OxfordAQA International GCSE

Design and Technology : Product Design (9252)

Notes and guidance : NEA guide

For teaching from September 2016 onwards
For International GCSE exams in June 2018 onwards

Introduction

The following guide breaks down the key areas of each section of the GCSE Design and Technology: Product Design NEA.

It gives you suggestions and information that you can pass on to your students to ensure they fully understand the criteria, and how best to record their learning as it develops through the NEA project.

Section A

Identifying and investigating design possibilities (10 marks)

- Which of the three contextual challenges your students decide to follow is very important.

- The three contexts for each session are released by OxfordAQA on 1st June and 15th November each year.

- Selecting the most interesting or achievable context for the student is the starting point.

- You can decide whether to give your students the opportunity to select from all three, or two, or possibly restrict them to a single context.

- Make sure the chosen contextual challenge is investigated fully and tell your students to ensure all research they carry out is relevant to the context.

- Students will not gain marks for investigating things that are not related to their design decisions, so investigation should only take place when your students need to find something out.

- Do not create a standard set list of research tasks. Each student's work should be unique.

- This section will continue throughout the project, not just at the start. So, encourage students to record any investigation as it happens. This means that portfolios will not follow a set pattern and investigation work should be evident at all stages. Section A rewards students for the questions they ask themselves and the answers they find, so make sure they write them all down.

- Clients' opinions are of great importance. Ask your students to choose one that they can keep in contact with at various stages of the project. This will make it much easier and more likely that they will use this client throughout their NEA and not just at the beginning.

- Students should try to show a range of methods of investigation. They should carry out primary research which can be practical, reflect on any possible impact on society and investigate the work of others through product studies or other methods.

- Any sources of information such as books or the internet including using A.I. should be acknowledged.

Section B

Producing a design brief and specification (10 marks)

- Remember that this section is not just about producing a design brief and writing a specification, it is about how these are used throughout the project. Students need to keep referring to them through their designing, development stages and evaluation.

- The specification should be used throughout the project for assessing how ideas are developing and how closely they meet the points in the specification.

- The design brief and specification should be developed from the investigation work completed.

- The specification must be meaningful, well justified and the criteria should be measurable. This will help when using the specification throughout the project to evaluate ideas etc.

- Encourage students to focus on the clients' or users' needs and wants.

- Do not encourage students to over-structure their work or use provided writing frames or templates.

- Tell students to only write specification points that can be used throughout the project to guide decisions.

- As investigation work goes on, don't worry if the specification criteria change throughout the portfolio. Don't ask students to repeat work. They should simply amend their specification, explaining why these amendments were necessary. This will create clear evidence of thinking and show the student's ability to respond to new information.

Section C

Generating design ideas (10 marks)

- Students that do well in this section show imagination, creativity, and innovation, and push themselves to explore more unusual ideas. Encourage students to take risks, knowing that they are still able to demonstrate skills in making; the final prototype does not necessarily need to be a finished product.

- Students should add notes to their designs and explain their thoughts. They should relate their designs to the specification and their suitability considering the client's thoughts.

- There is no requirement for a set number of individual design ideas, so do not tell students that they need to do a certain amount before they can focus on one.

- There does not need to be a huge range of ideas, but we do want to avoid design fixation, so students who respond to the needs and wants of the client and experiment and allow their ideas to change as the project progresses will do well.

- Don't allow the quality of the sketch to become more important than the quality of the idea.

- If A.I. is used as part of the generation or development of ideas then it needs to be acknowledged, and no credit can be given to the student for work which is not their own.

- However, using A.I. may allow a student to make progress if they are encountering difficulties.

Section D

Developing design ideas (20 marks)

- Modelling is a key part of development. Students should use modelling to try out ideas and test their designs. They can use a variety of methods including CAD and solid modelling, but they need to make sure that they constantly refer to their client and specification. This will ensure that their ideas for the product are developing in the right direction.

- Students should explain all their decisions when developing ideas. Students need to think about why they have made these decisions and question whether they are the right choices. It is important that they document this thinking as it will provide valuable insight for assessment and justify their developing and evaluation marks.

- Encourage students to investigate and explain their choice of the materials and components they use. The process of investigating materials and components should help students refine their design. Their design may need to change because of this investigation, and they should be documenting which ideas they think are appropriate and why. It may be appropriate to carry out some further research or testing at this stage, which will add to the marks in the investigating and evaluation sections.

- Students must produce a manufacturing specification eg. cutting list, parts list, working drawing etc. This should provide sufficient information to allow for a competent person to manufacture the prototype.

- Generating and developing ideas, investigation and evaluation, and skills shown in realising the design may all happen on the same page of the portfolio.

- Avoid teaching students to follow a set format. There are more marks available to them if they follow a more organic, iterative approach. This may mean that you don't ask students to put titles on their pages as it may be very difficult to label a page if lots of different aspects are involved. Providing a clear sequence of ideas is what matters.

Section E

Realising design ideas (30 marks)

- There are no restrictions in terms of the processes your students need to demonstrate. Prototypes can be constructed using simple hand tools or other equipment including automated Computer Aided Manufacturing equipment. It is more important that students show a good level of skill in terms of making. Students can demonstrate this skill through all aspects of making and developing the prototype. This means you can use evidence from all making activities including earlier models or even investigation activities if the skill is demonstrated.

- Ensure that if students use a lot of Computer Aided Manufacture, they document their contribution. There is a big difference between students who create a file and then send it to a laser cutter and students who know how to change power and speed settings, can adjust the bed height etc. Make sure your students show their capabilities in this area.

- There is no requirement for students to provide a fully functioning prototype. It may be that your students decide to create a working model, a scale model, or a concept model for example. The level of skill is the important aspect of this decision. If scale models are produced it may be wise to include some details in full size to demonstrate skill and technical understanding.

- Ensure students take pictures to record the stages and techniques used for making as well as a range of final photos of the prototype. This will help you to justify the marks you give to your students.

Section F

Analysing and evaluating (20 marks)

Top tips

- Analysis and evaluation should happen throughout the project and not just at the end.

- Students should be encouraged to evaluate their progress throughout every stage of their designing and making, recording this in their portfolio at the relevant point. This could include many different types of evaluating, eg. evaluating initial ideas against the specification or client evaluation of models.

- Students should test their prototypes against their specification and by using their client. This should happen at the end of the making but could also happen when students test models throughout development.

- Ensure students include photographic evidence of any testing.

- Students need to be honest about the prototype's strengths and weaknesses. This will help them to offer future modifications/improvements which are realistic and show real forward thinking.

- Students need to understand the need for critical (formative) evaluation at every stage of the project, not just end (summative) evaluation.