**Design & Technology**

**AQA A-Level** Logo

Description automatically generated with low confidence

**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**.**