

Design & Technology

A-Level

User Centred Design

Multiple Choice

Materials required for questions

- Pencil
- Rubber
- Calculator

Instructions

- Use black ink or ball-point pen
- Try answer all questions
- Use the space provided to answer questions
- Calculators can be used if necessary
- Use a cross in the box to mark you answer



Advice

- Marks for each question are in brackets
- Read each question fully
- Try to answer every question
- Don't spend too much time on one question

Good luck!

Q1. What is iterative design

- A** A product is never change throughout the design process ☐
- B** A product is continually analysed, tested And revisited throughout the design process ☐
- C** A product is developed once throughout The design process ☐

Q2. What is an advantage of user-centred design?

- A** The user is put at the centre of design ☐
- B** The user is consulted at the end of the design ☐
- C** The user is not consulted during the Design process ☐

Q3. Which of these is not an advantage of collaboration when designing?

- A** It can help overcomes design fixation ☐
- B** it is a way to take ideas from others ☐
- C** it is an excellent way of gaining feedback ☐

Q4. Why is an analysis of a design context so important?

- A** So the designer can gain a clear
Understanding of the design problem ☐
- B** so the designer can test the models that
Have been produced ☐
- C** so the best ideas can be sketched ☐

Q5. Which of the following statements is representative of iterative design?

- A** A system approach ☐
- B** A process of continual improvement, of
a concept, prototype, design or product,
with model making, sketching, client
feedback applied when required ☐
- C** A linear design process, whereby by
One stage follows another ☐

Q6. The image below shows playground equipment.

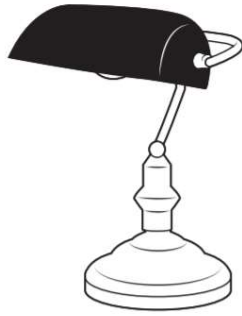


Specification for playground equipment:

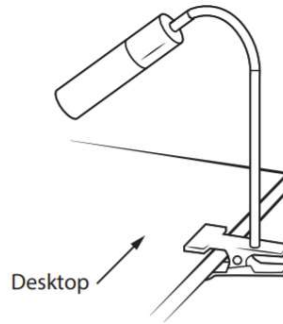
- For use by children age 4-12.
- Designed for external use.
- Recessed/flush fitting construction fittings used.
- All fittings are tamper proof.
- Use of weatherproof materials.
- Suitable for installation on a flat surface.
- Use of non-slip surfaces.
- Tough, durable and wear resistant finish applied to all parts.
- Parts designed to be bolted together

Analyse and evaluate the playground equipment in terms of suitability for the user. **(4 marks)**

Q7. The image below shows 2 different types of desk lamp.



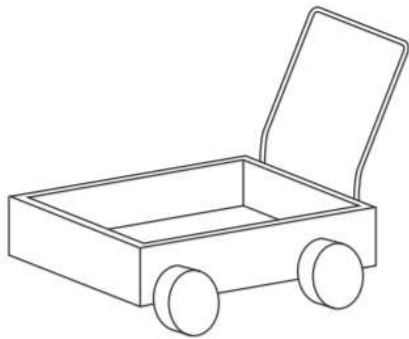
Desk lamp A - Mains powered



Desk lamp B - Battery powered

Evaluate desk lamp A in comparison to desk lamp B in terms of form and user requirements. **(6 marks)**

Q8. The image below shows 2 different types of baby-walking aid.



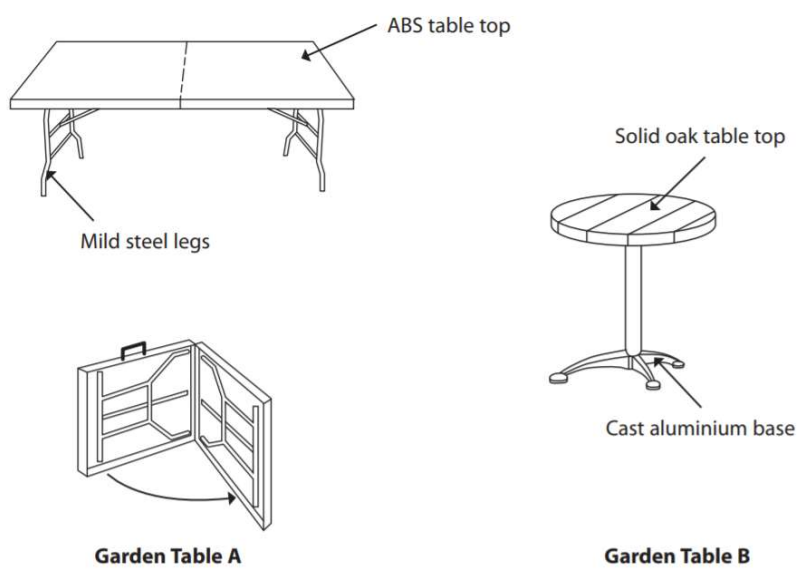
Walking aid A



Walking aid B

Evaluate walking aid A compared with walking aid B, in terms of form and user requirements. **(6 marks)**

Q9. The image below shows 2 different types of baby-walking aid.



Evaluate garden table A compared with garden table B, in terms of form and user requirements. **(6 marks)**

Answers

Q1. B

Q2. A

Q3. C

Q4. A

Q6.

Indicative content:

- Bright colours are engaging encouraging children to interact
- The house feature may promote child interaction
- Lots of different things to do and play developing coordination skills as well as physical activity
- Recessed fixings will ensure child does not catch or hurt themselves on the equipment
- Tough and durable finish will ensure the equipment stays looking good for longer and attract children
- Designed with specific age of children in mind so they can climb, use and fit on the equipment e.g. step distance, not too far to fall off the bottom of the slide
- Not suitable for over 12s or under 4s.
- Additional evaluative points worthy of credit:
- Only suited to day use as the equipment goes outside unless artificial light present

Accept all other valid responses

Q7.

Evaluation to address the following issues:

Form

Why is the product shaped/styled as it is?

Desk lamp A	Desk lamp B
<ul style="list-style-type: none">• Large heavy base will not fall over• Easily adjustable lampshade• Traditional / old fashioned style• Easy to clean /polish	<ul style="list-style-type: none">• Simple / minimalist design• Small and compact• Easy to adjust lamp head / position

<ul style="list-style-type: none"> • Takes up more space • Targeted light area 	<ul style="list-style-type: none"> • Takes up less desk top space/ sits on the edge of the desk / worktop
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User requirements

What makes the product attractive to potential users?

Desk lamp A	Desk lamp B
<ul style="list-style-type: none"> • Formal / traditional style • Mains powered / will not run out of power • Professional image banker / lawyer / wealth • Needs to be near a plug socket 	<ul style="list-style-type: none"> • Lightweight and easily moved • Battery powered / no trailing leads / can be used anywhere • Easily clipped onto a bookshelf / desk / work top edge • Uses LED instead of a bulb / they last longer / cheaper to run • Maintenance issues – batteries need replacing

Q8.

Evaluation to address the following issues:

Form

Why is the product shaped/styled as it is?

Walking aid A	Walking aid B
<ul style="list-style-type: none"> • It has a handle onto which the child can hold • The base is a good shape so as not to topple over • The tray is capable of holding toys 	<ul style="list-style-type: none"> • The child is held / supported inside and so cannot fall over / out • It has a tray in front so that they can play with toys • The wide base is out of the way of their feet and so they will not get run over / caught • Gives the baby greater independence • Child can sit in this and rest • Rounded shape/ less likely to damage furniture

User requirements

What qualities make the product attractive to potential users? (User might be child or parent)

Walking aid A	Walking aid B
<ul style="list-style-type: none"> • It can be used to store some toys • It gives the child greater freedom / mobility • Develops play skills • Learn / encourage to walk • Helps develop leg muscles 	<ul style="list-style-type: none"> • It allows the child to develop their leg muscles • The child can also play with toys whilst being in the frame / cradle • It is wide and therefore will not fall over • It has a tray to be able to put things on • Baby can manoeuvre themselves quite a bit • Helps develop leg muscles • Easy to wipe clean

Q9.

Evaluation to address the following issues:

User requirements

What qualities make the product attractive to potential users?

Table A	Table B
<ul style="list-style-type: none"> • Large flat surface area • Large stable base • Can be folded and stored away • Handle for easy carrying • Lighter and easy for carrying • More hygienic/wipe clean 	<ul style="list-style-type: none"> • Smaller and more intimate • Café style • More use of natural materials for table top • Will naturally age/weather • Can enhance appearance with stain/varnish

Sustainability

How does the design allow for environmental considerations?

Table A	Table B
<ul style="list-style-type: none"> • Oil based products required to make plastics • Extraction and energy consumption in the production of the steel for the legs 	<ul style="list-style-type: none"> • Wooden top can be reused or recycled • Top will blend in better with natural environment

<ul style="list-style-type: none">• Recycled / reused• Will last longer due to being stored away	<ul style="list-style-type: none">• Aluminium can also be recycled but requires lots of energy to make
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Q10.

Accept any three stages in the CAM production process:

- select type of CNC machine used
- design drawings transferred or downloaded to CNC machine
- setting up of acrylic workpiece
- setting of machine parameters

[3 × 1 mark]