

Responding to exam style questions:

- Students should aim to build in at least 5 key terms / words to their extended responses to ensure they show a high level of understanding and knowledge for the topic in the question.
- Students should use the provided guidance to structure their responses and meet the marking criteria.
- Students should highlight or underline all key vocabulary used in their responses, this will visually aid them to see if they have used high level terminology in their response.

Why do designers create prototypes of their product ideas? Give a product example to support your response. (6 marks)

Key words:

- Testing
- Quick / cheap
- 3D
- Visualise
- Interact
- Function
- Feedback
- Dimensions
- Ergonomics
- Users / customers
- Prototyping
- Questions
- Reflection
- Evaluation
- Analysis

Product Examples:

- Children's bike
- Wheelchair
- Hairdryer
- Laptop
- Computer chair
- Desk lamp
- Mobile phone

Guidance:

- Explain what a prototype is
- Give 3-4 reasons why designers make prototypes
- Explain how the prototypes are used / what is learned
- Give a product example to support your response.
- Use the key word bank, highlight or underline the key words used.

NOW!

Score : 6 /6

Mrs McVay says AMAZING WORK!

Designers create multiple prototypes for their products. A prototype is an early version of a product, which is usually built with cheap or mechanical materials, as well as a 3D pattern/print which can be represented in a CAD. Prototypes are used to visualise the product, but also to interact with it to test dimensions, ergonomics, and sometimes functions. Sometimes designers may give prototypes to possible users to receive feedback on what to improve on. One example is a mobile phone, designers have to make it comfortable in your hand but also have to make sure it is easy to use it. Different shapes would've been gone out to different customers and they would've received feedback on how good its dimensions is, etc. When designers put to different analyses and question feedback together, they may make their serial prototypes and give an overall evaluation, as well as serial testing. Hundreds or thousands of prototypes can be made, until the designer is happy with a serial prototype they will make into a real design.

* e.g. a backpack could be tested by consumers to check if the dimensions are correct and feedback would be given.

Starter: Exam style question

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NOW! ★

Perfect response to this question.

Score : 6 /6

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For example, a wheel-chair would have to be tested and prototyped to create a suitable product.

Wow!

Explain the iterative design process in your own words...

The iterative design process is a cycle of a multitude of different design stages. The root start of the process itself is when there needs to be a solution to a design problem. The process overall can loop over itself in stages and is very flexible. The process has a constant of analysing, creating, testing, and evaluating. As many iterations of a starting prototype will be created and tested in labs, simulations and by users. They will be improved and then approved, and then brought out as an official product.

Explain why the iterative design process should help to create a more successful product outcome, give a product example in your response.

The iterative design process helps create successful products and improve original products. The process helps test products to find their flaws which can help create a better prototype, and which could hopefully better suit a user's needs possibly through previous feedback from an existing product. An example could be a ramp - its shape and size will be changed through feedback and re-engineering. New products can be made, thought on, analysed and re-made.

Why do designers and manufacturers make prototypes? Explain what they hope to learn from their prototypes.

Designers and manufacturers make multiple prototypes to test ideas; an idea on paper may seem to work, but in 3D it doesn't. Prototyping is used for testing and creating a well-made function to help suit user needs best. Designers can evaluate what shape size and material they use - for example, plastic needs to be tested so they don't rip the skin.

Write a mnemonic for iterative to help you remember what this process involves...

I dealyze Project
 T est redo
 minimal

UNDERSTAND

Explain the iterative design process in your own words...

The iterative design process is a series of design stages which are used when making a product. This process allows designers to find a problem, create a design, prototype and test. This then allows them to test and evaluate upon their product, and help solve user needs.

Explain why the iterative design process should help to create a more successful product outcome, give a product example in your response.

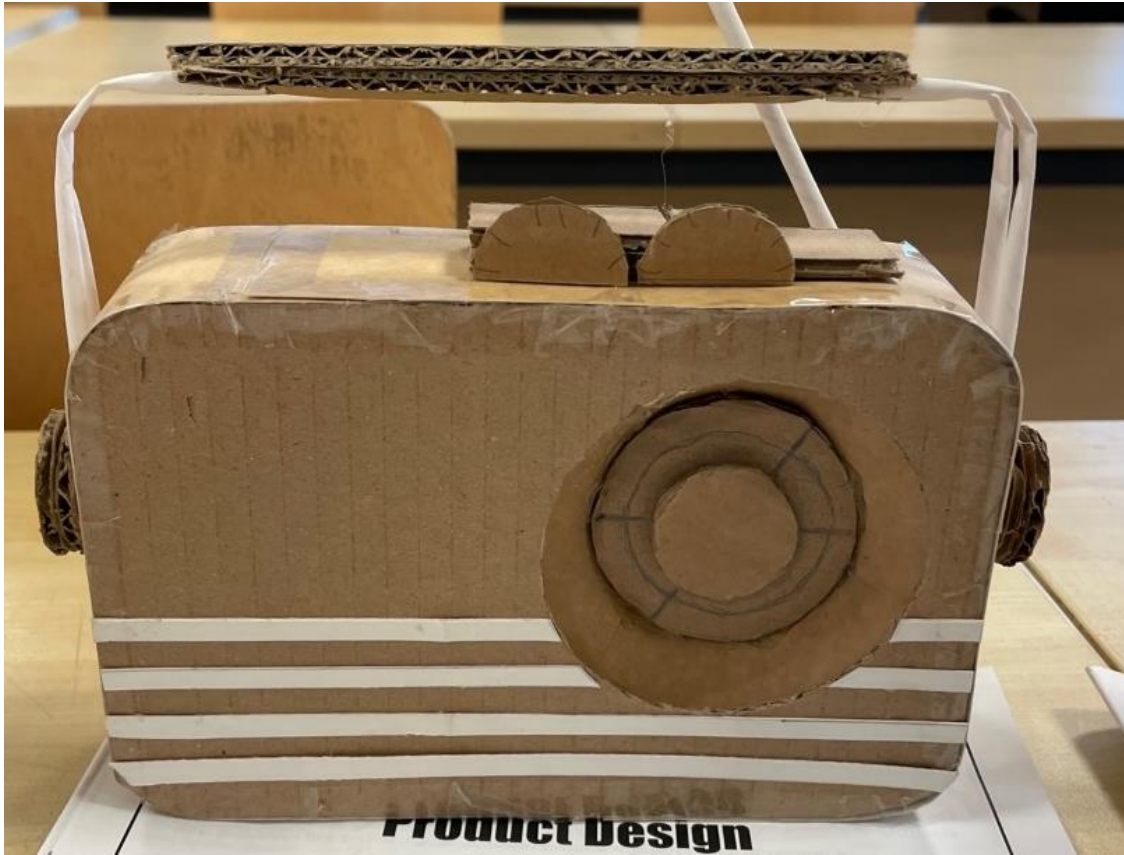
The iterative design process helps a designer to notice flaws / issues with the product which can help with safety and meeting user needs. It also gives them the time to reflect upon their product and receive feedback which will assist in improving the product. e.g. a laptop can go through testing to see how safe it is.

Why do designers and manufacturers make prototypes? Explain what they hope to learn from their prototypes.

Prototypes are used by designers to see how well a product functions, to see what it looks like in 3D and can be tested by consumers to users who can give feedback. This can help with reflecting on the product and can adapt the product to make it more successful.

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Prototyping in compliant materials:

- Students should focus on the accuracy of their measuring and marking out, using a sharp pencil, ruler, compass, craft knife, scissors and safety ruler to work effectively.
- All measurements should be double check as a quality control measure before cutting
- Time should be spent to make the materials ready for attachment and to give them the ability to take a new form.
- Students should consider the best methods to cut and attach their materials