agenda

NEWS AND VIEWS FROM OCR / AUTUMN 2011

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Nationals

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OCR

Welcome to the Autumn issue of OCR's Agenda magazine.

Nothing stands still in education. In the year since I joined OCR, the pace of change has been challenging for all with initiatives such as the EBacc, the Wolf Review on vocational qualifications, and a review of the National Curriculum, to name but a few.

In this issue of Agenda, you can read in more detail about another topical area in our feature on the JCB Academy, one of the first University Technical Colleges (page 7). On page 10, there's an insight into the latest thinking by maths experts as part of OCR's campaign to improve maths education in the UK. And there are updates on a range of OCR activities from free A Level eBooks to the re-development of Nationals.

If you would like to get in touch about anything you read here, please email us at ***agenda@ocr.org.uk****. We look forward to reading your comments.*

Mark Dawe
Chief Executive, OCR

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PART OF THE CAMBRIDGE ASSESSMENT GROUP

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Editor Sophie White **Creative** Stilo Brand Communications **www.brandstilo.co.uk**

A new generation of Nationals for 14 to 16 year olds

The next generation of OCR's popular Nationals qualifications will be rolled out for first teaching in schools and colleges from September 2012.

Over the last six years, Nationals have recognised the real life skills of over 750,000 students in over 3000 schools. OCR intends to build on that success with a second generation of this vocational range which is specially designed for 14 to 16 year olds.

The landscape for vocational education is changing for OCR and for all awarding bodies, in the light of the Wolf Report and the introduction of the EBacc.

This change has provided an opportunity to update our qualification range and we've listened to the views of focus groups across England, Ireland and Wales so that the Nationals remain up to date and relevant to real life skills. This is particularly important in areas such as ICT. What teachers have told us about content, structure, grading and assessment has informed the shape of the re-development.

There will be new elements of assessment on all vocational qualifications for 14 to 16 year olds. Our focus groups have welcomed the challenge of a small element of external assessment to give their students greater recognition. We've selected assessment that is most appropriate for learners of practical skills. And visiting moderators, a popular part of what makes OCR Nationals work, will remain.

You can expect to hear from us about the exciting new range throughout this year. Details are being sent out to schools and colleges and are available online. Don't forget to sign up for email alerts through our dedicated website at **www.ocrnationals.com**. OCR will be showcasing the new generation of Nationals at BETT 2012 at Olympia, the most important educational IT event in the calendar, from 11 to 14 January, where our specialists will be on hand to talk about the new specifications.

If you're one of the many centres teaching OCR Nationals, the current offering will remain in place for students until 31 August 2012. Your students will then have until 31 December 2014 to achieve these qualifications. And there's no need to worry about switching over to the new Nationals. If you are a school or college already approved for OCR Nationals, we will automatically transfer your centre approval to the revised Nationals range from September 2012.

Have you ordered your free A Level eBook?

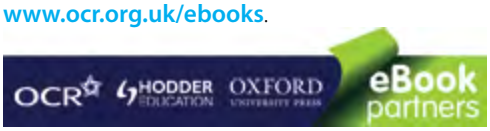
Schools and colleges have responded enthusiastically to the offer of free A Level eBooks this Autumn, made possible by a unique partnership between OCR, and top education publishers Hodder Education and Oxford University Press.

Orders for more than 100,000 free eBooks were placed in the days after the launch in mid-September.

Cost-conscious schools and colleges around the country are taking advantage of OCR's new scheme, in some cases – such as Carmel College in St Helens – putting in orders for more than a thousand eBooks. In what is a first for a UK exam board, the scheme offers free access to e-versions of AS and A2 textbooks across a broad range of the curriculum. It's open to all schools and colleges teaching A Levels, not just those delivering OCR qualifications. Maths, ICT and psychology are the most popular eBooks to date.

Cadbury Sixth Form College in Birmingham ordered over 400 titles. Principal Jeremy Rogers commented: "Sixth Form colleges have been very keen to have eBooks for their A Level provision and OCR has done well to identify this need. The flexibility of eBooks fits well with our teachers' needs and the use of technology appeals to our students."

If you haven't yet ordered your free eBook, find out more at **www.ocr.org.uk/ebooks**.



Help with planning your QCF curriculum

A new interactive tool designed to aid curriculum planning by providing all the key information on QCF qualifications in one place, is now available on the OCR website.

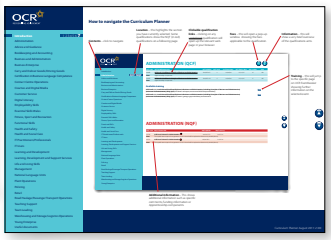
OCR's Curriculum Planner is a user-friendly guide to key aspects of delivering the QCF range including:

- ***guided learning hours***
- ***credits***
- ***funding***
- ***fees***

The Planner lists all 32 of OCR's QCF qualification ranges in alphabetical order, from Administration through to Young Enterprise, including popular areas such as IT and Health and Social Care. The NQF qualifications which these qualifications replace are also listed.

Clicking on any of the QCF ranges gives access to the key information listed above, as well as linking to relevant general documents on the OCR website such as exam timetables.

Take a look at OCR's unique planning guide at **www.ocr.org.uk/qcf**.



Bursary gives students helping hand

Eight of the West Midlands' brightest students who took up places at Cambridge University this term received bursaries from OCR to cover their tuition fees during their undergraduate studies.

Each of the students received a bursary of £3,375 this year. The award fund, which arises from OCR's historical association with the West Midlands Exam Board, helps talented students in the region to make the most of their studies at the University of Cambridge.

The students, from schools and colleges in Alcester, Birmingham, Coventry, Hereford and Stratford-upon-Avon, were presented with their awards at OCR's offices in Coventry, just ahead of the start of the university term. It's the eighth successive year that OCR has awarded bursaries to students from schools and colleges in the region.

All the students spoke of the financial relief that the bursary would bring. Rosalie Warnock, who attended Stratford-upon-Avon Grammar School, and has just started her Geography degree, commented: "Without the pressure of a large student loan to pay off, I will be able to do voluntary work in developing countries and internships in my vacations and after graduating, which will give me the necessary experience to achieve my ultimate goal of working for the UN."

Maryam Farooq, from Birmingham Metropolitan College, who is studying Medicine said: "As a mature student entering university, finances were naturally one of my first worries. This bursary has helped relieve me of a huge burden; I only need to worry about my maintenance costs now. There are many activities I want to get involved with during and after my university years and having this bursary will help put my mind at ease. I particularly hope to be able to put the money I save towards medical research and training purposes."

Back row, from left to right: Rhodri Kendrick, Andrew Jeskins, Mark Dawe (OCR), Timothy King, and Emma Moffatt. Front Row: Stephanie Goulei, Rosalie Warnock, and Maryam Farooq.

OCR Chief Executive Mark Dawe said: "These students have demonstrated exemplary qualities to achieve what they have done, not just academically but in their extra curricular activities and their willingness to go the extra mile."

An email from one of last year's Bursary recipients, Aled Walker, confirmed how the Bursary has made an impact on his first year, allowing him to pursue his love of music alongside his maths degree. Aled performed in five operas, played trumpet in three different bands and sang in a university choir. At the same tine, he came "equal second in the University after the first year exams, missing top place by one mark".

Update

Implications of GCSE reforms

In the 2010 White Paper, The Importance of Teaching, the government announced its intention to look at ways of reforming GCSEs so that exams are taken at the end of a course.

The proposed reforms, outlined in greater detail in June 2011, aim to:

- **ensure that GCSE examinations are taken at the end of the course**
- **remove the potential for re-sittings of units**
- **give greater account to spelling, punctuation and grammar.**

What this means

Modular GCSEs, introduced in 2009, will be replaced by linear assessment for candidates starting a two year course from September 2012. Those candidates will take all their GCSEs in Summer 2014, at the end of their course. According to the proposals, this will also be true for candidates who started a three year programme in September 2011.

The introduction of linear GCSEs will also prevent the mid-course re-sitting of units, although there will be opportunities to re-take complete English, English language and maths GCSEs during the Autumn. Marks will be awarded to reflect the quality of spelling, punctuation and grammar (SPaG) in GCSE English literature, geography, history and RS.

Following a consultation on the implementation of these reforms in England to which OCR contributed, Ofqual plans to confirm how the rules will change by the end of 2011. As we go to press, ministers in Wales and Northern Ireland have yet to confirm their position on GCSE reform.

OCR will keep all our customers posted, and is drawing upon what teachers tell us to better inform the implementation of those changes.

OCR account managers coming to a region near you...

A new team of regional account managers will be out and about from November 2011 onwards, building closer relationships between our awarding body and staff in local schools, sixth forms and FE Colleges.

The 12 new account managers will be able to draw upon their knowledge of local issues and needs to work in partnerships with schools and colleges and provide more relevant support for OCR's qualifications and services.

If you would like to get in touch with the new member of staff for your region, contact OCR on 01223 553998.

9 year old gets OCR qualifications for speedy typing

Dylan Campbell, a gifted nine year old pupil from Linn Primary School in Larne, County Antrim, has gained OCR qualifications for his speed typing skills.

Dylan, who also won a global online 'spelling bee' competition earlier this year, can type amazingly fast. His 91 words per minute would put experienced PAs to shame. Teacher Hazel Richie spotted his ability which he developed after watching his older sister learn to type.

"What is unusual," said Hazel, "is that he can do proper touch typing so fast. He's not like many children who try to type with one or two fingers at most. And he has typed a word before the person has finished speaking it."

Dylan perfected his typing at the primary school's Friday Club but his teachers wanted to find a way of formally rewarding his extraordinary ability. Collaboration between his primary school, the Northern Regional College in Larne and OCR meant that he was able to take speed keying tests, part of the Business Professional qualification range, at Entry Level up to Level 3. OCR National Manager Ireland, Paul McGlade confirmed: "His performance was faultless. Dylan achieved the highest words per minute possible for each qualification."

Hazel continued: "He really enjoyed doing these tests, and was really pleased about these results. The College were terrific looking after him, he wasn't worried at all. And it's great to find a way of recognising Dylan's talents."

Moving forward on A2C

The major project to improve how exam information is shared with schools, colleges and training providers which use the 20-year-old Electronic Data Interchange (EDI) system is underway.

The A2C Project, an initiative by the Joint Council for Qualifications, will modernise the way data is exchanged and the format of that data, introducing one potential standard for all qualifications – general and vocational – and for all JCQ awarding bodies, for the first time.

Emails are being sent to all those who use EDI explaining how to set up direct data exchange between awarding bodies and users, and remove the need for carriers.

The email, from AVCO Systems, contains details of how to download the temporary migration application and the access keys for the individual awarding bodies that users wish to share data with.

For more information on any stage of the A2C Project, take a look at the website – **http://a2c.jcq.org.uk/** – or email the team at **A2Cenquiries@jcq.org.uk**.

Safeguarding young people

Although child protection policy is well known in education, it may surprise readers to learn that awarding bodies like OCR also have child protection responsibilities.

In a busy summer exam season in which OCR handles thousands of exam papers, a tiny percentage may end up with one of OCR's designated Child Protection Officers, Tim Jackson and Niki Polydorou. This year, they have dealt with a record 54 cases, an increase of 107% on the previous year. Tim volunteered for the role which he took on over five years ago, and he and Niki both received NSPCC training. For both of them, it is about more than ticking boxes.

Awarding bodies have child protection responsibilities for three reasons; they may send visiting moderators to assess students on site, they examine candidates' answers on exam papers and they develop specifications and support materials that should be age appropriate. By far the majority of cases – over 95% – arise from answers on exam scripts spotted by examiners.

OCR uses over 15,000 examiners around the country to mark exams and they all receive a guidance document about how to spot possible cases. Many are teachers themselves. They flag up an exam paper to Tim or Niki who will then refer concerns to the head of a school or college involved who are responsive and deal with cases quickly and efficiently.

Tim explained: "We have five categories against which we record cases. The worst case this year involved all five. Often the most harrowing are those that describe abuse that has happened to them, and you can often spot that these are probably real because of the matter of fact tone used. Unfortunately those that have been abused sometimes get to the point where they accept it as their fate and will write in very straightforward terms about what has happened to them. The more sensationalist ones tend to be fictitious – but we still refer these as it is not our role to make a judgement about this."

Why do they reveal abuse in an exam? "Sometimes it is a definite plea for sympathy and the student will address the examiner directly asking them to take this into account. My own view is that students do not find themselves shut in a room for a minimum of an hour with only a pen and paper very often. They believe they are talking to an anonymous examiner who will not know who they are and so take the opportunity to write down things that are on their mind."

ENGINEERING AN EDUCATION

THE JCB ACADEMY IN ROCESTER, STAFFORDSHIRE, OCCUPIES ONE OF THE EARLIEST FACTORIES IN THE WORLD – A REVOLUTIONARY WATER-POWERED TEXTILE MILL BUILT BY SIR RICHARD ARKWRIGHT IN THE 1780s. MORE THAN 225 YEARS AFTER ARKWRIGHT'S MILL WAS BUILT, THE JCB ACADEMY IS QUIETLY ACHIEVING A REVOLUTION OF ITS OWN. ULTIMATELY IT WILL GIVE OVER 600 STUDENTS BETWEEN THE AGES OF 14 AND 19 A UNIQUE BALANCE OF TECHNICAL AND ACADEMIC EDUCATION, TO "DEVELOP ENGINEERS AND BUSINESS LEADERS FOR THE FUTURE".

Paul Pritchard, JCB Academy's Chair of Governors, tells **Agenda** what the Academy is all about.

How did the JCB Academy come about?

For three years from about 2004 onwards, JCB was failing to attract the usual calibre of applications from school leavers to join the business. There were plenty of applications but not enough showing the right aptitude or attitude. As Head of JCB's Learning and Development Division (I've been with JCB since 1988 having begun my career on an engineering apprenticeship at Westland Helicopters), I had seen a gradual decline in this area even though JCB had consistently worked within local schools. We had offered annually accredited apprenticeship places and sponsored engineering and business undergraduates to some of our best universities.

JCB, which has had its headquarters in Rocester since the 1950s, has always valued education. The chairman, Sir Anthony Bamford, views education as the seed corn of business and the company has developed good relations with schools for decades. But this lack of suitable candidates was new. So we met with local schools to see how we could address the problem. In hindsight, perhaps school leavers were more attracted to careers in the media or service industries and not to engineering or manufacturing which were seen generally as being in decline. When we decided on our approach, we were very committed to ensuring all who had an interest in our new Academy vision were suitably informed. We hired out 12 large venues in our region, like Stoke's Britannia Stadium and Rolls-Royce's Learning Centre and invited local families to come and find out more about what the JCB Academy could offer. And we finally welcomed our first students in September 2010.

Is it based on a European model?

Within my Learning and Development role at JCB, I visited major manufacturers in Germany and France but above all we received considerable inspiration from Sweden. It came from what Volvo had achieved in Gothenburg. The Swedish economy is still very focused on engineering – with companies like Saab, SKF, Scania and Ericsson as well as Volvo and many others. Within the Volvo factory in Gothenburg, they had created GTG (standing for the Gothenburg Technical Gymnasium), an academy for young people.

"What's been so exciting is that, with the help of OCR...we've been able to meet assessment requirements and offer this unique curriculum."

This was a real influence on our thinking as we developed the model for the JCB Academy. GTG offers a series of Education Programmes within their Academy and training workshops alongside the main Volvo factory where students can put theory into practice for themselves. They are allowed to work on real live projects which help them to apply and retain knowledge. The curriculum had been designed in conjunction with industry and the universities in the country. I remember asking the students why they had chosen to attend GTG. They made two points; it made them far more employable and it guaranteed them a place on an engineering course at any Swedish university. That became our vision.

There are over 1000 academies now. Are you at the forefront of the academy movement?

Despite our name, we're not the same as the majority of Academies. We received the support of Lord Adonis, Schools Minister in the last government, who championed the City Academy concept. Academies were intended to resolve the issue of failing schools. They've now expanded of course to include outstanding schools but we are not based on any failing institution. We are a brand new secondary school attracting students from 14-19 from four local authorities in our region. While academies develop independently of local authorities, we have been able to work with the four in our catchment area, especially our home authority of Staffordshire, and still maintain the advantages of independence. We have become the first University Technical College (UTC) which provides technically-orientated education for 14 to 19 year olds and is supported by a university (in our case, five). Lord Baker and the late Lord Ron Dearing visited us and recognised that the JCB Academy model was exactly what they had been aspiring to develop for this country. We now work closely with the Baker Dearing Trust to encourage other potential UTCs to be enthused and committed to the shared vision. They can benefit from the experiences we have had over the many years of our gestation.

How is JCB Academy funded?

The Academy was set up with JCB itself being the main sponsor contributing 10% of the capital costs (and the DfE the other 90%). The 10% rule has now been dropped to make the development of other UTCs easier by University and FE College sponsors. Revenue costs are paid centrally

"We have become the first University Technical College which provides technically-orientated education for 14 to 19 year olds."

by the DfE. Engineering specialisms are more expensive than other schools to run because of the raw materials for students' practical work and the relatively high 'staff – student ratio' required for safety reasons. We have major partners such as Rolls Royce, Toyota and Bombardier without whom the school could not function as successfully as it does. They support our termly projects, or challenges, offering detailed advice, teaching assistance in the delivery of the projects and other work experience but do not make any direct financial contributions. Recently the DfE has cut the subsidy for students taking the engineering diploma so, like all schools, we are having to review how we maintain our high quality offering within these restraints.

Does the Academy follow the National Curriculum?

Yes we do, but with an emphasis on engineering and business. We've been able to develop our own specialist curriculum which is 60% technical and 40% academic with the help of our partners and with OCR. It has been very exciting to be able to map across the activities students do to fit in with the National Curriculum. The year is divided into five eight-week terms. In each term, students work on a project or challenge – it may be Toyota one term, Rolls Royce the next, JCB next. What's been so exciting is that, with the help of OCR and specialists within the LA and our business partners, we've been able to map student activities on these projects to meet assessment requirements and offer this unique curriculum.

Our students currently take the engineering diploma, plus a business diploma, maths, English, two sciences, IT, plus entitlement subjects. We use OCR qualifications to support these subjects.

We will appear in national league tables but we will not be eligible at present for the EBacc measure because of the limited humanities requirement. I would argue we are delivering 'living engineering, manufacturing and business history' within our broad offering. We are teaching students in the birthplace of the industrial revolution, in Arkwright's third mill. There is 'History' all around us.

There's also opportunity for other interests including musical expression, and sport. If students wish to study an A level subject we don't offer, we'll work with our local high school, Thomas Alleynes, who offer psychology and other more specialised options.

What's the gender balance in the school?

We are a co-ed school. Of the current 340 students in the school, 10% are girls. We would like to attract more girls and know they make excellent engineers. To encourage young women to consider this, we hold conferences and sponsor engineering clubs at other local schools. Traditionally in our area up to the age of 16, the numbers of girls and boys attending these clubs are 50/50. It's after 16 that boys predominate, with girls pursuing more perceived female careers.

Who can go to the JCB Academy?

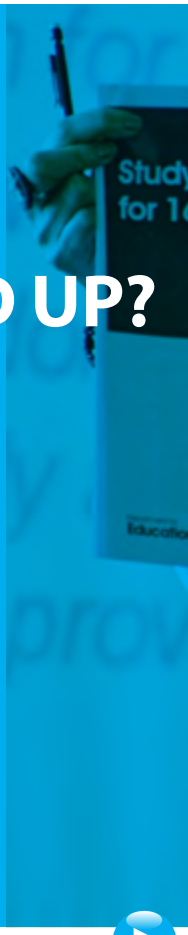
We have an 18 mile catchment area from Rocester. Students have to apply through one of the four local authorities in the region; Derbyshire, Derby City, Staffordshire and Stoke on Trent. We have been over-subscribed for the last two years so according to DfE requirements we have to apply Random Allocation, which is often referred to as a lottery system. It's a pity because it's not the best way of deciding who gets a place with us. We are not a threat to other schools as we will only appeal to a particular kind of student. Some students would hate it if they secured a place but were not really committed to our specialisms. This is why we attempt to widely market the type of courses we offer and major on the fact that we are not for everyone. It also demands a high level of commitment by both parents and students as the hours and terms are far longer and more demanding than a traditional school. Some of the busses begin their 'pick ups' at 07.15 in the morning and return at 18.15 in the evening. They also have five eight-week terms reflecting a far more work-related year, which helps them prepare for the real world of work.

How would you rate the JCB Academy?

We will receive the first full exam results in summer 2012 and I'm sure we will be a very high performing school. But our aim is two-fold; to produce employable young people and many who can progress on their studies in engineering at a higher level at our best universities or FE Colleges. So far, the venture has been very popular with local people, especially with those parents who come from engineering backgrounds and have been inspired by our industrial heritage. They are thrilled by what we offer.

We've learnt an enormous amount during these first few start up years and progressed tremendously. If you had told me a year ago where we would be now and how much we would have achieved, I would have been more than thrilled and satisfied, but there is much still to learn and do. This is not a short term project but one which will last for generations.

MATHS + EDUCATION = DOES IT ALL ADD UP?



"Maths is flawed" according to OCR Chief Executive Mark Dawe, and OCR wants to do something about it. Despite the dedication of many maths teachers, international comparisons repeatedly show that maths skills in the UK lag behind those of many other developed countries. Universities and employers complain that the maths skills of young people don't match expectations.

Two major reports published this summer set out ways to improve maths education in the UK. As part of OCR's action on maths, mathematicians from schools, HE, subject associations and employment gathered in Cambridge to discuss the key findings. The co-authors of these significant reports summarise the key findings for Agenda here.

The ACME Mathematical Needs Project

A summary by co-author Dr Jack Abramsky

Introduction

The Advisory Committee on Mathematics Education (ACME) recently published its Mathematical Needs report, a two-year long investigation into the mathematical skills needed by various end users, including employers, Higher Education and the learners themselves. The report consists of two complementary and independently researched sections, *Mathematics in the workplace and in Higher Education* and *The Mathematical Needs of Learners* and includes a separate summary of these two.

Mathematics is not only an important discipline in itself but it also underpins a very broad range of subjects and disciplines, from the obvious such as science and engineering to the less obvious including social sciences, safety on the railways, nursing and economics. In a world that relies more and more on science and technology, it is becoming increasingly important to be confident with and to be able to use mathematics in a wide variety of applications, to understand and manage risk, and to develop and interpret quantitative information. Yet young people in England are often unmotivated by the subject, employers have problems recruiting people with sufficient mathematical skills and universities find they often have to offer remedial courses in mathematics. It is against this background that ACME initiated this project, trying to qualify and quantify the expected mathematical needs of the nation and how a suitable modern curriculum and delivery policy, and a corresponding implementation framework can best meet individual mathematical needs of 5-19 learners.

It is hoped that the evidence on mathematical needs will provide an agreed basis for future decision-making, leading to a more coherent and more appropriate 21st century mathematics provision from the start of school through to employment and higher education.

The project looks at mathematical needs both from a 'top down' perspective, i.e. the mathematical needs of Higher Education and employment, and from a 'bottom up' perspective, i.e. the mathematical needs of the learners themselves and the quality of the teaching of mathematics.

The evidence on which *The Mathematical Needs of Learners* is based includes comparative studies and literature reviews, extensive surveys and case studies, and seminars and workshops; the research for *Mathematics in the workplace and in Higher Education* was informed by interviews with a wide range of people, both in universities and across the sectors of employment, as well as a review of existing literature and data sources.

The report is timely; ACME believes that the report should become an important part of the evidence on which policy decisions on mathematics education are taken; in particular, the findings should impact on

Taking action on maths:

1. Our Maths Consultative Forum which brings together a broad range of maths expertise is working to make sure that OCR's extensive range of maths qualifications supports the curriculum, incorporates best practice and reflects the latest shared thinking on the aims and direction of maths education.

2. We're convening a new Maths Council with our sister awarding body within Cambridge Assessment, the University of Cambridge International Examinations, to gain national and international guidance to inform OCR's vision for Maths.

3. As part of the debate on ways of improving maths education, OCR is sponsoring the prestigious Wolfram Summit on Computer-based Math Education taking place at the Royal Institution in London on 10-11 November. The Summit takes a radical look at the concept of a new maths curriculum, centred around computer-based computation.

the ongoing National Curriculum review, on the development of a coherent suite of post-16 pathways and also on university admissions policies and guidance. We also point out the remarkable statistic that of those entering Higher Education in any one year, some 333,000 would benefit from recent experience of studying some mathematics and statistics at a level beyond GCSE, but that fewer than 125,000 will have done so. This clearly is a wake up call for action.

Key findings

- Many students leave school or college poorly equipped to deal with the mathematical demands of employment or further study, and often they cannot do the mathematics they are supposed to know.
- Mathematics dropped at age 16 is easily forgotten and skills are not consolidated.
- Good mathematics learning needs knowledgeable and engaging teachers who present mathematics as a conceptually coherent and cognitive progression of ideas.

Key recommendations

The curriculum

- A wider mathematical curriculum and provision than exists at present should be developed in order to ensure that more young people know more mathematics, study it for longer, and are well placed to benefit from their studies in mathematics. New courses, additional to GCE AS and A level Mathematics (and Further Mathematics) need to be developed for the majority of the post-16 cohort.
- Every review of the National Curriculum should take into account that doing mathematics involves a wide range of components, that learners need proficiency in all these components and that they need sufficient time to study and assimilate fundamental concepts.
- An appropriate range of assessment instruments should be developed to support new curriculum and qualification initiatives.

Teachers and the classroom environment

- All teachers of mathematics should be entitled to subject-specific CPD, and in particular there should be subject courses for non-specialist teachers, focusing on key mathematical ideas, the latest research on teaching and learning, and the nature of mathematics.
- Learners need to understand mathematical ideas, applications and problems and to become adept at engaging with these with the aide of appropriate 21st century technologies. There should be an emphasis on building the confidence of students and developing their ability to use mathematics in a range of familiar and unfamiliar contexts, and to reason and communicate mathematically.

Continuity and transition

- There is a need for clear strategic leadership applied to mathematics from early years through to university or employment.
- Subject-specific values, knowledge and methods of enquiry (including reasoning and application) should be upheld throughout the curriculum, assessment methods and materials, and teaching methods and resources.
- Universities should clarify the level and extent of mathematics encountered within each of their degree programmes and where they have preferences for qualifications in mathematics, and teachers and careers officers need to know about these, as well as the mathematical needs of employers.

All stakeholders – the government, its agencies and associated non-governmental organisations, industries, universities and schools and colleges – will need to collaborate in order to consider and act upon the significant changes in terms of curriculum, qualifications and assessment as well as teaching and learning as set out in the recommendations of this report.

The Mathematical Needs reports can be downloaded from the ACME website **www.acme-uk.org**.

The Vorderman Task Force Report

A summary by co-author Roger Porkess

The announcement, early in 2009, that Carol Vorderman was to provide advice on our mathematics education to David Cameron and Michael Gove occasioned some scepticism. However, events have proved this to be misplaced. The report, published in August 2011, has been universally well received with favourable comments from many organisations and individuals.

The title of the report, *A world-class mathematics education for all our young people*, captures several key messages.

- The word "all" shows its concern with the full range of students and not just the lucky few who find the subject easy.
- The term "world-class" carries the joint aspirations that

"Employers will be able to recruit people with the mathematical skill that will allow them to compete successfully in the global economy."

and

"Universities will be able to design and run courses in all subjects which match international standards and will not be prevented from doing so by the low level of mathematics among their undergraduate intake."

The report argues that mathematics is critical to this country's economic survival. Across employment, low level jobs are progressively disappearing and being replaced by others requiring higher, and more mathematical, skills. The importance of mathematics in today's world is reflected in the first recommendation.

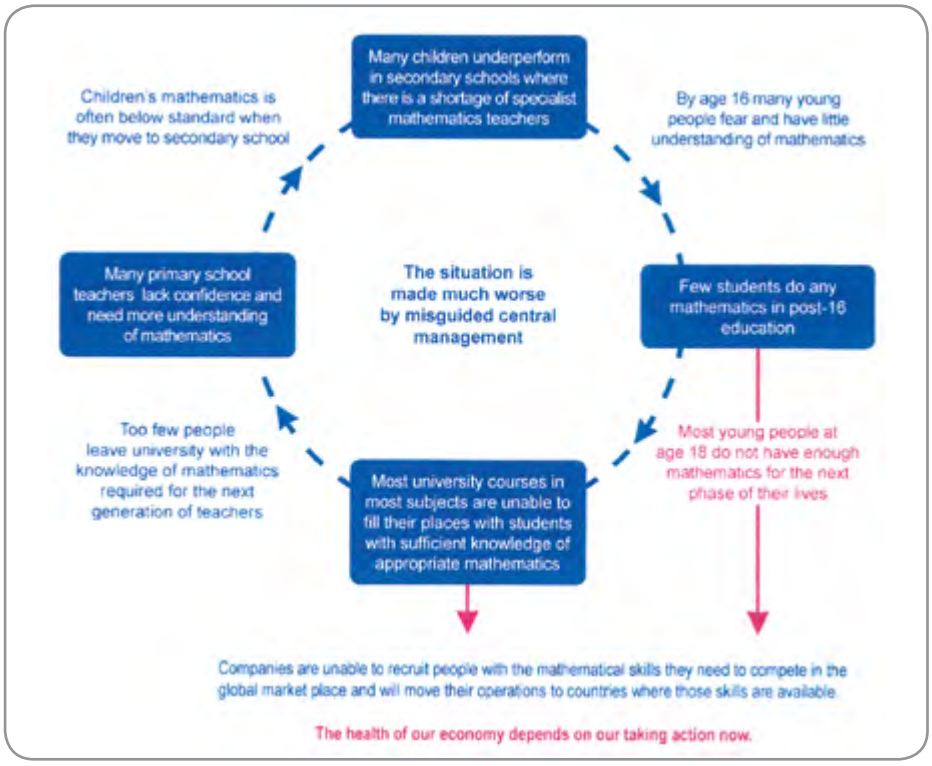
Mathematics should be declared a subject of critical importance.

The Vorderman report provides a strategic overview of the whole provision: what is going wrong and what must be done to put it right. It highlights systemic faults and is particularly critical of the management culture, not least in government agencies, that has allowed them to occur. The first recommendation continues:

Mathematics should be exempted from general regulations when they are incompatible with the best possible mathematics provision for our young people.

It is an uncompromising and hard-hitting report. However, it is definitely not anti-teacher. Its features include vignettes telling stories about (mostly) good things that are going on and teachers feature prominently in them.

The report, which runs to 100 pages, covers all aspects of mathematics education up to university entrance, summarised by this diagram showing a cycle of underperformance. Action is needed at every point and the many recommendations provide a framework to guide it.



The sections on GCSE and post-16 are likely to be particularly relevant to OCR readers. The report expresses heart-felt concern at the large number of students who, after 11 years of school mathematics, end up knowing little useful mathematics, but fearing and hating the subject. A new structure is needed at GCSE that engages many more young people, and these three recommendations are designed to lead the way.

The present system for GCSE, based on a single award, is not fit for purpose and should be replaced by one offering two GCSEs as soon as possible.

Full support should be given to the twin GCSEs during their pilot phase.

The twin GCSEs should be seen as the first step towards a national provision that will meet the needs of all students, and should be led, managed and developed accordingly.

A particularly important recommendation concerns the 16 -18 age group.

To bring this country into line with the rest of the world, mathematics, in some form, should be made compulsory to the age of 18.

This recommendation ties in with two other recent reports. *Is the UK an oultier?* (The Nuffield Foundation, December 2010) provided evidence that our mathematics provision for the 16-18 age group is very much less than that in comparable countries. *Mathematical Needs* (ACME, June 2011) details the negative impact of this deficit of mathematics (including statistics) on higher education and employers. The Vorderman report is not recommending that everyone should be required to take AS or A Level Mathematics; new courses will be needed for the new clientele based on content that is relevant to them.

This report is the product of long and serious thought from Carol and the other members of the small task force that worked on it, and the many people who gave them advice. It should be on all mathematics teachers' reading list.

The report is now with the government. In his foreword, Michael Gove says *This comprehensive report, looking at all the important areas, will be of great help as the Government continues its drive to equip our children with the skills they will need to compete with their global contemporaries and thrive in the 21st Century.*

Perhaps we can hope for better times.

Recognising achievement for all

Two projects from Northern Ireland show how OCR qualifications are being used to accredit the skills of a wide range of teachers and learners.

A unique project in Newry, County Down, is helping people with a wide range of physical disabilities to re-build their careers with retail work experience and relevant qualifications.

Clanrye Retail Social Enterprise is delivering a new programme which will give up to 30 participants vital retail experience in a social enterprise gift shop at the Quays Shopping Centre in Newry and important evidence of achievement in the form of retail qualifications from OCR.

Judith Poucher, Clanrye's Project Manager explained: "With the help of the local health trust and our local benefit office, we are able to identify people who can benefit from this programme. They have a variety of physical disabilities which have affected their employment; some have chronic conditions such as multiple sclerosis, others have been injured through their work, or perhaps are partially sighted."

The project has expanded its staff to be able to deliver individual training plans which could run for up to two years, depending on the needs of each trainee. Training takes place on the organisation's premises, part of which will open as the Heart & Home gift shop, within the Quays Shopping Centre in Autumn 2011. Each of the trainees will gain invaluable work experience within the shop.

Judith continued: "The retail qualifications that the trainees will take as part of this programme are OCR's Retail Skills Level 2 Awards. Achieving these will give each participant a goal and build confidence. For people with disabilities who want to get back into the workplace, independent recognition of their knowledge and skills is really important."

OCR's National Manager Ireland, Paul McGlade said: "The range of qualifications at OCR allows for open access to individuals regardless of their circumstances. These trainees are gaining a qualification on the QCF where they will gather credit towards a qualification and can then add to it in the future if they want to progress, which is a fantastic benefit and support to those people with a disability."

To find out more about OCR's range of retail qualifications, visit the website at **www.ocr.org.uk/retail**.

Heart&Home

Martin McGlade, Principal Harberton Special School

Martin McGlade, Principal of Harberton Special School and Outreach Services on the outskirts of Belfast, is a great believer in capacity building. His own primary school for three to eleven year olds is a centre of excellence for special educational needs, rated 'outstanding' in nine categories in a recent general inspection.

Among other specialist departments the school has two units for pupils with dyslexia.

The school's expertise in dyslexia not only benefits the pupils who attend but it has a dual function. The units are now training centres for teachers and teaching assistants across Northern Ireland who wish to specialise in this area.

In 2009, the school started a course for staff from other primary schools who lacked the knowledge and the confidence to teach the growing number of pupils who were diagnosed with dyslexia. "Teachers are looking for a way of coping with the huge problem of dyslexia and associated learning difficulties," Martin commented. In the first year, ten people took the one year twilight course. In the second year the number jumped to eighteen. This academic year, there are twenty four teachers and assistants enrolled in the course.

Martin explained: "There's huge expertise in Special Schools and by opening up as a training centre, this is a way we can share that expertise." Two of the staff from Harberton tutor the course. The school advocates a multi-sensory approach to teaching pupils with dyslexia and draws on the broad expertise in the school such as speech and language therapy, occupational therapy, and teachers who specialise in autistic spectrum disorder. The trainees also benefit from the input of an educational psychologist involved in the assessment of pupils with dyslexia.

"The feedback we get is very positive. Some of our trainees have gone on to become the SENCO in their own schools. All report that they have grown in confidence and acknowledge that their training has benefitted the whole class, not just those students with specific learning difficulties."

OCR's Teaching Learners with Dyslexia qualification is used to accredit the course. As the numbers applying for the course continue to grow each year, Martin is considering offering a Level 7 qualification alongside the Level 5. Discussions are also underway to explore the possibility of introducing OCR's Level 2 and Level 3 qualifications for Teaching Assistants.

For more details of the Dyslexia qualifications used on Harberton's training course, see **www.ocr.org.uk/qualifications/type/qcf/teach_train/tldsld_l5_dip/**.

OCR Ireland is currently working with Special Schools in Northern Ireland to identify a programme that is suitable for teaching those learners who have special educational needs. The OCR Life and Living Skills QCF is a programme that suits teaching and learning for those students that have special learning needs. Our aim is to support schools with both advice and teacher support as they work to implement the Entitlement Framework. For more details, visit www.ocr.org.uk/ireland.

WHAT NEXT FOR SKILLS?

PAUL STEER, OCR'S DIRECTOR OF PARTNERSHIPS, CONSIDERS THE OPTIONS FOR ADULT LITERACY AND NUMERACY

At the end of November, BIS is expected to announce its plans to reform adult literacy and numeracy programmes in England. For much of the last ten years, arrangements have been dominated by the Skills for Life programme, made famous by those 'Gremlins' television adverts.

The Skills for Life programme was something of a flagship for the then Labour government. It was marked by cutting edge online, on-demand tests and its ability to reach a wide range of learners in a variety of settings, including fast food restaurants, the armed services, community centres and prisons. The volumes of achievements were impressive; by June 2008 it had already met its 2010 target of 2.25 million qualifications achieved.

However the programme has not been without its critics. The much-lauded online tests, marked objectively by machines, mean that key areas cannot be assessed – notably written work, verbal communication and the extended problem solving used in the application of number skills. Secondly, and this is a point made in the recent NIACE inquiry into adult literacy, much of the success has been with adults with relatively modest literacy and numeracy difficulties. It may be that the funding model discourages providers from seeking out those learners with more acute problems, in need of long term support.

These issues had already been acknowledged by the last government which saw a partial solution in the Functional Skills qualification – a suite of qualifications designed to replace the Adult Basic Skills tests but also to replace Key Skills in apprenticeships and, at the time, to be a supplementary requirement for schoolchildren sitting GCSEs in maths and English.

Burdening a single qualification with such a wide range of purposes was always going to be problematic so it is perhaps surprising that Functional Skills has much to commend it. It assesses the full range of literacy and numeracy skills, and it does so in a way which requires candidates to show their ability to apply their skills to challenging problems. This approach requires a pedagogy that develops critical thinking skills and confidence to tackle problems.

There are constraints with the Functional Skills model however. It is best suited to learners on fulltime programmes with sustained teacher support. Furthermore, despite OCR offering the opportunity to sit an exam in monthly 'windows', tests have to be marked by humans and results can only be issued after a thorough awarding process. A key benefit of the Basic Skills tests – that they can be taken at any time with instant feedback – is lost. This shouldn't matter for learners on fulltime programmes, working to academic years, and may even be manageable for apprentices with workplace commitments, but for adults leading chaotic lives, possibly studying literacy and numeracy part time whilst seeking work, or for offenders being bundled from one prison to another, or soldiers being called to duty in Afghanistan, Functional Skills may not be ideal.

In considering its options, BIS will also have to factor in this government's view of the importance of GCSE maths and English. The GCSE is viewed as the only qualification in town when it comes to recognition by employers and by the gatekeepers to continuing education. There is plenty of data to link improved life chances to possession of GCSE maths and English. It seems likely that government policy will dictate that adults on literacy and numeracy programmes should aspire to achieve these GCSEs.

This is quite some aspiration. The two GCSEs are typically achieved by about half the population – arguably that is what makes them valuable. The GCSE itself is in a state of flux, being reformed into a linear model, and due for wholesale review when the new National Curriculum is introduced. Furthermore the monthly sessions offered by Functional Skills are much more flexible than a soon-to-be linear GCSE. The GCSE is, after all, designed for 14-16 year olds in full time education.

No wonder, then, that the DfE has begun to theorise about qualifications in maths and English which can be valued and recognised in their own right but which also act as stepping stones on a journey to GCSE accomplishment.

So what will BIS decide to do when it sets out its new policies for adult basic skills? There are some areas it seems likely to cover. Firstly, it will need to look at funding models to see what can be done to incentivise providers to provide long term support for those with more acute needs (all within tight budgetary constraints). In seeking efficiencies, it will have to look at the role of IT in supporting learners and in providing assessment and feedback, whether or not this is linked to qualifications; and it will have to make clear what qualifications it will leave in the mix. On this last point, it seems likely that existing Entry Level qualifications will be deemed fit for purpose. But at Levels 1 and 2, adult Basic Skills tests and their linked qualification, Key Skills, look set to lose government support. GCSEs in English and maths will be held up as the golden prize at Level 2, but it is difficult to see how Functional Skills won't also be recognised as an important part of provision. Will this be enough? Probably not. The case for new adult qualifications in maths and English looks increasingly compelling.

Have your say.
Email your comments to agenda@ocr.org.uk

JOIN OCR AT THESE EXHIBITIONS AND CONFERENCES AUTUMN/WINTER 2011-2012

NOVEMBER

10/11

Wolfram: The Computer-Based Math Education Summit

Royal Institution, London

This two-day event will look at maths education from all perspectives to kick-start a rational, computer-based new direction. OCR will be the main sponsor for the event and will be exhibiting. Mark Dawe, Chief Executive of OCR, will also be speaking at this event about 'maths in real life'.

www.computerbasedmath.org/events/londonsummit2011

15/17

AoC Annual Conference

International Convention Centre, Birmingham

OCR will be the main sponsor at this event, where OCR's Chief Executive Mark Dawe, will be leading a breakout session. Please visit us at stand 49 to experience the magic of our Creative & Digital Media Apprenticeship, and you could win a state-of-the-art 3D, HD video-capturing camera plus Adobe Premiere editing software!

Talk to OCR qualifications and curriculum specialists about exciting new developments in our FE offering and our work in partnership with the sector - including our recent project with colleges, through the AoC's FE Efficiency and Innovation initiative.

OCR is proud sponsor of the 2011/12 AoC Beacon Award for Skills which will be given out during this event.

www.aocannualconference.co.uk

NOV/DEC

30 Nov/ 2 Dec

SSAT 19th National Conference

ICC, Birmingham

This is the flagship annual event for SSAT members covering all phases of education for ages 3 to 19. Please come and visit OCR on stand D14, where our specialists will be on hand to answer your questions. OCR will also be running a workshop on the morning of Thursday 1 December.

https://registration.livegroup.co.uk/ssatnationalconference/

JANUARY

4/7

ASE Annual Conference

University of Liverpool

OCR will be the Gold sponsor for this year's conference, which is the leading science education event of the year. Please join us at this exciting event where OCR will be running workshops, lab demos and numerous exciting competitions.

www.ase.org.uk/conferences/annual-conference/

11/14

BETT

Olympia, London

OCR will be exhibiting at this year's BETT event, which is dedicated to showcasing the best in UK and international educational technology products, resources and best practice. BETT is the world's leading event for educational technology. Please come and visit us at stand A10 where we will be showcasing the new Nationals. Here's your chance to speak to OCR specialists about these exciting changes.

www.bettshow.com

To join OCR at these events, visit www.ocr.org.uk/events

We are dedicated to helping you make the most of your passion for maths. So we believe in developing specifications that help you bring this fascinating subject to life – making it more likely that your students will engage with it and achieve more. And it doesn't stop there…

To find out more about our maths qualifications and what we have to offer visit www.ocr.org.uk/maths

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Email vocational.qualifications@ocr.org.uk

General qualifications
Telephone 01223 553998
Facsimile 01223 552627
Email general.qualifications@ocr.org.uk

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