

# **Design & Technology**

## **AQA A-Level**

# **Design methods and processes**

### **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
- For the multiple choice questions, circle your 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 the primary purpose of designing to meet needs, wants, or values?

- A** To prioritize aesthetic appeal over functionality
- B** To align solutions with user expectations and emotional drivers
- C** To reduce material costs during manufacturing

**Q2.** Which method is an example of primary data collection?

- A** Reviewing existing market reports
- B** Conducting user interviews
- C** Analysing competitor product specifications

**Q3.** How does anthropometric data improve design?

- A** By ensuring products fit the physical dimensions of the target user group
- B** By predicting future fashion trends
- C** By simplifying the manufacturing process

**Q4.** What is a key outcome of ergonomic data analysis?

- A** Reducing product weight
- B** Enhancing user comfort and safety
- C** Increasing product colour options

**Q5.** Outline how designers make use of market research strategies when developing design concepts **(4 marks)**

---

---

---

---

**Q6a.** Define the terms 'ergonomics' and 'anthropometrics' **(2 marks)**

---

---

---

**Q6b.** State one way that a product with good ergonomics can benefit the product user **(1 mark)**

---

---

**Q7.** Name two primary research methods **(2 marks)**

---

---

---

**Q8.** State two specific forms of anthropometric data used in the development of a step ladder **(2 marks)**

---

---

---

**Q9.** State three reasons why a designer may use a focus group **(3 marks)**

---

---

---

---

---

## Answers

Q1. B

Q2. B

Q3. A

Q4. B

Q5.

- Focus groups used to gather feedback on market trends, concepts etc from a specific demographic
- Use of focus groups etc. to gather views on development models
- Surveys allow designers to gather information through targeted questioning using closed and open responses.
- Surveys are ideal for gathering information from a large range of potential customers and analysing for trends.
- Interviews allow a designer to gather specific information from an individual that can be tailored to the specific interviewee.
- Secondary data allows designers to use pre-gathered information available from reputable sources quickly for initial design development etc.
- Primary research allows tailored research specific to the individual project.
- By using social media analysis of current trends and habits.

Q6a.

1 mark for the definition of ergonomic data:

- data that considers the interaction of humans with products and the environment.

1 mark for the definition of anthropometric data:

- measurement of human sizes

Q6b.

- lack of discomfort during use
- ability to use for long period of time
- safe and accurate use with limited if any instruction
- efficient use of movement during use

**Q7.**

- client interviews
- focus groups
- surveys/questionnaires
- product analysis/disassembly
- practical testing/experiments
- anthropometric data gathering
- beta testing
- site/location visits

**Q8.**

Anthropometric data:

- grip diameter (for handles)
- max weight of 99th percentile male (for step ladder load bearing)
- width of feet with shoes on (step width)
- comfortable lifting height for feet (step spacing)
- length of foot (to ensure steps do not overhang too much preventing ascent)

**Q9.**

- To gain feedback on design concepts.
- To observe user interactions with products.
- To gather suggestions for product improvements.
- You are able to gain a range of views from a focus group which is not possible from a single user.
- To gain constructive criticism from the focus group prior to production of the design.
- Focus groups can be held with specific demographics relevant to the product being designed and assessed.
- If a product is being designed for a demographic group the designer is unfamiliar with, working with a focus group is essential to gain a better insight of the demographics needs.
- To decide the most appropriate price point for a product.