DESIGN AND TECHNOLOGY

Paper 9705/11
Written 1

Key messages

Within ***sections A*** and ***B*** where candidates have been well prepared they have been able to access the material. Process knowledge is generally good. To really excel it is imperative that the specification receives full coverage through the scheme of work that colleagues plan and use to deliver the material.

General comments

Candidates in the main found the three questions in ***section C*** accessible with some excellent answers. It is important that centres reiterate that the terms 'develop' and 'range' mean that the candidates in their care should be offering several different ideas, which they then evaluate to allow further development into a final proposal for each part of the question. It is also worth noting that when candidates have good sketching skills they are able to communicate their ideas and developments more easily.

Comments on specific questions

Section A

Question 1

A significant number of candidates answered this question.

(a) Generally well answered, most achieved one mark by stating a thermo-plastic. A suitable reason for the specific choice of thermo-plastic was required for two marks to be awarded.

(b) (i) Generally well answered with vacuum forming being clearly described with technical terms of the process well communicated, with some excellent diagrams. Safety precautions were often not included.

(ii) When candidates had a solid working knowledge of the lathe then we saw some well-detailed answers. Candidates need to improve their knowledge of safety precautions as these were often not included.

(iii) Many candidates understood the process of soldering and produced good answers with some clearly detailing how and why cleaning, flux, heating were all important steps in the process. Candidates need to improve their knowledge of safety precautions as these were often not included.

Question 2

Fewer candidates answered this question.

(a) Most candidates answered correctly, although some did make the envelope very large which was incorrect.

(b) Very well answered with many detailed plans that had stage by stage notes and sketches to aid marking out, cutting, scoring, gluing and folding of the envelope.

(c) Candidates needed to develop their knowledge for this question as many did not give horizontal and vertical dimensions for the position of the glue tabs. Some candidates had responses with the incorrect position of all four glue tabs on one side of the card only.

(d) When candidates understood where the glue tabs needed to be positioned in part '**c**' they mostly then produced a very accurate 3D view with pop-ups communicated accurately in this question. A small number of candidates did only draw 2D views.

Question 3

A significant number of candidates answered this question.

(a) Candidates needed to improve on their knowledge for this question as many did not understand the term non-toxic finish. Some candidates did communicate that it was used for safety reasons.

(b) (i) There was a significant amount of detail included in many responses with equipment and process well explained. There was good awareness of safety precautions. Some candidates did not realise that the five holes only went part way through to hold the marble.

(ii) When candidates had a good working knowledge of routing, then detailed, technical and correct answers were often communicated. Some candidates made use of a tenon saw and chiselling to remove the section of wood to form the shape, which was also acceptable.

(iii) Generally answered well with the sequence of how each part would be positioned and assembled often being communicated clearly with both notes and sketches.

Section B

Question 4

Many candidates answered this question.

(a) Candidates needed to improve on their knowledge for this question as many could not explain what one of the symbols meant correctly.

(b) Many candidates answered this aspect correctly, identifying the problems with the design of the cabinet. Some candidates misunderstood the question and provided a very varied range of non-relevant problems.

(c) This question clearly asks for both notes and sketches, the candidates did not always follow this instruction. Some candidates just used diagrams, which did not fully explain the problems identified in ***section (b)***. When both notes and diagrams were used there were some very good answers to the problems identified.

(d) Candidates often described three relevant issues but then did not explain them fully. Candidates needed to give specific examples/evidence to support conclusions.

Question 5

Many candidates answered this question.

(a) Most candidates understood the question and answered accurately.

(b) Generally answered well. Problems identified and clearly explained. Some candidates misunderstood the question and provided a very varied range of non-relevant problems.

(c) It is clear that well prepared graphics candidates found this part of the question very accessible. Non-relevant problems were often given.

(d) Candidates did not always fully understand the question and there were a wide range of answers. Explanations were occasionally clear but for non-relevant issues. Candidates needed to give examples.

Question 6

Fewer candidates answered this question.

(a) Candidates often knew it was a thermal process but many did not add anything related to the plastic melting onto the hot surface.

(b) Some candidates had good process knowledge and could identify the problems and clearly explain them. However, many candidates did misunderstand the question and provided a very varied range of non-relevant problems.

(c) Candidates found this part question accessible. Diagrams were effectively used.

(d) Candidates often described three relevant issues but then did not explain them fully. Environmental benefits were often very well explained. Specific examples/evidence were occasionally used to support conclusions.

Section C

Question 7

Many candidates answered this question.

(a) There were some well-structured answers showing a range of ideas. Some answers needed further development. There were a variety of methods of evaluation.

(b) There were some well-structured answers.

(c) There were a range of ideas for an A4 catalogue holder. Some candidates needed to understand the question as they did not show how to attach it to the display stand.

(d) Generally well answered. There were a variety of rendering styles and quality shown. There was evidence of some good responses with many candidates having excellent three-dimensional drawings. Some candidates needed to apply render in order for their response to be awarded credit.

Question 8

This was a popular question with Graphics candidates.

(a) Candidates often produced a range of ideas for the shape of the plastic insert but without showing the card tray. Three ideas were regularly produced for both tray and insert with some candidates showing development. Final solution generally identified and with good detail.

(b) Candidates needed to improve on their knowledge for this question as they did not offer a method of joining the lid to the card tray. Net was often shown.

(c) Some outstanding graphical styles representing the name that clearly reflected the style of the game.

(d) Generally well answered. There were a variety of rendering styles and quality shown. There was evidence of some good responses with many candidates having excellent three-dimensional drawings. Some candidates needed to apply render in order for their response to be awarded credit.

Question 9

Many candidates answered this question.

(a) Generally well answered. Most candidates produced a range of ideas for viable solutions. Three ideas were regularly produced with some candidates showing development.

(b) Generally well answered.

(c) Candidates produced good responses that showed both innovation and functionality.

(d) Generally well answered. There were a variety of rendering styles and quality shown. There was evidence of some good responses with many candidates having excellent three-dimensional drawings. Some candidates needed to apply render in order for their response to be awarded credit.

Evaluation in all three questions in ***Section C*** was variable with some candidates simply using a tick/cross whilst others communicated excellent thoughts that included functional issues as well as technical terms to support the decision on which idea had the most opportunity to be developed to a final outcome.

DESIGN AND TECHNOLOGY

Paper 9705/12
Written 1

Key messages

Within ***sections A*** and ***B*** where candidates have been well prepared they have been able to access the material. Process knowledge is generally good. To really excel it is imperative that the specification receives full coverage through the scheme of work that colleagues plan and use to deliver the material.

General comments

Candidates in the main found the three questions in ***section C*** accessible with some excellent answers. It is important that centres reiterate that the terms 'develop' and 'range' mean that the candidates in their care should be offering several different ideas, which they then evaluate to allow further development into a final proposal for each part of the question.

Comments on specific questions

Section A

Question 1

A significant number of candidates answered this question.

(a) Generally well answered, most achieved one mark by stating a mixture of more than one metal. The use of alloying materials to improve properties was required for two marks to be awarded.

(b) (i) Generally well answered but safety precautions were often not included.

Casting was used by a number of candidates as a method of manufacturing the component, which whilst feasible was not the best outcome.

(ii) When candidates had a solid working knowledge of the milling machine there were some well-detailed answers.

(iii) Pop riveting was a popular but inaccurate answer. Most candidates understood the process of riveting and produced good answers with some clearly detailing how and why countersinking the holes was important.

Question 2

This question was answered by few candidates.

(a) Most candidates answered correctly, explaining that it was impossible to thread the wire through the holes after it had been bent.

(b) (i) Candidates demonstrated how the dowels could be made but often misread the drawing, commonly interpreting the body to be a flat disc.

(ii) Lots of very good answers with stages clearly detailed.

(iii) Candidates often explain how to produce the wiring required to make the shape but not all included the use of jigs and formers. The correct sequence of stages was important but not always shown clearly.

Question 3

Very popular question with Graphics candidates.

(a) Many candidates stated the description of dimensions A and B, very few worked out correctly the scaled dimension as a number.

(b) (i) Significant amount of detail included in many responses with process well explained. Good awareness of safety precautions. The addition of the slots to hide the glue tabs was not always included.

(ii) Both nets were often accurately drawn with the addition of glue tabs for higher performing candidates ensuring full marks were awarded. Good awareness of safety precautions.

(c) Generally answered well but flow of work plan and the sequence of how each part would be cut and assembled was sometimes difficult to follow.

Section B

Question 4

A popular question, with some very good answers seen.

(a) Candidates often scored full marks and understood the function of **X**.

(b) Many candidates answered this aspect correctly, identifying the problems with the design of the chair. Some candidates needed to read and understand the question carefully as they provided a very varied range of non-relevant problems.

(c) This question clearly asks for both notes and sketches, the candidates did not always follow this instruction. Some candidates just used diagrams, which unfortunately did not fully explain the problems identified in part **(b).**

(d) Candidates often described three relevant issues but then did not explain them fully. Specific examples/evidence needed to be provided to support conclusions.

Question 5

This question was not very popular.

(a) Most candidates understood the question and answered accurately.

(b) Generally answered well. Problems identified and clearly explained.

(c) This question was answered well.

(d) Candidates did not always fully understand the question and there were a wide range of answers. Explanations were occasionally clear but for non-relevant issues. Examples were very rare.

Question 6

Very popular question.

(a) Answered well, demonstrating a full understanding of the process.

(b) Really well answered with the lack of a Hopper and Heating elements both identified by numerous candidates. Knowledge of ejector pins also demonstrated.

(c) This question was answered well. Diagrams effectively used. Good knowledge of injection moulding.

(d) Candidates needed to improve their knowledge and understanding for this question. Candidates often described three relevant issues but then did not explain them fully. The question asks for the effects of introducing high volume production on the work force. Many candidates did not mention the work force at all in their answer. Specific examples/evidence were needed to support conclusions.

Section C

Question 7

The most popular question in this section.

(a) Mostly well-structured answers showing a range of ideas, occasionally limited development and a variety of methods of evaluation. Final solution generally identified and with good detail.

(b) This question was generally answered well.

(c) Range of ideas for adjusting and fixing the top at different angles but very few candidates showed **how** to join the top to the vertical support.

(d) Generally well answered. Variety of rendering styles and quality. Evidence of some very good responses with many candidates having excellent three-dimensional drawings. Some candidates needed to further develop their skills for this question as they did not apply any render at all.

Question 8

A popular question with Graphics candidates.

(a) Candidates often produced a range of ideas for the shape of the boxes but without showing the net. Three ideas were regularly produced with some candidates showing development. Evaluation ranged from simplistic ticks and crosses to demonstrate what worked within an idea through to some excellent annotation of positive and negative points.

(b) Candidates needed to further develop their knowledge for this question. Few candidates achieved high marks for this question as they did not offer a range of different ideas.

(c) Some outstanding graphical styles representing the name with clear links to jewellery and reflecting the product.

(d) Generally well answered. Variety of rendering styles and quality. Evidence of some very good responses with many candidates having excellent three-dimensional drawings. Some candidates needed to further develop their skills for this question as they did not apply any render at all.

Question 9

Only a small number of candidates attempted this question.

(a) Generally well answered. Most candidates produced a range of ideas for viable solutions. Three ideas were regularly produced with some candidates showing development. Evaluation ranged from simplistic ticks and crosses to demonstrate what worked within an idea through to some excellent annotation of positive and negative points. Storage space often had innovative ways to store items such as shoes.

(b) This question was generally well answered.

(c) Some candidates needed to further develop their knowledge and understanding for this question. There were some good responses that showed both innovation and functionality.

(d) Generally well answered. Variety of rendering styles and quality. Evidence of some very good responses with many candidates having excellent three-dimensional drawings. Some candidates needed to further develop their skills for this question as they did not apply any render at all.

DESIGN AND TECHNOLOGY

Paper 9705/13
Written 1

Key messages

Within ***sections A*** and ***B*** where candidates have been well prepared they have been able to access the material. Process knowledge is generally good. To really excel it is imperative that the specification receives full coverage through the scheme of work that colleagues plan and use to deliver the material.

General comments

Candidates in the main found the three questions in ***section C*** accessible with some excellent answers. It is important that centres reiterate that the terms 'develop' and 'range' mean that the candidates in their care should be offering several different ideas, which they then evaluate to allow further development into a final proposal for each part of the question. It is also worth noting that when candidates have good sketching skills they are able to communicate their ideas and developments more easily.

Comments on specific questions

Section A

Question 1

A significant number of candidates answered this question.

(a) Generally well answered, most achieved one mark by stating a thermo-plastic. A suitable reason for the specific choice of thermo-plastic was required for two marks to be awarded.

(b) (i) Generally well answered with vacuum forming being clearly described with technical terms of the process well communicated, with some excellent diagrams. Safety precautions were often not included.

(ii) When candidates had a solid working knowledge of the lathe then we saw some well-detailed answers. Candidates need to improve their knowledge of safety precautions as these were often not included.

(iii) Many candidates understood the process of soldering and produced good answers with some clearly detailing how and why cleaning, flux, heating were all important steps in the process. Candidates need to improve their knowledge of safety precautions as these were often not included.

Question 2

Fewer candidates answered this question.

(a) Most candidates answered correctly, although some did make the envelope very large which was incorrect.

(b) Very well answered with many detailed plans that had stage by stage notes and sketches to aid marking out, cutting, scoring, gluing and folding of the envelope.

(c) Candidates needed to develop their knowledge for this question as many did not give horizontal and vertical dimensions for the position of the glue tabs. Some candidates had responses with the incorrect position of all four glue tabs on one side of the card only.

(d) When candidates understood where the glue tabs needed to be positioned in part '**c**' they mostly then produced a very accurate 3D view with pop-ups communicated accurately in this question. A small number of candidates did only draw 2D views.

Question 3

A significant number of candidates answered this question.

(a) Candidates needed to improve on their knowledge for this question as many did not understand the term non-toxic finish. Some candidates did communicate that it was used for safety reasons.

(b) (i) There was a significant amount of detail included in many responses with equipment and process well explained. There was good awareness of safety precautions. Some candidates did not realise that the five holes only went part way through to hold the marble.

(ii) When candidates had a good working knowledge of routing, then detailed, technical and correct answers were often communicated. Some candidates made use of a tenon saw and chiselling to remove the section of wood to form the shape, which was also acceptable.

(iii) Generally answered well with the sequence of how each part would be positioned and assembled often being communicated clearly with both notes and sketches.

Section B

Question 4

Many candidates answered this question.

(a) Candidates needed to improve on their knowledge for this question as many could not explain what one of the symbols meant correctly.

(b) Many candidates answered this aspect correctly, identifying the problems with the design of the cabinet. Some candidates misunderstood the question and provided a very varied range of non-relevant problems.

(c) This question clearly asks for both notes and sketches, the candidates did not always follow this instruction. Some candidates just used diagrams, which did not fully explain the problems identified in ***section (b)***. When both notes and diagrams were used there were some very good answers to the problems identified.

(d) Candidates often described three relevant issues but then did not explain them fully. Candidates needed to give specific examples/evidence to support conclusions.

Question 5

Many candidates answered this question.

(a) Most candidates understood the question and answered accurately.

(b) Generally answered well. Problems identified and clearly explained. Some candidates misunderstood the question and provided a very varied range of non-relevant problems.

(c) It is clear that well prepared graphics candidates found this part of the question very accessible. Non-relevant problems were often given.

(d) Candidates did not always fully understand the question and there were a wide range of answers. Explanations were occasionally clear but for non-relevant issues. Candidates needed to give examples.

Question 6

Fewer candidates answered this question.

(a) Candidates often knew it was a thermal process but many did not add anything related to the plastic melting onto the hot surface.

(b) Some candidates had good process knowledge and could identify the problems and clearly explain them. However, many candidates did misunderstand the question and provided a very varied range of non-relevant problems.

(c) Candidates found this part question accessible. Diagrams were effectively used.

(d) Candidates often described three relevant issues but then did not explain them fully. Environmental benefits were often very well explained. Specific examples/evidence were occasionally used to support conclusions.

Section C

Question 7

Many candidates answered this question.

(a) There were some well-structured answers showing a range of ideas. Some answers needed further development. There were a variety of methods of evaluation.

(b) There were some well-structured answers.

(c) There were a range of ideas for an A4 catalogue holder. Some candidates needed to understand the question as they did not show how to attach it to the display stand.

(d) Generally well answered. There were a variety of rendering styles and quality shown. There was evidence of some good responses with many candidates having excellent three-dimensional drawings. Some candidates needed to apply render in order for their response to be awarded credit.

Question 8

This was a popular question with Graphics candidates.

(a) Candidates often produced a range of ideas for the shape of the plastic insert but without showing the card tray. Three ideas were regularly produced for both tray and insert with some candidates showing development. Final solution generally identified and with good detail.

(b) Candidates needed to improve on their knowledge for this question as they did not offer a method of joining the lid to the card tray. Net was often shown.

(c) Some outstanding graphical styles representing the name that clearly reflected the style of the game.

(d) Generally well answered. There were a variety of rendering styles and quality shown. There was evidence of some good responses with many candidates having excellent three-dimensional drawings. Some candidates needed to apply render in order for their response to be awarded credit.

Question 9

Many candidates answered this question.

(a) Generally well answered. Most candidates produced a range of ideas for viable solutions. Three ideas were regularly produced with some candidates showing development.

(b) Generally well answered.

(c) Candidates produced good responses that showed both innovation and functionality.

(d) Generally well answered. There were a variety of rendering styles and quality shown. There was evidence of some good responses with many candidates having excellent three-dimensional drawings. Some candidates needed to apply render in order for their response to be awarded credit.

Evaluation in all three questions in ***Section C*** was variable with some candidates simply using a tick/cross whilst others communicated excellent thoughts that included functional issues as well as technical terms to support the decision on which idea had the most opportunity to be developed to a final outcome.

DESIGN AND TECHNOLOGY

Paper 9705/02
Project 1

Key messages

Candidates are advised to address all aspects of the Analysis of and Research into the Design Brief which results in a Specification in **Project 1**. Outcomes often result in an imbalance between these different aspects with too much time given to the presentation of existing information at the cost of meaningful examination of the intended use of the product, resulting in the collection of appropriate data.
The Testing and Evaluation of the final product in **Project 2** should start with evidence of meaningful practical testing in the intended environment. Results from this testing should then be compared to the original Specification for the product with subsequent suggestions for modification or further development as required.

General comments

The school based assessment for this syllabus can be offered either as two discrete components, **Project 1** and **Project 2** or as one larger piece of work combining the two projects in a holistic way. This report identifies each of the components separately but also acknowledges the overall design process where the two are combined.

Centres introduce this important part of the Design and Technology course to their candidates in slightly different ways but it is important that evidence produced matches the requirements of the assessment scheme. Some centres set a common theme or topic to which candidates respond in their own way while others encourage each candidate to identify their own design problem which may be derived from hobbies, interests or life at home and in the community.

In any event outcomes resulted from a wide variety of design problems and it was obvious that many candidates had developed a keen interest in the area being studied. In addition to the usual range of household items or architectural models, interesting outcomes of either modelling or final products included: secure medication storage, school uniform storage, bus route indicator, bird feeder, umbrella storage, expanding table, spectacle storage, mobility aid, skate park, communal park area, ironing board, bunk bed, food smoker, cycle rack, rebound trainer, children's see-saw, painting easel, adjustable desk lamp, mini soccer goal posts, cell phone packaging, upper limb exerciser, book reading support, biltong maker, portable drawing station, wireless headphone charger, customised shower mixer tap, fishing gear storage, electric guitar, adjustable monitor support, chocolate packaging, aircraft nose wheel tug, surfboard, table football and stepladder.

Many candidates had presented their design folders neatly, in such a way that the design process could be followed easily.

Comments on assessment criteria

Project 1

1 Identification of a Need or Opportunity leading to a Design Brief

The majority of candidates made it very clear how their chosen design problem linked to both the user and the situation. This was then supported by a precise design brief leaving the reader in no doubt as to the intended design route being followed.

2 Analysis of and Research into the Design Brief which results in a Specification

It is essential that there is a thorough analysis of the actual design problem being undertaken so as to give direction to the identification and collection of relevant data. This is a very important part at this stage of a design process as it provides information from which an accurate and meaningful Specification can be formulated.

Most candidates considered a wide range of existing products and commented on these in relation to their own design brief.

Centres are reminded that the inclusion of historical records and general information on an area or topic being considered cannot be awarded marks as these do not form part of a design process.

Specifications were generally well formulated and included many specific requirements of the product to be designed.

3 Generation and Appraisal of Design Ideas

Many candidates showed a high degree of flair in the creation of ideas. However, a few candidates presented a range of drawings not linked to the Specification or commented without clarity regarding their possible suitability for the problem being considered. In these cases it is not really possible to award marks above the lowest band set out in the assessment scheme.

The importance of presenting a wide range of different ideas, however practical they may appear at the time, cannot be understated and these should then be considered against the Specification with some form of written appraisal alongside each. Where ideas have touched on aspects of the Specification then these should be commented on or highlighted in some way.

Many candidates used a range and high standard of communication techniques in the presentation of design proposals. Where care is taken in this respect then it is easy to see how a candidate's thought process has developed.

4 Modelling of Ideas

Modelling should be seen as one stage of the consideration, testing and evaluation of design ideas so that a final design can be presented and subsequently developed, perhaps in **Project 2**. Many candidates produced high quality and meaningful models that formed part of this process whereas others simply produced a mock-up of the chosen design idea and it was sometimes difficult to identify how it made a contribution to the design process.

More candidates are modelling different aspects of their design ideas and using these to test for suitability and practicality in the production of a complete solution to their design problem. In this way the modelling stage plays a more meaningful part in designing.

DESIGN AND TECHNOLOGY

Paper 9705/31
Written 2

Key messages

- In ***Section A***, when responding to a 20 mark 'discuss' question, candidates should make a very brief plan of the issues they wish to raise and include the supporting examples and evidence that they would use.
- For ***Section B***, when candidates prepare an analysis, they need to ensure that they make specific reference to the problem given, for example, by providing scatter-charts relating to the specific problem.
- For ***Section B***, when evaluating to help with the selection of ideas leading to development, candidates should explain why one design is better than another. It is the reasoning and justification that differentiate the candidates; tick charts alone are not sufficient to access the higher mark bands.

General comments

Most candidates followed the rubric correctly and used the time available effectively.

Responses to ***Section A*** continue to improve although a significant number of candidates produced brief responses, lacking sufficient technical detail to achieve the middle and high mark ranges.

The quality and use of appropriate sketching and annotation was generally very good in ***Section A*** and throughout the paper.

Section B was answered well with most candidates fully completing all of the requirements. A few candidates did not use their time effectively and did not fully complete the development section and some made no attempt at the final proposal and evaluation.

In ***Section A***, Part **A** was the most popular option. A significant number of candidates also attempted questions in Part **C**.

Few candidates made attempts at questions in Part **B. Question 5** was the most popular question.

In Part **A**, **Questions 1** and **3** were the most popular with relatively few candidates attempting **Question 2**

Questions 8 and **9** were the most popular in Part **C**.

In ***Section B***, **Question 10** was marginally the most popular followed by **Question 12** and **Question 11**.

Comments on specific questions

Section A

Part A – Product Design

Question 1

A very popular question with some excellent responses.

(a) Most candidates stated a suitable material and gave valid reasons. Aluminium, stainless steel, acrylic and brass were the most common correct responses. Mild steel was accepted with a stated

finish, a number of candidates chose a lamination process but many did not specify the type of wood.

(b) This part was answered particularly well. Most candidates described the key stages of production and made very good use of notes and sketches to include appropriate construction detail.

(c) Some candidates correctly described the use of templates, formers and simple press tools to produce a batch of 50 candle holders. Candidates must take into account the batch size when deciding upon an appropriate manufacturing method. Injection moulding or other high volume production methods would not be acceptable for a batch of 50.

Question 2

There were very few responses to this question. The best responses focused on issues relating to the different quantities of product production of the product designer and the designer-maker. The product designer would be more involved with medium to large batch production whereas the designer-maker would predominately be concerned with bespoke or one-off production.

To improve on their responses and access the higher mark range, some candidates needed to provide more detail with examples or evidence to support their discussion.

Question 3

This was a very popular question with a very wide range of responses. There was a fairly equal spread of attempts at each of the processes.

(a) Most candidates demonstrated a clear knowledge and understanding of the turning of the peg. The key stages of setting up the work on the lathe, using appropriate wood turning tools and final finishing were covered well.

Extrusion was also well understood by candidates. Some candidates needed to include detail of the die in order to access the full mark range.

The least popular process was sand casting but again, most candidates demonstrated a good knowledge of the process.

The highest marks were awarded to candidates who produced fully detailed descriptions of the manufacturing process chosen, using clear sketching and annotation of the two or three main stages involved.

(b) Most candidates correctly explained why the relevant process was suitable for the production of the items. There were fewer one word or very brief responses to this part than in previous years and more candidates accessed full marks.

Part B – Practical Technology

Question 4

There were very few attempts at this question. Candidates answered parts **(a)(i)**, **(ii)** and **(iii)** well but for part **(b),** candidates focused on the product and needed to focus on the technologies involved.

Question 5

There were very few attempts at this question. Parts **(a)(i)** and **(ii)** were generally answered well, candidates correctly named a specific metal and plastic material and described an appropriate process for manufacture of the phone case.

Answers to part **(b)** needed to be more detailed as they were generally brief, with lists of points given in some answers rather than the correct structured discussion response.

Question 6

There were very few attempts at this question.

(a) (i) Most candidates named two alloys and stated the specific materials.

(ii) Candidates needed to improve their knowledge for this question. Very few candidates identified a specific application for each of the alloys and most gave a limited explanation of suitability.

(b) Candidates needed to improve their knowledge for this question as responses to this part were mostly very brief and did not refer to tensile strength.

Part C – Graphic Products

Question 7

There were a number of excellent responses to this question. Most candidates produced accurate and detailed two point perspective views of the house. Some candidates needed to improve on their response by rendering the drawing to show the different materials from which the building would be made.

Question 8

There were a wide range of responses to this question. It was generally answered well with some excellent responses, achieving high marks. Most candidates demonstrated a good knowledge and understanding of the manufacturing process required to make a prototype of the packaging and the manufacturing method required for a large batch.

To access the middle and higher mark ranges, responses needed to be detailed.

Question 9

There were a range of responses to this question, a significant number of which were very well structured, covering all relevant issues in detail and providing valid examples and evidence to support the conclusions of arguments.

Most candidates included issues relating to target markets and the promotion and placement of products.

Some candidates needed to improve on their response for this question as they produced a list of statements, which is not appropriate for a ‘discussion’ response. It is sometimes beneficial to produce a very brief outline of issues to cover and possible examples or evidence before starting the response. There are a significant amount of marks allocated to the quality of explanation.

Section B

Candidates generally performed well in this Section. Presentation skills were mostly of a very good standard and candidates demonstrated their knowledge of appropriate materials and construction techniques.

Some candidates needed to improve on their time management for this question as they did not fully complete the development, final proposal and evaluation sections.

In order to obtain credit, some candidates need to improve on their answer for this question by producing charts that are specific to the problem. Candidate should consider the initial thoughts and broader issues related to the given problem/situation. This will provide the key points to help to develop a specification and guide design thinking.

The exploration of ideas was generally good. Many candidates produced a range of possible solutions with some very innovative, original and creative ideas.

Reference to appropriate specific materials was generally very good; most candidates gave appropriate justifications for their use.

Many candidates included on-going evaluation of their ideas which helped in selecting ideas and features to take forward for development, most considered all points of their specification when evaluating. Tick charts

against a specification will only achieve credit if the specification has focused points and specific evaluative comment is made.

The higher mark ranges are achieved when candidates make evaluative comments on their ideas and can make a reasoned judgment on the best solution or features to take forward.

The development of ideas section continues to be strong in most cases. Some candidates tended to produce a plan of manufacture and did not consider the reasoning and composition of ideas that lead to a single design proposal.

Evidence of decision making to show the improvements or modifications to their idea/s leading to a final design is critical in this section.

The majority of proposed solutions were feasible and well presented. Most candidates included detail such as key dimensions, material selected and possible finishes.

Many candidates produced valid evaluations of their proposal and described the positive features and functional details of their solution. In order to gain more marks, some candidates needed to give details of possible improvements or modifications.

Question 10

There were a number of very good responses to this question. Some work was original and creative. In order to access the full mark range, many candidates needed to read the question more carefully as it required them to design a desk to surround the column, paying attention to seating and they did not fully interpret these requirements.

Acceptable specification points included:

- the seating must enable enough space for individual candidates to sit comfortably and not feel closed in or uncomfortable.
- the seating could include a work surface to read, write or study
- the seating should be easy to clean as it would be in constant use by a large number of candidates
- the seating could be modular so that it could be removed from around the column to be used elsewhere in the study area.

Although some solutions were innovative with construction details clearly indicated, a significant number of candidates did not consider manufacturing detail.

Final proposals were generally realistic with most including details of important dimensions.

Question 11

Marginally the least popular question. Some of the responses were of a very good standard, including functional ideas with considerable technical detailing of the materials, mechanisms and construction techniques required.

Acceptable specification points included:

- the ramp should have a non-slip surface to ensure that the wheelchair has grip
- the ramp should be easily adjusted by a member of the stage crew, candidate or adult
- height adjustment of the ramp should be secured so that no movement occurs in use
- the ramp should be suitably strong but also light to enable ease of movement and storage.

Question 12

Some of the work produced for this question was outstanding. Most candidates produced functional packaging with many producing excellent creative solutions for the name and logo for the product.

Acceptable specification points included:

- the packaging must clearly display the spray and the cream

- the packaging should include clear information on the risks of exposure to the sun and guidance of how to use the product
- the packaging must be robust enough to protect the sprays and cream in transit
- the packaging should be able to be used to allow ease of transport to the beach or sunbathing location.

Most candidates produced effective methods of packaging and included appropriate construction detail. There has been a significant improvement in candidates showing evidence of the range and properties of materials used in packaging.

A number of candidates produced exceptional design work; producing innovative and original ideas, particularly for the name and logo, and demonstrating a sound knowledge and of packaging techniques and materials.

Whilst most proposed solutions gave sufficient detail to show the packaging, some candidates needed to improve on their time management for this question as they did not show full details of their final proposal; details such as dimensions tended to be lacking and many evaluations were very brief.

DESIGN AND TECHNOLOGY

Paper 9705/32
Written 2

Key messages

- In ***Section A***, when responding to a 20 mark 'discuss' question, candidates should make a very brief plan of the issues they wish to raise and include the supporting examples and evidence that they would use.
- For ***Section B***, when candidates prepare an analysis, they should ensure that they make specific reference to the problem given, for example, by providing scatter-charts relating to the specific problem.
- For ***Section B***, when evaluating to help with the selection of ideas leading to development, candidates should explain why one design is better than another. It is the reasoning and justification that differentiate the candidates; tick charts alone are not sufficient to access the higher mark bands.

General comments

The majority of candidates used the time available effectively and made full attempts at all sections of the paper.

Whilst most candidates fully completed all of the requirements for ***Section B***, a significant number did not fully complete the development, proposed solution and evaluation.

Candidates should be reminded to focus on their analysis of the design situation and not copy out and repeat the given details.

It is important that candidates are able to practice this examination under timed conditions.

The quality and use of appropriate sketching and annotation continues to be of a good standard throughout the paper. Most candidates used sketches well to describe the stages of particular processes and support their answers to questions, where appropriate, in ***Section A***.

Candidates are reminded that if a question has an instruction 'discuss'; they should:

- examine critically the issues raised by the question
- explain and interpret these issues as appropriate
- introduce evidence wherever possible to support conclusions of arguments.

In ***Section A***, Part **A** was the most popular. Most candidates attempted **Question 1** and **Question 2**. Very few candidates attempted questions from Part **B**.

There was an even spread of attempts at questions in Part **C**.

There was a relatively even spread of attempted questions in ***Section B*** this year. **Question 10** was marginally the most popular.

Comments on specific questions

Section A

Part A – Product Design

Question 1

The most popular question in ***Section A***. There were a number of excellent, fully detailed answers to this question.

(a) The dowel joint and vacuum forming were the two most popular choices of processes. There were a number of excellent and full descriptions of riveting. Some candidates described the process of cutting wood to the desired section, which is unnecessary; the focus is on the process given.

Most candidates gave clear and full descriptions of the vacuum forming process although a number gave no details of the former and did not access the full mark range.

Many candidates made good use of annotated sketches to support their answer.

(b) Candidates answered this part of the question particularly well. Most candidates explained why the process was suitable for the specific item and achieved high marks. There were fewer examples of single word responses which would not be awarded full credit.

Question 2

A very popular question with many very good responses, some achieving the highest mark range.

(a) A wide range of appropriate, specific materials were stated and valid reasons for choice given for the docking station. Acrylic was the most popular response with valid reasons given.

Some candidates stating mild steel achieved credit by including an appropriate finish.

(b) Most responses were full, however a significant number produced very brief outlines with limited technical detail and did not access the full range of marks.

(c) To access the higher mark range, a description of a process with reference to the templates, jigs or former required for the manufacture of the docking station was required. Candidates must take into account the batch size when deciding upon an appropriate manufacturing method. Injection moulding or other high volume production methods are not acceptable for a batch of 50.

Question 3

Few candidates attempted this question.

There were some excellent, well-structured discussions presented by some candidates. To improve on their response, some candidates needed to focus on the physical and aesthetic needs of customers, providing examples or evidence to support the conclusions of arguments.

Part B – Practical Technology

Question 4

Very few candidates attempted this question. Some attempted part **(a)** but made little or no attempt at part **(b)**.

(a) Most candidates correctly completed the circuit showing resistors connected in series and parallel and correctly calculated the value of one resistor for part **(a)(ii)** and the total current for part **(a)(iii)**.

(b) Candidates need to improve on their knowledge for this question. There were a small number of candidates who answered parts **(b)(i)** and **(b)(ii)** correctly; very few made an attempt at parts **(b)(iii)** and **(b)(iv).**

Question 5

There were very few attempts at this question.

(a) Some candidates produced excellent responses to this part, fully detailed and showing a clear understanding of mechanisms and applications.

(b) Few candidates attempted this part question, most answers had very limited descriptions of the forces and loads given.

Question 6

There were few attempts to this question. To improve on their responses, candidates needed to include more detail.

(a) Some candidates used a mobile phone as an example but did not give details of the production processes involved.

(b) Very few candidates attempted this part question. Some gave examples of the use of strain gauges and the economic factors related to testing of large and expensive products/structures, but the most referred to testing in general.

Part C – Graphic Products

Question 7

There were a number of excellent responses to this question. Most candidates drew accurate projections of the card model to an appropriate scale. Relatively few candidates went on to construct an accurate development of the model.

Some candidates attempted this question on lined paper in an answer booklet. This is to be discouraged as it is very difficult to achieve the accuracy required.

Question 8

There was a wide range of responses to this question. Some discussions were cogent and detailed and fully covered the three areas of CAD, costing and stock control.

Many responses were brief and focused on the use of computers in designing and did not include the issues of costing and stock control.

Question 9

There were a number of outstanding responses to this question.

Most candidates constructed the linkage and sub divided the arcs, taking into account the full rotation of link **CY,** and **AX** rotating clockwise about point **X** for $180^{0,}$ then rotating anti-clockwise to return to its starting position. The loci was generally complete and accurately plotted.

A number of candidates achieved very high marks on this question.

Section B

The overall performance of candidates on this section was generally good. The majority of candidates used their time effectively and fully completed all requirements of the questions attempted. Whilst some candidates were genuinely innovative and creative, a significant number produce designs of already existing ideas with very limited personal interpretation or exploration, and consequently do not access the highest mark range.

Most candidates demonstrated a clear knowledge and understanding of appropriate materials and construction techniques in their annotation of ideas and development.

Many candidates produced generic charts for their analysis which showed no specific reference to the problem given and received little credit. Candidates should focus on the problem given and consider all factors required to prepare a specification and start designing.

Specifications should be clear, justified statements. Single word or generic statements, with no reference to the product or the specific task/requirements will not gain a mark.

The majority of candidates produced a range of well annotated, different design ideas, the majority including the exploration of sub-problems.

Evaluation is clearly evident from many candidates in the exploration of ideas section. Some candidates include very limited evaluative comment on their ideas and limited reasoning for selection for further development. Evaluating when designing helps when making a reasoned judgment on the best solution or features to take forward.

Tick lists to evaluate ideas and help to select a chosen solution are only appropriate if they are adequately qualified.

The development of ideas section was strong for most candidates. A few focused only on a plan for manufacture and did not consider the reasoning and composition of ideas that leads to a single final design proposal.

Candidates must include evidence of their decision making to show the improvements or modifications to their idea/s leading to a final design, to achieve the higher mark range.

Most proposed solutions were feasible and well-presented although some did not have enough detail to clearly show the workings of the product.

Most candidates included overall dimensions in their final proposal; for full marks in the detail section, candidates would be expected to include dimensions, materials and possible finishes.

An increasing number of candidates produced valid evaluations of their proposal; describing the positive features, functional details and suggesting further modifications or improvements.

Some candidates copied out their specification points and used a tick to indicate whether the point had been satisfied or not. This will not access the full range of marks available. Qualification or explanation of why particular features are successful or need improvement is required.

Question 10

The most popular design question, generally well answered with a full range of responses. A few candidates produced outstanding, creative responses; innovative solutions that were exceptionally well presented. A significant number of candidates did not consider the holding of materials when cutting or drilling and consequently could not access full marks.

Acceptable specification points included:

- the product must be made from weather resistant materials or suitably protected as it will be used outdoors
- the product must be robust to take the wear and tear of regular usage, removing and replacing tools and cutting and drilling materials
- the product must hold tools securely whilst transporting to avoid damage
- the product must be able to transport tools across bumpy and possibly difficult terrain
- the product must be stable in use on different surfaces to ensure safe and accurate work.

Most candidates produced a range of possible solutions, selecting and justifying appropriate materials.

Material and constructional detail was generally detailed and appropriate.

Final proposals were mostly suitable and described in sufficient detail. The best responses included full dimensions and details of appropriate finish.

Evaluations were generally good. To access the higher mark range, some candidates needed to make specific reference to the final proposal or suggest possible improvements.

Question 11

The least popular question with very few interesting, original and creative ideas generated. Many candidates produced variations of an electric heater with very limited technical detail.

Acceptable specification points included:

- the product should present no risk to children, with moving parts covered
- the product should be stable when in use and not be easily toppled
- the product must be able to set to different temperatures
- the product must use minimal power to create comfortable temperatures
- the product should have clear instructions for operation by adults but may be simple and safe enough for children to use.

Question 12

This was a very popular question with a wide range of responses. Some candidates produced innovative and original ideas for the point of sales display, particularly some exciting ideas for the interactive feature. Some candidates misinterpreted the question and designed DVD cases and could not access the full mark range.

Acceptable specification points included:

- the display should be laminated to strengthen and protect the interactive feature
- the display should exhibit the DVDs securely and limit the possibility of theft
- the display should be stable in use to withstand customers using the interactive feature
- the display should have a space theme that would excite children and draw their attention
- the display should be designed as flat back to store easily when the shop closes.

The best responses focused on the exciting use of space themes; with the exceptional use of text and graphics from a number of candidates. A significant number did not include any reference to the interactive feature and consequently did not access the full mark range.

There has been a significant improvement in the use of appropriate materials and construction techniques in the design and development of ideas.

DESIGN AND TECHNOLOGY

Paper 9705/33
Written 2

Key messages

- In ***Section A***, when responding to a 20 mark 'discuss' question, candidates should make a very brief plan of the issues they wish to raise and include the supporting examples and evidence that they would use.
- For ***Section B***, when candidates prepare an analysis, they need to ensure that they make specific reference to the problem given, for example, by providing scatter-charts relating to the specific problem.
- For ***Section B***, when evaluating to help with the selection of ideas leading to development, candidates should explain why one design is better than another. It is the reasoning and justification that differentiate the candidates; tick charts alone are not sufficient to access the higher mark bands.

General comments

Most candidates followed the rubric correctly and used the time available effectively.

Responses to ***Section A*** continue to improve although a significant number of candidates produced brief responses, lacking sufficient technical detail to achieve the middle and high mark ranges.

The quality and use of appropriate sketching and annotation was generally very good in ***Section A*** and throughout the paper.

Section B was answered well with most candidates fully completing all of the requirements. A few candidates did not use their time effectively and did not fully complete the development section and some made no attempt at the final proposal and evaluation.

In ***Section A***, Part **A** was the most popular option. A significant number of candidates also attempted questions in Part **C**.

Few candidates made attempts at questions in Part **B. Question 5** was the most popular question.

In Part **A**, **Questions 1** and **3** were the most popular with relatively few candidates attempting **Question 2**

Questions 8 and **9** were the most popular in Part **C**.

In ***Section B***, **Question 10** was marginally the most popular followed by **Question 12** and **Question 11**.

Comments on specific questions

Section A

Part A – Product Design

Question 1

A very popular question with some excellent responses.

(a) Most candidates stated a suitable material and gave valid reasons. Aluminium, stainless steel, acrylic and brass were the most common correct responses. Mild steel was accepted with a stated

finish, a number of candidates chose a lamination process but many did not specify the type of wood.

(b) This part was answered particularly well. Most candidates described the key stages of production and made very good use of notes and sketches to include appropriate construction detail.

(c) Some candidates correctly described the use of templates, formers and simple press tools to produce a batch of 50 candle holders. Candidates must take into account the batch size when deciding upon an appropriate manufacturing method. Injection moulding or other high volume production methods would not be acceptable for a batch of 50.

Question 2

There were very few responses to this question. The best responses focused on issues relating to the different quantities of product production of the product designer and the designer-maker. The product designer would be more involved with medium to large batch production whereas the designer-maker would predominately be concerned with bespoke or one-off production.

To improve on their responses and access the higher mark range, some candidates needed to provide more detail with examples or evidence to support their discussion.

Question 3

This was a very popular question with a very wide range of responses. There was a fairly equal spread of attempts at each of the processes.

(a) Most candidates demonstrated a clear knowledge and understanding of the turning of the peg. The key stages of setting up the work on the lathe, using appropriate wood turning tools and final finishing were covered well.

Extrusion was also well understood by candidates. Some candidates needed to include detail of the die in order to access the full mark range.

The least popular process was sand casting but again, most candidates demonstrated a good knowledge of the process.

The highest marks were awarded to candidates who produced fully detailed descriptions of the manufacturing process chosen, using clear sketching and annotation of the two or three main stages involved.

(b) Most candidates correctly explained why the relevant process was suitable for the production of the items. There were fewer one word or very brief responses to this part than in previous years and more candidates accessed full marks.

Part B – Practical Technology

Question 4

There were very few attempts at this question. Candidates answered parts **(a)(i)**, **(ii)** and **(iii)** well but for part **(b),** candidates focused on the product and needed to focus on the technologies involved.

Question 5

There were very few attempts at this question. Parts **(a)(i)** and **(ii)** were generally answered well, candidates correctly named a specific metal and plastic material and described an appropriate process for manufacture of the phone case.

Answers to part **(b)** needed to be more detailed as they were generally brief, with lists of points given in some answers rather than the correct structured discussion response.

Question 6

There were very few attempts at this question.

(a) (i) Most candidates named two alloys and stated the specific materials.

(ii) Candidates needed to improve their knowledge for this question. Very few candidates identified a specific application for each of the alloys and most gave a limited explanation of suitability.

(b) Candidates needed to improve their knowledge for this question as responses to this part were mostly very brief and did not refer to tensile strength.

Part C – Graphic Products

Question 7

There were a number of excellent responses to this question. Most candidates produced accurate and detailed two point perspective views of the house. Some candidates needed to improve on their response by rendering the drawing to show the different materials from which the building would be made.

Question 8

There were a wide range of responses to this question. It was generally answered well with some excellent responses, achieving high marks. Most candidates demonstrated a good knowledge and understanding of the manufacturing process required to make a prototype of the packaging and the manufacturing method required for a large batch.

To access the middle and higher mark ranges, responses needed to be detailed.

Question 9

There were a range of responses to this question, a significant number of which were very well structured, covering all relevant issues in detail and providing valid examples and evidence to support the conclusions of arguments.

Most candidates included issues relating to target markets and the promotion and placement of products.

Some candidates needed to improve on their response for this question as they produced a list of statements, which is not appropriate for a ‘discussion’ response. It is sometimes beneficial to produce a very brief outline of issues to cover and possible examples or evidence before starting the response. There are a significant amount of marks allocated to the quality of explanation.

Section B

Candidates generally performed well in this Section. Presentation skills were mostly of a very good standard and candidates demonstrated their knowledge of appropriate materials and construction techniques.

Some candidates needed to improve on their time management for this question as they did not fully complete the development, final proposal and evaluation sections.

In order to obtain credit, some candidates need to improve on their answer for this question by producing charts that are specific to the problem. Candidate should consider the initial thoughts and broader issues related to the given problem/situation. This will provide the key points to help to develop a specification and guide design thinking.

The exploration of ideas was generally good. Many candidates produced a range of possible solutions with some very innovative, original and creative ideas.

Reference to appropriate specific materials was generally very good; most candidates gave appropriate justifications for their use.

Many candidates included on-going evaluation of their ideas which helped in selecting ideas and features to take forward for development, most considered all points of their specification when evaluating. Tick charts

against a specification will only achieve credit if the specification has focused points and specific evaluative comment is made.

The higher mark ranges are achieved when candidates make evaluative comments on their ideas and can make a reasoned judgment on the best solution or features to take forward.

The development of ideas section continues to be strong in most cases. Some candidates tended to produce a plan of manufacture and did not consider the reasoning and composition of ideas that lead to a single design proposal.

Evidence of decision making to show the improvements or modifications to their idea/s leading to a final design is critical in this section.

The majority of proposed solutions were feasible and well presented. Most candidates included detail such as key dimensions, material selected and possible finishes.

Many candidates produced valid evaluations of their proposal and described the positive features and functional details of their solution. In order to gain more marks, some candidates needed to give details of possible improvements or modifications.

Question 10

There were a number of very good responses to this question. Some work was original and creative. In order to access the full mark range, many candidates needed to read the question more carefully as it required them to design a desk to surround the column, paying attention to seating and they did not fully interpret these requirements.

Acceptable specification points included:

- the seating must enable enough space for individual candidates to sit comfortably and not feel closed in or uncomfortable.
- the seating could include a work surface to read, write or study
- the seating should be easy to clean as it would be in constant use by a large number of candidates
- the seating could be modular so that it could be removed from around the column to be used elsewhere in the study area.

Although some solutions were innovative with construction details clearly indicated, a significant number of candidates did not consider manufacturing detail.

Final proposals were generally realistic with most including details of important dimensions.

Question 11

Marginally the least popular question. Some of the responses were of a very good standard, including functional ideas with considerable technical detailing of the materials, mechanisms and construction techniques required.

Acceptable specification points included:

- the ramp should have a non-slip surface to ensure that the wheelchair has grip
- the ramp should be easily adjusted by a member of the stage crew, candidate or adult
- height adjustment of the ramp should be secured so that no movement occurs in use
- the ramp should be suitably strong but also light to enable ease of movement and storage.

Question 12

Some of the work produced for this question was outstanding. Most candidates produced functional packaging with many producing excellent creative solutions for the name and logo for the product.

Acceptable specification points included:

- the packaging must clearly display the spray and the cream

- the packaging should include clear information on the risks of exposure to the sun and guidance of how to use the product
- the packaging must be robust enough to protect the sprays and cream in transit
- the packaging should be able to be used to allow ease of transport to the beach or sunbathing location.

Most candidates produced effective methods of packaging and included appropriate construction detail. There has been a significant improvement in candidates showing evidence of the range and properties of materials used in packaging.

A number of candidates produced exceptional design work; producing innovative and original ideas, particularly for the name and logo, and demonstrating a sound knowledge and of packaging techniques and materials.

Whilst most proposed solutions gave sufficient detail to show the packaging, some candidates needed to improve on their time management for this question as they did not show full details of their final proposal; details such as dimensions tended to be lacking and many evaluations were very brief.

DESIGN AND TECHNOLOGY

Paper 9705/04
Project 2

Key messages

Candidates are advised to address all aspects of the Analysis of and Research into the Design Brief which results in a Specification in **Project 1**. Outcomes often result in an imbalance between these different aspects with too much time given to the presentation of existing information at the cost of meaningful examination of the intended use of the product, resulting in the collection of appropriate data.
The Testing and Evaluation of the final product in **Project 2** should start with evidence of meaningful practical testing in the intended environment. Results from this testing should then be compared to the original Specification for the product with subsequent suggestions for modification or further development as required.

General comments

The school based assessment for this syllabus can be offered either as two discrete components, **Project 1** and **Project 2** or as one larger piece of work combining the two projects in a holistic way. This report identifies each of the components separately but also acknowledges the overall design process where the two are combined.

Centres introduce this important part of the Design and Technology course to their candidates in slightly different ways but it is important that evidence produced matches the requirements of the assessment scheme. Some centres set a common theme or topic to which candidates respond in their own way while others encourage each candidate to identify their own design problem which may be derived from hobbies, interests or life at home and in the community.

In any event outcomes resulted from a wide variety of design problems and it was obvious that many candidates had developed a keen interest in the area being studied. In addition to the usual range of household items or architectural models, interesting outcomes of either modelling or final products included: secure medication storage, school uniform storage, bus route indicator, bird feeder, umbrella storage, expanding table, spectacle storage, mobility aid, skate park, communal park area, ironing board, bunk bed, food smoker, cycle rack, rebound trainer, children's see-saw, painting easel, adjustable desk lamp, mini soccer goal posts, cell phone packaging, upper limb exerciser, book reading support, biltong maker, portable drawing station, wireless headphone charger, customised shower mixer tap, fishing gear storage, electric guitar, adjustable monitor support, chocolate packaging, aircraft nose wheel tug, surfboard, table football and stepladder.

Many candidates had presented their design folders neatly, in such a way that the design process could be followed easily.

Comments on assessment criteria

Project 2

5 Product Development

Successful candidates took the final design idea(s) from **Project 1** and then considered all aspects of form, materials, components, constructions, finish and production methods in detail. All information was linked to the chosen idea and where alternatives had been considered, and choices made, reasons for these were given.

This section of the assessment scheme also requires candidates to carry out some form of testing. This can be of materials, constructions, form, etc. but it should be obvious how this links to the design idea being developed. Candidates need to include written or photographic evidence that this has been carried out.

In some projects it is not always clear why selections of materials, components, constructions, finishes and production methods have been made and there is often a big gap between the chosen design idea and the final product. Once these decisions have been made, the final part of the development should include details of the final solution, mainly in the form of drawings, from which a skilled person could make the product.

6 Product Planning

Most candidates set out the sequence for the main stages of production, often produced in flow chart or tabular form linked to some form of time plan. There is no requirement for candidates to show how basic techniques will be carried out but many candidates included details of the more complex methods of manufacture.

Candidates are not required to include lengthy photographic evidence of all stages of manufacture although some photographs can be helpful when highlighting certain aspects of the manufacturing process.

7 Product Realisation

Many candidates produced high quality products that could clearly be put to their intended use. Candidates demonstrated care and enthusiasm in the making of their design outcomes in terms of construction methods and finishing techniques and it can be seen that there are still many well developed practical skills being applied.

Centres are reminded of the need to include clear and detailed photographic evidence of made products in line with the guidance set out in the syllabus document. These must be submitted as part of or with the project folio for moderation purposes.

8 Testing and Evaluation

There continues to be an improvement in the number of candidates carrying out meaningful testing and evaluation. This can only be achieved if the product is shown to be put to the use intended and the results compared to the original design brief and specification. It is always helpful when candidates include photographs of the product being used and tested, in the intended environment.

The completion of questionnaires and the recording of views of others are only of use where the results can be collated and compared to the intended use of the product and some form of qualified judgement made and recorded.