



GCSE MARKING SCHEME

SUMMER 2022

**GCSE
DESIGN AND TECHNOLOGY – PRODUCT DESIGN
3603U10-1**

INTRODUCTION

This marking scheme was used by WJEC for the 2022 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

GCSE DESIGN AND TECHNOLOGY - PRODUCT DESIGN

SUMMER 2022 MARK SCHEME

| Question 1 | | | | |
|-------------------|---|------------|------------|-------------|
| | | AO3 | AO4 | Mark |
| (i) | Describe why the designer of a new game controller would choose to make the CAD model. | | ✓ | 2 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| | Simplistic or basic response To find out if the idea looked good / worked | | | 1 |
| | More detailed response To create a visual model to test the shape / form / aesthetic qualities of the idea / identify good / bad points to retain / refine (possibly with the users) | | | 2 |
| | Guidance: Candidates must identify why designers would model using CAD. Responses could possibly include CAM / 3D printing to create solid models of ideas from CAD drawings. | | | |
| (ii) | Explain how the foam model of the new game controller could be tested to identify any areas for further improvement. | | ✓ | 3 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| | Simplistic or basic response The foam model could be held to see if it works well. | | | 1 |
| | More detailed response The foam model could be held by the users / target market to check that it is comfortable to hold and use. | | | 2 |
| | Detailed explanation or response The foam model could be tested on the users to ensure that it is ergonomically correct and meets the needs wants and values of the target market. This would help identify any changes / improvements needed. | | | 3 |
| | Guidance: Candidates must explain how the foam model could be tested. A description of testing is not sufficient to gain full 3 marks. | | | |

| | | | | |
|---|--|--|---|-----------|
| (iii) | Explain in detail the importance of producing a fully functioning high quality final prototype before full scale production starts. | | ✓ | 5 |
| <p>No answer or no relevant information presented or discussed. 0</p> <p>Simplistic or basic response To make sure the product is right before making lots. 1</p> <p>More detailed response To make sure the product works fully before making large numbers which might waste money / materials. 2</p> <p>Detailed explanation or response The product can be fully tested under operating conditions to see if there are any faults that develop before making large numbers, which would cost lots and waste materials. 3</p> <p>Highly detailed response with explanation The product can be fully tested under operating conditions to see if there are any faults that develop during usage before making large numbers, which would waste money and waste materials and lead to product recalls / returns. 4</p> <p>The product can be fully tested under operating conditions to see if there are any faults that develop during usage before commencing large scale production, which is very expensive. Once production starts, the manufacturer would not want to stop production to make changes to the product, this would be very expensive, prevent sales / profit, and any products already sold would need to be recalled / sales refunded, possible litigation issues if users are hurt as a result of the failure / defect. 5</p> <p>Guidance: Candidates are required to produce a detailed and balanced response demonstrating the importance of ensuring that products function perfectly and reliably prior to production. DO NOT credit repetitive statements.</p> | | | | |
| Total | | | | 10 |

| Question 2 | | | | |
|---|--|-----|-----|----------|
| | | AO3 | AO4 | Mark |
| (i) | Explain the advantages to the user of using the solar bicycle light. | | ✓ | 2 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| | Simplistic or basic response The solar bicycle light will not need to have batteries replaced Or The solar bicycle light will recharge automatically | | | 1 |
| | More detailed explanation or response The solar bicycle light is sustainable and easily removed from the bicycle when not needed and to be charged. | | | 2 |
| Guidance: Responses must include benefits of using the solar bicycle light. Costs of replacement batteries / cheaper to run using solar which is free are acceptable. DO NOT credit 2 repetitive responses. For 1 mark – accept answers that make reference to the use of a bicycle light without reference to solar. | | | | |
| (ii) | Describe the meaning of the term ‘market pull’ and how this may have changed the way the bicycle light has been designed. | | ✓ | 4 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| | Simplistic or basic response Market pull is the user asking for a new product Or The use of a photovoltaic (accept solar) cell instead of a battery. | | | 1 |
| | More detailed explanation or response The users have asked for a new or improved product which is better than an existing / previous product. Or The PV / solar cell charges the light so new batteries are not needed which is more sustainable. | | | 2 |
| | A full response to market pull with some detail of a change The users have asked for a new or improved product which is better than an existing / previous product. This has made the designer change battery power to using solar energy. | | | 3 |
| A fully detailed response to market pull clear details of a change The users have asked for a new or improved product which is better than an existing / previous product. This has made the designer change battery power to using solar energy, so the product is much more sustainable and costs far less to run. | | | 4 | |
| Guidance: The response may partially or fully answer either of the two ‘strands’ to this question. Also accept the idea that the light can be removed from the bicycle easily to prevent theft / improve safety. Accept interchangeable – used on different bicycles / shared by users reducing purchases / costs. Accept size reduction as solar cells are far smaller / thinner than battery packs, reducing materials /size | | | | |

| | | | | |
|-------|--|--|--------------|-----------|
| (iii) | Identify two possible problems that users might experience when using the solar bicycle light. | | ✓ | 4 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| | Simplistic or basic response If it is dark, the solar light will not charge up. Or If it isn't already charged up, it will not work when needed. | | | 1 |
| | More detailed explanation or response If the solar light has not been placed in light conditions, there will be no power therefore the bicycle light will not operate. Or Once the solar light runs out of charge, it cannot be used until it is recharged in light conditions. | | | 2 |
| | Or The bicycle light relies on solar energy, so this light needs to be removed from the bicycle if the bicycle is stored in a dark place (garage) as the light will not recharge. Guidance: DO NOT credit repetitive responses. This is a 2 x 2 which requires different responses with detail to access the full 4 marks. For 1 mark – accept answers that make reference to the use of a bicycle light without reference to solar. | | | 2 |
| (iv) | The new solar bicycle light is intended to fit any bicycle. Explain how this has been achieved. | | ✓ | 2 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| | Simplistic or basic response The clip can be fitted to different sized bicycles (seat posts) | | | 1 |
| | More detailed explanation or response The clip is able to be fitted to different diameter seat posts allowing this product to fit any / most bicycles. | | | 2 |
| | | | Total | 12 |

| Question 3 | | | | |
|------------|--|-----|-----|------|
| | | AO3 | AO4 | Mark |
| (a) (i) | Describe the properties of pewter that make it a suitable material for the pendant. | | ✓ | 2 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| | Simplistic or basic response Pewter is able to be melted and cast into different shapes. Or Pewter can be shaped into intricate shapes for jewellery. Pewter won't rust. | | | 1 |
| | Pewter is a malleable alloy with a low melting point making it suitable for school workshop use. Or Pewter is a shiny precious looking material that is safe for users to wear. Pewter can be worn when swimming as it is resistant to corrosion | | | 2 |
| (ii) | The student chose MDF (medium density fibreboard) to make the casting mould. Describe why MDF is an appropriate material for the mould before the casting pewter. | | ✓ | 3 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| | Simplistic or basic response MDF can have the shape cut into it to act as the former Or MDF won't burn / catch fire | | | 1 |
| | More detailed explanation or response MDF can be machined by hand or CNC (CAM) to create the shape for the pendant. There can be a one or two sided MDF mould which would be heat resistant. | | | 2 |
| | Detailed explanation or response MDF can be machined by hand or CNC (CAM) to create the shape for the pendant. There can be a one or two sided MDF mould which would be heat resistant. MDF is a sustainable and readily available material effective for several castings in a school environment. (accept small batch production) | | | 3 |
| | Guidance: Look for detailed understanding of casting with MDF moulds. Do not credit MDF is cheap unless there are additional materials used in comparison. MDF is not quick or easy to use. | | | |

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|--|---|--|---|----------|
| (iii) | Identify three possible hazards that the student would need to consider when casting the pewter. | | ✓ | 3 |
| No answer or no relevant information presented or discussed. | | | | 0 |
| 3 suitable hazards identified: | | | | |
| <ul style="list-style-type: none"> • Risk of burns due to high temperatures of molten pewter | | | | 1 |
| <ul style="list-style-type: none"> • Users should wear goggles / visor in case pewter splashes when casting / pouring. | | | | 1 |
| <ul style="list-style-type: none"> • Safety clothing should be work – leather gloves / apron not fabric based. | | | | 1 |
| <ul style="list-style-type: none"> • Leather leggings should cover trousers in case pewter spills. | | | | 1 |
| <ul style="list-style-type: none"> • Appropriate footwear / leather / safety shoes / boots should be worn to avoid spillages | | | | 1 |
| <ul style="list-style-type: none"> • Teachers / expert supervision should be in place to provide support / guidance / advice / prevent anything going wrong during casting process. | | | | 1 |
| Guidance: | | | | |
| Credit responses that identify a possible hazard / issue during the casting or pewter process. Including reference to fumes and gases / using a sand base / 3 different hazards / issues are required. Do not credit repeat responses. | | | | |

| | | | | |
|--|--|--|--------------|-----------|
| (b) (i) | Name a specific thermoplastic suitable for making the stands. | | ✓ | 1 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| Acrylic (accept trade names Perspex or Plexiglas) PVC, Polystyrene Sheets | | | | 1 |
| (ii) | Describe a suitable process for cutting the stands from sheet material and achieving the shape of the stand shown above. | | ✓ | 4 |
| | No answer or no relevant information presented or discussed. | | | 0 |
| | Simplistic or basic response Acrylic could be cut on the laser cutter. Or Perspex could be marked out and cut using a band saw / coping saw. | | | 1 |
| | More detailed explanation or response A CAD drawing of the shape could be drawn and acrylic could be cut using CAM laser cutter or router. Or The stand shape could be marked out onto clear Perspex and cut out using a band saw / coping saw, with the edges sanded / filed. Or The stand could be cut out of acrylic using a band saw, and shaped using line bending / strip heating. | | | 2 |
| | A detailed explanation or response A CAD drawing (2D Design) could be produced and a CAM machine could cut out the outline in acrylic and engrave to bend lines. A strip heater could then be used to soften the engrave lines sufficiently to deform the acrylic. Or The shape could be marked out on acrylic sheet by hand using a template / stencil. The shape could be cut out using a band saw / coping saw, the edges would be smoothed using a disc sander / file to improve edge quality. A strip heater would soften the acrylic to allow the shape to be achieved. | | | 3 |
| | A highly detailed explanation or response A CAD drawing (2D Design) could be produced and a CAM machine could cut out the outline in acrylic and engrave to bend lines. Edges could be polished using wet / dry or polishing compound and mop. A strip heater could then be used to soften the engrave lines sufficiently to deform the acrylic. A jig or former could be used to ensure correct angle / shape is achieved. Or The shape could be marked out on acrylic sheet by hand using a template / stencil. The shape could be cut out using a band saw / coping saw, the edges would be smoothed using a disc sander / file to improve edge quality by cross and draw filing. Glass paper should be used to prepare edges before finishing with a buffer / polisher. A strip heater would soften the acrylic to allow the shape to be achieved at the desired angle. | | | 4 |
| Guidance Look for a clear understanding of cutting sheet material into the desired profile, using CAD CAM or hand methods. Look for understanding of how to deform sheet thermoplastics. Credit any appropriate responses for heating plastics including oven, heat gun etc. | | | | |
| | | | Total | 13 |

| Question 4 | | | | | |
|------------|---|-----|-----|-----------|------|
| | | AO3 | AO4 | Mark | |
| (a) | Analyse how designers have used different sources of inspiration to develop these products. | ✓ | | 10 | |
| | <p>Note: No reference /knowledge to Memphis required. This question is NOT about the history or work of the Memphis Design Movement. It is about designing the products provided using creative strategies / stimulus material. No Recall.</p> <p>Simplistic or basic response Quality of written communication is limited or basic, presenting material with limited coherence, many errors of grammar, punctuation and spelling. A low-level response which is descriptive rather than analytical. Some reference to the product images identifying basic natural forms / human / animal shapes and colours / geometric forms/ abstract shapes that imitate other forms including animals / humans but response is not developed. The designers have looked at nature and natural forms and copied bits of these and used them in their products. The lamp in image 1 is based on a zebra, and a hedgehog type shape is seen in the light with wheels. A basic human shape is used in the chair and unit.</p> <p>Good quality of communication, presenting appropriate material in a coherent manner with few errors or grammar, punctuation and spelling. More detailed explanation or response with analysis of sources of inspiration. A more developed response with some description, explanation and analysis of how the designers have identified and used sources of inspiration in these products. The designers have looked at nature and natural forms and used the shape, form, colour, texture and symmetry of the natural sources in their products. They have used geometric and abstract shapes and forms and combined them to mimic or imitate natural form such as animals and humans. The lamp in image 1 is based on a zebra, with clear reference to black and white stripes, the long neck and even the trailing lead as a tail. A hedgehog or porcupine type shape is seen in the light, with lamps / bulbs positioned as spikes, and with wheels instead of feet. A basic human shape is used in the chair with a blue head representing a head and the arm of the chair being the arms of the source. A 'stick man' type shape is seen on the top of the book case.</p> <p>Excellent quality of communication, presenting highly appropriate material in a coherent and logical manner. Virtually no errors of grammar, punctuation and spelling. A fully detailed response clearly identifying sources of inspiration and analysis how the designers have incorporated these into products. The designers have researched shape, form, geometry, abstract shapes as well as nature and natural forms, this process is called biomimicry. The designers have used the shape, form, colour, texture, scale, proportion and symmetry of the natural sources in their products. All products are geometric and symmetrical forms that use combined shapes to reflect natural forms. The lamp in image 1 is based on a zebra, with clear reference to black and white stripes, the long neck and even the trailing lead as a tail. A hedgehog or porcupine type shape is seen in the light, with lamps / bulbs positioned as spikes, and with wheels instead of feet. A basic human shape is used in the chair with a blue head representing a head and the arm of the chair being the arms of the source. A 'stick man' type shape is seen on the top of the book case. The products are all brightly coloured and vibrant with an underlying 'fun' theme based on the animals or human characters identified during research, and used to inspire the end product.</p> | 0 | 1-3 | 4-6 | 7-10 |

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|--|--|---|--|-----------|------|
| (b) | Evaluate the reasons why modern flat pack furniture is very popular with consumers. | ✓ | | 10 | |
| No answer or no relevant information presented or discussed. | | | | | 0 |
| Simplistic or basic response which is descriptive rather than evaluating why flat pack items are a popular choice. | | | | | |
| A low-level descriptive response defining 'flat pack' products and / or describing reasons for their purchase by the consumer. | | | | | |
| Flat pack items offer users cost effective multiple choices when furnishing e.g. bedroom units, kitchen units, etc. Some consumers enjoy 'building' or putting together items (DIY) and feel a sense of ownership over the product. Due to low cost, flat pack items can be changed or replaced or updated when required. | | | | | 1-3 |
| A more developed response with some description, explanation and evaluation of the reasons why flat pack furniture is popular. | | | | | |
| Flat pack items are often cheaper to purchase than other alternative products, as a result of being manufactured in sustainable materials in bulk. Flat pack items can be ordered and delivered, there is not always a necessity for consumers to visit a store to collect. Some consumers enjoy constructing their own products and this brings a sense of pride and achievement, more than purchasing an already assembled product. They are easy to transport and flat pack items are normally modular and can be added to form a variety of solutions, with a range of accessories to personalise products. Due to low cost, flat pack items can be changed or replaced or updated when required or if trends change. | | | | | 4-6 |
| A fully detailed response clearly evaluating the reasons why flat pack furniture often very popular with consumers. | | | | | |
| Flat pack items are often cheaper to purchase than other alternative products, as a result of being mass produced. They are easy to transport and due to low cost, flat pack items can be changed or replaced or updated when required or if trends change. There is normally lots of flat pack items available and retailers stock standard items, so these can be added to by the consumer. Moral or ethical decisions can often influence consumers to purchase because items are manufactured from sustainable materials in bulk. Flat pack items can be ordered and delivered, there is not always a necessity for consumers to visit a store to collect. Some consumers are DIY fanatics and the satisfaction of constructing their own products brings a sense of pride and achievement, more than purchasing an already assembled product. It is also cheaper to self-assemble a flat pack product than pay a specialist fitter to construct units. Flat pack items are normally modular and can be added to form a variety of solutions, with a range of accessories to personalise products, and offer the ability to create unique solutions. | | | | | 7-10 |
| Guidance: | | | | | |
| Candidates are required to evaluate why consumers choose flat pack furniture, and the depth of the response requires reasons which reflect consumers choices over other alternatives. Do not accept quicker, cheaper, faster or one-word descriptions which are not qualified or compared to another option. Flat pack is a manufacturing approach / system / scale and so links to cost are to be credited. Availability, modular options etc could all be included in responses. | | | | | |
| Total | | | | 20 | |

| Question 5 | | | | |
|------------|--|-----|-----|---------------------|
| | | AO3 | AO4 | Mark |
| (a) | Describe two properties of aluminium that make it suitable for the body of the new garden tool. | | ✓ | 4 |
| (i) | <p>No answer or no relevant information presented or discussed.</p> <p>Simplistic or basic response Aluminium is a lightweight material. AND Aluminium will not corrode in the garden.</p> <p>More detailed explanation or response. Aluminium has good strength weight ratio making it strong and light to carry, hold and use by gardeners. AND Aluminium is strong durable and corrosion resistant for the cutting tool to withstand to forces when cutting outdoors.</p> <p>Guidance: Other responses may include resistance to bending when cutting. Other metals are suitable to accept a Teflon coating, so this is not an acceptable response.</p> | | | 0 1 2 |
| (ii) | Explain the reason for applying the Teflon coating to the body of the new garden tool. | | | 2 |
| | <p>No answer or no relevant information presented or discussed.</p> <p>Simplistic or basic response So there is a non-stick finish / protects the garden tool body Or Reduces friction (allows movement more freely) / provides grip (textured surface or tactile surface for the user) / better for cleaning</p> <p>More detailed explanation or response. The Teflon provides a non-stick finish allowing the tool to be easily wiped clean after use in the garden. Or The finish reduces friction meaning the cutting action is more effective when the tool is being used. (as this moves about the pivot point more freely)</p> <p>Guidance: Several areas could gain credit, but responses need to include functional reasons. The Teflon is not an aesthetic finish. Credit can be awarded for improving performance of the tool. Responses may include that this allows the material to self-clean. The coating applied to a component will give excellent non-stick/release properties and is very easy to clean.</p> | | | 0 1 2 |

| | | | | |
|--|--|--|-----------|----------|
| (d) | Study the changes in the design of the handle of the new garden tool compared to the existing garden tool, explaining the impact these will have on the user. | | ✓ | 5 |
| No answer or no relevant information presented or discussed. | | | | 0 |
| Simplistic or basic response The new tool is easier to carry | | | | 1 |
| Or The new tool is easier to hold | | | | |
| Or The new tool is easier to grip | | | | |
| Or The grip is safer for the user | | | | 2 |
| More detailed explanation or response. The new tool features a looped handle which will be easier to hold. | | | | |
| Or The new tool will be easier to hold and use because the four fingers fit in the looped handle whereas on the old tool the handles are very straight making them harder to grip. | | | | |
| Or The looped handle will be safer by protecting the user's fingers from being hurt/cut where the existing tool does not have this. | | | | 3 |
| A detailed explanation or response The new tool features a looped handle which will be easier to hold. The users fingers can wrap around the loop which is also safer, which the thumb will sit on the red insert which has grooves for extra grip. The old tool is far less ergonomic with very straight handles and less fingers grip shapes, and the user is more likely to hurt / cut their fingers | | | | |
| A detailed explanation or response with explanation The new tool features a more ergonomic looped handle which will be easier to hold and less chance of slipping or dropping during use. The users' fingers can wrap around the loop which is safer keeping them from the blade which the thumb will sit on the red insert which has grooves for extra grip. The old tool is far less ergonomic with very straight handles and less fingers grip shapes. This looks much more likely to be dropped or for the users grip to slip, especially in wet conditions. Without the looped handle, the user could have a higher risk of injury. | | | | |
| A fully detailed explanation or response with thorough explanation The new tool features far more ergonomic considerations than the old tool. A more ergonomic looped handle which will be easier to hold and less chance of slipping or dropping during use. The users' fingers can wrap around the loop and kept away from the cutting blade which is much safer, which the thumb will sit on the red insert which has grooves for extra grip. The old tool is far less ergonomic with very straight handles and less fingers grip shapes. This looks much more likely to be dropped or for the users grip to slip, especially in wet conditions, and with no looped handle, more cuts / injuries could occur. The new tool has a catch which can keep the tool blades closed for safety when the tool is not in use, the old tool will be in the open position due to the spring, so this may be more difficult to cut with as more force may be required to cut the plant and close the spring. | | | | 5 |
| Guidance: Responses need to address the reasons for powder coating which are related to aesthetic / colour coding the range of racks, and also protective finishing / durability. | | | | |
| Total | | | 20 | |

Question 6

| | | AO3 | AO4 | Mark |
|------|---|-----|-----|-----------------------|
| (a) | Describe two reasons why the swimming aid is manufactured in a range of colours. | | ✓ | 4 2x[2] |
| (i) | <p>No answer or no relevant information presented or discussed.</p> <p>Simplistic or basic response To give the customer a choice Or To sell more because consumers may not like it in a certain colour</p> <p>More detailed explanation or response. The consumers may have a preferred colour and by offering a range of colours, sales will be higher. Or Having a range of colours makes identification of groups / individuals easier for centre staff and parents. Or Having a range of colours appeals to a wider market increasing sales and profits.</p> <p>Guidance: Responses must show reasons for the different coloured products. Do not credit repeat responses.</p> | | | 0 1 2 |
| (ii) | State and explain the most appropriate scale of production for making the range of swimming aids. | | ✓ | 4 [1]+[3] |
| | <p>No answer or no relevant information presented or discussed.</p> <p>Only acceptable response: Batch</p> <p>A basic or limited explanation: There are 6 different colours available, so they would be made in different runs</p> <p>More detailed explanation or response. Due to the 6 different colours available, you could not mass produce one colours, you would need to change the material colour / dye each time to make each colour.</p> <p>A detailed explanation or response Each colour would need to be manufactured with the specific dye / material colour, so production would be interrupted each time to change the colour for each in the range. This would prevent constant production (continuous flow) or mass production due to the limited number of each of the 6 products required.</p> <p>Guidance: Responses need to explain why batch is the most appropriate scale of production. Some credit should be awarded for details regarding one off, mass or continuous flow and why they might not be appropriate. A candidate with the incorrect scale of production receives no marks (out of [1]), but if the explanation has some clarity then some credit should be awarded. (up to 2 marks) e.g.. Mass produced so that lots are made because every swimming pool or sport retail outlet would be selling the swimming aids.</p> | | | 0 1 1 2 3 |

| | | | | |
|--|---|--|---|----------|
| (b) (i) | Describe why the properties of the expanded foam make it a suitable material for the swimming aid. | | ✓ | 2 |
| <p>Note: The properties of expanded foam is provided in the stem. No prior knowledge of expanded foam is required, Product Analysis skills needed to interpret the information and analyse images of product in use.</p> <p>No answer or no relevant information presented or discussed. 0</p> <p>Simplistic or basic response The expanded foam is lightweight / very light Or Expanded foam will not weigh the user down 1</p> <p>More detailed explanation or response. Expanded foam is lightweight compared to the weight of the user it can support. Or Expanded foam is very buoyant (based on the data supporting up to 100kg) and will support the full range of users from young children / babies to adults. 2</p> <p>Other responses here such as water repellance, available in colour range, strength and durability may deserve credit even though not related to the stem.</p> | | | | |
| (ii) | Explain why velcro is an effective fastening for the swimming aid. | | ✓ | 4 |
| <p>No answer or no relevant information presented or discussed. 0</p> <p>Simplistic or basic response It is a flexible fixing and won't undo easily. Or There is nothing to hurt the child (unlike a zip or other possible buckles) 1</p> <p>More detailed explanation or response. It will be a strong temporary fixing and won't undo easily. Or It will provide a reliable and easy to tie fastening which can be quickly undone by the user or another person. 2</p> <p>A highly detailed explanation or response. It is fully flexible and adjustable so when worn by any user it will not dig in or cut into body when swimming. It will provide a reliable and comfortable position to hold the swimming aid in place. 3</p> <p>A highly detailed response and full explanation. The strap has good tensile strength and will not be affected when immersed in water. It is fully flexible and adjustable so when worn by the user it will not dig in or cut into body when swimming. It will provide a reliable bond to hold the swimming aid in place. It is easy to fit and undo quickly, even by children. It is adjustable to fit range of users. 4</p> <p>Guidance: The function of Velcro or a detailed prior knowledge is not required. The images at the start and the images of the Velcro opening need to be digested to explain its suitability. Look for reasons why the strap is an effective fastening to be used in this context. Do not credit repeat responses.</p> | | | | |

| | | | | |
|--|--|--|---|----------|
| (iii) | The swimming aid has passed both Toy Safety and Buoyancy Aid International Safety Standards. Explain how this impacts on the consumer. | | ✓ | 2 |
| <p>No prior knowledge of the Safety Standards Tests are required. This question tests how the customer is impacted as the product is approved / has passed tests to be fit for purpose.</p> <p>No answer or no relevant information presented or discussed. 0</p> <p>Simplistic or basic response Consumers will trust the swimming aid 1</p> <p>Or Consumers will have confidence because it is approved 1</p> <p>More detailed explanation or response. Consumers would purchase the swimming aid (over others) because it has been tested and approved so they know it is safe and reliable and fit for purpose. 2</p> | | | | |
| (c) | Buckles are bought in bulk by the manufacturer as a standard part. Explain the benefits that this brings to the manufacturer of the swimming aid. | | ✓ | 4 |
| <p>No answer or no relevant information presented or discussed. 0</p> <p>Simplistic or basic response – 1-mark responses. It is cheaper because they are bought in bulk. Or It makes manufacturing the product quicker. Or It makes them easy to replace if they break. 1</p> <p>More detailed explanation or response. – 2-mark responses. The manufacturer will manufacture the products quicker because this is one less part for them to make, as they are relying on an external supplier. Or It reduces the potential costs of setting up a production line to make the buckle in house. Or It provides the manufacturer with a Just In Time approach reducing space and saving money without retaining stock levels. 2</p> <p>Guidance: Credit candidates responses breadth and depth, therefore 4 x 1 marks responses, 2 x 2 mark responses or a combination up to 4 marks. Do not credit repeat responses.</p> | | | | |

| | | | | |
|---|--|--|---|----------|
| (d) | A range of different sized straps are available for the swimming aid. Explain how this both benefits the consumer and extends the product's life. | | ✓ | 5 |
| No answer or no relevant information presented or discussed. | | | | 0 |
| Simplistic or basic response The consumer can change the straps and keep the swimming aid. | | | | |
| Or The swimming aid can still be used by the user if they grow or change shape. | | | | 1 |
| Or Other users could share the swimming aid. | | | | |
| More detailed explanation or response. The consumer can replace broken straps and keep using the same swimming aid. | | | | |
| Or The swimming aid can be altered as a child grows so that it has new straps fitted, and can still be used by the child. | | | | 2 |
| Or The swimming aid could be used by lots of people simply by fitting the appropriately sized straps for that user. | | | | |
| A detailed explanation or response, with benefits for the consumer and extending the product's life. The consumer can replace broken straps and keep using the same swimming aid, which is cheaper than buying a new one. The swimming aid can be altered as a child / user grows so that it has new straps fitted, and can still be used by the child. | | | | 3 |
| A highly detailed explanation or response, with benefits for the consumer and extending the product's life. The consumer can replace broken or ill-fitting straps and keep using the same swimming aid, which is cheaper than buying a new one. The swimming aid can be altered as a child / user grows so that it has new straps fitted, and can still be used by the child. A parent could use one swimming aid for more than one child (at different times) saving on purchasing other swimming aids. | | | | 4 |
| A highly detailed explanation or response fully explaining the benefits for the consumer and extending the product's life. Once the consumer has purchased the swimming aid, they can replace broken or ill-fitting straps and keep using the same swimming aid, which is much cheaper than buying a new one and reduces waste. The swimming aid can be used by more than one user, simply by changing the size of the strap. Children who are improving swimmers may rely on the swimming aid as a source of confidence and by simple changing to a larger strap as the child grows, they can still use the swimming aid. This prevents the swimming aid only being used for a short time, or by certain sized or aged users. | | | | 5 |
| Guidance: Credit candidates understanding of both benefiting the consumer and extending the product life. Do not credit repeat responses. | | | | |