

# Pearson response to the DfE consultation on GCSE reform: design and technology

August 2015

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## A brief introduction to Pearson

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Pearson is the world's leading learning company. Our education business combines 150 years of experience in publishing with the latest learning technology and online support. We are also part of the wider Pearson family which includes Penguin, Dorling Kindersley and the Financial Times. We provide education and assessment services in more than 70 countries. Our qualifications, courses and resources are available in print, online and through multi-lingual packages, helping people learn whatever, wherever and however they choose.

## A summary of the Pearson response

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Pearson welcomes the opportunity to contribute to this consultation on proposed content for the reformed GCSE Design and Technology. We also welcome the opportunities that we as an awarding organisation have been afforded to feed in to the process of shaping these content criteria, drawing on our extensive research with Higher Education Institutions, stakeholder groups, teachers and learners.

We are generally supportive of the content requirements and agree that they are broadly appropriate in light of the issues raised by stakeholders. However, there are some specific aspects where we have recommended changes based on our research evidence. There are also some areas where further clarification will be needed. Our concerns and subsequent recommendations are detailed in our response below.

## Detailed response

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*Is the revised GCSE content in design and technology appropriate?*

*Please consider:*

- *whether there is a suitable level of challenge*
- *whether the content reflects what students need to know in order to progress to further academic and vocational education*
- *whether the amount of content in the qualification is appropriate and, if not, whether you have any suggestions for removing or adding content*

*Please provide evidence to support your response.*

Awarding organisations were involved in the early drafting of the proposed subject content. Pearson teams worked collaboratively alongside colleagues at AQA, OCR and WJEC, as well as DfE colleagues, to listen to the views of stakeholder groups and HEI representatives to establish new content expectations. As well as working with stakeholder groups convened by the Department, we also have a detailed base of evidence of our own to draw on, including analysis of international high-performing jurisdictions, additional stakeholder engagement, and data and qualitative analysis of our existing qualifications.

The drafting process has inevitably required a degree of compromise. It has involved exploring an appropriate balance between ensuring that the content provides the best possible progression, ensuring that the skills, knowledge and understanding represented are the right ones for the subject in the eyes of stakeholders, ensuring that we can assess these validly and reliably over the life of the qualification, and ensuring that the qualification is deliverable in schools and accessible and appealing to students. Following consultation with our wider stakeholder groups, we believe that further revisions are required to ensure these aims are met.

We support the proposal to provide design and technology students with a greater breadth of study through the requirements of the technical knowledge and understanding section. The subject content document states in footnote 3 that there will not be any endorsed routes within this qualification. While this will prevent separate endorsements, it will not prevent separate routes based on material areas through specifications. We feel greater clarity may be needed around this point, either within the criteria or the conditions and guidance to ensure comparability between specifications. **Specifically, we recommend that either this content document or Ofqual's conditions and guidance need to specify that the examination element of the qualification should assess students' knowledge and understanding of all material areas within the subject content.**

In our previous consultation response we raised concerns about the development of breadth and depth of knowledge within the subject. We feel that this version of the criteria allows students to develop a breadth of knowledge through the technical knowledge and understanding section while developing their depth of knowledge in the design and making section of the criteria. We believe that allowing students to focus on appropriate materials within the designing and making section allows briefs to be created to suit the resources and materials available to students.

However, our research with teaching specialists and our examining teams has raised concerns about some of the content listed in the technical knowledge and understanding section. The second list of bullet points within this section are heavily influenced by the current electronics, systems control and mechanics specifications, and by including these we feel there is not a balance between all of the different D&T areas. **We recommend removing some of these bullet points, for example the key elements of open and closed systems, including subsystems, and systems thinking.**

The revised content also contains some of the specific rules around the NEA tasks. Given that these pertain to the assessment arrangements for the qualification, we feel these would be best placed in Ofqual's subject conditions and guidance, to prevent overlap or confusion. Examples of this are:

- Section 7: the requirement that specifications should provide a range of three contextual challenges
- Section 9 bullet point 2: the requirement that students demonstrate an ability to write at least one design brief and at least one specification
- Section 9 bullet point 10: the requirement that students design and develop at least one product
- Section 9 bullet point 11: the requirement that candidates produce at least one prototype and at least one product
- Appendix 2 which lists examples of contextual challenges for NEA tasks.

We support the addition and clarity of the role of mathematics and science within design and technology (displayed in appendix 1). However, through our research we have found that the table in appendix 1 can cause some confusion, as it is not clear if specifications would have to include the left hand side of the table (scientific knowledge and skills requirements) or if this provides the context for the right hand side of the table (examples of D&T application) which would need to be included in specifications. **To add clarity we would suggest that the heading of the appropriate column is changed to "GCSE specifications in design and technology must require students to demonstrate:".**

In some instances the knowledge and skills listed are very specific to one type of design and make project, for example ref 3b "describe the composition of some important alloys in relation to their properties and uses", whereas the example listed as "selecting appropriate materials" could be applied to all design and make projects. **We recommend that further revisions are made to this list to ensure each of the knowledge and skills requirements could cover a wide range of materials, resources and projects.**