



Cambridge O Level

CDT: DESIGN AND COMMUNICATION

7048/02

Paper 2 Design Project

October/November 2020

Information for the examination in 2020.

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. Blank pages are indicated.

- 1 Consider the situation where a zoo or wildlife park is to build a new enclosure for one of their animals.

Research:

- (a) the design and construction of existing animal enclosures
- (b) possible animals that the enclosure could be designed for.

Identify a suitable animal and collect some information about its security, housing and exercise requirements.

Use the results of your research to help you write a detailed specification for an animal enclosure.

Produce and evaluate a range of design proposals for an animal enclosure.

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

Produce a working drawing of the animal enclosure.

Produce a comprehensive plan for making a model of the animal enclosure.

Produce a model of the animal enclosure. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully the animal enclosure.

Suggest and justify any appropriate improvements.

- 2 Consider the situation where a company that manufactures sports products requires packaging for a set of table tennis equipment. The set will consist of two table tennis bats, a net, two net supports and three table tennis balls.

Research:

- (a) the design and construction of existing packaging for table tennis equipment
- (b) possible table tennis equipment on which you could base your work.

Identify a set of table tennis equipment 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 piece of packaging to hold a set of table tennis equipment.

Produce and evaluate a range of design proposals for a piece of packaging to hold a set of table tennis equipment.

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

Produce a working drawing of the packaging.

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

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

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

- 3** Consider the situation where a local charity is to encourage people to re-use unwanted CDs, DVDs and video games by providing containers in which the items can be collected. The items will be checked and then sold to raise funds for the local charity. Each container will be made from corrugated cardboard and have three compartments, one for CDs, one for DVDs and one for video games.

Research:

- (a)** the design and construction of existing containers that are used to collect unwanted items that could be re-used
- (b)** possible local charities that funds could be raised for.

Identify a suitable local charity and collect some information about it.

Use the results of your research to help you write a detailed specification for a container to hold unwanted CDs, DVDs and video games.

Produce and evaluate a range of design proposals for a container to hold unwanted CDs, DVDs and video games.

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 container.

Produce a working drawing of the container.

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

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

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

- 4 Consider the situation where a company requires a leaflet advertising trips in a glass bottom boat and a holder to display the leaflets. The leaflet will be made from one sheet of A4 paper. The holder will be made from card and will be flat packed so that it can easily be distributed to hotels and other places where it will be used.

Research:

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

Identify a company 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 leaflet and the leaflet holder.

Produce and evaluate a range of design proposals for:

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

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

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

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

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

- 5 Consider the situation where a one kilometre long fitness trail is to be built in a local park or other open space. There will be ten different items of fitness equipment spaced out along the trail. Each item of fitness equipment will be made from timber.

Research:

- (a) possible areas where the fitness trail could be built
- (b) the design and construction of existing fitness trails.

Identify:

- (a) a suitable area where the fitness trail could be built and collect some information about it
- (b) the range of fitness equipment that the fitness trail will include.

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

Produce and evaluate a range of design proposals for:

- (a) the layout for a one kilometre long fitness trail
- (b) **two** items of fitness equipment made from timber.

Carry out tests and trials to establish the construction and joining methods, materials and dimensions that you will use to make models of both the layout of the fitness trail and the two items of fitness equipment.

Produce working drawings of:

- (a) the layout of the fitness trail
- (b) the **two** items of fitness equipment.

Produce a comprehensive plan for making models of the layout of the fitness trail and the two items of fitness equipment.

Produce models of the layout of the fitness trail and the two items of fitness equipment. Use photographs and notes to record the making process.

Use the specification points and appropriate user testing to evaluate fully both the layout of the fitness trail and the two items of fitness equipment. Suggest and justify any appropriate improvements.

- 6 Consider the situation where your school or college requires a design for a carnival float which will be entered in a local carnival.

Research:

- (a) the design and construction of existing carnival floats
- (b) possible themes on which the design of the carnival float could be based.

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 carnival float.

Produce and evaluate a range of design proposals for a carnival float.

Carry out tests and trials to establish the construction and joining methods, materials and dimensions that you will use to make a model of the carnival float.

Produce a working drawing of the carnival float.

Produce a comprehensive plan for making a model of the carnival float.

Produce a model of the carnival float. Use photographs and notes to record the making process.

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

- 7 Consider the situation where a sculpture inspired by the sea is to be produced from a combination of recycled plastic water bottles, plastic cups and metal soft drink cans.

Research:

- (a) the design and construction of existing sculptures made from recycled materials
- (b) possible themes linked to the sea on which you could base your work.

Identify a suitable theme and collect some information about it.

Use the results of your research to help you write a detailed specification for a sculpture made from a combination of recycled plastic water bottles, plastic cups and metal soft drink cans.

Produce and evaluate a range of designs for a sculpture made from a combination of recycled plastic water bottles, plastic cups and metal soft drink cans.

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 sculpture.

Produce a working drawing of the sculpture.

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

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

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

- 8 Consider the situation where a supermarket is to provide its customers with re-useable holders which will enable six bottles of water to be carried. Each holder will be made from card and will fold flat when not in use.

Research:

- (a) the design and construction of existing holders for carrying bottles
- (b) the different types and sizes of bottles in which water is sold.

Identify the largest bottle that you will design your holder to contain and collect information about its shape, size, volume and the material from which it is made.

Use the results of your research to help you write a detailed specification for a holder which will enable six bottles of water to be carried.

Produce a range of design proposals for a holder which will enable six bottles of water to be carried.

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 holder.

Produce a working drawing of the holder.

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

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

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

- 9 Consider the situation where a large clock is required. The clock will be attached to the exterior of a shop, restaurant or public building and will have two faces.

Research:

- (a) the design and construction of existing large clocks which are attached to the exterior of buildings
- (b) possible buildings to which a large clock could be attached.

Identify a suitable building and collect some information about it.

Use the results of your research to help you write a detailed specification for a clock to be attached to the exterior of a building. You **do not** have to consider the internal workings of the clock.

Produce and evaluate a range of ideas for a clock to be attached to the exterior of a building.

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

Produce a working drawing of the clock.

Produce a comprehensive plan for making a model of the clock.

Produce a model of the clock. Use photographs and notes to record the making process.

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

- 10** Consider the situation where a new free monthly newspaper is to be published. The newspaper will give tourists information about special events and places to visit during a particular month. A floor standing dispenser from which tourists can collect copies of the newspaper is required. The dispenser will be made in flat pack form from a thin sheet material.

Research:

- (a) the design and construction of existing newspaper dispensers
- (b) possible sheet materials from which the newspaper dispenser could be made.

Identify a suitable sheet material and collect some information about how the parts of the newspaper dispenser could be joined together and easily taken apart.

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

Produce and evaluate a range of design proposals for a newspaper dispenser.

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 newspaper dispenser.

Produce a working drawing of the newspaper dispenser.

Produce a comprehensive plan for making a prototype of the newspaper dispenser.

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

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

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