the curriculum taught.

1.4. Further problems in the system have been highlighted this summer, with a report from Ofqual concluding that English GCSEs are exceptionally complex and difficult to award, and that there has been significant over-

marking of controlled assessment units.

1.5. The interaction of the current school accountability and examination system – where schools are incentivised to boost their performance by seeking examinations in which they believe their students will achieve higher grades, and Awarding Organisations have a corresponding incentive to compete for market share by providing less demanding examinations, has contributed to the stagnation of standards in England.

1.6. Increases in performance at GCSE have not been matched by the same level of improvements in learning; between 2006 and 2009, the proportion of students achieving a C grade or higher in English and mathematics GCSE increased by 8%. But comparison of international tests – where there is no incentive for achievement to be inflated – shows that this significantly overstates the actual improvement in attainment which has taken place. Evidence that the standards of our examinations have flat-lined and that the expectations they set for our students are now below those of our international competitors is set out in section 4.

1.7. Finally, the system is failing to support lower attaining pupils. Future prospects for pupils who fail to get a GCSE grade D or better are poor and tiered papers, where students are able to take either foundation (allows students to achieve grades C – G) or higher tier examinations (allows students to achieve grades A* - D) caps aspiration. This is discussed in section 5.

1.8. That is why the Government is proposing to move away from the competition between Awarding Organisations in the core academic subjects that make up the English Baccalaureate. The Department for Education will hold a competition to identify the single, best qualification, offered by a single Awarding Organisation, which could be adopted in each of these subjects, for a period of five years. The successful qualifications will have to demonstrate a stringent set of characteristics including minimal controlled or other internal assessment. The evidence to support these proposals is detailed in section 3.

2. THE IMPORTANCE OF A CORE ACADEMIC CURRICULUM

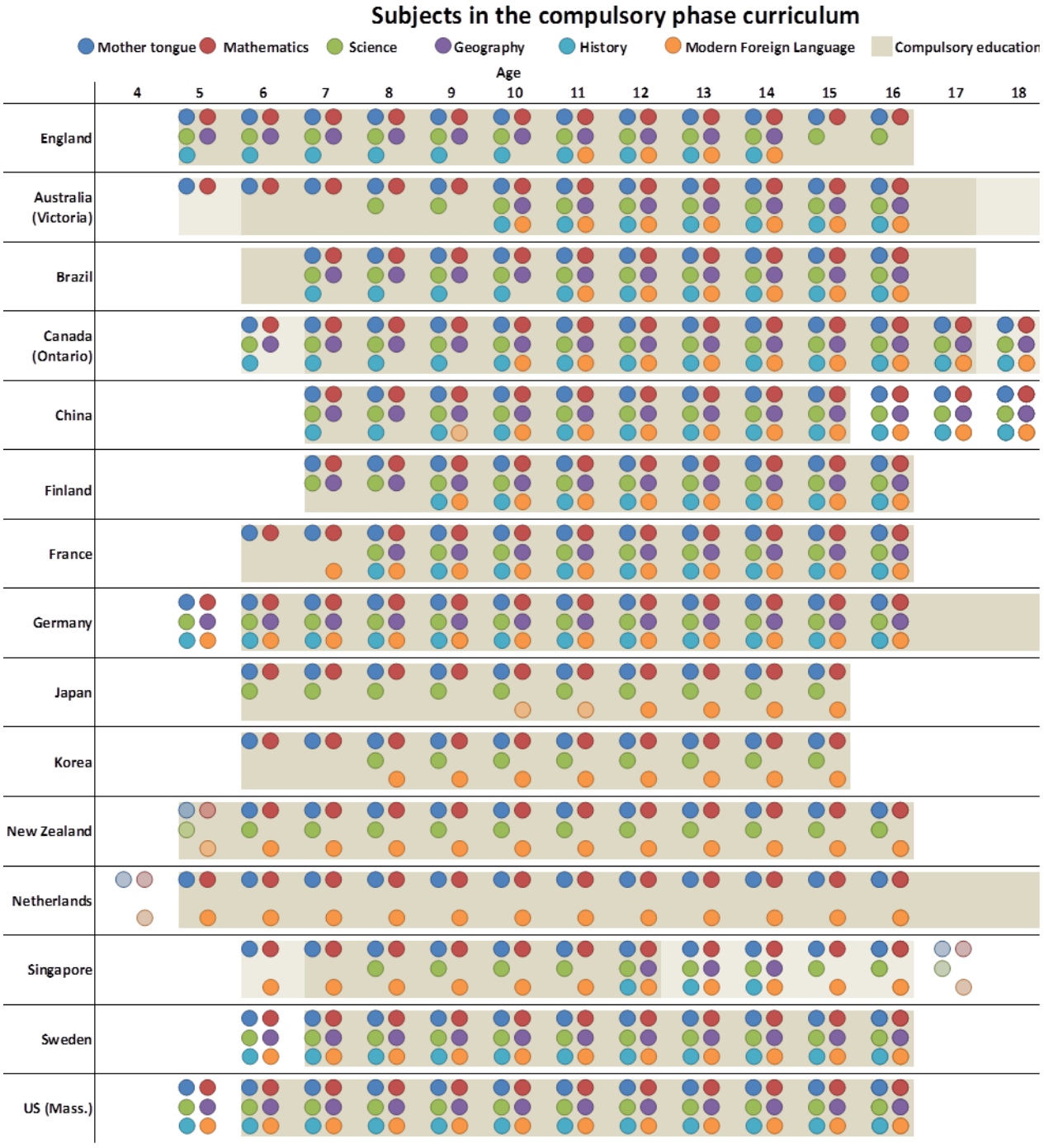
2.1. A feature of high performing jurisdictions is a requirement on all students to study a broad range of subjects to the age of 16[1]. In particular, many high performing jurisdictions have a compulsory substantive core up to age 16 that includes the mother tongue, mathematics, the sciences, modern foreign languages, history, and geography. Chart 1 shows these subjects in the compulsory phase curriculum for England and a number of high performing jurisdictions.

2.2. Chart 1 demonstrates that England narrows its curriculum for the majority of pupils earlier than more successful nations. Furthermore, perverse incentives in the current system have encouraged pupils to move

[1] Department for Education, (2011). *The Framework for the National Curriculum. A report by the Expert Panel for the National Curriculum review*. (London: Department for Education).

away from a core academic curriculum and we have seen a decline in opportunity to take core academic subjects at Key Stage 4, a trend that disproportionately affects pupils from the poorest backgrounds or attending schools in disadvantaged areas.

Chart 1: Subjects in the Compulsory Phase Curriculum in High Performing Jurisdictions and Emerging Economies[2], [3], [4]:



[2] DfE (2011) *The Framework for the National Curriculum. A report by the Expert Panel for the National Curriculum review, and* www.inca.org.uk *International Review of Curriculum and Assessment Frameworks Internet Archive*
[3] UNESCO (2011) World Data on Education, 7th edition: People's Republic of China
[4] UNESCO (2010) World Data on Education, 7th edition: Brazil

Chart 1 Notes:

England: At age 14- 16, science may be taught as combined science or as individual subjects: physics, chemistry and biology.

Australia, Victoria: The curriculum is expressed in three inter- related strands: physical, personal and social learning, discipline (subject) based learning, and interdisciplinary learning. The information in this table reflects the content of all three strands. History, geography and economics are combined as 'humanities' for students aged 8- 10.

Brazil: Portuguese and Brazilian literature, social studies (history and geography), sciences (physics, chemistry and biology), mathematics, one foreign language, arts, health programmes, and physical education are the subjects in the core curricula for secondary schools.

Canada, Ontario: Geography and history studied as part of social studies until age 12. Where French is studied as an immersion language, study begins at age 6.

In **China** mainland, students completing senior (general) secondary education sit the final examination (administered by the provincial authorities) in nine subjects: politics, Chinese, mathematics, a foreign language (normally English, but it may be also Japanese, Russian, French or German), physics, chemistry, biology, history and geography. Students also sit practical examinations in physics, chemistry and biology, and are assessed on their moral, ideological and political development. Successful students are awarded the senior middle school graduation certificate.

Finland: In Years 1 – 4, ages 7 - 11, geography, biology, physics and chemistry are taught – with health education - as a combined subject – 'environment and nature studies'. History is taught as history and civics.

France: Experimental science and technology for 8 to 11-year-olds, life and earth science for 11 to 12-year-olds, life and earth science and physics/chemistry for 12- to 16-year-olds. Geography and geography are part of humanities for 8 to 11 year olds, history/geography/civics for 11 to 12 year olds, and history/geography for 12 to 16 year olds.

Japan: Science is taught as life environment studies, ages 6-8. Recent changes mean that, from the 2011-12 academic year, English is being introduced as a first foreign language for elementary school studies in Years 5 and 6, ages 10-12.

The Netherlands: 'Social and environmental studies' includes geography, history, science (including biology), citizenship, social and life skills (including road safety). 'Healthy living/social structure' includes geography, history, science (including biology), citizenship, social and life skills (including road safety).

Singapore: Mother tongue includes a choice of Chinese, Malay or Tamil. For six to 10 year olds this includes health education and information literacy. At age 14, students choose at least one of: biology or human and social biology; physics; chemistry; science/integrated science. At age 14, students choose at least one of the humanities; literature; geography; history. English is taught as a foreign language from age 6; another language is an option at age 14. Other subjects available at age 14 include a third language (French, Japanese, German or Malay language elective);

art and crafts; music; fashion and Fabrics; food and nutrition; commerce; principles of accounts; design and technology; and religious knowledge.

USA, Massachusetts: Science is taught as science and technology. Geography and history are taught as 'social science/social studies' which includes US and world history, geography, economics, civics and government.

2.3. It is the Government's ambition for England to match the performance of leading international competitors. The subjects that make up the English Baccalaureate - English, mathematics, sciences, history, geography and languages - give pupils an academic foundation that is a secure basis on which further study, vocational learning or a satisfying apprenticeship can be built. Pupils who succeed in the English Baccalaureate subjects are more likely to progress onto A-levels, take more A-levels and, in both A-levels and other qualifications, get better results[5].

2.4. The introduction of the English Baccalaureate measure has resulted in the number of pupils studying physics, chemistry, biology, history, geography and foreign languages all rising. A recent nationally representative survey commissioned by the Department for Education[6] indicates that:

- 41 per cent of GCSE pupils are set to take history GCSE in summer 2014. That would be the highest proportion since summer 1994 when 39 per cent of pupils took history GCSE.
- 93 per cent of GCSE pupils are set to take double or triple science GCSE in summer 2014. That would be the highest proportion since summer 1994 when 79 per cent of pupils took it.
- 36 per cent of GCSE pupils are set to take geography GCSE in summer 2014. That would be the highest proportion since summer 2001 when 37 per cent of pupils took geography GCSE.
- 54 per cent of GCSE pupils are set to take a language GCSE in summer 2014. That would be the highest proportion since summer 2005 when 60 per cent of pupils took a language GCSE

2.5. The survey also indicates that the introduction of the English Baccalaureate performance measure has had an especially positive impact for poorer pupils. In 2010, 10 per cent of pupils in schools with a high proportion of children eligible for Free School Meals were taking a combination of subjects that could have led to the English Baccalaureate. 41 per cent of pupils in these schools started studying the set of key subjects from September 2012 – a 310 per cent increase. The rise over the same period in schools with a low proportion of students eligible for Free School Meals is 54 per cent. A table of actual and estimated take up of English Baccalaureate subjects between 2010 and 2014 is set out below at Annex A.

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[5] National Pupil Database.

[6] Ipsos Mori survey of state-maintained mainstream secondary schools conducted in June/July 2012.

2.6. We now need to ensure that qualifications in these subjects are providing students with the level of knowledge and skills expected of students in the highest performing jurisdictions.

3. PROBLEMS IN THE EXISTING SYSTEM

Qualifications Market

3.1. The structure of the existing qualifications market in England allows several Awarding Organisations (AOs), once recognised by Ofqual, to compete for market share and offer differing products and prices. In practice, the AOs have converged on similar prices for qualifications, suggesting that any competition is therefore in terms of the design of qualifications and the service that is offered to schools. As the Select Committee has said, this system is unusual, if not unique[7].

3.2. The oligopoly in England has created incentives for Awarding Organisations to drive down standards in order to win business from schools. Incidents of this occurring were raised in the media in December 2011 when it was reported that Awarding Organisations were revealing the content of their exams at teacher seminars, thereby driving a culture of teaching to the test.[8].

3.3. This expose resulted in an official inquiry into the examination system and in April 2012, Ofqual reported that there were 'specific incidents of malpractice' within the system[9]. Ofqual's report concluded that 'seminars concentrating on a specific qualification present unacceptable risks to the wider education system. There is a real risk that inappropriate information about the future content of secure exams is disclosed. And there is a risk of narrowing the curriculum through sessions on how to teach the specification'. In light of these findings Ofqual made a number of recommendations including that exam board face-to-face teacher training seminars that relate directly to the delivery of a specific, named qualification must not occur after 31st August 2013.

3.4. Furthermore, it is clear that the interaction of the current school accountability and examination system at Key Stage 4 has contributed to stagnating qualification standards – schools are incentivised to boost their performance by seeking examinations in which they believe their students will achieve higher grades, and Awarding Organisations have a corresponding incentive to compete for market share by providing less demanding examinations. The Education Select Committee's recent report on the administration of exams for 15 – 19 year olds in England concluded that 'the current system incentivises downward competition on content standards and we recommend that the Government act immediately to change these incentives'.

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[7] Education Select Committee: The administration of examinations for 15-19 year olds in England (July 2012).

[8] In autumn 2011 the Daily Telegraph sent undercover reporters to 13 seminars organised for teachers by awarding organisations. The Daily Telegraph published their findings in December 2011.

[9] Ofqual (April 2012) Exam Board Seminars, Final Report

3.5. The Government is proposing to move away from the competition between Awarding Organisations in the core academic subjects that make up the English Baccalaureate. The Department for Education will hold a competition to identify the single, best qualification, offered by a single Awarding Organisation, which could be adopted in each of these subjects, for a period of five years.

3.6. There is broad support, from across the educational spectrum, for a single awarding body model. A range of commentators have expressed concern that the current multi Awarding Body system is lessening the quality of specifications and there is widespread agreement that, if you were designing a system from first principles, a single awarding body model would be the preferred approach.

3.7. The following individuals and organisations provided evidence in support of a single awarding body to the Select Committee (for its report on the administration of examinations for 15-19 year olds in England):

- The Wellcome Trust
- SCORE (Science Community Representing Education)
- The Mathematical Association
- The Institute of Mathematics and its Applications
- The Association of Teachers of Mathematics
- NASUWT
- The National Union of Students (NUS)

3.8. Further detail of the comments made by these organisations in support of a single awarding body model is included at Annex B.

Grade Inflation

3.9. Grade inflation occurs when higher grades are awarded for work of comparable quality over a period of time (i.e. that work would have previously been given a lower grade). To assess whether the effect of rising grades is due to improved achievement or grade inflation (or an element of both) is very difficult. However the following figures illustrate at least the clear reduced potency of the signalling effects from the GCSE qualification over time.

3.10. Between 1988 and 2011 there was an almost continuous GCSE grade improvement[10]. Over this period, the proportion of candidates obtaining A*-C in English increased from 36 to 72%, and in mathematics from 31 to 67%. The attainment of 5+A*-C GCSEs including English and mathematics, and the

[10] A levels 2011 and GCSEs 2011, Alan Smithers, Centre for Education and Employment Research, University of Buckingham, 2011.

number of pupils scoring top grades has also increased. In 2005 44.7% of pupils achieved of 5+A*-C GCSEs including English and mathematics; this increased to 58.9% in 2011. In 2011, 4.2% of pupils achieved ten or more GCSEs at A or A* compared to 2.5% in 2005[11].

3.11. The reduction in the proportion of A*-C grades awarded in summer 2012 was the first time such a fall has been recorded since the introduction of GCSEs, and does not detract from the overall picture; the concerns that have been raised about grading have demonstrated how the current modular exam system can be unfair to students..

3.12. If more students obtain the highest GCSE grades available year after year, these grades are likely to lose their currency with employers; grade inflation will make it more difficult to correctly distinguish the top performing pupils and hide gaps in the real ability of pupils achieving a 'pass grade'.

Table A: GCSE attainment in mathematics and English 1988 – 2011[12]

Percent of entries											Thousands
GCSE Mathematics	Grades obtained										Total Entries
	A*	A	B	C	D	E	F	G	U,X	A*-C	
1988	.	.	.	.	.	.	.	.	.	31	.
1993	-	10	12	24	15	16	12	6	6	46	461.1
1998	3	9	17	20	15	16	10	6	5	48	537.0
2003	3	9	18	21	16	15	9	4	4	51	613.4
2008	5	11	17	26	16	11	7	4	3	59	731.9
2011	**7**	**14**	**18**	**29**	**12**	**9**	**7**	**3**	**2**	**67**	**598.6**

Percent of entries										Thousands
GCSE English	Grades obtained									Total Entries
	A*	A	B	C	D	E	F	G	U,X	A*-C	
1988	.	.	.	.	.	.	.	.	.	36	.
1993	-	11	19	26	20	13	7	2	1	56	478.0
1998	3	10	18	26	20	13	7	3	1	56	520.0
2003	3	12	21	24	19	11	6	3	1	60	577.4
2008	4	12	21	26	19	10	5	2	2	65	642.8
2011	**5**	**14**	**23**	**30**	**15**	**7**	**3**	**1**	**1**	**72**	**587.5**

[11] DfE SFR – GCSE and Equivalent Results in England, 2010/11 (Revised).
[12] Figures are for pupils at the end of key stage 4. Prior to 2005, data relates to pupils aged 15 at the start of Key Stage 4. Figures are not available by grade prior to 1993; exam data in earlier years were produced from the Department's annual School Examinations (Form 7d) and 113FE surveys.

3.13. The following evidence suggests that this increase in GCSE attainment seen over time has not been matched by the same level of improvements in learning:

- Evidence using baseline comparison tests (YELLIS)[13] suggests that candidates of comparable ability are being awarded higher grades each year[14]. A student who scored 45 (just below the average) on the YELLIS test could expect to achieve D grades in French, mathematics and history at GCSE in 1996, but by 2005 would be receiving C grades. Taking an average of 26 subjects, pupils of the same YELLIS standard could generally expect to achieve around half a grade higher in 2005 than they could in 1996.

- The Royal Society of Chemistry (2008) ran an online chemistry examination featuring questions from hundreds of GCSE and O-Level papers in chemistry from the last five decades. The average mark for the 1960s questions was 15%, and for each subsequent decade this rose steadily, reaching 35% for the 2000s[15]. The authors explain that changes to the syllabus and language used in examination papers may partly explain the difference in scores. For example, pupils may be likely to perform better on the syllabus closest to what they have been taught, and the phrasing of questions that they are used to. However, they argue that this is unlikely to provide a complete explanation.

3.14. Ofqual, as the regulatory body for external qualifications in England, publish reports reviewing standards on various subjects at different intervals. The most recent reviews of GCSE mathematics, biology and chemistry indicate that the qualifications are less demanding in 2008 compared with previous years, particularly for mathematics and biology. This has been attributed to changes in the structure of the assessments rather than the content[16.]

3.15. The independent sector is moving away from GCSEs and choosing other qualifications that they see as offering more rigour and therefore better preparing their students for further learning and entry to the best universities. In 2011, nearly 20,000 pupils in independent schools were not enrolled for GCSE mathematics compared to 2,500 pupils in 2006. Over 150 independent schools are now not offering GCSE mathematics to the substantial majority of their pupils[17]. Cambridge Assessment reported that the take up of their

[13] The YELLIS test began in 1994 and has been used to analyse the GCSE results of pupils. The test was taken by pupils in Year 10 or 11 and provided a baseline to compare against GCSE grades.
[14] Coe, R. (2007) Changes in standards at GCSE and A-Level: Evidence from ALIS and YELLIS – Report for the ONS by Robert Coe – CEM Centre, Durham University, April 2007
[15] The Royal Society of Chemistry (2008) The Five-Decade Challenge – A wake-up call for UK science education?
[16] Ofqual (2012a) Review of Standards in GCSE Biology 2003 and 2008; Ofqual (2012b). Review of Standards in GCSE Mathematics 2004 and 2008; Ofqual (2012c). Review of Standards in GCSE Chemistry 2003 and 2008.
[17] Internal DFE analysis of the amended 2011 GCSE results file

iGCSEs has increased in UK schools (state and independent) by 119%[18] in the last year.

Standard of GCSE Grade C

3.16. GCSE grade C is often required for entry into further education and employment. The grade descriptors at Annex C are used to guide the award of grade C in English, maths and science GCSEs. The descriptions capture the average performance expected to achieve the mid-point of grade C. It should be noted that GCSEs are assessed in a compensatory way, meaning that the final grade is based on the total marks achieved across all components of the GCSE. The compensatory nature of GCSEs allows students to gain marks in their stronger areas to compensate for weak performance elsewhere. This means that many students achieving a given grade will not demonstrate consistent performance across all areas tested.

3.17. The evidence below suggests that public confidence in the GCSE and in particular the standard required to achieve the 'pass grade' has been damaged and may not be fit for purpose.

- 35% of employers report dissatisfaction with literacy skills of school and college leavers, and 30% report dissatisfaction with numeracy skills[19].

- In the past year, more than two in five employers (42%) report that they have organised remedial training for at least some young people joining them from school or college. A fifth of firms included in the survey have provided training in literacy (20%) and 18% in numeracy (CBI survey, 2012).

3.18. This evidence is supported by statements made by employer associations in June 2012:

- Mike Harris, Head of Education Policy at the Institute of Directors has said: 'Employers are concerned that standards in British exams have slipped, so action to make qualifications more demanding is welcome. We strongly support Government reforms to increase standards in all areas of education.'

- Neil Carberry, the CBI's Head of Education and Skills Policy has said: 'We are concerned that GCSEs in their current form may not be delivering. With the leaving age for compulsory education about to change to 18, the time is right to review the role of a summative exam at 16.'

- Adam Marshall, Director of Policy at the British Chambers of Commerce has said: 'Businesses have steadily lost confidence in the ability of the education system to deliver young people who are ready for the world of

[18] Cambridge International Examinations 2012: http://www.cie.org.uk/news/features/detail?feature_id=47912
[19] CBI Education and Skills Survey, 2012

work. If this is a route that leads more employers to say more young people are ready for the world of work, then it will have been successful.'

3.19. However, the UK CES Employer Skills Survey found that employers are much more likely to report school leavers lack experience/maturity or have poor attitude/motivation, than a lack of literacy and/or numeracy skills.[20]

Controlled Assessment

3.20. Further problems in the system have been caused by the move towards controlled assessment. This replaced coursework in 2009 and was introduced in an attempt to tackle problems with coursework that were undermining confidence in GCSEs, due to concerns about plagiarism and the perception that it conferred an advantage to those pupils whose parents could offer them greater support. However, Ofqual evaluation tells us that schools have had major concerns about the manageability of controlled assessment in GCSEs and its impact on teaching time and methods[21]. The report also cites concerns that, rather than promoting in-depth independent learning, CA tests rote learning (particularly in modern foreign languages).

3.21. Controlled assessment has also contributed to the grade variations seen by some schools in GCSE English exams this summer. A recent report by Ofqual concludes that the complexity and poor design of GCSE English exams, along with too much emphasis on school-based controlled assessment, led to some schools in England experiencing grade variations this summer. The incentive created by performance measures to ensure as many students as possible achieve a C grade led to significant over-marking of controlled assessments - where work is marked by teachers in schools[22].

3.22. It is proposed that EBCs should restrict the use of controlled assessment, coursework or other forms of internal assessment, as far as possible, in all six English Baccalaureate subjects. This will free up teaching time and reduce opportunities for the malpractice associated with internal assessment. It will ensure that assessment judgments are of the highest quality and will limit the rote learning of isolated tasks.

3.23. We will be consulting on how these new qualifications will be used to hold schools accountable later this year.

4. STAGNATING STANDARDS

4.1. There is a growing body of evidence to suggest that England's performance in international studies has stagnated at best, and that the expectations set by our examinations are now below those of our leading international competitors. International benchmark studies offer insight into changes over time in patterns of attainment in England:

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[20] UK CES (2012) *UK Employer Skills Survey 2011*
[21] Ofqual, Evaluation of the Introduction of Controlled Assessment, October 2011
[22] Ofqual, GCSE English 2012, November 2012.

International Comparisons

- The gap in attainment begins at primary school. In the PIRLS study[23], among 28 jurisdictions participating in both 2001 and 2006, eight showed significant gains in average reading achievement at age 10. These were Russia, Hong Kong, Singapore, Slovenia, the Slovak Republic, Italy, Germany, and Hungary. England, by contrast, saw a significant decrease. Much of the fall was due to fewer children reaching the highest level: 20 per cent in 2001 but 15 per cent in 2006.

- The TIMSS 2007[24] assessment of 10-year-olds found 16 per cent of children in England reaching the highest level of mathematics performance. This compared to 41 per cent in Singapore and 40 per cent in Hong Kong. It should be noted that in the TIMSS study the scores of England's 14-year-olds rose significantly in mathematics from 1999 to 2007, and for science the previous high performance was maintained in both age groups. However, it is clear that there is still a big gap between England and the leading countries in this survey.

Table B: England's average scores in TIMSS Grade 8 assessments

	TIMSS 1995	**TIMSS 1999**	**TIMSS 2003[25]**	**TIMSS 2007**
Year 9 Maths	498	496	498	513*
Year 9 Science	533	538	544	542

* - statistically significant increase on the previous round.

- The OECD found that average attainment of 15-year-olds in England in reading, mathematics and science had not changed significantly between their two most recent PISA[26] studies (2006 and 2009). England has, however, fallen in the international rankings in all three subjects. Two new countries / jurisdictions entered PISA for the first time in 2009 (Shanghai-China and Singapore) and significantly outperformed the UK. A number of previously participating countries have also increased their mean performance and pushed the UK down the rankings. These included Germany, France, Norway and Iceland in reading; Norway and the Slovak Republic in mathematics; and Switzerland in science.

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[23] Progress in Reading and Literacy Study (PIRLS): see national reports for England at www.NFER.ac.uk/PIRLS

[24] Trends in International Mathematics and Science Study (TIMSS): see national reports for England at www.NFER.ac.uk/TIMSS

[25] In TIMSS 2003, the sample for Grade 4 in England met the international sampling requirements. In Grade 8 the standards were met for pupils' participation, but not for schools' participation. Because the pupil participation rate was met, IEA considered it appropriate to weight the data using schools' performance in national tests and examinations, and, with this caveat, they are used for comparisons in the international report.

[26] Programme for International Student Assessment (PISA): see national reports for England at www.NFER.ac.uk/PISA

- The OECD's has confirmed that "education performance in England measured by PISA scores remains static and uneven"[27]. It praises the introduction of the pupil premium. It also recommends more autonomy across school types, consistent with our free school and Academies policies. Dr Andreas Schleicher, Head of OECD's Indicators and Analysis Division, commenting on the PISA 2009 findings, said that UK performance had "stagnated at best".

Table C: England's rank among all countries participating in PISA 2000, 2006 and 2009

Subject	Rankings for UK		
	2000 (32 countries)	2006 (57 countries)	**2009** (65 countries)
Reading	7th (England 7th)	17th (England 17th)	**25th (England 25th)**
Mathematics	8th (England 8th)	24th (England 24th)	**28th (England 27th)**
Science	4th (England 4th)	14th (England 14th)	**16th (England 16th)**

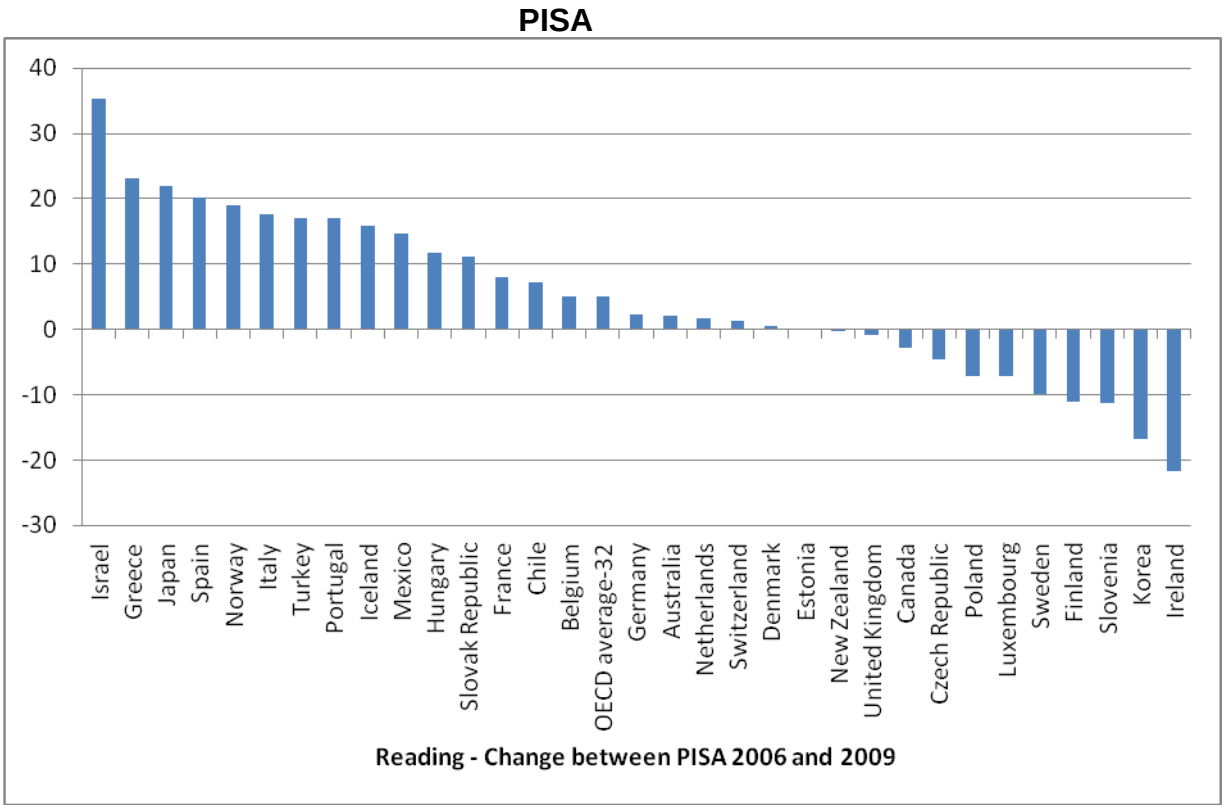
- It should be noted that the PISA 2000 and 2003 samples for the United Kingdom did not meet the PISA response rate standards, so data from the United Kingdom are not comparable with other countries.

- An independent report by the Statistical Sciences Research Institute at the University of Southampton looked at the bias in mean scores that resulted from the failure of the UK PISA sample to meet the response rate standards in 2000 and 2003. The authors estimated that the bias would have shifted England's position in a ranking of countries by about one place[28]

[27] OECD Economic Survey of the UK 2011

[28] John Micklewright & Sylke V. Schnepf (2006) *Response Bias in England In PISA 2000 and 2003* Southampton Statistical Sciences Research Institute https://www.education.gov.uk/publications/eOrderingDownload/RR771.pdf

Chart 2: change in PISA reading scores between 2006 and 2009



- In PISA 2006, TIMSS 2007 and PISA 2009 there is a decline in the proportion of pupils achieving the highest attainment levels. In TIMSS 2007 just 8% of England's 14-year-olds reached the highest benchmark for Mathematics. In Chinese Taipei this figure was 45%.

- Language attainment in England is also among the very worst in Europe. In June 2012, the European Commission published the findings of its first-ever study of language attainment, the European Survey on Language Competences. For reading, listening and writing in French and in German, England was at or near the bottom of the rankings. More generally, England performed poorly for both the first and the second taught language across all sixteen participating countries. Sweden, Malta and the Netherlands performed consistently highly[29].

[29] National Foundation for Educational Research (2012) European Survey on Language Competences (ESLC): Initial Findings – see http://www.nfer.ac.uk/publications/ELDZ01

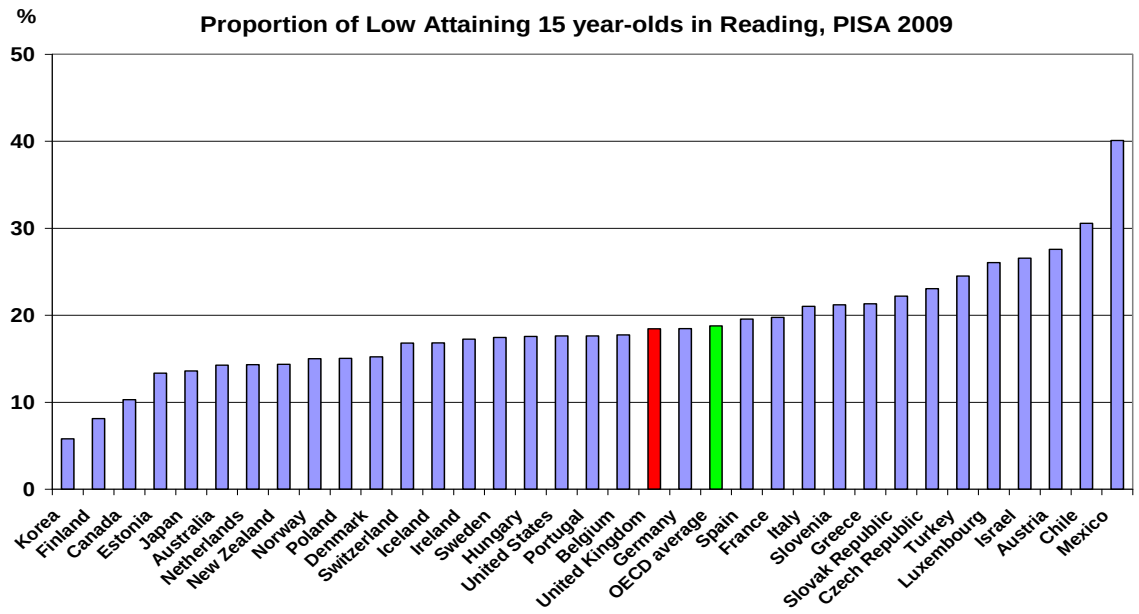
5. THE FAILURE OF THE CURRENT SYSTEM TO SUPPORT FOR LOWER ATTAINING PUPILS

5.1. The current system is failing lower attaining pupils. The structure of tiered papers, where students are able to take either foundation (allows students to achieve grades C – G) or higher tier examinations (allows students to achieve grades A* - D) caps aspiration. Future prospects for pupils who fail to get a GCSE grade D or better are poor.

International Comparisons

5.2. In reading in PISA 2009, England's proportion of low attainers (17.4% scored below level 2 in the PISA measurement) is similar to the OECD average of 18.8%. However, the high-scoring countries did considerably better - in Korea only 5.8% performed below level 2, and in Finland it was 8.1%.[30]

Chart 3:



5.3. Socio-economic disadvantage has a strong impact on student performance in England: Students with a higher socio-economic status in England were shown to achieve the equivalent of a year's progress (44 PISA points) higher, on average, than their peers in the 2009 PISA study. This compares with a difference of just under a year's progress (38 PISA points) on average across OECD countries. Although socio-economic disadvantage also has a strong impact on performance in some high-performing countries (for example New Zealand and Singapore), the impact of socio-economic status on attainment in Hong Kong (17 points), Shanghai (27 points) and Finland (31 points) is significantly lower.

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[30] Organisation for Economic Cooperation and Development (2010) *PISA 2009 Results: What Students Know and Can Do - Student Performance in Reading, Mathematics and Science* (Volume 1) Paris: OECD

5.4. Among the countries that showed improvements in average reading performance since 2000, most can attribute those gains to large improvements among their lowest performing students. In most of these countries, the gap in reading scores between the highest- and lowest performing students narrowed; and in some countries the impact of socio-economic background on performance weakened between 2000 and 2009.[31]

5.5. The OECD[32] says: "A variety of policy changes (Chile, Portugal), policies targeted at disadvantaged, mainly immigrant, students (Germany) and sweeping education reform (Poland) all helped in their own ways, in their specific contexts, to raise performance levels among low achievers. PISA results suggest that the countries that improved the most, or that are among the top performers, are those that establish clear, ambitious policy goals, monitor student performance, grant greater autonomy to individual schools, offer the same curriculum to all 15-year-olds, invest in teacher preparation and development, and support low-performing schools and students."

5.6. A case study providing further detail of how Germany narrowed the gap in scores between their highest- and lowest-performing students can be found at Annex D.

Tiered Qualifications

5.7. In the current GCSE system, students are able to take either foundation or higher tier examinations in a number of GCSEs, including all of the English Baccalaureate subjects except history. The higher tier allows students to achieve grades A* - D and the lower tier allows students to achieve grades C - G.

5.8. This structure fails lower attaining students. The prospects for those students taking a foundation tier paper are poor; progression rates for students achieving C grade are much lower than for those achieving A* - B. Further education institutions frequently require a B grade or higher at GCSE for access to some A Level courses.

5.9. There is some research to suggest that there may be a negative impact of grouping by ability on the motivation and self-esteem of students assigned to low ability groups[33]. Having a grade-cap in foundation tier examinations is also likely to be de-motivating and limit the aspirations of students.

5.10. The Government believes that the new qualifications should not be tiered, removing the grade-cap that currently exists at C grade in GCSE foundation tier papers, to benefit all students and increase motivation and attainment possibilities.

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[31] OECD (2011) *PISA in Focus 2 - Improving Performance: Leading from the Bottom*
[32] *PISA in Focus 2*, ibid.
[33] Ireson, J and Hallam, S (1999): 'Raising Standards: is ability grouping the answer?' in Oxford Review of Education, Vol. 25, No. 3, 1999, and Ireson, J and Hallam, S (2007): Secondary school pupils' satisfaction with their ability grouping placements. in British Educational Research Journal, Volume 33, Issue 1, February 2007

5.11. The disadvantage potentially faced by students entered for lower tier papers, and who cannot, therefore, achieve above a grade C, is demonstrated by the following evidence:

Progression to A Level in a particular subject

- Progression to A Level in a given subject is largely dependent on a pupil gaining a grade A* to B in that subject at GCSE: for example in mathematics, almost no students with a C grade GCSE continued that subject to A Level in 2011 compared to 22% of those with a grade A* to C[34] (Annex E).

Progression to any Level 3 qualifications

- Half of end-KS4 pupils progressed to level 3 qualifications and 36% of them took A-levels in 2011[35].

- Progress rates for those achieving grade C are much lower than those achieving higher grades. In 2011, 96% of those who achieved an A*in English or mathematics progressed onto Level 3 whereas only 55% of those achieving a C in mathematics and 53% of those achieving a C in English progressed onto Level 3 qualifications (Annex F)[36].

University requirements for a B (+) to enter particular courses

- There is evidence of some Universities requiring GCSE Grades B or above for some undergraduate Courses (Annex G).

College requirements for a B (+) to enter particular courses

- There is substantial evidence of FE colleges requiring a B grade or higher at GCSE for access to some A Level courses. Occasionally, colleges request that the C or B grade has been gained from a higher tier paper (Annex H).

Future prospects for low attainers in England

5.12. Future prospects for pupils who fail to get a GCSE grade D or better are poor, as demonstrated by the following evidence:

Attainment of Level 2 English or mathematics qualifications post 16

- A student who fails to get a D or better in English or mathematics by the end of Key Stage 4 has only a one in ten chance of continuing to study

[34] Data refers to pupils at the end of Key Stage 4 in 2009 who continued to A Level in a given subject – the source is DfE: National Pupil Database
[35] Data refers to pupils at the end of Key Stage 4 in 2009 and tracks progression up to 2010/11 – the source is DfE: National Pupil Database
[36] Data refers to pupils at the end of Key Stage 4 in 2009 who continued to any L3 qualification –the source is DfE: National Pupil Database

these GCSEs after the age of 16, and only a one in fifty chance of securing a C grade by 19[37].

Attainment at A Level[38]

For English:

- Only 3% of those gaining D-G in English in year 11 attained 2+ A levels by age 19 compared with 55% for those who had achieved A*-C.

- Almost no pupils gaining an F grade - just 0.2% - attained 2 or more A Levels (and only 1% of those gaining an E grade).

For mathematics:

- Only 6% of those gaining D-G in mathematics in year 11 attained 2+ A levels by age 19 compared with 56% for those who had achieved A*-C.

- Only 1% of pupils gaining an F grade (and 4% of those gaining an E grade) attained 2 or more A Levels.

Progression to Higher Education [39]

- Only 5% of pupils who achieved grades D- G in both English and mathematics progressed to HE – this compares to 62% of pupils who achieved an A*-C in both subjects.

- Only 2% of pupils who achieved grades E- G in both English and mathematics progressed to HE.

- Only 1% of pupils who achieved grades F- G in both subjects progressed to HE.

Wage returns to lower level qualification

- A study looking at returns to qualifications between 1993 and 2001 shows that there has been virtually no change in the estimated returns to most qualifications over the time period considered. An exception seems to be GCSE qualifications at grades D and below, the returns to which seem to have fallen from to 6-11% returns to zero by 2001[40].

[37] DfE: Matched Administrative Data
[38] Data covers those passing GCSE English/Mathematics when in year 11 in 2007/8 in maintained schools and tracks progression up to 2010/11: DfE: Matched Administrative Data
[39] Data produced using Higher Education Statistics Authority (HESA) data for 2010 and the 2006 Key Stage 4 National Pupil Database.
[40] McIntosh, S. (2002) Further analysis of the Returns to Academic and Vocational Qualifications: Centre for Economic Performance, London School of Economics, DfE RR370

NEETs data[41]

- 18% of young people with 5+ D-G grades at GCSE had spent 12 months or more NEET by the age of 18, compared to 4% of those with 5-7 GCSEs at A*-C (Annex I).

6. NEXT STEPS

6.1. The Department's consultation on reforming Key Stage 4 qualifications ends on the 10 December. Following this consultation, the Secretary of State will set out his policy steers for the new qualifications to Ofqual, and will ask Ofqual to consult on new, demanding regulations that will allow them to assess and regulate awarding organisations and their qualifications against these requirements.

6.2. Responses to the consultation will also inform an equalities impact analysis, which will be published alongside the Government response to the consultation. Key findings from our initial equalities impact analysis of the proposals are included at Annex J.

6.3. The Department will also be launching a separate consultation on secondary accountability later this year.

[41] DfE: Matched Administrative Data

Annex A: Actual and estimated EBacc take-up (2010-2014)

Date cohort starting Year 10	Sept 2008	Sept 2009	*Sept 2010*	Sept 2011	Sept 2012
Date cohort taking GCSE at end of KS4	June 2010[1]	June 2011[1]	*June 2012*	June 2013[4]	June 2014[4]
Full EBacc	22%	22%	*23%*[2]	46%	49%
History	30%	31%	*32%*[2]	39%	41%
Geography	25%	25%	*26%*[2]	33%	36%
Language	40%	38%	*40%*[2]	51%	54%
Double Science	46%	41%	*40%*[3]	57%	59%
Triple Science	16%	20%	*23%*[3]	31%	34%

Sources

[1] Figures sourced from the National Pupil Database.

[2] Figures sourced from data published by DfE: GCSE and Equivalent Results (Provisional) Statistical First Release October 2012. The SFR does not provide separate data for double and triple science entries but does confirm that 64% of the cohort entered double or triple science GCSEs; see footnote 3.

[3] Figures sourced from provisional data published by JCQ, which include all entrants to qualifications, not just at the end of KS4. The science figures have been estimated: using the KS4 cohort size as the denominator.

[4] Figures sourced from two nationally representative surveys of state-maintained mainstream secondary schools conducted in June/July 2011 and June/July 2012.

Annex B: Evidence in support of a single awarding body

1. The following individuals and organisations provided evidence in support of a single awarding body to the Select Committee (for their report on the administration of examinations for 15-19 year olds in England):

The Wellcome Trust

2. Found that **"**there are significant problems arising from the current model of multiple awarding bodies for academic qualifications for 15-19 year olds. If we were establishing the examination system from scratch, a single awarding body would be most favorable".

The Trust went on to say that:

3. "It seems likely that grades have reduced in part because the awarding bodies are competing for custom and teachers are likely to choose those qualifications that will yield the best performance for their schools and for their students. This process could happen without conscious direction from the awarding bodies. However, this process may be more explicit, as suggested by the fact that at least one awarding body uses grade improvement in its marketing, stating that its science GCSE course is "Proven to help improve grades..." backed up by a teacher's comments that she had "seen a big 18% increase in C+ grades" . Furthermore, Sir Mark Walport, chair of the Science and Learning Expert Group observed that, when giving evidence, awarding bodies openly admitted that they struggle to avoid competing with each other on grade standards."

   It cited the following more specific problems with the current multi exam board system:

- Variation in awarding processes across the bodies, and lack of transparency about how grades are arrived at;
- Errors in examination papers and the quality of the questioning in exams;
- Endorsement of textbooks by awarding bodies;
- The low level of teacher, HEI and professional body engagement in development of examinations.

SCORE (Science Community Representing Education)

4. SCORE found that "the assessments are not testing the specifications; therefore, even students with high grades are not prepared for the next stage in their career or education – despite the fact that the specifications suggest that they should be; and consequently, consumers of qualifications have lost confidence in the examinations system. This has come about because the five main Awarding Organisations (AOs) which cover England, Wales and Northern Ireland are competing for market share on the basis of enabling more candidates to get higher grades rather than on the basis of high quality assessments or high quality

curricula specifications. We ask that the Select Committee recommends significant changes that include drivers for quality in the examinations system and bring an end to the 'race to the bottom'.

Specific concerns raised by SCORE were that:

5. "The commercial nature of AOs has led to an erosion of standards. Because it is a priority for AOs to maintain market share in qualifications they will never make a unilateral change to an assessment that makes it more difficult to achieve a high grade (or, put another way, reduce the number of high grades) – as most schools are unlikely to choose an AO that offers fewer high grades. This has led to a continual increase in the number of students getting the high grades.

6. The nature of AOs we believe has led to some decisions being made on commercial rather than educational grounds. These decisions have affected both the content of the specifications (chosen to be easily assessable) and the way in which they are assessed (tending to concentrate on the lower levels of Bloom's taxonomy). The higher levels in the taxonomy (analysis, synthesis and evaluation) are rarely assessed. Attributes like curiosity, enthusiasm, imagination, persistence and teamwork are also relatively un-assessed; and therefore they are less likely to be taught.

7. Multiple AOs producing multiple specifications for the same qualification in the same subject means that the expertise is spread thinly. It calls into question whether there are enough people who have sufficient subject and examining expertise and experience in each subject in each of five main AOs in England, Wales and Northern Ireland. Additionally, having multiple AOs makes it hard for professional bodies and the subject communities to take any role in specification development, as all must be treated equally. This lack of engagement with subject communities results in a lack of confidence from users of the system, including HEIs and employers".

8. In summary, SCORE found that there were "very few advantages of providing the same qualification for a given subject, in competition, by multiple AOs. Although there are a number of risks, we would favor a model in which competition is not for market share within a qualification".

The Mathematical Association

9. The Association noted its concern that "the current competitive model may be creating downward pressure on genuine standards". It found that there are "potential advantages in working towards a single awarding body", whilst saying that there might prove to be "considerable barriers to such a move in the short to medium term" (in terms of implementation).

The Institute of Mathematics and its Applications

10. The Institute found that "the present competition between awarding organisations does not promote excellence in teaching mathematics in

schools, and may even drive down standards".

It took the view that "the introduction of appropriately challenging mathematics papers, for both GCSE and GCE, will not happen whilst multiple examinations exist that are intended to assess the same curriculum in the same way. We do not believe that awarding organisations will be willing to set more demanding questions enabling proper assessment of higher level skills for higher attaining students if by so doing they would risk losing market share", and recommended that "one approach would be to have a single awarding organisation and a single specification. This would ensure fairness for candidates. A single award would allow for far greater scrutiny, and would concentrate the talents of the best examiners. It would permit a wide variety of curricula and teaching approaches to flourish, and a range of textbooks to support this variety. It would make the case that teaching to the test is not regarded as providing a good curriculum."

The Association of Teachers of Mathematics

11. The Association was of the view that "the argument for a range of awarding organisations has always been that it offers choice and will help to maintain standards. In reality, market forces encourage competition and a race to the bottom – 'what can we get away with' (Science and Learning expert group). Schools may have concerns about the extent to which the exams they enter students for reflect the statutory curriculum, but the drive for results at any cost means they opt for the exams that they perceive to be 'easier'."

12. It went on to recommend that "in high stakes subjects like GCSE mathematics and English a national system of exam development would be preferable. This doesn't necessarily mean a national body for qualifications. Awarding organisations could continue to administer the nationally developed exam and provide support for centers, but by having a single exam issues around parity of esteem, maintenance of standards and quality of assessment design would be addressed."

NASUWT

13. NASUWT found that "the complexity of the current market presents significant challenges in the establishment of an effective accredited qualifications system that meets the legitimate needs of all those with a stake in the coherent and purposeful functioning of the system". It also stated that "competition between awarding bodies has led to a driving down of the quality of support and good practice."

14. The Union's recommendation was that: "the awarding and accreditation of qualifications, particularly key qualifications available in the 14-19 sectors, (should) be undertaken by a single, dedicated and appropriately accountable organisation located within the public sector."

The National Union of Students (NUS)

15. The union stated that a market in the examination system had introduced "perverse incentives for the end users and does nothing to address inequalities between those from advantaged and disadvantaged backgrounds."

16. It went on to say that "the practice of examination bodies producing study and revision resources for sale constitutes a potential conflict of interest. In particular, it seems that this creates a number of internal markets (the market for resources aimed at a particular examination from a particular examination body) in which fair competition is extremely hard to achieve", and recommended that "a single, centralised examinations body would offer a better, more reliable and more efficient examinations system."

Annex C: Definition of what is needed to achieve a C grade (mid-point) from the grade descriptors

The following grade descriptions are used to guide the award of grade C in English, mathematics and science GCSEs. The descriptions capture the average performance expected to achieve the mid-point of grade C.

Mathematics	
	Grade description
Grade C	Learners use a range of mathematical techniques, terminology, diagrams and symbols consistently, appropriately and accurately. Learners are able to use different representations effectively and they recognise some equivalent representations; for example numerical, graphical and algebraic representations of linear functions; percentages, fractions and decimals. Their numerical skills are sound and they use a calculator accurately. They apply ideas of proportionality to numerical problems and use geometric properties of angles, lines and shapes. Learners identify relevant information, select appropriate representations and apply appropriate methods and knowledge. They are able to move from one representation to another, in order to make sense of a situation. Learners use different methods of mathematical communication. Learners tackle problems that bring aspects of mathematics together. They identify evidence that supports or refutes conjectures and hypotheses. They understand the limitations of evidence and sampling, and the difference between a mathematical argument and conclusions based on experimental evidence. They identify strategies to solve problems involving a limited number of variables. They communicate their chosen strategy, making changes as necessary. They construct a mathematical argument and identify inconsistencies in a given argument or exceptions to a generalisation.
English Language	

Grade C	Learners adapt their talk to the demands of different situations and contexts. They recognise when standard English is required and use it confidently. They use different sentence structures and select vocabulary so that information, ideas and feelings are communicated clearly and the listener's interest is engaged. They explain and evaluate how they and others use and adapt spoken language for specific purposes. Through careful listening and by developing their own and others' ideas, they make significant contributions to discussion and participate effectively in creative activities. Learners understand and demonstrate how meaning and information are conveyed in a range of texts. They make personal and critical responses, referring to specific aspects of language, grammar, structure and presentational devices to justify their views. They successfully compare and cross-reference aspects of texts and explain convincingly how they may vary in purpose and how they achieve different effects. Learners' writing shows successful adaptation of form and style to different tasks and for various purposes. They use a range of sentence structures and varied vocabulary to create different effects and engage the reader's interest. Paragraphing is used effectively to make the sequence of events or development of ideas coherent and clear to the reader. Sentence structures are varied; punctuation and spelling are accurate and sometimes bold.
English Literature	
Grade C	Learners understand and demonstrate how writers use ideas, themes and settings in texts to affect the reader. They respond personally to the effects of language, structure and form, referring to textual detail to support their views and reactions. They explain the relevance and impact of connections and comparisons between texts. They show awareness of some of the social, cultural and historical contexts of texts and of how this influences their meanings for contemporary and modern readers. They convey ideas clearly and appropriately.
Science	

Grade C	Learners recall, select and communicate secure knowledge and understanding of science. They demonstrate understanding of the nature of science, its laws, its applications and the influences of society on science and science on society. They understand how scientific advances may have ethical implications, benefits and risks. They use scientific and technical knowledge, terminology and conventions appropriately, showing understanding of scale in terms of time, size and space. They apply appropriate skills, including communication, mathematical and technological skills, knowledge and understanding in a range of practical and other contexts. They recognise, understand and use straightforward links between hypotheses, evidence, theories, and explanations. They use models to explain phenomena, events and processes. Using appropriate methods, sources of information and data, they apply their skills to answer scientific questions, solve problems and test hypotheses. Learners analyse, interpret and evaluate a range of quantitative and qualitative data and information. They understand the limitations of evidence and develop arguments with supporting explanations. They draw conclusions consistent with the available evidence.
Additional Science	
Grade C	Learners recall, select and communicate secure knowledge and understanding of science. They demonstrate understanding of the nature of science, its laws, its applications and the influences of society on science and science on society. They understand how scientific advances may have ethical implications, benefits and risks. They use scientific and technical knowledge, terminology and conventions appropriately, showing understanding of scale in terms of time, size and space. They apply appropriate skills, including communication, mathematical and technological skills, knowledge and understanding in a range of practical and other contexts. They recognise, understand and use straightforward links between hypotheses, evidence, theories and explanations. They use models to explain phenomena, events and processes. Using appropriate methods, sources of information and data, they apply their skills to answer scientific questions, solve problems and test hypotheses. Learners analyse, interpret and evaluate a range of quantitative and qualitative data and information. They understand the limitations of evidence and develop

	arguments with supporting explanations. They draw conclusions consistent with the available evidence.
Biology	
Grade C	Learners recall, select and communicate secure knowledge and understanding of biology. They demonstrate understanding of the nature of biology and its principles and applications and the relationship between biology and society. They understand that scientific advances may have ethical implications, benefits and risks. They use scientific and technical knowledge, terminology and conventions appropriately, showing understanding of scale in terms of time, size and space. They apply appropriate skills, including communication, mathematical, technical and observational skills, knowledge and understanding in a range of practical and other contexts. They show understanding of the relationships between hypotheses, evidence, theories and explanations and use models, including mathematical models, to describe abstract ideas, phenomena, events and processes. They use a range of appropriate methods, sources of information and data, applying their skills to address scientific questions, solve problems and test hypotheses. Learners analyse, interpret and evaluate a range of quantitative and qualitative data and information. They understand the limitations of evidence and use evidence and information to develop arguments with supporting explanations. They draw conclusions based on the available evidence.
Chemistry	
	Learners recall, select and communicate secure knowledge and understanding of chemistry. They demonstrate understanding of the nature of chemistry, its laws, principles and its applications and the relationship between chemistry

Grade C	and society. They understand that scientific advances may have ethical implications, benefits and risks. They use scientific and technical knowledge, terminology and conventions appropriately, showing understanding of scale in terms of time, size and space. They apply appropriate skills, including communication, mathematical, technical and observational skills, knowledge and understanding in a range of practical and other contexts. They show understanding of the relationships between hypotheses, evidence, theories and explanations and use models, including mathematical models, to describe abstract ideas, phenomena, events and processes. They use a range of appropriate methods, sources of information and data, applying their skills to address scientific questions, solve problems and test hypotheses. Learners analyse, interpret and evaluate a range of quantitative and qualitative data and information. They understand the limitations of evidence and use evidence and information to develop arguments with supporting explanations. They draw conclusions based on the available evidence.
Physics	
Grade C	Learners recall, select and communicate secure knowledge and understanding of physics. They demonstrate understanding of the nature of physics, its laws, principles and applications and the relationship between physics and society. They understand that scientific advances may have ethical implications, benefits and risks. They use scientific and technical knowledge, terminology and conventions appropriately, showing understanding of scale in terms of time, size and space. They apply appropriate skills, including communication, mathematical, technical and observational skills, knowledge and understanding in a range of practical and other contexts. They show understanding of the relationships between hypotheses, evidence, theories and explanations and use models, including mathematical models, to describe abstract ideas, phenomena, events and processes. They use a range of appropriate methods, sources of information and data, applying their skills to address scientific questions, solve problems and test hypotheses. Learners analyse, interpret and evaluate a range of quantitative and qualitative data and information. They understand the limitations of evidence and use evidence and

	information to develop arguments with supporting explanations. They draw conclusions based on the available evidence.

Annex D: Case study – Germany

Between 2000 and 2009, Germany narrowed the gap in scores between their highest- and lowest-performing students by raising the performance of their lowest-achieving students while maintaining the performance level among their highest-achieving students[42].

OECD identified: "the main factors behind Germany's strong recovery as being the changes it has made to the structure of its secondary schools; the high quality of its teachers; the value of its dual system, which helps develop workplace skills in children before they leave school; and its development of common standards and curricula and the assessment and research capacity to monitor them"[43].

Common standards

Following PISA 2000 Germany introduced national educational standards for the first time. In primary schools they covered German and mathematics; with standards for German, mathematics, a first foreign language (English or French), and science (biology, chemistry and physics) in lower secondary schools. Standards at the end of upper secondary school were later introduced in seven subjects: mathematics, German, French, English, biology, chemistry and physics.

These performance standards describe in some detail subject-specific competencies that students are expected to meet. They are mandatory for all 16 German states and are benchmarked against international standards.

[42] OECD (2010) *PISA 2009 Results: Learning Trends – volume V*
[43] OECD (2011) *Strong Performers and Successful Reformers in Education: Lessons from PISA for the United States*

Annex E: Progression to A Level in a particular subject

The figures below refer to pupils, at the end of Key Stage 4 in 2009, who continued to A-level in a given subject (for example, GCSE mathematics to A-level mathematics).

Progress rates for pupils achieving grade C are much lower than for those achieving A* - C grades.

Progression to A-level 2011

	Mathematics	**Biology**	**Chemistry**	**Physics**
Proportion of candidates achieving a **C grade** going on to A Level in that subject	0%	4%	2%	1%
Proportion of candidates achieving **A* - C grades** going on to A Level in that subject	22%	31%	30%	18%

Annex F: Progression to any Level 3

Progression rates to level 3 qualifications are much higher for those achieving 5 or more A*/A GCSEs compared with those achieving 5 or more A*-C GCSEs.

	Main qualification route, 2011		
	None	**Level 3 qualifications**	**A-levels**
Of end-KS4 pupils in 2009	50%	50%	36%
5+ A*/A GCSEs incl English and maths	5%	95%	92%
5+ A*-C GCSEs incl English and maths	22%	78%	64%

Proportion of pupils who progress to any Level 3 qualification by subject and grade:

- Progress rates for those achieving grade C are much lower than those achieving grade B and above.

	Progress to any Level 3 qualification				
	Mathematics	**Biology**	**Chemistry**	**Physics**	**English**
A*	96%	97%	97%	97%	96%
A	88%	92%	92%	92%	91%
B	74%	81%	81%	82%	78%
C	55%	64%	67%	68%	53%

Annex G: University requirements for a B (+) to enter particular courses

There is evidence of some Universities requiring GCSE Grades B or above for some undergraduate Courses. For example:

UCL:
All programmes require GCSE or equivalent passes in English Language and Mathematics at grade C or higher. Some programmes require grades higher than C or additional GCSE passes in specified subjects. E.g.:

Biology - English Language and Mathematics at grade B.
Classics - English Language at grade B, plus Mathematics at grade C.
English - English Language at grade B,
History of Art - English Language at grade B,
Law - English Language and Mathematics at grade B.
Psychology - English Language, Mathematics and two Sciences (double award acceptable) at grade B.

Bristol:

Typical requirements for:

Biology - English, Sciences and Mathematics A*-B
Dentistry - Minimum of 5 GCSEs at grade A*/A to include English Language, Mathematics and two science subjects
Geography/Geology/Geoscience - Grade B or above in Mathematics
Medicine - Minimum five GCSEs at grade A to include English Language, Mathematics and two science subjects
Psychology - Mathematics, English and Science at grade B, but grade A Preferred
Veterinary Nursing - Grade B or above in Science, Mathematics and English Language, plus two other GCSEs at grade C or above
Veterinary Science - A minimum of 6A*/A grades normally expected, including Mathematics if Mathematics or Physics not offered at A- or AS-level

Annex H: College requirements for a B (+) to enter particular courses

There is substantial evidence of **FE colleges** requiring a B grade or higher at GCSE for access to some A Level courses. Occasionally, colleges request that the C or B grade has been gained from a higher tier paper. For example:

Abbeyfield School Sixth Form: Pupils must have achieved at least a C grade at GCSE in the subject they want to study at A Level. For some subjects a grade B is required (e.g. French, physics, mathematics achieved on the higher tier paper).

Caroline Chisholm School Sixth Form: the most challenging learning pathway (enables pupils to take up to 4 full A Levels) requires a strong array of GCSE grades and a B grade or better in subjects that pupils are continuing to study.

Elizabeth Woodville School Sixth Form: Requires 8 GCSE grades at an average of B, this must include a B Grade for each of the specific courses a pupil wants to access, and English and mathematics at grade C.

Walthamstow Academy: The minimum entry requirement for a Level 3 programme of study is 5A* to C grades at GCSE or equivalent in 4 or more subjects including English and maths. Some Level 3 subjects have specific entry requirements (such as a B grade at the higher tier of entry).

Hanson Sixth Form: Students taking A Levels will need to achieve at least five GCSE passes at grade C or above. Many subjects also state specific grade requirements (e.g. chemistry: A-C at GCSE, at least double B in additional science or a double A in applied science and at least a grade C in mathematics; modern foreign languages: 5 grade A-C at GCSE and a GCSE grade B or better in a language; mathematics: grade B, or better in mathematics - This grade will have been obtained at the higher tier).

Annex I: NEETs Data

Table 5.1.1: Months NEET since compulsory education by characteristics

	Weighted base	0 months NEET (%)	1 to 12 months NEET (%)	Greater than 12 months NEET (%)
All	*14,713*	69	23	8
Year 11 GCSE qualifications				
8+ A*-C	*6,847*	82	17	1
5-7 A*-C	*2,065*	72	23	4
1-4 A*-C	*2,998*	64	28	9
5+D-G	*1,541*	50	32	18
1-4 D-G	*711*	31	30	39
None reported	*543*	27	28	45

The source is the Longitudinal Study of Young People in England

Annex J: EQUALITIES ANALYSIS

7. The Government proposes the introduction of higher quality, more rigorous qualifications. Candidates will need to perform beyond the minimum levels which are currently required to achieve a grade C at GCSE if they are to demonstrate that they are literate and numerate, have a sound understanding of the subject studied, and are ready to move on to further study. All pupils will benefit from being provided with an accurate assessment of their performance that has real value for their future progression to further education and/or employment.

8. In assessing the potential impact of more rigorous qualifications our analysis has focused on the characteristics of high and low C grade (the current 'pass' grade) pupils in GCSE English, mathematics, geography, history, and French.

9. Initial equalities impact analysis of the proposals indicates that[44]:

- In all 5 subjects, SEN pupils are currently more likely to achieve a low C grade than a high C grade. If there are no improvements to teaching, SEN pupils are more likely than their peers to their grades be affected by the introduction of exams which require candidates to perform beyond the minimum levels currently required to achieve a grade C at GCSE (to show that they have sound knowledge of the syllabus and are ready to progress to further study).

- Boys are more likely than girls to achieve low C grades in GCSE mathematics, history and geography.

- Low C pupils are slightly more likely to be FSM, most noticeably in GCSE French.

10. This analysis should not be taken to set any specific expectation of what level of challenge the new qualifications will present, compared to GCSEs; the scenario is solely designed to investigate the possibilities of differential impact for different groups. It is also important to note that this analysis takes no account of any improvement in the quality of teaching, and therefore of student attainment, during the period before the introduction of the new qualifications. The Government expects wider reforms, through improvements to teacher training, Pupil Premium support for disadvantaged pupils, greater freedoms for head teachers and the growth of academies and free schools, to lead to higher aspirations and greater achievement for all pupils. So, even as qualifications become more rigorous, more students will be equipped to clear a higher bar.

November 2012

[44] Sourced from the 2011 Key Stage 4 National Pupil Database for pupils in the maintained sector in England only.