

# Design for life



AQA's design and technology  
and engineering magazine

Summer 2015

[aqa.org.uk/subjects/design-and-technology](http://aqa.org.uk/subjects/design-and-technology)

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# Contents

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## 4 Updates

An overview of the upcoming changes in design and technology, engineering and food preparation and nutrition.

## 5 A teacher's perspective

Is change a good thing? Daniel Markham, Head of Faculty and Teacher of Design and Technology at Ashby School, gives us a teacher's perspective.

## 6 Design and technology: making sense of the changes

Andy Mitchell, Assistant Chief Executive of the Design and Technology Association, looks into the reform of design and technology.

## 8 Our food learning journey

Roy Ballam, Education Programme Manager at the British Nutrition Foundation addresses the changes to teaching the new food qualifications.

## 9 GCSE Food Preparation and Nutrition launch meetings

How can you start to prepare for first teaching?  
How to register your interest.

## 10 Engineering by design

How our new Level 3 Technical Levels in Engineering relate to industry.

## 12 Level 1/2 Technical Awards in Technology and Engineering

Read about our plans in this area.

## 13 Noticeboard

## 15 Keep in touch

# Introduction

Welcome to the latest edition of our new *Design for life* magazine. Much has happened since our last issue so I hope you find this magazine useful.

In this edition we intend to focus upon the changes, in terms of GCSE and A-level provision, which are scheduled to take place over the next couple of years. We want to ensure that you are well prepared for these changes and that you see AQA as the awarding organisation of choice as you consider your options for the future.

In the pages that follow there are contributions from individuals who have participated in work on the reform of the GCSE Food Preparation and Nutrition and GCSE Design and Technology qualifications. I hope that you find their reflections of particular interest.

We are always interested to hear your views and, over the course of the next 12–18 months, we will be endeavouring to talk to you about the planned changes in order to better understand how we can provide the support you are seeking.

Towards the end of last year the subject content for GCSE Design and Technology was made available for public consultation and, following this process, a decision was made to delay the first teaching of this reformed subject until September 2017.

There will be a further opportunity to comment upon the revised subject content when it is made available later this year and I hope you will be able to find the time to respond to this consultation. Likewise, you will also have an opportunity to comment upon the proposed subject content for the new A-levels in design and technology, which are also planned for first teaching in September 2017.

We're very excited about our new GCSE Food Preparation and Nutrition and will be making a draft specification available on our website later in the summer. I hope you take the opportunity to become acquainted with this as well signing up for one of our launch meetings planned for the autumn term.

In the meantime if there are any issues or topics you would like to see addressed in future editions or, indeed, if you have any personal contributions that you would like to share with the wider design and technology and engineering communities please email us at [dandt@aqa.org.uk](mailto:dandt@aqa.org.uk)

With best wishes,



**Steve Healy**  
Qualifications Manager  
Design and Technology  
Engineering  
Food Preparation and  
Nutrition



# Updates

## Design and technology

- GCSE delayed by a year. First teaching will now be September 2017, with first assessments in the summer of 2019.
- Likely to go for a second public consultation later this year.
- Aim to have new specifications in schools before the summer holidays in 2016.
- Current specifications (with the exception of food technology) will continue to be available until the summer of 2018.
- A-level is also being redeveloped for first teaching in September 2017. Subject content for this will go for consultation later this year.

## GCSE Food Preparation and Nutrition

- Going ahead as planned for first teaching in September 2016, with first assessments in the summer of 2018.
- Following consultation the title has changed from GCSE Cooking and Nutrition.
- Subject content is now final and will form basis for us to develop our specification.
- We are currently working on developing our specification and specimen assessment materials (SAMs).
- All existing food related GCSEs will be available for the last time in the summer of 2017, including food technology, which will finish a year before the rest of the existing design and technology suite.
- Draft specification will be available on our website in late July 2015.
- For more info please email [foodprep@aqa.org.uk](mailto:foodprep@aqa.org.uk)

## GCSE Engineering

- It is our intention to redevelop GCSE Engineering.
- First teaching of the new specification will be September 2017, with first assessments in the summer of 2019.
- Current specification will run until summer of 2018, in line with GCSE Design and Technology.

## Level 1/2 Technical Awards

- We are currently looking into developing these as part of a wider suite of technology based qualifications at level 1/2, which will also include the new GCSE Design and Technology.
- Technical Awards are government backed and, if accredited, will form part of the Progress 8 performance measures.
- Students can do up to three alongside a minimum of five GCSEs.
- Our intention is that they could be complementary to the new GCSE or offered as an alternative.
- For more information and a chance to give us your feedback see page 12.

# A teacher's perspective

By Daniel Markham, Design and Technology Teacher and Head of Faculty at Ashby School

Change is a word that's easy to associate with education. However, in design and technology is change a good thing?

As a Head of Faculty and Design Teacher, I can see how the proposed reform changes could be considered daunting for teachers. However, they could provide an opportunity to give KS3 and KS4 students a more well-rounded design and technology learning experience.

Initially, when food technology was separated from the design and technology subjects, there was a lot of concern. However, many food teachers also felt it didn't really fit alongside the other design and technology subjects.

The new qualification is called '*Food Preparation and Nutrition*' and focuses on cookery skills and food science rather than design. The consultation document includes the topics it will feature and the skills students will develop by the end of Year 11.

A focus on the science of cooking will enhance cross-curricular links with the GCSE science reforms and new GCSE Physical Education syllabus. These links will support more advanced teaching and learning.

For design and technology, the consultation is suggesting that the existing material areas are encompassed together under a single GCSE design and technology specification. This will help parents and employers recognise the subject more easily.

Whilst it might be tempting to approach the new qualification in terms of how we could achieve a 'bestfit' from what we currently teach we'd miss the chance to provide students with a fully rounded design technology education. For example, the core technical skills in the consultation document could form a key part of the Year 10 curriculum. Students could learn about materials and processes across all areas of design and benefit from a more versatile knowledge of design and technology principles.

The non-exam assessment (NEA) will remain a major part of the course and the '*Design and make*' section of the consultation appears to be similar to the current controlled assessment structure.

With NEA being a key aspect of Year 11, students may benefit from specialising at the end of Year 10, rather than at the start. This would enable students to experience design on a rotational system throughout their 'technical skills' development period in Year 10 (much like in KS3). However I realise this could have implications for the current GCSE timetables, staff training and support.

Alternatively, we could link new areas together. For example a resistant materials teacher could also teach both interiors and advertising to their GCSE class. This would give students more choice over what to do their NEA on.

Inevitably, design and technology education will continue to evolve, but it's our responsibility to embrace these changes to make design and technology enjoyable and rewarding for every student.



# Design and technology: making sense of the changes

By Andy Mitchell, Assistant Chief Executive, The Design and Technology Association

Andy Mitchell is Assistant Chief Executive at The Design and Technology Association. He has over 30 years experience of working as a design and technology teacher in schools, teacher educator in universities and as a curriculum developer.

One of the greatest challenges we are currently facing is being able to fully understand the implications for the future direction of design and technology as a consequence of the planned changes in the curriculum. During the past year The Design and Technology Association has been working closely with the awarding organisations, DfE, Ofqual and other key stakeholders in an effort to reach agreement on the subject content that will form the basis for new GCSE specifications in this subject.

Teachers of design and technology will have faced many challenges over recent years and, throughout all of this, The Design and Technology Association has worked hard at protecting the interests of the subject. This has involved campaigning to retain the subject in the National Curriculum, influencing the writing of the Programmes of Study and, more recently, working with other stakeholders including AQA to bring about appropriate change at GCSE. There is no question that the latter continues to be challenging.

Whereas I think that most people involved with the subject agree that change is inevitable, producing a model that will work and is understood by all users was never going to be easy. There are a range of views extending from keeping what we have at one end of the spectrum, to throwing everything out and starting again, at the other. We believe that you have to start where schools are, and I am confident that most of what has been proposed and which is still under discussion does just that. The Association has, through

its website, branch meetings and consultation events supported the consultation process and we will continue to work with other interested parties in order to achieve a desired outcome.

Generally speaking, most schools will be aware of the new timeline for the reforms and are clear that new specifications for food (now a single title called GCSE Food Preparation and Nutrition) will be available for first teaching from September 2016 followed by GCSE, AS and A-level Design and Technology from 2017. In the case of the latter, the feedback we have received to date suggests that the greatest concern from a teacher's perspective arises from there being only one GCSE title ie Design and Technology, rather than a series of endorsed titles, coupled with the belief that it may compromise numbers of students opting to follow this course of study. I completely understand the concerns that have been raised and would like to seek to address these here.

Firstly, I am of the view that dividing the subject up by simply defining lists of materials and associated processes is contrary to the subject's purpose and simply pulls it back to its craft routes. A single qualification entitled 'Design and Technology' is more in keeping with students' experience and it is my belief that their decision to pursue this qualification will not be based upon the title but, more specifically, upon their prior learning, how the option is portrayed and, in particular, what they will be required to do and study.

Secondly, I believe that it is important to recognise that, just because there is to be one title, it is not the case that we will have to teach, and students have to learn, about all 'material' areas and, by implication, be assessed in them. That would be the equivalent in music of being expected to play all instruments rather than concentrate on one. Whatever design and technology activity one is undertaking, we draw upon a specific body of knowledge, skills and understanding that is common and which can be defined and, therefore, assessed. We feel that any assessment needs to be carried out through its application and not through simply the regurgitating of facts relating to it and we will be interested to see how awarding organisations address this issue in their new specifications.

Thirdly, in order to reflect real life design, I believe we have to be able to present students with the opportunity to address challenges that do not have their solutions restricted at the outset by a permitted list of materials. This does not preclude the option that, as a consequence of continuing their design and technology education, building on key stages 1 to 3, students should not develop more skills and interest in a particular aspect of the subject than another. So for example, there will be students who are drawn toward working with textiles in the context of fashion and interior design whereas others will develop their design and technology capability through, say, systems, control and engineering. However, that is not to say that the former student should not have awareness of and be able to make use of programmable control into wearable technologies if appropriate, or that the latter should not incorporate textiles in their product construction. To straightjacket students and put in their way barriers that prevent creative cross-overs in the use of materials and techniques is artificial and we would ideally like to see teachers develop approaches that can provide support for students enabling them to use a wider range of resources.

Finally, recent analysis carried out suggests that there is likely to be a further drop in the number of GCSE Design and Technology entries for the 2015–17 cohorts. Whilst this reduction is not directly related to the new GCSE proposals, there is clearly a risk that such a scenario may impact significantly upon design and technology departments. This could also impact upon the ability of schools to offer any Technical Awards which may subsequently be developed. This would be a great shame as these are set to offer a parallel and, in some cases, additional route for students. There is clearly a job of work to be done by teachers and The Design and Technology Association in order to raise the profile of the subject and ensure that it remains an essential part of the broader, balanced curriculum in schools.

The Design and Technology Association believes that design and technology teachers need to be kept up to date with the developments and it is very helpful that AQA, in publications like this, contribute to this process. Similarly, as the Association for the subject, we will continue to keep the community updated and, when we have specifications, will seek to support members interpret them and plan for their teaching in a variety of ways.

**Andy Mitchell**  
**Assistant Chief Executive**  
 The Design and Technology Association



# Our food learning journey

By Roy Ballam, Education Programme Manager, British Nutrition Foundation

It's an era of change for food teaching at the moment. We now have compulsory food teaching from Key Stage 1 to 3, the School Food Plan and food standards, changes in the OFSTED inspection framework (to include healthy eating) and more recently, new subject content for GCSE Food Preparation and Nutrition.

British Nutrition Foundation (BNF) welcomes these changes to help ensure more students learn about and apply nutrition in a meaningful way. This includes learning and demonstrating key food skills, as well as taking into account consumer, food safety, dietary, food provenance and food choice factors. Not only will this prepare our students for life, but for many it will enable them to study a new GCSE fit for the 21<sup>st</sup> century, as well as explore career pathways in the food world – hopefully inspiring our next generation of food teachers.

To support this change and equip hard working secondary food teachers with appropriate advice, BNF has been working to develop resources and provide training. Last year this was through the publication of free KS3 schemes of work and lesson plans, access to a free online nutritional analysis tool and provision of teacher training events to focus on curricular change and management. More recently we've been working with other organisations to ensure resources and training met teachers' needs, such as helping to create and launch *My Cooking Counts* – an innovative tool that allows students to record everything they cook and track their food skills use. We've also been working with Public Health England to develop professional competences for secondary food teachers – an exciting area of development and recognition. Lastly, we are supporting whole school food initiatives, such as running Healthy Eating Week for the third year, with 5,000 schools and growing, representing two million students, being registered to actively take part.



## The future?

BNF is committed to supporting teachers and students in the delivery of high quality teaching and learning in food and nutrition education. We will be updating our resources to support the new GCSE, developing new materials to inspire students further and supporting teachers with their professional development. It's an exciting journey – let's work together and make a difference.

Roy Ballam  
Education Programme Manager  
British Nutrition Foundation

# GCSE Food Preparation and Nutrition launch meetings

AQA's new GCSE Food Preparation and Nutrition will shortly be submitted to Ofqual. If you teach any of the existing food related GCSEs, you'll want to find out all about the new specification and what it includes.

## How can you start to get ready for first teaching?

As soon as we submit the draft specification to Ofqual, you'll be able to download it from our website and read it for yourself. Before that however, you can book your place on one of our free of charge launch events. These events will take place in October this year and you'll learn about the content, assessment objectives, assessment structure and resources for the new specification as well as getting the opportunity to ask any questions you might have.

We know some teachers prefer live online training, whilst others prefer face to face. So, for this subject, we're giving you the option to choose either approach – with a range of dates to make sure you can find an option to suit you.

## What are your options?

You can attend a two hour live online event and share the training with your department so that you can all learn about our new specification together and ask questions at the same time. All you need to do is register once with us for a log in, and you can share the training session with your whole team. You can also have an individual log in if you prefer to attend an event from the comfort of your own home or classroom.

### Or

You can attend a two and a half hour face-to-face event, held at convenient locations across the country.

All of our events, live online or face to face, will be run by our expert trainers who will be able to answer your questions throughout the event.



## To register your interest:

E: [foodprep@aqa.org.uk](mailto:foodprep@aqa.org.uk)

We'll email you with details of the events as soon as we're ready to take your booking.

We look forward to welcoming you.

# Engineering by design

## New qualifications to address industry skills shortage

The engineering sector employs 5.4 million people across more than half a million engineering companies and organisations and according to Engineering UK, had a turnover of £1.06 trillion in the year ending March 2011. That's 23.9% of the turnover of all UK enterprises and three times the size of the retail sector. It's fair to say that engineering skills are central to ensuring sustainable economic growth – not just within the UK but also making sure we remain competitive in the global economy

Despite this success story, the industry is faced with an emerging gap in expertise as new technologies are developed and not enough young people are choosing this subject as a career pathway to replace an ageing workforce. The UK is facing an unprecedented demand for engineering skills and needs to double the number of engineering graduates to 87,000 per year to meet the estimated 1 million job openings by 2020.

### We're putting industry in the driving seat

Our new Level 3 Tech-levels in engineering are a direct response to these industry needs, the recommendations of the 2011 Wolf Report and government reform. They're for learners aged 16+ who wish to specialise in an occupational area or progress onto an advanced/higher apprenticeship, further study or employment within the engineering sector. Our Tech-levels are truly pioneering offering a real alternative to other vocational qualifications on the market. We have regularly tested the structure and content of our qualifications by working alongside employers and professional bodies, seeking feedback which makes sure that learners are offered a real choice which will prepare them for success after college.

### Core content that's relevant

Working with employers and professional bodies within the industry, we identified gaps in the current provision of engineering qualifications and introduced pathways in:

- design
- mechatronics
- power network engineering.

Close collaboration with these organisations has led us to develop qualifications that better reflect the nature of modern engineering practices. The core content is up-to-date and will provide learners with the technical underpinning knowledge that will help to prepare them for a career within the industry.

*"AQA have taken the time to consult with the engineering community and to factor in these responses into the Tech-level specifications, resulting in programmes of study that should address many of the concerns and provide the students with the skills, knowledge and inspiration to drive them forward to the next stage in their engineering careers."*

Gareth James BSc (Hons) MSc  
PGCE FCEMI FRAS MIET

Head of Education 5–19 years  
The Institution of Engineering  
and Technology (IET)



## We've introduced compulsory learning units

Previous Level 3 engineering qualifications have allowed learners to mix and match the topics they wanted to study. Although this gave them more freedom to tailor their learning, it meant that learners with the same qualification didn't actually have the same experience. This made it difficult for employers to know whether the person they were employing had the skills and experience they required. Our qualifications alleviate this problem.

## The teaching of key 'transferable' skills is 'built in'

Another benefit of this close collaboration is that it's enabled us to contextualise essential transferable skills such as communication, problem solving, research and team-working. Engineering employers told us they wanted candidates with well-established communication skills and together we came up with qualifications that have a real, practical focus on this. It's a win-win situation for both employers and learners.

## Inspiring the next generation of engineers

We believe that our approach to developing these qualifications will help to change learners' perceptions of what engineering is, enhancing their understanding of the opportunities available to them by studying this subject and improve the supply of engineers to the industry.

## What does the industry think about our Tech-level qualifications?

*"We believe that these qualifications provide the right level of competency, meeting the needs of business in developing the next generation of engineering talent. For our engineering businesses, these qualifications will play an important role in providing appropriate knowledge and skills in engineering technicians at the appropriate standard to meet the needs of 21<sup>st</sup> century industry."*

*For individuals, the qualifications also provide clear progression to higher level qualifications and employment opportunities, enabling them to develop their competencies, development and progression in the workplace."*

**Dr Rhys Morgan**

Director, Engineering and Education  
Royal Academy of Engineering

*"We believe that AQA's Mechatronic engineering qualification will provide learners with the specialist knowledge and competencies required for onward progression."*

**Brenda Yearsley**

School and Education  
Development Manager  
Siemens

**SIEMENS**

If you'd like to find out more about our how our Tech-levels in engineering could benefit your learners simply visit our website or email our Sector Strategist for engineering.

**Phillip Bryant**  
Sector Strategist –  
Engineering  
T: 01564 711 905  
E: [pbryant@aqa.org.uk](mailto:pbryant@aqa.org.uk)



# Level 1/2 Technical Awards in Technology and Engineering

## What are Technical Awards?

- New technical qualifications that can be studied alongside GCSEs.
- Focussed on practical skills and designed to link into employment.
- Pupils can study up to three Technical Awards alongside a minimum of five GCSEs.
- They are worth performance points and will count towards the Progress 8.

## What are we planning to develop?

We are looking at developing Technical Awards in the following areas:

- materials technology (wood/metal/plastics)
- textiles technology
- electronics technology
- graphics technology
- food
- engineering
- CAD/CAM.

## What will they look like?

- 40% exam based on knowledge and understanding of materials and processes involved.
- 60% non-exam assessment (NEA), with a focus on making rather than design.

## How is that different from the current and reformed GCSEs?

- The content will be distinct from any future GCSE.
- The focus of these qualifications will be making and knowledge of the materials involved, as opposed to design.
- For students who wish to follow a design route, the new GCSE will be a better, or complementary, option.
- For Engineering, content will be similar to current certificates but rebalanced to fit requirements of likely 40/60 exam/NEA split.

## We want your views

- complete this short survey at [surveymonkey.com/AQATechAwards](https://surveymonkey.com/AQATechAwards)
- email your views to [techawards@aqa.org.uk](mailto:techawards@aqa.org.uk)

# Noticeboard

## Teacher online standardisation (TOLS)

When you mark controlled assessments or coursework, you need to mark in the same way as other teachers delivering the same specification. Teacher standardisation is the process that sets the national standard. All of our design and technology and engineering qualifications are now standardised via the Teacher online standardisation system (TOLS). Within the TOLS, you can view exemplar work and compare your marking to that of the Principal Moderator, receiving instant feedback as you go. Working through TOLS is the safest way to ensure that your marking is in line with the AQA standard. To access TOLS please visit [aqa.org.uk/tols](http://aqa.org.uk/tols)

## Moderation process

Once you have submitted your marks, your moderator will be in touch to request a sample of your students work. This can be sent either by post as hard copies or electronically on a pen drive. If you have fewer than 20 students, you should send the entire cohort. You will receive the outcome of your moderation, along with feedback on your marking, with your results in August. If you have any queries on any of the above, please contact your controlled assessment/coursework adviser, who will be happy to assist.

## Exam dates

Dates for all upcoming examinations can be found in the following area of our website:

[aqa.org.uk/exams-administration/dates-and-timetables](http://aqa.org.uk/exams-administration/dates-and-timetables)

## Use of preliminary material

Please be advised that the preliminary material is to be seen by teachers and students only, for use during preparation for the examination. It cannot be used by anyone else for any other purpose, other than as stated in the instructions issued, until after the examination date has passed. It must not be provided to third parties.

Exampro GCSE Design and Technology provides online access to authentic AQA exam questions, mark schemes and examiner comments.

Exampro allows you to:

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- Improve your students' exam technique.
- Assess your students' progress.

For a free demo or more information please visit:  
[exampro.co.uk/designtechnology](https://exampro.co.uk/designtechnology)

Delivered by Exampro - Part of the AQA family

# Keep in touch

As we develop new specifications we would like you to stay in touch with us and share your views. We would really value your input to help us ensure our exams, resources and support services are always in step with your needs.

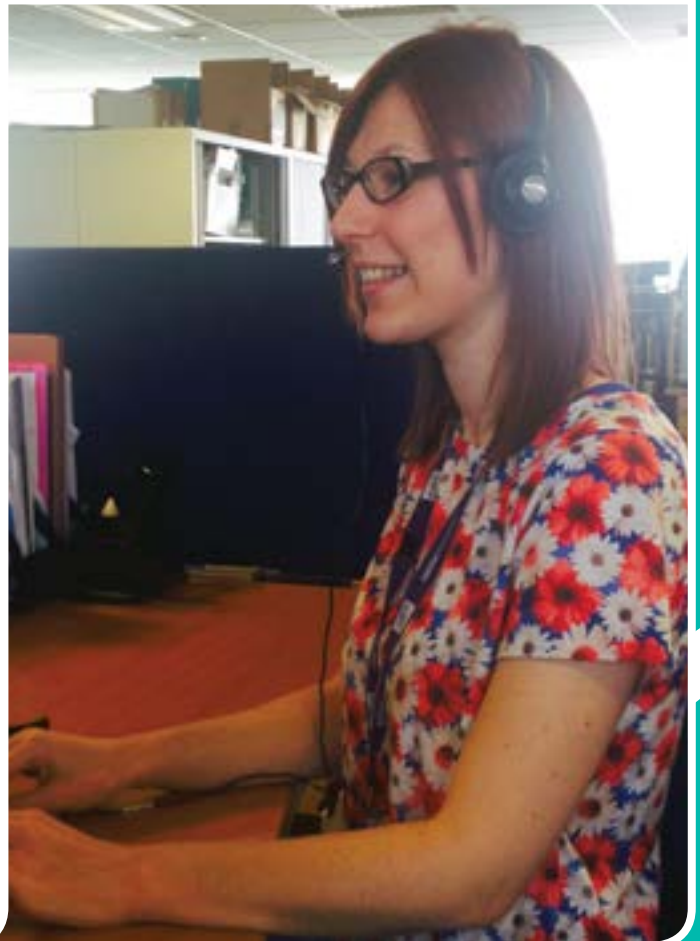
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## Level 3 Technical Level qualifications in Engineering

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