# CDT: DESIGN AND COMMUNICATION

**Paper 7048/01**
**Paper 1**

## Key messages

It is important that candidates follow the instructions given. Most candidates correctly answered all of ***Section A*** and two questions from ***Section B***, but a small number of candidates attempted all three questions in ***Section B***.

Candidates should be encouraged to read the questions carefully and to take note of command words, such as 'complete',' give', 'explain' or 'use sketches and notes'. Candidates should also take note of the specific drawing techniques referred to in questions, such as isometric drawing, orthographic projection or development (net). In some cases, candidates may have scored higher marks if they had correctly followed the instructions for questions.

Candidates need to develop knowledge and understanding of all areas of the syllabus content. Some candidates answered parts of an optional question to an excellent standard but were then unable to complete other parts to the same standard. For example, the pie chart for **Question B4 (f)** was usually completed to a very good standard but the sectional view for **B2 (b)** was often less well completed.

## General comments

All candidates appeared to have access to the equipment required for the examination.

Knowledge and understanding of orthographic projection, flowcharts, isometric drawing, ellipse construction and pie charts were strengths for many candidates. Knowledge and understanding of making processes and sectional views were areas of weakness for some candidates.

Very few candidates worked outside the response area given for each question. There was no evidence to suggest that candidates did not have sufficient time to complete the question paper.

## Comments on specific questions

***Section A***

**Question A1**

**(a) (i)** This question required candidates to complete the front view and side view of the model of a chair. Many excellent responses were seen with almost all candidates able to complete the front view and side view, but the drawings were not always of the correct size. Most candidates demonstrated a good understanding of orthographic projection, but a small number of candidates produced three-dimensional (3D) drawings.

**(ii)** This question required candidates to add two dimensions to the orthographic views of the model of a chair. Most dimensions that were added showed a correct size, but some responses did not include a dimension line with arrows, limit lines and the dimension in the correct position. A significant number of candidates did not respond to this question.

**(b)** This question required candidates to explain one reason for making a model of a chair. Common responses referred to testing the product, helping to visualise how the chair would look when it was manufactured or that a model would be cheaper and quicker to make. The explanations often

referred to showing the model to a client to seek their approval before the chair was produced in large quantities.

**(c) (i)** This question required candidates to complete the full-size drawings of the back and leg of the chair. The drawings were generally completed to a good standard in terms of the accuracy of sizes and inclusion of features, such as slots.

**(ii)** This question required candidates to complete the list to show three pieces of equipment that would be used when cutting out the foamboard parts of the model. Most candidates correctly added a cutting mat and a safety rule, but alternative names such as a cutting board and a steel rule were often seen. Common incorrect answers included a range of cutting tools, such as a saw and marking out equipment, such as a pencil.

**(d)** This question required candidates to complete the flowchart to show how to assemble the model of the chair. Many excellent responses were seen with correctly shaped boxes for the start, end, process and decision, and appropriate text labels. The stages were usually added accurately with the sizes of the boxes matching those given. In weaker responses, candidates often added the incorrect shaped box, for example a square box for start, or missed out a stage in the flowchart.

**(e) (i)** This question required candidates to give two reasons why a flowchart would be used to assemble products. Most responses referred to a flowchart which would show the main stages (steps), the correct sequence of assembly or which would provide simple but easy to follow instructions.

**(ii)** This question required candidates to explain one reason why the assembly instructions would be printed in monochrome. Common answers included that monochrome is cheaper than full colour printing as it only uses black ink, that monochrome instructions are easier to follow as they do not have the distraction of many colours or that monochrome printing is quicker and cheaper for printing mass produced leaflets. Common incorrect responses often showed no real understanding of the term ‘monochrome’.

***Section B***

**Question B2**

**(a) (i)** This question required candidates to complete the full-size development of the metal corner plate, including the screw hole centres. Many candidates added the correct size base and back for the corner plate and at least one triangular-shaped surface. Fold lines were usually added using a correct convention, such as dashed lines. At least two screw hole centres were usually added correctly. Common errors included drawing the back or base the incorrect size or not correctly showing fold and cut lines.

**(ii)** This question required candidates to complete the full-size isometric drawing of the corner plate from the given start point **A**. Many excellent responses were seen with the corner plate being drawn accurately and correctly lined in. Common incorrect responses often showed the corner plate drawn in a different orientation.

**(iii)** This question required candidates to give two reasons why rendering would be added to the isometric drawing of the corner plate. Common responses included that the rendering would enhance the appearance, would show the material or would make the corner plate look more realistic.

**(b)** This question required candidates to complete the sectional view of the corner plate by adding a countersunk hole. Very few completely correct responses were seen. Common errors were to draw a circle, rather than a hole running through the plate, and to omit the countersunk hole. Candidates who correctly drew the hole usually also added the hatching correctly.

**(c)** This question required candidates to sketch an exploded view to show the how the metal corner plate and four screws would be used to hold a shelf in position in a piece of furniture. Many excellent responses were seen with candidates showing all parts in appropriate positions. The quality of freehand sketching was often very impressive with the parts drawn in excellent proportions with good quality line work. In incorrect responses, candidates often drew an assembled view or a two-dimensional view of just the corner plate and some screws.

**Question B3**

**(a) (i)** This question required candidates to add the fold line to the drawing of a leaflet. Most candidates were able to the add the fold line in the correct position using an appropriate convention, such as a dashed line.

**(ii)** This question required candidates to add a cut-out window that would allow the word HOOD to be seen when the leaflet was folded. Most candidates were able to the add a cut-out of a correct size and position using the appropriate convention.

**(b)** This question required candidates to complete the three-dimensional drawing of the folded leaflet. Many excellent responses were seen and successful responses included a front of an appropriate size, a cut out in an appropriate position and the inner back of the leaflet. The quality of line work was often very impressive.

**(c)** This question required candidates to complete the table to show the manufacturing specification for the leaflet and responses were mixed. The missing paper sizes were usually added correctly. Although many correct responses were seen for the paper weight, there were also responses that showed little or no knowledge of paper weight. A common correct answer for the printing method was digital printing. Common correct answers for the method of cutting out the window were die cutting or press cutting. In incorrect responses for printing and window cutting methods, candidates often failed to take account of the given manufacturing specification point that stated 50 000 copies were required.

**(d)** This question required candidates to complete the table to show the two unfolded sheets of A3 paper. Many excellent responses were seen with cut and fold lines clearly being shown using the correct convention. For **leaflet A**, a sheet of paper of the correct size was usually drawn and the two fold lines shown in the correct positions. Common errors included not using the correct convention to show the fold lines or not adding the sloping surfaces. For **leaflet B**, a sheet of paper of the correct size was usually drawn and the two fold lines shown in the correct positions. Common errors included not adding a window to the left side of the leaflet or not showing the top or bottom half of the right side of the leaflet cut away.

**(e)** This question required candidates to explain two reasons why the furniture manufacturer might decide to move to an electronic leaflet rather than a paper leaflet. Common correct responses referred to a digital leaflet saving on the cost of printing, reducing waste as no paper would be used, being quicker to produce, being easier to edit as changes could be made on a computer or being better for the environment as no trees would need to be cut down to make paper.

**Question B4**

**(a)** This question required candidates to construct an ellipse around the given map of the world. Many excellent responses were seen with candidates accurately constructing an ellipse of the correct size on the given centre lines. In weaker responses, the size of the major or minor axis was often incorrect, or the construction method unclear.

**(b)** This question required candidates to use sketches and notes to show one way the word HOOD could be modified to show that the manufacturer produced flat-pack furniture. Many excellent responses were seen with candidates often using different types of furniture to make the letters or using bolts, screws or knockdown fittings to join the letters. Weaker responses often only showed the letters at an angle to indicate movement or that the products would be transported.

**(c)** This question required candidates to give one benefit and one drawback of using cardboard in packaging. Many excellent responses were seen demonstrating a good understanding of the use of cardboard in packaging. Common benefits often focused on cardboard being lightweight, easy to cut or that it could be recycled. Common drawbacks often focused on cardboard not being waterproof or that cardboard does not offer protection from impact during transportation.

**(d)** This question required candidates to use sketches and notes to describe one method of forming cardboard to increase its strength. Correct responses showed corrugated cardboard or pressed shapes from cardboard pulp. Weaker responses often showed two pieces of cardboard glued together or the use of another material such as plastic sheet.

**(e)** This question required candidates to show three methods of gathering information about the sales of furniture. Common correct answers included surveys, questionnaires, mailshots, online research, market research, social media, interviewing people or analysing sales reports. Common incorrect responses often gave methods of presenting data, rather than methods of gathering data.

**(f)** This question required candidates to construct a pie chart from the given information. Many excellent responses were seen with the six sectors drawn to the correct sizes, with appropriate colour and labels added. A common error was for candidates not to show the sector for Africa as exploded from the main body of the pie chart.

# CDT: DESIGN AND COMMUNICATION

**Paper 7048/02**
**Paper 2**

## Key messages

Projects should be concise, with careful attention to how each page contributes to meeting the assessment criteria.

Successful candidates produced outstanding work that demonstrated mastery of a broad range of graphical skills, strong modelling techniques, well-selected photographic evidence, and precise use of technical vocabulary.

Less successful candidates often did not complete the final sections of their project and relied heavily on extensive research material in earlier sections, with limited analysis or clear conclusions.

## General comments

The design folders were generally presented in a logical sequence, with clear evidence that candidates had considered the assessment criteria carefully. Successful candidates structured their work using the assessment scheme headings to distinguish the different sections.

Many design folders demonstrated effective use of information technology for word processing and research. However, there was less evidence of such technology being applied to designing and making processes (CAD/CAM).

Almost all candidates produced a justified design specification. Successful candidates linked their justifications directly to their research, whereas less successful candidates often provided generic reasons.

Successful candidates made effective use of photographic evidence and annotations to illustrate all stages of the making process and the final product. Less successful candidates frequently presented incomplete records of making, with annotations that revealed only limited understanding of the making processes they had used.

## Comments on specific assessment headings

### Problem Identification

This section of the assessment criteria required candidates to interpret and clarify their chosen design situation and to produce a design brief.

All candidates appeared able to select a design situation from those provided in the question paper that was of personal interest. The situations relating to an adjustable-height stool, a meal box for fast food, a product for carrying pets, a travel game for a child, a bookshop promotion for literature on environmental issues, an activity pack to support maths learning at home, and a laptop workstation were particularly popular.

Successful candidates demonstrated a strong understanding of the design need and user requirements, deriving a clear and well-focused design brief from the situation. Many achieved high marks by presenting just one or two pages of A3 work for this section.

Candidates in the lower mark range often produced only a simple design brief or were unclear about the design task.

**Research and analysis**

This section of the assessment criteria required candidates to collect and interpret information relevant to solving the design task.

In their research, successful candidates identified the key areas of investigation, gathering and analysing data that directly informed the design activity.

Consideration of existing products was a notable strength in many projects. A common approach was to place an image of a product at the centre of a page and surround it with comments. These comments often demonstrated a genuine understanding of the product's function, materials, and construction methods.

Less successful candidates tended to compile general information on materials, construction techniques, and other aspects that had little or no relevance at this stage of the design process. Such information was often taken directly from the internet or textbooks. It is not necessary to glue actual material samples in the folder, as these are bulky; a photograph is sufficient.

All candidates would benefit from developing a clear plan of action at the start of this section of their project and then identifying, through analysis of the data collected, factors that would have an impact on the development of their design proposals.

**Specification**

This section of the assessment criteria required candidates to use their research to produce a justified specification that fully defined the product. The development of a justified specification, based on the research undertaken, is a key element of the design project.

Although many justified specifications were presented, in some cases the justification consisted only of generic statements that could apply to almost any product. Candidates should be encouraged to strengthen their specifications by making explicit references to the research they have carried out.

**Proposals for a solution**

This section of the assessment criteria required candidates to synthesise and communicate proposals for a solution to their chosen design task.

For many candidates, this area was a particular strength, with freehand sketching used effectively to communicate a range of appropriate ideas. The ideas were generally imaginative and included both ongoing evaluations and a summative evaluation to select an idea for development.

Successful candidates demonstrated outstanding graphical skills in presenting their innovative ideas, with three-dimensional sketches, accurate isometric drawings, and exploded views being especially impressive.

Less successful candidates often presented several ideas that were similar in both form and function.

**Development and planning**

This section of the assessment criteria required candidates to make reasoned decisions about how the final design would be constructed and what materials would be used. Design folders should include a complete and accurate set of working drawings, together with a detailed plan for making the product.

The design development section was often the weakest part of the folder, sometimes consisting of little more than a redrawing of the chosen idea. To achieve marks in the higher range, candidates must devise and apply a testing and trialling strategy to support reasoned decisions about their chosen design solution.

Candidates should be encouraged to provide full details of the materials, construction methods, and key dimensions required to make their product. Orthographic views were commonly used for working drawings, although other methods such as exploded drawings or sectional views were also seen.

All candidates should be encouraged to produce an accurate list of the materials required to make their product.

Planning was a strength for many candidates, with flowcharts or Gantt charts effectively used to show the stages of production in sequential order.

**Realisation**

This section of the assessment criteria required candidates to make the product they had designed.

Successful candidates completed their products to an excellent standard, with outcomes that functioned as intended. Less successful candidates produced incomplete products or work of a lower standard, resulting in outcomes that did not function as intended.

Most projects demonstrated an appropriate range of materials and making skills. Commonly used materials included cardboard, foamboard, Styrofoam, thin plastic sheet, and softwood, although some projects incorporated textiles or resin. The making processes typically involved marking out, shaping, joining, and finishing materials. In all cases, the tools used appeared appropriate for the tasks undertaken.

All candidates should include several high-quality photographs of the completed product in their design folder. In some cases, low-resolution photographs made it difficult to assess the quality of the finished work.

**Record of making process**

This section of the assessment criteria required candidates to use photographs and notes to record the making process.

Whilst many excellent responses were seen, it is important that high-resolution photographs, showing the candidate engaged in making their product, are taken throughout the process. In general, only limited use was made of technical terms in the annotations accompanying the photographs.

**Evaluation**

This section of the assessment criteria required candidates to test the product they had made and to suggest improvements.

Many candidates relied on simple ticked boxes against specification points as the main feature of their evaluation. Some expanded on this approach by providing objective comments to explain the strengths and weaknesses of their product.

Successful candidates tested their products thoroughly against the specification by gathering feedback from potential users or a client. As a result of this testing, they produced detailed and well-justified proposals for improvement. Less successful candidates offered only a few subjective comments about the product.

Peer testing was also evident in some projects. This was particularly appropriate where the product was intended for a child, such as a travel game or an activity pack to support maths learning at home.

It is not necessary to include a personal evaluation in this section of the project.