



Cambridge O Level

CDT: DESIGN AND COMMUNICATION

7048/02

Paper 2 Design Project

October/November 2021

Information for the examination in 2021.

INSTRUCTIONS

- You should spend two terms designing and realising possible solutions to **one** of the following design situations.
- Wherever possible you should apply your chosen design situation to an actual location in your local area.
- Remember this is coursework and you may seek guidance from your teacher in developing your design work.

This document has **12** pages. Any blank pages are indicated.

- 1 Consider the situation where packaging is required to hold a jar of coffee and a reusable cup. The packaging will be made from card and constructed without the use of adhesive or other additional materials.

Research:

- (a) the design and construction of existing packaging which is made from card and constructed without the use of adhesive or other additional materials
- (b) possible coffee jars and reusable cups on which you could base your work (you **do not** have to design these).

Identify a suitable coffee jar and a suitable reusable cup on which you will base your work and collect some information about them.

Use the results of your research to help you write a detailed specification for packaging to hold a coffee jar and a reusable cup.

Produce and evaluate a range of design proposals for packaging to hold a coffee jar and a reusable cup.

Carry out tests and trials to establish the construction methods, materials and dimensions that you will use to make a prototype of the packaging to hold a coffee jar and a reusable cup.

Produce a working drawing of the packaging to hold a coffee jar and a reusable cup.

Produce a comprehensive plan for making a prototype of the packaging to hold a coffee jar and a reusable cup.

Produce a prototype of the packaging to hold a coffee jar and a reusable cup. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully the packaging to hold a coffee jar and a reusable cup. Suggest and justify any appropriate improvements.

- 2 Consider the situation where a company that manufactures toys is to produce a range of solar-powered toys.

Research:

- (a) the design and construction of existing solar-powered toys
- (b) possible solar cells that could be used to power a toy.

Identify a suitable solar cell on which you will base your work and collect some information about it.

Use the results of your research to help you write a detailed specification for a solar-powered toy.

Produce and evaluate a range of design proposals for a solar-powered toy.

Carry out tests and trials to establish the construction methods, materials and dimensions that you will use to make a prototype of the solar-powered toy.

Produce a working drawing of the solar-powered toy.

Produce a comprehensive plan for making a prototype of the solar-powered toy.

Produce a prototype of the solar-powered toy. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully the solar-powered toy. Suggest and justify any appropriate improvements.

- 3 Consider the situation where a leaflet guiding tourists to the six most popular markets in Mauritius is to be produced along with a holder to display the leaflets. The leaflet will be made from paper and the holder from card.

Research:

- (a) possible markets on which you could base your work
- (b) the design and construction of existing tourist leaflets and holders.

Identify the six markets on which you will base your work and collect some information about them.

Use the results of your research to help you write a detailed specification for both the tourist leaflet and the holder.

Produce and evaluate a range of design proposals for:

- (a) the tourist leaflet
- (b) the holder.

Carry out tests and trials to establish the construction and joining methods, materials and dimensions that you will use to make prototypes of both the tourist leaflet and the holder.

Produce working drawings of both the tourist leaflet and the holder.

Produce a comprehensive plan for making prototypes of both the tourist leaflet and the holder.

Produce prototypes of both the tourist leaflet and the holder. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully both the tourist leaflet and the holder. Suggest and justify any appropriate improvements.

- 4 Consider the situation where an existing building is to be converted into an ice cream and milkshake parlour.

Research:

- (a) possible buildings that could be converted
- (b) the layout of existing ice cream and milkshake parlours.

Identify a suitable building on which you will base your work and collect some information about it.

Use the results of your research to help you write a detailed specification for both the internal layout and the exterior façade of the ice cream and milkshake parlour.

Produce and evaluate a range of design proposals for:

- (a) the internal layout of the ice cream and milkshake parlour
- (b) the exterior façade of the ice cream and milkshake parlour.

Carry out tests and trials to establish the construction and joining methods, materials and dimensions that you will use to make a model which shows both the internal layout and exterior façade of the ice cream and milkshake parlour.

Produce working drawings of both the internal layout and the exterior façade of the ice cream and milkshake parlour.

Produce a comprehensive plan for making a model which shows both the internal layout and exterior façade of the ice cream and milkshake parlour.

Produce a model which shows both the internal layout and the exterior façade of the ice cream and milkshake parlour. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully both the internal layout and the exterior façade of the ice cream and milkshake parlour. Suggest and justify any appropriate improvements.

- 5** Model boats are frequently purchased as souvenirs by people visiting Mauritius. Consider the situation where packaging is required for one of these model boats. The packaging will be made from card and will include a carrying handle.

Research:

- (a)** the design and construction of existing packaging which is made from card and includes a carrying handle
- (b)** possible model boats on which you could base your work.

Identify a suitable model boat on which you will base your work and collect some information about it.

Use the results of your research to help you write a detailed specification for packaging to hold a model boat.

Produce and evaluate a range of design proposals for packaging to hold a model boat.

Carry out tests and trials to establish the construction methods, materials and dimensions that you will use to make a prototype of the packaging to hold a model boat.

Produce a working drawing of the packaging to hold a model boat.

Produce a comprehensive plan for making a prototype of the packaging to hold a model boat.

Produce a prototype of the packaging to hold a model boat. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully the packaging to hold a model boat. Suggest and justify any appropriate improvements.

- 6 Consider the situation where a weathervane is required. The weathervane will be attached to a building.

Research:

- (a) the design and construction of existing weathervanes and how they are attached to buildings
- (b) possible themes on which you could base your work.

Identify a suitable theme on which you will base your work and collect some information about it.

Use the results of your research to help you write a detailed specification for a weathervane.

Produce and evaluate a range of design proposals to show:

- (a) the design of the weathervane
- (b) how the weathervane will be attached to a building.

Carry out tests and trials to establish the construction methods, materials and dimensions that you will use to make a prototype of the weathervane.

Produce a working drawing of the weathervane and the method of attachment.

Produce a comprehensive plan for making a prototype of the weathervane.

Produce a prototype of the weathervane. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully the weathervane and how it attaches to the building. Suggest and justify any appropriate improvements.

- 7 Consider the situation where a company that produces crisps requires a design for a recycling bin. The bin will be used to collect empty crisp packets which will be recycled to manufacture various products. Details about these products will be given on an information board attached to each bin. The bin and the information board will be made from corrugated cardboard.

Research:

- (a) products made from recycled crisp packets
- (b) the design and construction of recycling and other collection bins that have information boards attached to them.

Identify the products that you will feature on your information board and collect some information about them.

Use the results of your research to help you write a detailed specification for a recycling bin and information board.

Produce and evaluate a range of design proposals for a recycling bin and information board.

Carry out tests and trials to establish the construction methods, materials and dimensions that you will use to make a prototype of the recycling bin and information board.

Produce a working drawing of the recycling bin and information board.

Produce a comprehensive plan for making a prototype of the recycling bin and information board.

Produce a prototype of the recycling bin and information board. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully the recycling bin and information board. Suggest and justify any appropriate improvements.

- 8 Consider the situation where a beach lifeguards' hut is required. The hut will be made from wood and will include a veranda or other viewing platform.

Research:

- (a) the design and construction of existing wooden buildings which include a veranda or other viewing platform
- (b) possible equipment that might need to be stored in the hut and possible facilities that might need to be provided for the lifeguards to use.

Identify the range of storage and other facilities that you will include in your design and collect some information about them.

Use the results of your research to help you write a detailed specification for a lifeguards' hut.

Produce and evaluate a range of design proposals for a lifeguards' hut.

Carry out tests and trials to establish the construction methods, materials and dimensions that you will use to make a model of the lifeguards' hut.

Produce working drawings of both the interior and the exterior of the lifeguards' hut.

Produce a comprehensive plan for making a model that shows both the interior and the exterior of the lifeguards' hut.

Produce a model that shows both the interior and exterior of the lifeguards' hut. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully the lifeguards' hut. Suggest and justify any appropriate improvements.

- 9 Consider the situation where the local supermarket is to issue a reusable loyalty card to promote sales. The loyalty card will be made from card and is to feature local products. Each time a customer makes a purchase, their card is stamped so that after ten purchases, the customer can obtain a 20 per cent discount on their shopping.

Research:

- (a) the design and construction of existing loyalty cards from different types of shops
- (b) local products.

Identify the local products on which you will base your work and collect some information about them.

Use the results of your research to help you write a detailed specification for a loyalty card.

Produce and evaluate a range of design proposals for a loyalty card.

Carry out tests and trials to establish the construction methods, materials and dimensions that you will use to make a prototype of the loyalty card.

Produce a working drawing of the loyalty card.

Produce a comprehensive plan for making a prototype of the loyalty card.

Produce a prototype of the loyalty card. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully the loyalty card. Suggest and justify any appropriate improvements.

- 10** Consider the situation where a children's picture book about sport is to be published. Each page of the book will show a picture of a different sport. When operated by the user, a system of levers and linkages will make part of each picture move.

Research:

- (a) how mechanisms based on the use of levers and linkages are used in the design of interactive books
- (b) possible sports on which you could base your work.

Identify:

- (a) a suitable title for the book
- (b) **two** sports on which you will base your work and collect some information about them.

Use the results of your research to help you write a detailed specification for the cover of the book and **two** interactive pages.

Produce and evaluate a range of designs for the cover of the book and **two** interactive pages.

Carry out tests and trials to establish the construction and joining methods, materials and dimensions that you will use to make a prototype of the cover of the book and the **two** interactive pages.

Produce working drawings of the cover of the book and the **two** interactive pages.

Produce a comprehensive plan for making a prototype of the cover and the **two** interactive pages.

Produce a prototype of the cover and the **two** interactive pages. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully the cover of the book and the **two** interactive pages. Suggest and justify any appropriate improvements.

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