



## GCSE Design and Technology

### Introduction

GCSE Design and Technology is being reformed in Wales for first teaching from September 2017. The reformed GCSE Design and Technology will be developed and delivered by WJEC, and will be the only versions of the qualifications available to learners on state funded programmes in Wales, as no other exam board has decided to develop these qualifications for use in Wales. As part of the reform process we are asking for views on the proposed content, structure and assessment of the reformed qualification.

We have developed the proposals in this questionnaire through consultation with a number of stakeholders including WJEC, school and college practitioners, universities, Estyn and the Welsh Government. The outcomes of this questionnaire will help inform the development of approval criteria and regulatory conditions for the new GCSE Design and Technology. The specifications and sample assessment materials for these qualifications will be developed and approved on the basis of the approval criteria published by Qualifications Wales.



## GCSE Design and Technology

### Subject aims and content

#### **Subject aims and content**

The current GCSE Design and Technology subject aims and content can be found at the link below:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/371236/11-10-19-gcse-subject-criteria-d-and-t.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/371236/11-10-19-gcse-subject-criteria-d-and-t.pdf)

We propose that the reformed GCSE Design and Technology in Wales retains the majority of the current subject aims and content, but places more emphasis on technical principles.

#### **Subject aims and objectives**

The proposed aims are based on elements of both the current subject criteria and of the subject content for the new Design and Technology qualifications in England. We propose the following subject aims and objectives for the reformed GCSE Design and Technology.

GCSE Design and Technology should inspire, inform and motivate by undertaking a course of study which provides insight into related design and technology sectors. The qualifications should prepare learners to make informed decisions about further learning opportunities and career choices.

GCSE Design and Technology must enable learners to:

- develop an appreciation of the importance of creativity and innovation to good design practice
- actively engage in the processes of design and technology to develop as effective and independent learners;
- understand key designing and making principles;
- use their knowledge, skills and understanding to make decisions regarding design in order to make quality products;
- analyse existing products and produce practical solutions to needs, wants and opportunities, recognising their impact on quality of life;
- work independently and collaboratively;
- critically analyse links between the principles of good design, existing solutions and technological knowledge;
- understand the underlying technical principles within design and technology in their specific focus area, with emphasis on emerging technologies, materials and practices.

## Subject content

We propose the following subject content for the new GCSE Design and Technology in Wales:

The GCSE Design and Technology specification must reflect the learning outcomes in the content

The GCSE Design and Technology specification must require learners to develop knowledge and understanding through:

- responding creatively to briefs, developing their own proposals and producing specifications for products and associated services;
- generating, developing and communicating ideas in a range of ways, using appropriate strategies;
- recognising the impact of design and technology on sustainable development and social responsibility;
- using their understanding of other designers and products to inform their own practice;
- planning and organising activities, and then shaping, forming, mixing, assembling and finishing materials, components or ingredients as appropriate;
- choosing appropriate equipment, materials and technology to support the design and making process;
- reflecting critically when evaluating and modifying their ideas and proposals to improve the products throughout inception and manufacture.

The GCSE Design and Technology specification must provide learners with opportunities to:

- design creatively;
- use a variety of materials and technologies;
- analyse and evaluate processes and products;
- consider different design, communication and sustainable development strategies;
- understand health and safety within a design and technology context.

### **Q1: To what extent do you agree/disagree with the proposed subject aims and content for the GCSE Design and Technology in Wales?**

- I strongly agree
- I agree
- I neither agree nor disagree
- I disagree
- I strongly disagree
- I don't know

Comments (we would encourage you to make a comment, particularly if you disagree with the proposal)



## GCSE Design and Technology

### Focus areas

The current GCSE Design and Technology subject criteria stipulate that:

'Specifications must allow learners to specialise in one focus area to enable them to apply their specialist knowledge, skills and understanding in design and technology.'

The criteria do not prescribe a list of defined focus areas. Each of the GCSE Design and Technology qualifications currently offered in Wales, England and Northern Ireland include some of the following focus areas:

- Graphic products
- Product design
- Resistant materials technology
- Systems and control technology
- Textiles technology
- Electronic products
- Food technology (no longer available)

For the GCSE being reformed in England, the Department for Education (DfE) and Ofqual (the regulator of exams and qualifications in England) have decided that there will be no focus areas in the reformed GCSE.

Stakeholders consulted in Wales indicated a high level of support for retaining areas of focus within the reformed GCSE as they aid progression and are important for learner development as they encourage learners to develop and apply a deeper knowledge and understanding of the subject in a specific area.

We propose retaining the requirement for learners to apply their specialist knowledge, skills and understanding in design and technology to a specific area of focus. To support progression we are proposing that the same choice of focus areas is offered at GCSE, AS and A Level. The areas of focus we propose are intended to balance the need to develop a broad knowledge and understanding of the subject, whichever area they choose to specialise in, and emphasise the importance of the principles and process of design, rather than focusing purely on specific materials. We propose the following areas of focus:

1. Product design
2. Engineering design
3. Fashion and textiles
4. Communication design

The first three proposed areas of focus correspond to those required in the reformed A level in England. In addition, we are also proposing 'Communication Design'. This focus area covers aspects of design technology, including graphic design and the communication of information through printed and digital media. Practical skills developed in this new focus area could include developing a website, developing a company brand or producing promotion material through printed and digital media.

In both England and Wales, the Food Technology focus area has already been removed from the existing GCSE Design and Technology, in Wales this is being replaced by the new GCSE Food and Nutrition qualification being introduced in September 2016. We do not propose reintroducing food technology as a focus area in the new GCSE Design and Technology.

**Q2: To what extent do you agree/disagree with the proposed focus areas for GCSE in Wales?**

- I strongly agree
- I agree
- I neither agree nor disagree
- I disagree
- I strongly disagree
- I don't know

Comments (we would encourage you to make a comment, particularly if you disagree with the proposal)



## GCSE Design and Technology

### Assessment objectives

Assessment objectives determine how the subject content should be assessed.

The assessment objectives and their weightings in the current GCSE Design and Technology are:

Objective	Requirements	GCSE
AO1	Recall, select and communicate their knowledge and understanding in design and technology including its wider effects.	25 - 35%
AO2	Apply knowledge, understanding and skills in a variety of contexts and in designing and making products.	45 - 55%
AO3	Analyse and evaluate products, including their design and making.	15%

The following assessment objectives and weightings are proposed for reformed Design and Technology GCSEs in England:

Objective	Requirements	GCSE
AO1	Identify, investigate and outline design possibilities to address needs and wants	10%
AO2	Design and make prototypes that are fit for purpose	30%
AO3	Analyse and evaluate – <ul style="list-style-type: none"><li>• design decisions and outcomes, including for prototypes made by themselves and others</li><li>• wider issues in design technology</li></ul>	20%
AO4	Demonstrate and apply knowledge and understanding of – <ul style="list-style-type: none"><li>• technical principles</li><li>• design and making principles</li></ul>	40%

For the reformed GCSE Design and Technology in Wales we propose using the similar assessment objectives and weightings as are being proposed in England, with a minor change to the wording of AO4 to reflect the difference in the subject aims, content and focus areas. This will help ensure comparability across the reformed GCSE Design and Technology in Wales and England. The awarding body will be required to ensure the detailed content included in GCSE specifications in Wales is compatible with the assessment objectives and secures appropriate progression between each level of study.

We therefore propose the following assessment objectives and weightings for the reformed qualifications in Wales:

Objective	Requirements	GCSE
AO1	Identify, investigate and outline design possibilities to address needs and wants	10%
AO2	Design and make products that are fit for purpose	30%
AO3	Analyse and evaluate – <ul style="list-style-type: none"><li>• design decisions and outcomes, including for products made by themselves and others</li><li>• wider issues in design technology</li></ul>	20%
AO4	Demonstrate and apply knowledge and understanding of design and technology principles.	40%

**Q3: To what extent do you agree/disagree that the assessment objectives and weightings above should apply in Wales?**

- I strongly agree
- I agree
- I neither agree nor disagree
- I disagree
- I strongly disagree
- I don't know

Comments (we would encourage you to make a comment, particularly if you disagree with the proposal)



## GCSE Design and Technology

### Non examination assessment (NEA)

The current specifications for GCSE Design and Technology include non examination assessment (presently identified as 'controlled assessed task').

Stakeholders in Wales emphasised the need to ensure that the content and assessment objectives reflect the iterative design process: to ensure that learners have the opportunity to explore contexts, develop ideas, explore unfamiliar options and adopt non-prescriptive approaches to finding solutions, evaluate, refine and produce outcomes.

These activities take place over an extended period of time and are inextricably linked to each other. Non examination assessment allows for assessment evidence to be collected at throughout the design and production process, ensuring that the full design journey can be captured and assessed.

We recognise that the skills identified in a number of the assessment objectives contribute to a successful design and make project outcome. We propose that a proportion of AO1, AO2 and AO3 should be assessed against the non examination assessment. We will require an awarding body to give a rationale for the specific balance of assessment objectives achieved across the exam and the non examination assessment within its specification.

We propose that both a portfolio of evidence and an artefact should be produced and assessed as part of the non examination assessment. We also propose that the non examination assessment should place a greater emphasis on the application of practical skills than on the documentation of the design process, as in the current specifications.



**Q4a: To what extent do you agree/disagree that with the above proposal?**

- I strongly agree
- I agree
- I neither agree nor disagree
- I disagree
- I strongly disagree
- I don't know

Comments (we would encourage you to make a comment, particularly if you disagree with the proposal)

Non examination assessment requirements

Presently, the weighting between examinations and non examination assessments at GCSE is 40% and 60%, respectively. Based on engagement with stakeholders in Wales, we propose that there should be an equal balance of examination and non examination assessment. This approach reflects the balance of assessment proposed for the new GCSE Design and Technology qualifications in England.

**Q4b: To what extent do you agree/disagree that non examination assessment in GCSE Design and Technology should have an assessment weighting of 50%?**

- I strongly agree
- I agree
- I neither agree nor disagree
- I disagree
- I strongly disagree
- I don't know

Comments (we would encourage you to make a comment, particularly if you disagree with the proposal)





## GCSE Design and Technology

### Tiering

In some GCSEs, some or all of the qualification is assessed through tiered exam papers. In tiered assessments different grades are available at each tier; in most GCSEs the grades available are A\* to D are the higher tier and grades C to G in the foundation tier. GCSEs in some subjects are tiered because for some subjects the level of difficulty of the assessment is determined more by how candidates respond to questions (essay style questions for example) than by the question itself, whereas in other subjects the level of difficulty is determined more by the nature of the questions asked than on the answer given (such as where there is only one correct answer). Subjects that rely more on the difficulty of the questions to differentiate between candidates tend to have tiered assessment. Tiered assessment avoids the challenges involved in trying to set a single paper to assess the whole cohort. If these subjects were not tiered, then the exam papers would need to be bigger to include enough questions at each level of difficulty, which would increase the amount of assessment required. There is also a risk that the assessment would be less reliable, because research shows that more able candidates often lose marks on the less challenging questions and less able candidates are demotivated by the more challenging ones.

The Review of Qualifications for 14 to 19 year olds in Wales recommended that “tiering should only be allowed where there is a clear case for doing so due to the nature of the subject”.

We propose that the reformed GCSE Design and Technology will not be tiered.

**Q5: To what extent do you agree/disagree that GCSE Design and Technology should not be tiered?**

- I strongly agree
- I agree
- I neither agree nor disagree
- I disagree
- I strongly disagree
- I don't know

Comments (we would encourage you to make a comment, particularly if you disagree with the proposal)



## GCSE Design and Technology

### Continuing professional development/resources

**Q6: What support and resources do you feel centres and teachers may require to achieve maximum readiness to deliver the revised specification? We would particularly welcome any further information regarding continuing professional development and resources needed for the delivery of the Communication Design focus area.**

**Please provide comments**



## GCSE Design and Technology

### Equality impact

The Equality Act 2010 states that public bodies must have 'due regard', when making decisions, to ensure there is no discrimination, harassment or victimisation of individuals or groups, to ensure equality and to foster good relations in relation to protected characteristics (age, sex, disability, sexual orientation, race, religion, marriage and civil partnership, pregnancy and maternity and sexual reassignment).

**Q7: With this in mind, please highlight below if you feel any of this proposal has the potential to have a positive or negative impact on individuals with protected characteristics and whether any of the proposal would cause accessibility issues for learners in Wales.**



## GCSE Design and Technology

### Personal details

**Participants under the age of 16 are requested NOT to fill in this section.**

If you supply contact details, we may contact you for clarification of your answers. Qualifications Wales (QW) will not share these details, or details of your answers with any third party.

#### Personal details

Name

Company

Email Address

**Are you responding as an individual or on behalf of your organisation?**

- Individual
- Organisation

**Please select the type of organisation or choose 'not applicable' if responding as an individual**

- School
- College
- University
- Qualification Awarding Body
- Government (Local, National, UK or EU)
- Non-Applicable
- Other (please specify)

**Are you a: (please select as appropriate)**

- Teacher
- College Lecturer
- University Lecturer
- Student
- Parent
- Other (please specify)