Pearson Edexcel

GCSE Design and Technology (2017)

Building innovative design skills

Pearson Edexcel

This guide gives you an overview of our **Pearson Edexcel GCSE (9–1) Design and Technology** qualification, and the comprehensive support you have available to you to help you plan, teach and assess the course.

With a now fully established qualification following reform, our offer gives you the flexibility and personalisation options you need to help you to deliver a course that:

- Reflects the strengths and interests of your students
- Works for your current department facilities
- Encourages excellence through the study of specialisms
- Allows students to deep dive into material areas in both the NEA and examination components
- Provides opportunity to progress onto A level Design and Technology
- Encourages students to start a technical or non-technical learning journey that can be fulfilled through the study of a range of different degree level qualifications from product design to textiles
- Encourages and rewards creative response to the NEA as equally as it does to a focus on specific technical problem solving.

Our core qualification offer includes:

- **The course specification**, with clear and detailed content to cover, leaving no ambiguity about what might appear in an examination paper
- **Material specific** examination papers (past papers)
- **Mapping documents** to help you switch existing schemes of work
- **A Scheme of Work plan** for a two-year course delivery
- **On-demand module-based assessment** support available all year round, explaining our approach to NEA assessment
- **Live Q&A events** focused on the assessment of a new portfolio of work alongside the chance to discuss assessment with senior examiners
- **Exemplar portfolios** for different material areas and including portfolios modified for Covid-19 submissions
- **An always available subject advisor** Evren Alibaba, a former D&T teacher, able to address queries relating to the subject and qualification delivery
- **An expert product team** developing ongoing support and training to respond to teacher needs.

Key changes to the reformed qualification and our approaches

Key changes to the qualification post reform	Our teacher/student centred approach
The introduction of mathematics and science content into the core content of the course	Clear guidance on the expectations for mathematics assessment in the examination paper, and accessible context-based questions which can be taught to students of all abilities
A rebalance of course structure from 60% coursework to 50% coursework, with the other component an examination paper	Greater support for the NEA component without the expectation to produce excessively large portfolios, ideally submitted as 30 slide documents
Increased expectation for creative and modern approaches to the design process, including "iteration" and "user centred design"	Clarity around new and updated content with support and exemplar materials to engage both learners and support teachers

Qualification at a glance

Our Pearson **Edexcel GCSE (9–1) Design and Technology** qualification consists of one examination paper and one non-examined project-based portfolio (NEA), focused on a pre-released theme known as a contextual challenge.

Component	Overview	Assessment
Component 1 Examination 50% of qualification	The paper includes calculations, short-open and open-response questions as well as extended-writing questions focused on: • analysis and evaluation of design decisions and outcomes, against a technical principle, for prototypes made by others • analysis and evaluation of wider issues in design technology, including social, moral, ethical and environmental impacts. **The paper is split into section A "core" and section B "material" categories**.	**Written exam**, externally assessed Exam 1hr 45mins Total of 100 marks Students must answer all questions in **section A (40 marks)**. **Students must choose one specialism in section B** – either Metals, Papers and Boards, Polymers, Systems, Textiles or Timbers **(60 marks)**.
Component 2 Design & make project 50% of qualification	Three contextual challenges will be provided by the board each year in June, from which students must choose one to respond to. Students will produce a project, linked to their specialism, which consists of a portfolio and a prototype. There are four parts to the assessment: • Part 1: Investigate • Part 2: Design • Part 3: Make • Part 4: Evaluate	**Non-examined assessment**, internally assessed and externally moderated. Total of 100 marks

About our contextual challenges

The contextual challenges are released in early June in the Year 10 of the two-year course. They provide broad and open themes from which students will select just one to respond to. Students are completely free to choose any challenge from those released during their course, and they are encouraged to approach the challenge with completely open and creative thinking. This is to avoid any repetition of projects year to year; encourage innovation and creativity, which is at the heart of the qualifications' design; and to ensure that students can take both personal ownership of their project, but also have scope to explore areas of interest to them.

The approach expected of all students is that of a chronological, iterative and user centred design process.

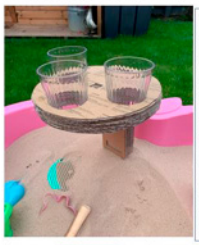
This means that students will:

- Document their work in chronological order.
- Iterate through the steps to producing a portfolio – repeatedly exploring, developing and testing their research, designs, models and eventual made outcomes, adapting their approach as they progress towards a suitable solution.
- Avoid a pre-prescribed approach to project-based learning, centred on the needs and wants of real people experiencing real problems, rather than designing for themselves, fictitious people, or developing solutions for problems that are unnecessary.

Example pages of an NEA portfolio

Testing

My proof of concept model will be tested against my specification and requirements of the customer. In addition, some physical tests should be carried out to find out whether or not the proof of concept model is suitable and durable enough to be used for camping, during the festival time. To find out the opinion of the customer, I could conduct a short questionnaire of around 10 questions, to see if the consumer of my proof of concept model (adults who attend festivals) consider my proof of concept model as satisfactory for its use. Furthermore, I could assess the proof of concept model against my own specification to give myself a judgement of whether or not I feel that my proof of concept model ticks all the boxes and reaches the specification that I set for myself. Whereas, for the practical side of things, I could conduct a series of tests in the workshop, to identify if my proof of concept model achieves the durability and sustainability that it should, but because it is a proof of concept model, it will be hard for it to do this. The main test that I would conduct, would be to check the folding mechanism and the functioning of the spike that would be put into the ground. I could even test it out in the real conditions, where it would be used to check if it fits the weather and terrain conditions that will be present during the festival period. Based on this feedback and all of these results, I could modify ad alternate my proof of concept model if there were any gaps present in it meeting the brief and specification.



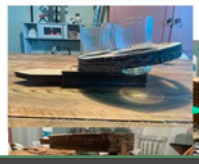
To ensure real life testing I would have tried this out in real conditions at a festival or in the garden to simulate grass and earth, however because it is a proof of concept model I dug it into sand in my sister's sand pit. It dug into the sand well which makes me think that if it was a strong material like steel, then it would do its job really well. The depth gauge indicated how far the blade of the leg should be pushed into the ground therefore it carries out the function as it should.

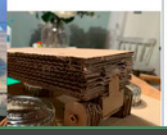
I tested that the proof of concept model was of a suitable size as the glasses were easily accessible.

The cup holders are big enough for both plastic cups but also glasses, meaning it has a higher versatility for what it can be used for, than anticipated.

Unfortunately, because it is a proof of concept model, it did not hold its position incredibly well. It was a tight fit but when all three glasses were placed in the cup holder the prototype resisted the weight and did not fold under the pressure, however with a bit of force it did collapse.

The handle is very well suited to the anthropometrics of the human hand. This allows for the customer to comfortably carry the proof of concept model from one place to another, ensuring improved grip and reducing any risks of the proof of concept model falling or harm being done to the users hand when transporting the proof of concept model.





When collapsed the proof of concept model has a small width and the overall dimensions are not too large. This means that it can comfortably fit into the boot of a car or even a tent. Due to this, the space can be efficiently used and it allows the user to transport this proof of concept model along with others that can be comfortably arranged around it.

Development of Design - Card board scale model pt3

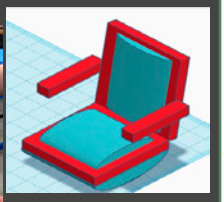
For proof of concept I decided to add foam padding which i wrapped in faux leather to the 1:2 scale model of the chair I made.

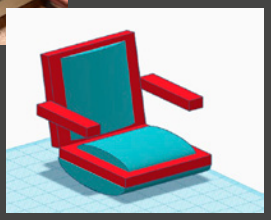
I did this by carving the foam with a bread knife and then wrapping it faux leather, this will be a similar process the full product.

I put the cut foam onto the faux leather and then cut the the faux leather with a scalpel

I hot glued the foam onto a cardboard base then wrapped the foam and stapled it onto the board

Here is the model as well as a basic CAD model of the seat with padding.





Portfolio Mark records

1 Investigate	Page ref	Comments	Level	Mark awarded (please circle)	Pearson use only
1.1 Investigation of needs and research (AO1 8 marks)		The candidate has focused on the CC they will study. They have looked in detail at some potential users and they start to think about possible products.	No rewardable material	**0**	
		User needs and wants referred to several ways to determine issues and potential areas to examine. Some personal and third party reflection has been shown and they are linked back to the CC.	Level 1	**1** **2** **3**	
		Existing products with detailed notes about selected criteria including features including **Form and Function.** These notes are fully justified and do relate to the CC.	Level 2	**4** **5** **6**	
		The quality work of this candidate easily fits the Level 3 assessment criteria and is of a superb quality.	Level 3	**7** **8**	
1.2 Specification (AO1 8 marks)		The Candidate has a clear **design brief**. It remains open in nature with a theme of the seating/eating at the outdoor cinema, that has been identified for future design investigation.	No rewardable material	**0**	
		The specification points seen mention many **technical and measurable points** The coded specification points are descriptive and have been justified by the candidate explaining their thoughts to take forward into the design section that follows.	Level 1	**1** **2** **3**	
		The quality work of this candidate best fits the Level 3 assessment criteria.	Level 2	**4** **5** **6**	
			Level 3	**7** **8**	

What makes our specification work for so many schools in the UK and Internationally?

Our qualification allows for specialisms, similar to those available as entire courses prior to reform (such as GCSE Textiles and GCSE Electronics). Whilst core knowledge remains a consistent requirement for all students and all GCSE Design and Technology qualifications, Pearson Edexcel students can choose a material specialist paper for their 50% examined component. This has the benefit of:

1. Allowing centres to specialise in material areas as they have done prior to reform

2. Allowing students to specialise in a material area in both the NEA and the examined paper

3. Helping centres continue to recruit material specialists alongside multi-material teachers

4. Allowing students to deep dive into one material area, achieving a level of excellence and pushing the boundaries of materials through new and exciting applications

5. Opportunity for schools to expand their material offer over time, or focus on a material area in which they feel most confident to support the learner experience

What you can expect from your experience of teaching a Pearson Edexcel qualification:

1. **On-demand support** from your subject advisor
2. **Subject expertise** within the Pearson Edexcel team supporting and assessing the qualification
3. **Clear assessment** approaches through command word taxonomy, complemented by clear assessment feedback from our examiners
4. **The benefits of our Results Plus service** providing detailed insight into your students examination performance
5. **The benefits of our Exams Wizard** service allowing you to generate new and bespoke practice papers for you to use at your centre
6. **Portfolios of candidate submissions** for the NEA with clear explanation and guidance on assessment decisions
7. **A first in class experience** with opportunities to work with Pearson on research into design education, opportunities to host network style events, an open community of teachers in our social media and community groups, and ongoing work to improve our support for you as a school.

Subject support

If you have any questions, Evren is our resident expert and always happy to help. **Sign up** to receive emails to keep up with the latest information on training events, news, government announcements and more.

0207 010 2166

@ teachingdesignandtechnology@pearson.com

Follow Evren on Twitter: @PearsonTeachDT

Visit the Facebook group

Evren Alibaba
Design and Technology
Subject Advisor

Next steps...

Let us know you're planning to teach…

Tell us if you're planning to teach **Pearson Edexcel GCSE (9–1) Design and Technology specification** so we can fully support you with specification updates

Sign up now

Explore our support for teachers…

You'll find so much support when you teach a **Pearson Edexcel qualification**, from exam support, to our free online results analysis tool, ResultsPlus and more!

Find out more

PEUK C0252 | version 1.0 | April 2022