DESIGN AND TECHNOLOGY

Paper 9705/11
Written 1

General Comments

In general, the performance of candidates was similar to those last year. While some excellent answers were seen in all sections of the paper, responses were mixed.

The better responses were from those candidates who had looked at the number of marks available for each part of a question and then produced answers which contained enough detail to give them full access to all of the marks available. In some cases, candidates had not read questions carefully or fully enough before starting their answers. This frequently resulted in responses that did not fully address what the question had asked for. Some of the responses were too short, while others were too long. It was evident that in some cases, candidates displayed only a limited knowledge and understanding of the subject matter required to correctly respond to the questions they had chosen to answer.

Candidates can improve by making sure their answers are focused on the requirements of the question being asked and produce responses which are concise and display appropriate subject specific knowledge and understanding.

The majority of candidates responded to all parts of the three questions they had chosen to answer. However, for some candidates, time management proved a problem, particularly on **Section C**.

Some repetition was evident in answers to questions in all sections of the paper. Some candidates created the same drawing on more than one occasion, for example, a design would be drawn as a three dimensional view and then repeated using a two dimensional view that showed no more detail or information than the first drawing. A common error in written responses was for candidates to repeat the same information two or more times using slightly different words.

It is suggested that Centres make the content of this report available to future candidates in order to help them avoid making similar mistakes and omissions.

Section A

General Comments

The better answers in this section were those that used a sequence of three or four annotated sketches to clearly describe, step by step, how the appropriate tools, equipment and processes could be safely used to achieve the required results. It is not sufficient to just draw or list the tools required, their correct use must be shown and described. The quality of sketching was generally good, but candidates need to understand that the use of lots of continuous text should be avoided when answering questions in this section of the paper.

The quality of sketching was generally of a good to very good standard.

Candidates could improve their performance in this section of the paper by initially spending a few minutes planning the sequence of stages that would be required to fully carry out the particular task or process identified in the question.

Comments on Specific Questions

Question 1

This was the most popular question in this section of the paper.

Part **(a)** of the question was generally well answered with the vast majority of candidates being able to state at least one appropriate reason why the table was made from plywood rather than solid wood. Appropriate reasons included: it was available in large sizes; it was more stable than solid wood and was cheaper than solid wood.

Part **(b)(i)** required candidates to describe how part A could be cut out and the edges of the plywood smoothed. A number of candidates spent far too long describing how the required shape could be marked out on the plywood which was not a major requirement of the question. Most candidates were able to explain at least some of the processes required to achieve the required outcome. Some responses did not explain how the slot could be cut out while others suggested the inappropriate and unsafe use of table saws.

The better responses to part **(b)(i)** were those that correctly identified an appropriate knock-down fitting (such as a corner block) and went on to describe how it could be used to join the base to the top of the table. The weaker responses incorrectly described methods such as cutting slots in the top, making holes in the top and screwing the top to the base and gluing the parts together.

In part **(b)(iii)**, the majority of candidates were able to describe at least some of the processes involved in applying a painted finish to the table. Common omissions were not to consider safety issues such as working in a well-ventilated area or wearing a face mask, not preparing the table prior to painting and not cleaning equipment after use. Some candidates incorrectly produced totally written responses.

Question 2

In part **(a),** the majority of the majority of candidates correctly stated at least one appropriate advantage of producing the cake stand in flat pack form rather than having the five parts permanently joined together. Appropriate reasons included: it was easy to store when not in use and it was less likely to be damaged when not in use.

Some excellent answers were seen to part **(b)** with a good number of candidates producing pictorial views that showed the fully assembled cake stand. A common omission was not showing the thickness of the card.

In general, both sections of part **(c)** were not very well answered. Responses to section **(i)** frequently lacked the amount of detail required to gain high marks. In many cases insufficient use had been made of sketches, particularly in describing how part A could be marked out. In section **(ii)** very few candidates were able to correctly describe how stencils could be made and used to add the required design to part C. Many showed the use of templates to draw the outline and then colouring in each part by hand. It is important that candidates understand the difference between a stencil and a template.

Question 3

In part **(a)(i)** the majority of candidates named a suitable sheet plastic, such as acrylic, that could be used to make the desk tidy.

In part **(a)(ii)** only a limited number of candidates named a suitable glue that could be used to join the plastic parts together, with most candidates incorrectly stating that PVA could be used.

In general, part **(b)** was not well answered with very few fully correct developments being seen. The vast majority of candidates only drew part of the shape that would need to be cut out to make the body of the elephant. Most did not show where the bends would need to be made.

Part **(c)(i)** required candidates to describe how the one piece development could be cut out and the edges of the plastic smoothed. Many candidates spent far too long describing how the required shape could be marked out on the plastic which was not a major requirement of the question. Most candidates were able to explain at least some of the processes required to achieve the required outcome. Where the use of electrical equipment, such as a bandsaw, is being described, it is important that its use is appropriate and safety issues are considered.

In part **(c)(ii)** almost all candidates were able to describe at least some of the processes involved in bending the plastic to the required shape. Most responses included details about formers and jigs that could be used. Some responses only explained how one of the required bends could be made. A number of answers did not include details about the safety precautions that would need to be undertaken.

Section B

General Comments

The questions in this section of the paper require candidates to analyse situations and products, identify a resolve problems and discuss issues related to the design, manufacture, use and disposals of products.

Parts **(a)**, **(b)** and **(c)** of the questions in this section of the paper were generally well answered by the majority of candidates. While the number of candidates making use of the structure and mark allocation given in part **(d)** continues to increase the major weakness in many answers still relates to the insufficient levels of 'discussion' that takes place in candidates' responses.

Future candidates would be well advised to base their answers to part **(d)** around the instructions and mark allocation given in the question.

In part **(d)**, candidates need to clearly identify relevant issues, discuss why they are important and be able to support their arguments and reasoning using appropriate examples and evidence. It is important that these issues are specific to the given situations and requirements of the question.

Repetition was seen in some candidates' answers, particularly in part **(d)** of the questions where a frequent error was to give the same information using slightly different words.

In a limited number of cases, candidates did not attempt to complete part **(d)** of the question that they had chosen to answer in this section of the paper.

Comments on Specific Questions

Question 4

This was the most popular question in this section of the paper.

In part **(a)**, only a minority of the candidates gave a full explanation of what the symbol on the bottle meant. A number gained one mark for saying that it indicated the 'estimated' amount that the bottle contained but many incorrectly stated that it meant 'environmentally friendly' or that the bottle could be recycled.

In part **(b)**, the majority of candidates correctly identified at least one problem with the design of the holder. Problems needed to relate to aspects such as the bottles could easily fall from the front of the holder because there was only a very small lip to hold them; there were no ends on the holder therefore bottles could easily fall sideways; the holder was unstable and unbalanced because all of the weight was on one side. To gain both marks for each problem, candidates needed to identify the problem and continue on to describe why it is a problem.

The better answers to part **(c)** used notes and sketches to good effect to explain how the design would need to be changed. Appropriate changes included adding a higher lip to the front of the holder, adding ends to the holder, adding suitable support to back of holder to improve balance and stability. Most candidates scored more than half marks for this part of the question. A number of candidates totally re-designed the holder; this type of response should be avoided.

The responses to part **(d)** were very mixed with a good number of candidates focusing their answer on general recycling issues rather than 'problems associated with recycling products that are made from more than one material'. The better responses raised appropriate issues such as the need to separate the materials, the expense of providing facilities to collect, identify, separate and process the materials and potential environmental problems linked with some separation processes. A weakness in many answers was not to provide appropriate conclusions supported by specific examples/evidence.

Question 5

This question was answered by only a limited number of candidates.

In part **(a),** few candidates who attempted this question correctly identified feature X as a pop-up mechanism that made the design stand off the back surface when the card was opened.

Part **(b)** was not answered well. Most answers did not clearly identify that text was missing from [illegible] of the instructions, while stages 4 and 5 did not include any diagrams. Some candidates incorrectly suggested the text was too small or the wrong style, while others stated that the instructions were in the wrong order.

The better answers to part **(c)** showed, with varying degrees of detail, the additional text and diagrams that would be required to produce a clear set of instructions. Weaker responses frequently just stated that more text and diagrams would need to be included.

Some reasonable responses were seen to part **(d)**. The majority of candidates focused their responses on appropriate issues such as the use of diagrams enabled people to check what they the doing was correct, text explained how to achieve the outcome shown in the diagram and that the use of a single method of communication was harder to understand. A weakness in many answers was not to provide appropriate conclusions supported by specific examples/evidence. A good deal of repetition was seen in almost all responses.

Question 6

Only a few candidates made any attempt to answer this question.

Those candidates attempting this question were able to explain that feature X was the part that was twisted round to open and close the vice.

In part **(b)**, the two main problems with the design of the power hacksaw were that it had no guards, therefore making it dangerous to use, and that it was not fixed to the floor which would result in it moving when it use. The majority of candidates identified at least one appropriate problem which generally related to the lack of safety guards.

The better answers to part **(c)** used notes and sketches to good effect to explain how the design would need to be changed. Appropriate changes included adding safety guards which covered the moving parts and bolting the power hacksaw to the far. Some of the safety guards shown were far too complex and would have prevented the machine from being used. A method of attaching the guard to the saw was frequently not included.

In part **(d)** a significant number of candidates focused their responses on just the power hacksaw rather than the wider range of electrical powered machines that could be found in a school workshop. Many responses focused only on issues related to safety checks and did not consider any other form of risk assessment.

Section C

General Comments

Some excellent design work and presentation drawings were seen in this section of the paper.

The better answers showed the use of quick free flowing sketches to produce around three distinctly different ideas for all or part of the product that was being designed in each part of the question. Some candidates, unnecessarily, spent a long time producing very neat drawings of their initial ideas.

Some of the weaker responses presented only one idea or produced several drawings that gave the same information but in a different form. For example, both a 2D view and a 3D view showing exactly the same design idea.

The better evaluations were those that used concise notes to clearly identify the strengths and weaknesses of designs. They included justified choices including which design or parts of a design to carry forward to the development stage.

Candidates need to understand that ideas must to be evaluated in a meaningful way. For example, it is questionable how ideas can be evaluated by an ‘expert’ in an examination situation but this was seen in a number of papers. Evaluation tables with ‘star’ or ‘number’ ratings were much in evidence. While these can be used to good effect, their value lies in the use of headings appropriate to an examination situation and an indication about what the stars or numbers mean. It must be more than ‘excellent, good or poor’. Some candidates did not evaluate their ideas at all.

For each of the parts **(a)** to **(c),** it is important that there is clear evidence that design developme place. This should show how the candidate has brought the best parts of their initials ideas into a c solution for each part of the question. This developed solution should be annotated to give details ab materials, joining methods and important sizes. Candidates are not required to describe, stage by stage a design could be made. Marks cannot be awarded for design development where a candidate has simply chosen one of their ideas and redrawn it.

A significant number of excellent rendered pictorial drawings were seen in part **(d)**. However, in some responses the rendering was not attempted or was inadequate. A number of 'multi coloured' drawings were seen where each part of the product was a different colour. Candidates need to be aware of the difference between 'colouring in' and 'rendering'. Rendering should be used to suggest the form (shape) of the product and the material(s) that it is made from.

Comments on Specific Questions

Question 7

The better responses to part **(a)** were those where candidates had considered all of the design requirements for a cardboard to package a skateboard. These responses showed ideas for a box which was made a one piece development with only one glue joint and included details about how the box could be securely opened. Ideas had been well evaluated and there was clear evidence of design development. A significant number of candidates had not taken into account all of the design requirements and at times did not show how the box could be securely closed and/or showed slot and tab fixing methods that would not work. In a limited number of cases, candidates incorrectly suggested changing the shape and/or size of the box, resulting in designs for a box into which the skateboard would not fit.

In part **(b)**, the vast majority of candidates showed a method of carrying the box which had the potential to work. The better responses went on to explore various materials that could be used, ways in which the carrying method could be attached to or cut out from the main structure of the box and where it could be located on the box. Weaker responses often focused on just the appearance of the carrying method. It is important that candidates carry forward their design work from part **(a)** into part **(b)**. In some cases, the design arrived at in part **(b)** would not have been able to function fully when attached to the design chosen in part **(a)**.

The quality of the designs produced in part **(c)** was very variable. The better responses developed designs for lettering styles which reflected the name 'Wild Wheels' by incorporating a wheel design (or something else linked to a skateboard) into the lettering. Only a limited number of responses gave any real consideration to colour or where the lettering would be placed on the box. It is important that candidates read all parts of a question so that they realise how parts **(a)** to **(c)** of the question link together to produce the final product that has to be illustrated in part **(d)**.

The quality of the drawings produced in part **(d)** was mixed, with only a limited number of high quality rendered drawings being seen. Some of the drawings did not show all of the features that had been designed in parts **(a)** to **(c)**. Common omissions included not showing the lettering and/or the carrying method or not showing the box open. Before starting their responses to this part of the question, candidates should select a form of pictorial drawing and a viewing position which are the most suitable for showing all of the features they have designed in **(a)** to **(c)**. It is important that on drawings of this type, card is given a thickness and not drawn as a single line.

Question 8

This proved to be the most popular question in this section of the paper and some excellent responses were seen to all parts of the question. In general, both the quality of sketching and written communication was of a good and frequently very good standard.

While in part **(a)** almost all candidates had produced designs for a seat, it was only the better responses that included a feature that would prevent a child under the age of four from falling off the seat. In some cases, the designs were over complex and in many cases would have resulted in seats that were uncomfortable, difficult to get in and out of and unsafe. The majority of candidates gave at least some details about materials and joining methods.

In part **(b)**, the better responses were those where all of the design requirements had been con These answers included details for a stable frame which was easy to dismantle into sections and i appropriate method of securing the frame to the ground. A common omission was not to include suffi details about how the frame could be dismantled. A number of over complex designs were seen which have been difficult or impossible to dismantle and frequently dangerous to use.

The better responses to part **(c)** were generally those that used some type of carabiner clip in the design. This type of clip (or something similar) attached to a rope or chain and clipped onto a suitable attachment on the frame and seat would enable the seat to be easily removed from the frame. As with earlier parts of this question some over complex designs were seen many of which would have prevented the seat being removed from the frame. A number of responses did not show any rope or chain being used.

A significant number of excellent rendered pictorial drawings were seen in part **(d)**. However, in some responses the rendering was not attempted or was inadequate. A limited number of two dimensional drawings were seen. It is important that the pictorial drawing includes all of the features that have been designed in parts **(a)** to **(c)**.

Question 9

This was answered by only a very limited number of candidates and in general responses were weak.

In part **(a)**, the majority of candidates did little more than copy the given images of dinosaur heads. Most responses lacked details about how the head could be attached to the tube or how the mouth could open and close.

Most of the responses to part **(b)** showed some form of handle and a number had given at least some consideration to the comfort of the user when holding the toy and how the handle would be attached to the tube.

In general, part **(c)** was not answered well. The majority of designs produced were far too complex, particularly in relation to the mechanism, most of which would not have worked. An elastic band attached to a trigger passed through the tube and attached to the opening part of the mouth was one solution to the problem. The majority of candidates who attempted this question were unable to display any real knowledge and understanding of mechanisms.

A number of the drawings produced in part **(d)** were two dimensional rather than pictorial; this was particularly the case when it came to the dinosaur's head. The quality of rendering was generally weak.

DESIGN AND TECHNOLOGY

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In general, the performance of candidates was similar to those last year. While some excellent answers were seen in all sections of the paper, responses were mixed.

The better responses were from those candidates who had looked at the number of marks available for each part of a question and then produced answers which contained enough detail to give them full access to all of the marks available. In some cases, candidates had not read questions carefully or fully enough before starting their answers. This frequently resulted in responses that did not fully address what the question had asked for. Some of the responses were too short, while others were too long. It was evident that in some cases, candidates displayed only a limited knowledge and understanding of the subject matter required to correctly respond to the questions they had chosen to answer.

Candidates can improve by making sure their answers are focused on the requirements of the question being asked and produce responses which are concise and display appropriate subject specific knowledge and understanding.

The majority of candidates responded to all parts of the three questions they had chosen to answer. However, for some candidates, time management proved a problem, particularly on **Section C**.

Some repetition was evident in answers to questions in all sections of the paper. Some candidates created the same drawing on more than one occasion, for example, a design would be drawn as a three dimensional view and then repeated using a two dimensional view that showed no more detail or information than the first drawing. A common error in written responses was for candidates to repeat the same information two or more times using slightly different words.

It is suggested that Centres make the content of this report available to future candidates in order to help them avoid making similar mistakes and omissions.

Section A

General Comments

The better answers in this section were those that used a sequence of three or four annotated sketches to clearly describe, step by step, how the appropriate tools, equipment and processes could be safely used to achieve the required results. It is not sufficient to just draw or list the tools required, their correct use must be shown and described. The quality of sketching was generally good, but candidates need to understand that the use of lots of continuous text should be avoided when answering questions in this section of the paper.

The quality of sketching was generally of a good to very good standard.

Candidates could improve their performance in this section of the paper by initially spending a few minutes planning the sequence of stages that would be required to fully carry out the particular task or process identified in the question.

Comments on Specific Questions

Question 1

This was the most popular question in this section of the paper.

Part **(a)** of the question was generally well answered with the vast majority of candidates being able to state at least one appropriate reason why the table was made from plywood rather than solid wood. Appropriate reasons included: it was available in large sizes; it was more stable than solid wood and was cheaper than solid wood.

Part **(b)(i)** required candidates to describe how part A could be cut out and the edges of the plywood smoothed. A number of candidates spent far too long describing how the required shape could be marked out on the plywood which was not a major requirement of the question. Most candidates were able to explain at least some of the processes required to achieve the required outcome. Some responses did not explain how the slot could be cut out while others suggested the inappropriate and unsafe use of table saws.

The better responses to part **(b)(i)** were those that correctly identified an appropriate knock-down fitting (such as a corner block) and went on to describe how it could be used to join the base to the top of the table. The weaker responses incorrectly described methods such as cutting slots in the top, making holes in the top and screwing the top to the base and gluing the parts together.

In part **(b)(iii)**, the majority of candidates were able to describe at least some of the processes involved in applying a painted finish to the table. Common omissions were not to consider safety issues such as working in a well-ventilated area or wearing a face mask, not preparing the table prior to painting and not cleaning equipment after use. Some candidates incorrectly produced totally written responses.

Question 2

In part **(a),** the majority of the majority of candidates correctly stated at least one appropriate advantage of producing the cake stand in flat pack form rather than having the five parts permanently joined together. Appropriate reasons included: it was easy to store when not in use and it was less likely to be damaged when not in use.

Some excellent answers were seen to part **(b)** with a good number of candidates producing pictorial views that showed the fully assembled cake stand. A common omission was not showing the thickness of the card.

In general, both sections of part **(c)** were not very well answered. Responses to section **(i)** frequently lacked the amount of detail required to gain high marks. In many cases insufficient use had been made of sketches, particularly in describing how part A could be marked out. In section **(ii)** very few candidates were able to correctly describe how stencils could be made and used to add the required design to part C. Many showed the use of templates to draw the outline and then colouring in each part by hand. It is important that candidates understand the difference between a stencil and a template.

Question 3

In part **(a)(i)** the majority of candidates named a suitable sheet plastic, such as acrylic, that could be used to make the desk tidy.

In part **(a)(ii)** only a limited number of candidates named a suitable glue that could be used to join the plastic parts together, with most candidates incorrectly stating that PVA could be used.

In general, part **(b)** was not well answered with very few fully correct developments being seen. The vast majority of candidates only drew part of the shape that would need to be cut out to make the body of the elephant. Most did not show where the bends would need to be made.

Part **(c)(i)** required candidates to describe how the one piece development could be cut out and the edges of the plastic smoothed. Many candidates spent far too long describing how the required shape could be marked out on the plastic which was not a major requirement of the question. Most candidates were able to explain at least some of the processes required to achieve the required outcome. Where the use of electrical equipment, such as a bandsaw, is being described, it is important that its use is appropriate and safety issues are considered.

In part **(c)(ii)** almost all candidates were able to describe at least some of the processes involved in bending the plastic to the required shape. Most responses included details about formers and jigs that could be used. Some responses only explained how one of the required bends could be made. A number of answers did not include details about the safety precautions that would need to be undertaken.

Section B

General Comments

The questions in this section of the paper require candidates to analyse situations and products, identify a resolve problems and discuss issues related to the design, manufacture, use and disposals of products.

Parts **(a)**, **(b)** and **(c)** of the questions in this section of the paper were generally well answered by the majority of candidates. While the number of candidates making use of the structure and mark allocation given in part **(d)** continues to increase the major weakness in many answers still relates to the insufficient levels of 'discussion' that takes place in candidates' responses.

Future candidates would be well advised to base their answers to part **(d)** around the instructions and mark allocation given in the question.

In part **(d)**, candidates need to clearly identify relevant issues, discuss why they are important and be able to support their arguments and reasoning using appropriate examples and evidence. It is important that these issues are specific to the given situations and requirements of the question.

Repetition was seen in some candidates' answers, particularly in part **(d)** of the questions where a frequent error was to give the same information using slightly different words.

In a limited number of cases, candidates did not attempt to complete part **(d)** of the question that they had chosen to answer in this section of the paper.

Comments on Specific Questions

Question 4

This was the most popular question in this section of the paper.

In part **(a)**, only a minority of the candidates gave a full explanation of what the symbol on the bottle meant. A number gained one mark for saying that it indicated the 'estimated' amount that the bottle contained but many incorrectly stated that it meant 'environmentally friendly' or that the bottle could be recycled.

In part **(b)**, the majority of candidates correctly identified at least one problem with the design of the holder. Problems needed to relate to aspects such as the bottles could easily fall from the front of the holder because there was only a very small lip to hold them; there were no ends on the holder therefore bottles could easily fall sideways; the holder was unstable and unbalanced because all of the weight was on one side. To gain both marks for each problem, candidates needed to identify the problem and continue on to describe why it is a problem.

The better answers to part **(c)** used notes and sketches to good effect to explain how the design would need to be changed. Appropriate changes included adding a higher lip to the front of the holder, adding ends to the holder, adding suitable support to back of holder to improve balance and stability. Most candidates scored more than half marks for this part of the question. A number of candidates totally re-designed the holder; this type of response should be avoided.

The responses to part **(d)** were very mixed with a good number of candidates focusing their answer on general recycling issues rather than 'problems associated with recycling products that are made from more than one material'. The better responses raised appropriate issues such as the need to separate the materials, the expense of providing facilities to collect, identify, separate and process the materials and potential environmental problems linked with some separation processes. A weakness in many answers was not to provide appropriate conclusions supported by specific examples/evidence.

Question 5

This question was answered by only a limited number of candidates.

In part **(a),** few candidates who attempted this question correctly identified feature X as a pop-up mechanism that made the design stand off the back surface when the card was opened.

Part **(b)** was not answered well. Most answers did not clearly identify that text was missing from [illegible] of the instructions, while stages 4 and 5 did not include any diagrams. Some candidates incorrectly suggested the text was too small or the wrong style, while others stated that the instructions were in the wrong order.

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Question 6

Only a few candidates made any attempt to answer this question.

Those candidates attempting this question were able to explain that feature X was the part that was twisted round to open and close the vice.

In part **(b)**, the two main problems with the design of the power hacksaw were that it had no guards, therefore making it dangerous to use, and that it was not fixed to the floor which would result in it moving when it use. The majority of candidates identified at least one appropriate problem which generally related to the lack of safety guards.

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Section C

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Comments on Specific Questions

Question 7

The better responses to part **(a)** were those where candidates had considered all of the design requirements for a cardboard to package a skateboard. These responses showed ideas for a box which was made a one piece development with only one glue joint and included details about how the box could be securely opened. Ideas had been well evaluated and there was clear evidence of design development. A significant number of candidates had not taken into account all of the design requirements and at times did not show how the box could be securely closed and/or showed slot and tab fixing methods that would not work. In a limited number of cases, candidates incorrectly suggested changing the shape and/or size of the box, resulting in designs for a box into which the skateboard would not fit.

In part **(b)**, the vast majority of candidates showed a method of carrying the box which had the potential to work. The better responses went on to explore various materials that could be used, ways in which the carrying method could be attached to or cut out from the main structure of the box and where it could be located on the box. Weaker responses often focused on just the appearance of the carrying method. It is important that candidates carry forward their design work from part **(a)** into part **(b)**. In some cases, the design arrived at in part **(b)** would not have been able to function fully when attached to the design chosen in part **(a)**.

The quality of the designs produced in part **(c)** was very variable. The better responses developed designs for lettering styles which reflected the name 'Wild Wheels' by incorporating a wheel design (or something else linked to a skateboard) into the lettering. Only a limited number of responses gave any real consideration to colour or where the lettering would be placed on the box. It is important that candidates read all parts of a question so that they realise how parts **(a)** to **(c)** of the question link together to produce the final product that has to be illustrated in part **(d)**.

The quality of the drawings produced in part **(d)** was mixed, with only a limited number of high quality rendered drawings being seen. Some of the drawings did not show all of the features that had been designed in parts **(a)** to **(c)**. Common omissions included not showing the lettering and/or the carrying method or not showing the box open. Before starting their responses to this part of the question, candidates should select a form of pictorial drawing and a viewing position which are the most suitable for showing all of the features they have designed in **(a)** to **(c)**. It is important that on drawings of this type, card is given a thickness and not drawn as a single line.

Question 8

This proved to be the most popular question in this section of the paper and some excellent responses were seen to all parts of the question. In general, both the quality of sketching and written communication was of a good and frequently very good standard.

While in part **(a)** almost all candidates had produced designs for a seat, it was only the better responses that included a feature that would prevent a child under the age of four from falling off the seat. In some cases, the designs were over complex and in many cases would have resulted in seats that were uncomfortable, difficult to get in and out of and unsafe. The majority of candidates gave at least some details about materials and joining methods.

In part **(b)**, the better responses were those where all of the design requirements had been con These answers included details for a stable frame which was easy to dismantle into sections and i appropriate method of securing the frame to the ground. A common omission was not to include suffi details about how the frame could be dismantled. A number of over complex designs were seen which have been difficult or impossible to dismantle and frequently dangerous to use.

The better responses to part **(c)** were generally those that used some type of carabiner clip in the design. This type of clip (or something similar) attached to a rope or chain and clipped onto a suitable attachment on the frame and seat would enable the seat to be easily removed from the frame. As with earlier parts of this question some over complex designs were seen many of which would have prevented the seat being removed from the frame. A number of responses did not show any rope or chain being used.

A significant number of excellent rendered pictorial drawings were seen in part **(d)**. However, in some responses the rendering was not attempted or was inadequate. A limited number of two dimensional drawings were seen. It is important that the pictorial drawing includes all of the features that have been designed in parts **(a)** to **(c)**.

Question 9

This was answered by only a very limited number of candidates and in general responses were weak.

In part **(a)**, the majority of candidates did little more than copy the given images of dinosaur heads. Most responses lacked details about how the head could be attached to the tube or how the mouth could open and close.

Most of the responses to part **(b)** showed some form of handle and a number had given at least some consideration to the comfort of the user when holding the toy and how the handle would be attached to the tube.

In general, part **(c)** was not answered well. The majority of designs produced were far too complex, particularly in relation to the mechanism, most of which would not have worked. An elastic band attached to a trigger passed through the tube and attached to the opening part of the mouth was one solution to the problem. The majority of candidates who attempted this question were unable to display any real knowledge and understanding of mechanisms.

A number of the drawings produced in part **(d)** were two dimensional rather than pictorial; this was particularly the case when it came to the dinosaur's head. The quality of rendering was generally weak.

DESIGN AND TECHNOLOGY

Paper 9705/13
Written 1

General Comments

The performance of candidates has shown a slight improvement, particularly in ***Section C***.

The better responses were from those candidates who had looked at the number of marks available for each part of a question and produced responses which contained sufficient detail and information to give them full access to all of the marks available. In some cases, candidates had not read questions carefully or fully enough before starting their answers. This frequently resulted in responses which did not fully address what was asked for in the question. Some of the responses were too short while others were too long. It was evident that in some cases, candidates displayed only a limited knowledge and understanding of the subject matter required to correctly respond to the questions they had chosen to answer.

Candidates can improve by making sure that their answers are focused on the question being asked and produce responses that are concise, and display appropriate subject specific knowledge and understanding.

While the majority of candidates responded to all parts of the three questions they had chosen to answer, time management proved a problem for some. This particularly applied to ***Section C***.

Some repetition was evident in candidates' answers to questions in all sections of the paper. Some candidates created the same drawing on more than one occasion, for example, a design would be drawn as a three dimensional view and then repeated using a two dimensional view that showed no more detail than the first drawing. A common error in written responses was for candidates to repeat the same point two or more times using slightly different words

It is suggested that Centres make the content of this report available to future candidates in order to help them avoid making similar mistakes.

Section A

General Comments

The better answers in this section were those that used a sequence of three or four annotated sketches to clearly describe, step by step, how the appropriate tools, equipment and processes could be safely used to achieve the required results. It is not sufficient to just draw or list the tools. Their use must be shown and described.

In some of the weaker responses, very small sketches were produced. Candidates need to understand that the use of lots of continuous text should be avoided when answering questions in this section of the paper. In a number of responses far too much continuous text had been used, often accompanied by very few, if any, sketches.

Candidates could improve their performance in this section of the paper by initially spending a few minutes planning the sequence of stages that would be required to fully carry out the particular task or process identified in the question.

Comments on Specific Questions

Question 1

Part **(a)** was generally answered well with the vast majority of candidates gaining at least one of the two marks available. Appropriate reasons for using solar power included lower cost, safer to use and it was more environmentally friendly.

The better answers to part **(b)(i)** were those that described (with varying degrees of success) how drills, appropriate hand or mechanical saws, files and abrasive papers could be used to make one of the slots. Weaker responses only described some of the required stages. It is important that health and safety issues are considered. A number of responses were let down by sketches that lacked quality (or not included) and the overuse of continuous text.

The use of bending bars (or similar) was described in the better answers to part **(b)(ii)**. Other appropriate methods that were seen included the use of a former and a mallet or hammer. This method often lacked details about how to avoid damaging the metal when hitting it with a hammer. Weaker responses frequently went no further than to say it could be bent in a vice and/or hit with a hammer. A number of responses were let down by low quality sketches (or the lack of them) and the overuse of continuous text.

In part **(b)(iii)**, some candidates confused welding with brazing or soldering. The better responses described how the metal would be prepared, the joint held in place, the actual welding process and the health and safety issues involved. Weaker responses often went no further than to sketch, for example, an electric welder. A number of responses were let down by sketches that lacked quality (or not included) and the overuse of continuous text.

Question 2

In part **(a)(i)**, a significant number of candidates named a suitable glue. PVA and a glue stick were the two most common correct answers seen.

Part **(a)(ii)** was correctly answered by most candidates with MDF being the most common correct answer seen.

Part **(b)(i)** was not well answered by most candidates. Candidates correctly drew a circle for the base but only a very limited number showed the correct shape that would be required to make the remainder of the cone. Little reference was made to sizes and inappropriate glue tabs were much in evidence. In general, the sketches and notes describing how the two parts could be marked out, cut out and assembled lacked the level of detail required to gain high marks.

Part **(b)(ii)** was not well answered by many candidates. Most candidates realised that the three shapes required were a rectangle and two circles but very few made any reference to size or showed appropriate glue tabs. Sketches and notes describing how the three parts could be marked out, cut out and assembled lacked the level of detail required to gain high marks.

Part **(b)(iii)** focused on the economical use of materials. Only a few candidates provided fully correct answers. Some answers only showed a single fin marked out on the piece of material. Only a few responses included any details about sizes or how proposed layouts had been arrived at.

Many of the responses to part **(b)(iv)** lacked the level of detail required to gain high marks. Some responses made no reference to the material that had been identified in **(a)(ii)**.

Question 3

This was the most popular question in this section of the paper.

The better responses to part **(a)** were those that suggested an appropriate finish such as matt black paint could be used on the MDF and chalk used to write on the menu board. In general, this part of the question was answered well.

The better answers to part **(b)(i)** were those that described, with varying degrees of success, how drills, appropriate hand or mechanical saws, files and abrasive papers could be used to cut out part A and smooth the edges of the MDF. Weaker responses only described some of the required stages. A common omission

was not to include details about how the handle cut out could be achieved. It is important that he safety issues are considered. A number of responses were let down by sketches that lacked quality included) and the overuse of continuous text.

In general part **(b)(ii)** was not very well answered. The better responses described how appropriate saws, smoothing plane, and a plough plane or router could be used to make part B. Inappropriate methods for making the sloping sides and the groove were much in evidence. These included the unsafe use of a table saw. A number of responses were let down by sketches that lacked quality (or not included) and the overuse of continuous text.

In part **(b)(iii)** the majority of candidates were able to describe at least some of the processes involved in applying a varnished finish to part B. Common omissions were not to consider safety issues such as working in a well-ventilated area or wearing a face mask, not preparing the table prior to painting and not cleaning equipment after use. Some candidates incorrectly produced totally written responses.

Section B

General Comments

The questions in this section of the paper require candidates to analyse situations and products, identify and resolve problems and discuss issues related to the design, manufacture, use and disposals of products.

Parts **(a)**, **(b)** and **(c)** of the questions in this section of the paper were reasonably well answered by most of candidates. The number of candidates making use of the structure and mark allocation given in part **(d)** continues to increase. The major weakness in some answers still relates to the low levels of 'discussion' that takes place in candidates' responses.

Future candidates would be well advised to base their answers to part **(d)** around the instructions and mark allocation given in the question.

In part **(d)**, candidates need to clearly identify relevant issues, discuss why they are important and be able to support their arguments and reasoning using appropriate examples and evidence. It is important that these issues are specific to the given situations and requirements of the question. In some cases, candidates are doing little more than 'stating' issues and why they are relevant.

Repetition was seen in some candidates' answers particularly in part **(d)** of the questions where a frequent error was to give the same information using slightly different words. Candidates could improve their performance in part **(d)** by spending a few minutes planning the contents of their response. This may help them avoid problems relating to repetition.

In a number of cases, candidates did not attempt to complete parts of the question that they had chosen to answer in this section of the paper.

Comments on Specific Questions

Question 4

A small number of fully correct responses to part **(a)** were seen. While most candidates explained that it had something to do with fixing the top on, very few candidates explained that feature X along with the three other cut outs allows the top to fit onto the base. The top is then rotated to lock it in place.

In part **(b)**, the majority of candidates correctly identified at least one appropriate problem with the design of the table. Two major problems were that the table was not stable because the bottom was too small and parts A and B would not slot together due to the wrong size slots. It is important that candidates both identify a problem and then continue to describe why it is a problem.

The better answers to part **(c)** used notes and sketches to good effect, to explain how the design would need to be changed. Appropriate changes included increasing the size at the bottom of the base while still retaining the style of the table and increasing the length of the slots thus allowing parts A and B to fully slot together. Some of the weaker responses tried to make major changes to the table but did not give any details about how long each of the slots would need to be.

In part **(d)**, candidates had to discuss 'The benefits to the customer of buying and using flat-pac
Some good answers were seen where candidates had identified relevant issues, discussed why th
relevant and supported their conclusions by using specific examples. A number of responses lacked
required content and structure required to gain high marks. In some cases, candidates discussed the
benefits to the manufacturer rather than the customer.

Examples of appropriate issues included:

- Easier for customer to transport from store to home
- Cheaper to buy because product is assembled by customer rather than manufacturer
- Can be disassembled when not it use
- Enables large items to be carried through small spaces (e.g. doors) which ready assembled products would be too big to go through
- Easier to store when not in use

Question 5

In part **(a)**, a significant number of candidates correctly explained that the piece of paper shown at X was glued over the handles onto the bag to reinforce the joining of the handles to the back. Incorrect answers included 'it was a label to write on'.

In part **(b)**, the majority of candidates correctly identified at least one appropriate problem with the development. A major problem was that some of the fold lines were missing which meant that the bag could not be assembled correctly. This was the most commonly identified problem, and the width of the bottom was too small which meant that there would be a hole in the bottom of the bag.

At least some appropriate fold lines were added by candidates in part **(c)**. Most candidates added the vertical line but fewer included all of the angled lines that were required. While some candidates increased the width of the bottom, only a few correctly showed how wide it needed to be. The best solution was to increase the present width of 25 mm to 55+ mm so that the parts that formed the bottom of the bag could be glued together.

The responses produced by the majority of candidates in part **(d)** indicated that they were familiar with a 'bag for life scheme'. Most were able to identify relevant issues and discussed with varying degrees of success, their importance. A good number supported their conclusions by making reference to similar schemes that were operated by their local shops.

Examples of appropriate issues included:

- Cutting down the number of bags in use
- Has the potential to reduce pollution
- Presents the shop as being environmentally friendly
- Bags will last longer
- Potentially encourages customers to go back to the shop
- Provides shop with at least some income

Question 6

This question was answered by only a limited number of candidates.

In part **(a)(i)**, the majority of candidates correctly stated that the end of the dowel had been chamfered so it would go more easily into the hole.

Only a limited number of candidates in their responses to part **(a)(ii)** correctly stated that a groove had been cut along the length of the dowel to allow excess glue to squeeze out.

In part **(b)**, the majority of candidates correctly identified at least one appropriate problem with the development. Major problems were that there was no way of attaching the jig to the wood resulting in the jig moving when the holes were being drilled and there was no way of locating the jig in the correct position, which meant that the holes on the two pieces of wood to be joined would not line up.

Responses to part **(c)** were mixed. While the vast majority of candidates produced ideas for how problems identified in part **(b)** could be overcome most proposals were over complex, would have partially worked and been difficult to use. The better responses showed a simple clamping device ad the existing jig design and centre lines added to the jig so that it could be lined up with corresponding li marked on the wood.

The responses produced by the majority of candidates in part **(d)** indicated that they were familiar with the use of jigs when batch producing products. Most were able to identify relevant issues and discussed (with varying degrees of success) their importance. A number of candidates supported their conclusions by making reference to jigs that they had used in their own work.

Examples of appropriate issues included:

- Work would be speeded up
- All outcomes would be the same
- Lower skill levels required
- Because work is speeded up production costs are lower
- Less mistakes are made

Section C

Some good design work and presentation drawings were seen in this section of the paper.

The better answers showed the use of quick free flowing sketches to produce around three distinctly different ideas for all or part of the product that was being designed in each part of the question. While candidates should annotate their sketches, some candidates used far too much continuous text. A few candidates, unnecessarily, spent a long time producing very neat drawings of their initial ideas.

Some of the weaker responses presented only one idea or produced several drawings that gave the same information but in a different form. For example, both a 2D view and a 3D view showing exactly the same design idea.

The better evaluations were those that used concise notes to clearly identify the strengths and weaknesses of designs. They included justified choices including which design or parts of a design to carry forward to the development stage.

Candidates need to understand that ideas need to be evaluated in a meaningful way. Evaluation tables with ‘star’ or ‘number’ ratings were in evidence. While these can be used to good effect, their value lies in the use of headings appropriate to an examination situation and an indication about what the stars or numbers mean. It must be more than ‘excellent, good or poor’. Some candidates did not evaluate their ideas at all.

Development should be seen as more than re-drawing one of the initial ideas better. It should bring together, and possibly improve, the best parts of a candidate’s earlier design thinking into a proposed solution. Candidates need to understand that they do not have to develop each one of their initial ideas. As part of the development process basic details about materials, joining methods and important sizes should be given. Candidates are not required to explain stage by stage how their chosen design would be made.

Some candidates had very little or no evidence of design development and just selected one of their ideas. Other candidates did not take sizes into account or give any technical detail in a visual form.

In part **(d)**, candidates were required to produce a rendered pictorial drawing of the complete product that they had designed. Candidates can produce this drawing with the aid of drawing equipment or as a high quality freehand sketch. Candidates should understand that rendering involves more than ‘colouring in’. It should use colour, tonal shading and texture to enhance the three dimensional appearance of a drawing and to represent the material from which the product is made. Some inappropriate ‘colouring in’ was seen.

Time management was an issue for some candidates. They had spent too long on earlier parts of the question leaving them insufficient time to complete part **(d)**.

A general improvement from some previous years was seen in the quality of the pictorial drawings that were produced in part **(d)**.

Comments on Specific Questions

Question 7

The majority of ideas produced in part **(a)** had the potential to provide at least some adjustment to the back rest. The better responses were generally those than included a series of slots into which a support attached to the actual back rest could fit. A common omission was not to include a method of attaching the back rest to the main structure of the sun lounger which would allow it to pivot. A significant number of over complex designs were seen many of which would have been very unsafe to use.

In part **(b)**, almost all responses showed some form of handles and legs added to the given design. The better solutions showed how the sides of the sun lounger could be extended to form handles that would be comfortable and easy to use. These solutions generally included appropriate supporting legs added in the correct position. Weaker responses often showed handles and legs which did not meet the design requirements shown in the question. It is important that candidates study both the text and the diagrams before starting their responses.

The majority of responses showed some form of wheel. The better responses went on to include details about an additional piece of material which would be joined to the main structure of the sun lounger and to which the wheel would be attached. Weaker responses frequently did not include sufficient detail about this additional piece of material and how it could be joined to both the sun lounger and the wheel.

Some very good pictorial drawings were seen in part **(d)**. The better responses clearly showed all of the features that had been designed in parts **(a)** to **(c)**. Some of the weaker responses did not show all of the required features. A number of two dimensional drawings were seen.

Question 8

The better responses to part **(a)** were those where the candidate produced exciting and original designs which reflected the word that had been chosen and the lettering had a 3D appearance. These responses generally went on to explore the use of various colours and colouring effects. Weaker responses frequently showed very basic lettering which was often not 3D. A number of answers did not explore how colour good be used.

In part **(b)**, the better responses showed how the lettering in part **(a)** could be added to various background shapes and appropriate hands added. Many of the weaker responses did not consider the lettering when designing a clock face and hands, and as a result, the lettering did not fit in the shape given. It is important that candidates carry forward what they have designed in one part of the question to the next part of the question.

Responses to part **(c)** were very mixed. The better responses were produced by those candidates clearly understood what a clear blister pack was and had considered the shape and size of the clock face, the hands and the clock movement when producing their designs. Weaker responses frequently showed other types of packaging rather than a blister pack and produced ideas for packaging an assembled clock rather than its separate parts.

A limited number of good quality fully rendered pictorial drawings were seen in part **(d)**. A significant number of incomplete drawings were seen which did not shown all of the features that had been designed in parts **(a)** to **(c)** of the question. Candidates who had produced an incorrect type of packaging in part **(c)** were not penalised in this part of the question.

Question 9

Some of the responses to parts **(a)** to **(c)** highlighted how important it is that candidates carry forward what they have designed in one part of the question to the next part of the question. It is important that candidates read all parts of a question before starting their answer.

The better responses to part **(a)** were those where candidates had not only considered various shapes for the frame but had also given details about possible ways in which the glass mirror could be fitted into the frame. Weaker responses focused on just the frame's shape.

Part **(b)** of the question required candidates to design a stand to support the frame they had designed in part **(b)**. The better designs were those that showed a support which was clearly stable and capable of supporting

the frame that had been designed in part **(a)**. A significant number of candidates did not include about the frame in this part of the question. Their designs were produced in isolation. In some cas frame would not fit the stand. Some designs were over complex and frequently unstable.

The better responses for part **(c)** were from candidates who had based their ideas on existing components and methods that allowed parts of a product to pivot and be fixed at an angle, for example, an adjustable lamp. Weaker responses were again over complex, difficult to use and frequently not have worked.

Some good pictorial drawings were seen in part **(d)**. The better responses clearly showed all of the features that had been designed in parts **(a)** to **(c)**. Some of the weaker responses did not show all of the required features. A few two dimensional drawings were seen.

DESIGN AND TECHNOLOGY

Paper 9705/02

Project 1

Key Messages

- Candidates are advised not to spend time researching materials, construction methods, fittings and finishes as part of the analysis of and research into the design brief as this cannot be awarded marks in this section of the assessment scheme. Data collected should relate to the design problem and not any anticipated product outcome.
- Coursework submissions that combine Project 1 and Project 2 in an integrated way should offer clear evidence that some form of modelling has been produced for Project 1 and a final product for Project 2. The design folder should include clear photographic evidence of both these pieces of practical work.

General comments

Centres are encouraged to use an approach that is appropriate to their own situation, when introducing this important part of the Design and Technology course to their candidates, so long as evidence can be produced that 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 their candidates to identify their own design problem which may be derived from hobbies, interests or life at home or 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, interesting outcomes of either modelling or final products included: adjustable podium; graphics desk; earphone case; party lighting kit; skateboard rack; percussion instrument; dog car seat; lacrosse net; curtain closing system; basketball score board; sack filling device; can crusher; multiknife; vehicle clamping device; dog sleigh; rugby scrum machine; clay launcher; waste wood compressor; audio system; reading chair; wine bottle holder; vehicle loader; indoor water fountain; hawker cart; coin flipper; speed boat; child's book; outdoor hanging bed; hovercraft; tracing table; footbridge; fishing rod caddy; surfboard shaping stand; car wheel support; hobby station; space saving furniture; bicycle lock; cable/wire organiser; garden mulcher; extension arm for phones/tablets; light bulb replacer; rubbish collection system; calf raising device; portable toilet and backpack. A number of projects resulted in well-made architectural models, the appropriateness and standard of which have improved as more experience has been gained in this approach to Design and Technology.

Many Centres had encouraged their candidates to present design folders neatly and in such a way that the design process could be easily followed.

Comments on Individual Assessment Criteria

Project 1 - 9705/02

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 design route being followed.

2. Analysis of and research into the design brief which results in a specification

The majority of candidates considered a wide range of existing products and commented on these in relation to their own design brief. It is important 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 me
Specification can be formulated.

Centres are reminded that the inclusion of historical records and general information on an area or topic being considered cannot be awarded marks as they 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 which is to be applauded, but a few candidates presented a range of drawings not linked to the specification or even commented upon their possible suitability for the problem being considered. In these cases, it was not possible to award marks above the lowest band set out in the assessment criteria.

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 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 should be congratulated on the range and high standard of communication techniques used in the presentation of design proposals. Where care is taken in this respect, 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. 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

General Comments

The majority of candidates used the time available effectively and made full attempts at all sections of the paper. A number of candidates only answered one question from ***Section A***. It appears that some candidates spend too much of their allocated time on ***Section B*** at the expense of lack of detail in their responses in ***Section A***.

Some candidates attempted more than two questions from ***Section A***. The marks from two questions only will be credited.

Candidates made very good use of appropriate sketching and annotation to support their answers to questions in ***Section A***.

Candidates need to be made aware of the instructions given on the front page of the examination paper. A number of questions have the instruction 'discuss'; candidates 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.

Most candidates fully completed all of the requirements for ***Section B***. Some candidates unnecessarily copied out the question or reworded the situation which wasted valuable time.

It is important that candidates have experience of completing tasks similar to those found in this examination under timed conditions.

In ***Section A***, Part **A** was the most popular.

In Part **A**, **Question 1** was the most popular followed by **Question 3**. **Question 4** was the most popular in Part **B**, there were very few attempts at **Question 5** and **Question 6**. **Questions 7** and **9** were the most popular in Part **C**.

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

This report should be read in conjunction with a question paper and mark scheme.

Comments on specific questions

Section A

Part A – Product Design

Question 1

This was a very popular question with a full range of responses. Most candidates made very good use of annotated sketches to support their answer.

(a) A wide range of appropriate materials were stated. The most popular responses being [illegible] and acrylic. A number of candidates did not fully justify the reasons for choice. Single wo[illegible] answers such as 'lightweight' will not be awarded a mark.

(b) A wide range of appropriate manufacturing methods were given. Most candidates produced excellent notes and sketches to describe key stages and details of manufacture.

(c) Most candidates selected appropriate methods for producing a batch of 1000. Vacuum forming, press forming and injection moulding were popular responses.

Some candidates described the process well but did not give details possible changes in design or features of the moulds or formers that would be required.

Question 2

Relatively few candidates attempted this question. The best responses focused on human factors in design such as researching appropriate target markets and considering ergonomic and anthropometric requirements.

Responses were generally well structured and most candidates followed the instructions on the front cover of the examination paper. Some candidates did not achieve the higher mark ranges by not including specific examples or evidence to support their answer.

Question 3

This was the most popular question and generally answered well with an equal spread of attempts across all of the given three items.

(a) Most candidates fully described the lamination process and used excellent notes and sketches showing details of the former and clamping arrangement.

Answers for the extruded tube were equally detailed, although, some candidates did not give details of the die required to create a tube section.

There were slightly fewer responses for the description of the rotational moulding of a kayak but most responses were fully detailed. All key stages and features were included.

(b) Candidates answered this part of the question very well. Most candidates explained why the process was particularly suitable for the specific item and achieved full marks. Some candidates gave brief, generic statements about the process with no reference to the item and consequently did not access the full mark range.

Part B - Practical Technology

Question 4

Relatively few candidates attempted this question. Most candidates selected an appropriate product and focused on the functional requirements to explain the properties given.

Question 5

There were very few attempts at this question. Some responses were fully detailed with candidates comparing manufacturing methods; welding and die casting were the most common methods selected. Some candidates were able to describe and compare the manufacturing methods but did not go on to contrast the specific qualities of outcomes, making reference to cost and time factors.

Question 6

There were few attempts at this question.

(a) Candidates explained the working of the three components.

(b) (i) Some candidates correctly explained that when the probes are dry, the voltage to pin [illegible] the red LED is on. When the probes are wet, the input into pin 3 is lower than pin 2 and [illegible] LED is on. The variable resistor sets the sensitivity.

(ii) Most candidates sketched an appropriate casing.

Part C – Graphic Products

Question 7

There were some excellent responses to this question. Many candidates produced a well-structured answer, demonstrating a detailed knowledge of the importance of 2D and 3D modelling to the different professional groups given.

Question 8

This was the least popular question in this section. Some responses were outstanding with candidates demonstrating a very detailed knowledge of commercial packaging.

(a) Most candidates stated a specific appropriate material such as food grade ivory board or poly coated paperboard. They also justified and provided appropriate reasons for their choice.

(b) Most candidates made excellent use of notes and sketches to describe in detail the printing/cutting/forming of the packaging.

Question 9

There were a number of very good responses to this question.

(a) Most candidates produced accurate and correctly projected views. Some candidates did not complete the sectioned view correctly.

(b) This part was answered very well. Most candidates clearly explained the advantages of using CAD to draw components.

Section B

All candidates prepared their answers on the A3 papers as instructed. The overall performance of candidates on this section was good. The majority of candidates used their time effectively and fully completed all requirements of the questions attempted.

Some candidates copied out the question or prepared a new brief as part of their analysis which was unnecessary.

There is an increasing number of outstanding responses with candidates exploring innovative and creative solutions.

Presentation skills were generally very impressive with most candidates showing knowledge of appropriate materials and construction techniques.

The analysis and specification sections continue to improve. Many candidates consider the initial thoughts and broader issues related to the given problem/situation. This provides the key points to help to develop a specification.

Some candidates produce generic charts that have no specific reference to the problem and receive little credit.

The analysis should lead to justified and appropriate specification points. Single word or generic statements, with no reference to the product will not gain a mark.

The majority of candidates produced a range of at least three discrete and different design ideas, the majority included the exploration of sub-problems. A significant number of candidates focused too early on a single solution and consequently did not access the middle and higher mark ranges.

Most candidates annotated their work well, explaining design details relating to the specification a proposing appropriate specific materials and construction methods. Evaluation was clearly evident fr many candidates in the exploration of ideas section.

A number of candidates employed a tick lists to evaluate their ideas and identify a chosen solution. These are not fully appropriate unless they are adequately qualified. The higher marks are achieved when candidates give evaluative comments on their ideas and can make a reasoned judgment on the best solution or features to take forward for further development.

The development of ideas section was very strong in most cases. Some candidates focus only on a plan for manufacture and do not consider the reasoning and composition of ideas that leads to a single design proposal.

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

Most proposed solutions were feasible and well presented.

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

Some candidates produced valid evaluations of their proposal; describing the positive features, functional details and suggesting further modifications or improvements. Many candidates copy out their specification points and place a tick to show whether the point has been satisfied or not. This will not access the full range of marks available.

Question 10

This question was generally well answered with a full range of responses. Some candidates produced outstanding responses; innovative solutions that were exceptionally well presented.

Acceptable specification points included:

- the product must be robust to take the wear and tear of cycle maintenance;
- the product must be adjustable or be able to accommodate different cycle sizes;
- the product must have protective grips/supports that would not scratch or damage the cycle;
- the product must be made from materials which are rigid and can safely support a cycle;
- theproduct must be stable in use but have a system to enable easy movement/adjustment for storage.

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

Material and constructional detail was very detailed and appropriate.

Final proposals were suitable and detailed. The best responses included full dimensions and details of appropriate finish.

Evaluations were generally weak; few candidates made specific reference to the final proposal and suggested possible improvements.

Question 11

Relatively few candidates attempted this question. Some candidates were able to draw on their electronics knowledge to propose effective solutions. A number of candidates produced outline solutions of the casing with little evidence of the electronic workings and consequently did not access the full mark range..

Acceptable specification points included:

- the product must be easy to set up;
- the product should have a very clear visual (LEDs) and audible alarm so that everyone will be alerted when temperature levels drop;

- the product should be easily mounted on a wall or on a surface that can be easily seen accessed;
- the product must allow easy access to change batteries.

Candidates generally showed weak circuit design skills. The most successful ideas employed a simplecircuitusing appropriate sensors. Casings were relatively basic. The interface controls and clarity for use were well considered.

Question 12

There was a wide range of responses to this question. Most candidates interpreted the product as a method of transporting graphics equipment and paper between school and home. A number of candidates interpreted the product as a work unit for home. When both of the given bullet points were met, both interpretations could access the full mark range.

Acceptable specification points included:

- the product must keep equipment secure to prevent damage when transporting;
- the product must be waterproof to avoid paper getting wet when transporting between home and School;
- the product should have a strap or comfortable handle to ease transportation;
- the product should have an adjustable work surface (A3 size) to allow comfort when working;
- the product should be robust to stand up to constant use by candidates.

The best responses looked at a wide range of carrying devices (tubular, box, portfolio style) before making decisions.

DESIGN AND TECHNOLOGY

Paper 9705/32
Written 2

General Comments

The majority of candidates used the time available effectively and made full attempts at all sections of the paper. A number of candidates only answered one question from ***Section A***. It appears that some candidates spend too much of their allocated time on ***Section B*** at the expense of lack of detail in their responses in ***Section A***.

Some candidates attempted more than two questions from ***Section A***. The marks from two questions only will be credited.

Candidates made very good use of appropriate sketching and annotation to support their answers to questions in ***Section A***.

Candidates need to be made aware of the instructions given on the front page of the examination paper. A number of questions have the instruction 'discuss'; candidates 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.

Most candidates fully completed all of the requirements for ***Section B***. Some candidates unnecessarily copied out the question or reworded the situation which wasted valuable time.

It is important that candidates have experience of completing tasks similar to those found in this examination under timed conditions.

In ***Section A***, Part **A** was the most popular.

In Part **A**, **Question 1** was the most popular followed by **Question 3**. **Question 4** was the most popular in Part **B**, there were very few attempts at **Question 5** and **Question 6**. **Questions 7** and **9** were the most popular in Part **C**.

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

This report should be read in conjunction with a question paper and mark scheme.

Comments on specific questions

Section A

Part A – Product Design

Question 1

This was a very popular question with a full range of responses. Most candidates made very good use of annotated sketches to support their answer.

(a) A wide range of appropriate materials were stated. The most popular responses being [illegible] and acrylic. A number of candidates did not fully justify the reasons for choice. Single wo[illegible] answers such as 'lightweight' will not be awarded a mark.

(b) A wide range of appropriate manufacturing methods were given. Most candidates produced excellent notes and sketches to describe key stages and details of manufacture.

(c) Most candidates selected appropriate methods for producing a batch of 1000. Vacuum forming, press forming and injection moulding were popular responses.

Some candidates described the process well but did not give details possible changes in design or features of the moulds or formers that would be required.

Question 2

Relatively few candidates attempted this question. The best responses focused on human factors in design such as researching appropriate target markets and considering ergonomic and anthropometric requirements.

Responses were generally well structured and most candidates followed the instructions on the front cover of the examination paper. Some candidates did not achieve the higher mark ranges by not including specific examples or evidence to support their answer.

Question 3

This was the most popular question and generally answered well with an equal spread of attempts across all of the given three items.

(a) Most candidates fully described the lamination process and used excellent notes and sketches showing details of the former and clamping arrangement.

Answers for the extruded tube were equally detailed, although, some candidates did not give details of the die required to create a tube section.

There were slightly fewer responses for the description of the rotational moulding of a kayak but most responses were fully detailed. All key stages and features were included.

(b) Candidates answered this part of the question very well. Most candidates explained why the process was particularly suitable for the specific item and achieved full marks. Some candidates gave brief, generic statements about the process with no reference to the item and consequently did not access the full mark range.

Part B - Practical Technology

Question 4

Relatively few candidates attempted this question. Most candidates selected an appropriate product and focused on the functional requirements to explain the properties given.

Question 5

There were very few attempts at this question. Some responses were fully detailed with candidates comparing manufacturing methods; welding and die casting were the most common methods selected. Some candidates were able to describe and compare the manufacturing methods but did not go on to contrast the specific qualities of outcomes, making reference to cost and time factors.

Question 6

There were few attempts at this question.

(a) Candidates explained the working of the three components.

(b) (i) Some candidates correctly explained that when the probes are dry, the voltage to pin [illegible] the red LED is on. When the probes are wet, the input into pin 3 is lower than pin 2 and t[illegible] LED is on. The variable resistor sets the sensitivity.

(ii) Most candidates sketched an appropriate casing.

Part C – Graphic Products

Question 7

There were some excellent responses to this question. Many candidates produced a well-structured answer, demonstrating a detailed knowledge of the importance of 2D and 3D modelling to the different professional groups given.

Question 8

This was the least popular question in this section. Some responses were outstanding with candidates demonstrating a very detailed knowledge of commercial packaging.

(a) Most candidates stated a specific appropriate material such as food grade ivory board or poly coated paperboard. They also justified and provided appropriate reasons for their choice.

(b) Most candidates made excellent use of notes and sketches to describe in detail the printing/cutting/forming of the packaging.

Question 9

There were a number of very good responses to this question.

(a) Most candidates produced accurate and correctly projected views. Some candidates did not complete the sectioned view correctly.

(b) This part was answered very well. Most candidates clearly explained the advantages of using CAD to draw components.

Section B

All candidates prepared their answers on the A3 papers as instructed. The overall performance of candidates on this section was good. The majority of candidates used their time effectively and fully completed all requirements of the questions attempted.

Some candidates copied out the question or prepared a new brief as part of their analysis which was unnecessary.

There is an increasing number of outstanding responses with candidates exploring innovative and creative solutions.

Presentation skills were generally very impressive with most candidates showing knowledge of appropriate materials and construction techniques.

The analysis and specification sections continue to improve. Many candidates consider the initial thoughts and broader issues related to the given problem/situation. This provides the key points to help to develop a specification.

Some candidates produce generic charts that have no specific reference to the problem and receive little credit.

The analysis should lead to justified and appropriate specification points. Single word or generic statements, with no reference to the product will not gain a mark.

The majority of candidates produced a range of at least three discrete and different design ideas, the majority included the exploration of sub-problems. A significant number of candidates focused too early on a single solution and consequently did not access the middle and higher mark ranges.

Most candidates annotated their work well, explaining design details relating to the specification a proposing appropriate specific materials and construction methods. Evaluation was clearly evident fr many candidates in the exploration of ideas section.

A number of candidates employed a tick lists to evaluate their ideas and identify a chosen solution. These are not fully appropriate unless they are adequately qualified. The higher marks are achieved when candidates give evaluative comments on their ideas and can make a reasoned judgment on the best solution or features to take forward for further development.

The development of ideas section was very strong in most cases. Some candidates focus only on a plan for manufacture and do not consider the reasoning and composition of ideas that leads to a single design proposal.

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

Most proposed solutions were feasible and well presented.

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

Some candidates produced valid evaluations of their proposal; describing the positive features, functional details and suggesting further modifications or improvements. Many candidates copy out their specification points and place a tick to show whether the point has been satisfied or not. This will not access the full range of marks available.

Question 10

This question was generally well answered with a full range of responses. Some candidates produced outstanding responses; innovative solutions that were exceptionally well presented.

Acceptable specification points included:

- the product must be robust to take the wear and tear of cycle maintenance;
- the product must be adjustable or be able to accommodate different cycle sizes;
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- theproduct must be stable in use but have a system to enable easy movement/adjustment for storage.

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

Material and constructional detail was very detailed and appropriate.

Final proposals were suitable and detailed. The best responses included full dimensions and details of appropriate finish.

Evaluations were generally weak; few candidates made specific reference to the final proposal and suggested possible improvements.

Question 11

Relatively few candidates attempted this question. Some candidates were able to draw on their electronics knowledge to propose effective solutions. A number of candidates produced outline solutions of the casing with little evidence of the electronic workings and consequently did not access the full mark range..

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Candidates generally showed weak circuit design skills. The most successful ideas employed a simplecircuitusing appropriate sensors. Casings were relatively basic. The interface controls and clarity for use were well considered.

Question 12

There was a wide range of responses to this question. Most candidates interpreted the product as a method of transporting graphics equipment and paper between school and home. A number of candidates interpreted the product as a work unit for home. When both of the given bullet points were met, both interpretations could access the full mark range.

Acceptable specification points included:

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- the product should have a strap or comfortable handle to ease transportation;
- the product should have an adjustable work surface (A3 size) to allow comfort when working;
- the product should be robust to stand up to constant use by candidates.

The best responses looked at a wide range of carrying devices (tubular, box, portfolio style) before making decisions.

DESIGN AND TECHNOLOGY

Paper 9705/33
Written 2

General Comments

Candidates were well prepared for this examination and there were very few rubric errors. Most candidates used their time effectively in both sections of the paper. Some candidates answered only one question from ***Section A***.

The overall standard of candidate performance was good this year with an increased number of outstanding scripts.

Section A responses were generally good but a number of candidates produced very brief responses, lacking the detail necessary to achieve middle to high mark ranges. The quality and use of appropriate sketching and annotation was generally very good throughout the paper.

In ***Section A***, Part **A** was the most popular with a number of candidates attempting Part **C**. Very few candidates made attempts at questions in Part **B**.

In Part **A**, **Question 2** was the most popular with even numbers of attempts at **Question 1** and **Question 3**

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

Candidates are well prepared for ***Section B*** with most candidates fully completing all of the requirements. There were a number of candidates who did not use their time effectively and did not fully complete the development section. A few candidates made no attempt at the final proposal and evaluation

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

Relatively few candidates attempted **Question 10**.

This report should be read in conjunction with a question paper and mark scheme.

Comments on specific questions

Section A

Part A – Product Design

Question 1

This was a popular question with a wide range of responses. There was a fairly equal spread of attempts at each of the processes. Calendering film for food wrapping was answered particularly well.

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 key stages.

(a) Candidates who chose to describe the calendering process generally gave fully detailed descriptions. They made good use of simple sketches and notes to show how the film for wrapping food was produced.

Most candidates correctly described a process of spindle moulding or routing to create the wood section for a mirror frame. Some described hand tool processes that could not ensure an even section along a length of wood and did not access the full mark range.

There was a range of responses to the process of milling the dovetail cross slide. Some c produced excellent, fully detailed answers using a vertical mill, but a significant number had little knowledge of milling operations.

(b) Most candidates were able to correctly explain why the relevant process was suitable for the production of the items. Large sheets of even thickness for wrapping film, consistent section and high quality finish for profile moulding and complex shape production and accurate finish for milling

Question 2

(a) The majority of candidates selected the handle and stated appropriate materials and reasons for choice. Some candidates who selected the blade did not consider the need for a material that would be strong enough to turn screws without deformation.

(b) This part was answered particularly well. Candidates selected the key stages of production and made very good use of notes and sketches to include appropriate detail. Some did not include how to achieve a high quality finish and did not access the full mark range.

(c) Some candidates correctly described the use of CNC/Capstan lathes to produce the handle. Others correctly changed the material to ABS to injection mould the handle directly onto the blade

Question 3

There were a wide range of answers to this question. The best responses explained issues relating to the volume of production, material, energy/production costs and the target market. Most candidates included appropriate supporting evidence and examples to support their answer.

Some responses were very brief and did not contain enough detail or quality to access the middle to high mark range.

Part B - Practical Technology

Question 4

There were no attempts made at this question.

Question 5

There were no attempts made at this question.

Question 6

There were very few attempts made at this question.

(a) The best responses produced very detailed descriptions of material removal methods; wedge shaped tools and shearing tools were the most common options. Answers were well supported with labeled diagrams using correct technical terminology.

(b) Candidates generally described the key features of the material removal methods.

Part C – Graphic Products

Question 7

Relatively few candidates attempted this question.

(a) Some candidates were able to use a correct construction method to accurately plot the loci. There were a few responses from candidates that were not created with the appropriate accuracy to achieve the middle and higher mark range. Some candidates answered this question on lined paper in their answer booklet; this is to be discouraged.

(b) Most candidates described a method to model the opening and closing mechanism. 2[illegible] CAD modelling were correctly described by candidates.

Question 8

There were a range of responses to this question. Some were outstanding, achieving very high marks. Most candidates correctly explained flow charts, pie charts and pictograms.

Question 9

There were some excellent, very accurate responses to this question.

All candidates produced a correct isometric drawing of the component and carefully constructed and located the different geometric shapes.

The best responses were accurately drawn with very high quality of line and had each feature of the component accurately positioned. Some candidates answered this question on lined paper in their answer booklet. This is to be discouraged.

Section B

There were a number of outstanding responses to this section of the paper. Presentation skills were generally of a very good standard and candidates demonstrated their knowledge of appropriate materials and construction techniques. Some very innovative and creative work was produced by candidates.

All candidates prepared their answers on the A3 papers as instructed.

Whilst most candidates complete their responses in the time allocated, there were a number of candidates who did not fully complete the development, final proposal and evaluation sections.

The analysis and specification sections continue to improve. Many candidates consider the initial thoughts and broader issues related to the given problem/situation. This provides the key points to help to develop a specification. The analysis should then lead to justified and appropriate specification points. Single word or generic statements, with no reference to the product will not gain a mark.

Some candidates produce generic charts that have no specific reference to the problem and receive little credit.

The exploration of ideas was generally very good. The majority of candidates produce a range of at least three different design ideas, many including the exploration of sub-problems.

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

Most candidates produced an on-going evaluation of design ideas; some used colour coding to highlight the evaluative comments which help to select features for further development. A number of candidates did not give reasons for the selection of an idea(s) for further development. It is important that candidates consider all points of specification when designing.

The higher marks are achieved when candidates give 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 was very strong in most cases. Some candidates focused only on a plan for manufacture and did not consider the reasoning and composition of ideas that leads to a single design proposal.

To achieve the higher mark range candidates must include evidence of their decision making to show the improvements or modifications to their idea(s) leading to a final design.

Most proposed solutions were feasible and well presented.

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

Many candidates produced excellent, valid evaluations of their proposal, describing the positive fe functional details and suggesting further modifications or improvements. Some candidates rewrote th specification with a tick or met/not met indication which will not access the higher mark ranges.

Question 10

This was generally well answered. Some responses were exceptionally innovative and creative.

Acceptable specification points included:

- the resource must be of interest and importance to boys and girls;
- the resource could offer systems of rewards (noises, more challenges) to encourage progress in learning;
- the resource should be robust to meet the demand of regular candidate use;
- the resource should take into account safety concerns such as no small parts that could be easily swallowed;
- the resource could link to computer based learning systems.

Many responses had excellent flowing design thinking. Candidates were considering a range of possibilities for each of the specification points. A wide range of fun learning activities were proposed. The development section was particularly good on this question.

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

Question 11

This was the most popular question in ***Section B***.

Candidates created a range of appropriate solutions to the problem of transporting javelins to the sports field.

- the product should protect the pointed tips of the javelin to prevent injury during transportation
- the product should be able to be transported easily over bumpy ground
- the product should enable very easy and safe insertion and removal of javelins
- the product will be used outdoors so must be made of materials that can withstand outdoor conditions
- the product should be freestanding and stable so as not to fall over when inserting or removing javelins

Most ideas focused on a trolley type arrangement but there were a number of very creative securing systems and mobility methods. There were a number of high quality well engineered solutions.

Question 12

There was a good range of responses to this question. Most candidates produced effective and workable hot drink transportation solutions, considering all of the requirements.

Acceptable specification points included:

- the product must not be affected by spillage of hot drinks;
- the product must be stable and not collapse when being transported or placed down;
- the product must be have a secure carrying handle to enable the drinks to be transported using one hand;
- the product should be re-useable to keep costs down (sports clubs often struggle for funds) and be more environmentally acceptable;

Most candidates produced effective methods of transporting drinks and embraced the need to reflect the image of the selected sports club.

A number of candidates proposed devices made of resistant materials. Some wire framework ideas were appropriate and designed to stack for space saving. Other heavy and large wooden constructions would not be appropriate to fully meet all of the requirements.

DESIGN AND TECHNOLOGY

Paper 9705/04

Project 2

Key Messages

- Candidates are advised not to spend time researching materials, construction methods, fittings and finishes as part of the analysis of and research into the design brief, as this cannot be awarded marks in this section of the assessment scheme. Data collected should relate to the design problem and not any anticipated product outcome.
- Coursework submissions that combine Project 1 and Project 2 in an integrated way should offer clear evidence that some form of modelling has been produced for Project 1 and a final product for Project 2. The design folder should include clear photographic evidence of both these pieces of practical work.

General comments

Centres are encouraged to use an approach that is appropriate to their own situation, when introducing this important part of the Design and Technology course to their candidates, so long as evidence can be produced that matches the requirements of the assessment scheme. Many Centres set a common theme or topic to which candidates respond in their own way while others encourage their candidates to identify their own design problem which may be derived from hobbies, interests or life at home or in the community. In any event, outcomes resulted from a wide variety of design problems and it was clear that many candidates had developed a keen interest in the area being studied. In addition to the usual range of household items, interesting outcomes of either modelling or final products included: adjustable podium; graphics desk; earphone case; party lighting kit; skateboard rack; percussion instrument; dog car seat; lacrosse net; curtain closing system; basketball score board; sack filling device; can crusher; multiknife; vehicle clamping device; dog sleigh; rugby scrum machine; clay launcher; waste wood compressor; audio system; reading chair; wine bottle holder; vehicle loader; indoor water fountain; hawker cart; coin flipper; speed boat; child's book; outdoor hanging bed; hovercraft; tracing table; footbridge; fishing rod caddy; surfboard shaping stand; car wheel support; hobby station; space saving furniture; bicycle lock; cable/wire organiser; garden mulcher; extension arm for phones/tablets; light bulb replacer; rubbish collection system; calf raising device; portable toilet and backpack. A number of projects resulted in well-made architectural models, the appropriateness and standard of which have improved as more experience had been gained in this approach to Design and Technology.

Many Centres had encouraged their candidates to present design folders neatly and in such a way that the design process could be followed easily.

Comments on Individual Assessment Criteria

Project 2 – 9705/04

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 have been made, and there is often a big [illegible] the chosen design idea and the final product. Once these decisions have been made, the final pa[illegible] development should include details of the final solution, mainly in the form of drawings, from which a person could make the product.

6. Product Planning

The majority of candidates set out the sequence for the main stages of production, often produced in flowchart 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. Some photographs can be helpful when highlighting certain aspects of the manufacturing process.

7. Product Realisation

A significant number of candidates had produced high quality products that could clearly be put to their intended use. Candidates had put care and enthusiasm into the making of their design outcomes in terms of construction methods and finishing techniques and it is reassuring to see 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.

8. Testing and Evaluation

There has been continuing improvement in the number of candidates carrying out meaningful testing and evaluation. This can only be achieved if the product is put to the use intended and the results compared to the original design brief and specification. Candidates should be encouraged to include photographs of the product used and tested in this way.

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