DTBase©

Design & Technology
Eduqas GCSE

Understanding user needs

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 primary research?

A Using existing data collected by someone else

B Collecting new data yourself first hand

C Copying the design of an existing product

Q2. Which of these is an example of secondary research?

A Anthropometric data tables

B Interviewing the client

C Observing users

Q3. In ACCESS FM, what does the first S stand for?

A Strength

B Sustainability

C Size

Q4. What is one disadvantage of primary research?

A It may be out of date

B It is not specific to your problem

C It is time consuming and uses small samples

Q5. Why might a designer disassemble an existing product?

A To see how it is made and joined, and get ideas for their own design

B To find out how much it costs in the shops

C To test whether it meets safety standards

Q6. 80% of users wanted a product to fit in a coat pocket. What should the designer do with this finding?

A Ignore it, as 20% did not agree

B Turn it into a measurable specification point about maximum size

C Ask the users again in a year

Q7. Collecting primary and secondary research is needed to make sure client and user needs are identified and met when designing.

Q7a. Describe, using examples, the differences between primary and secondary research. **(3 marks)**

Q7b. A designer is designing playground equipment for a local park. Identify two methods of gathering primary data. **(2 marks)**

Q7c. Identify one piece of secondary research that could be used when designing the playground equipment. **(1 mark)**

Q8. A designer wants to create a smart watch aimed at the elderly market. Give two methods of research the designer could carry out to make sure the product is successful for this user group. **(2 marks)**

Q9. A designer takes apart (disassembles) a competitor's electric cargo bike before designing a new one. Describe how disassembly can be a useful activity to a designer. **(4 marks)**

Q10. A new range of kitchen products is designed to encourage young children to prepare food at family meal times. Analyse how the designer would gather information on the target market before starting to generate ideas for the kitchen products. **(4 marks)**

Q11. Focus groups and market research are used by designers to gather information before designing products. Use one example for each technique and describe how they would be used to help design products. **(6 marks)**

Q12. A designer is designing a hardwood desk organiser.

Q12a. State two items of research the designer would have considered when designing the desk organiser. **(2 marks)**

Q12b. A questionnaire asked 100 people to list three main features of a well-designed desk organiser. The results were: made from quality materials 24%; easy access to equipment 20%; strong construction 14%; attractive finish 13%; different storage compartments 11%; unique design 8%; easy to move around 6%; other 4%. State the three most important features. **(3 marks)**

Q13. Explain why designers should investigate and research existing products before starting to design new products. **(6 marks)**

Answers

Q1. B
Q2. A
Q3. C
Q4. C
Q5. A
Q6. B

Q7a.

2 marks for clearly identifying the difference between primary and secondary research. 1 mark for a correct example of a primary and/or secondary research task. For example:

- Primary research involves gathering new data that has not been collected before (1), e.g. interviewing a group of people in a focus group (1)
- Secondary research involves gathering data that already exists, collected by someone else (1), e.g. researching on the internet or in newspaper articles (1)

Q7b.

Any two (1 mark each): questionnaires or surveys; interviews; focus groups; observations or visits to other parks; research into other play equipment in parks; taking measurements of the park area; testing or using existing products yourself.

Q7c.

Any one (1): anthropometric data; safety standards (BSI or playground equipment standards); materials data or manufacturers' information; reviews of playground equipment; internet research into existing equipment; magazine articles, catalogues or product literature.

Q8.

Any two (1 mark each): focus groups; surveys or questionnaires; interviews; user testing; looking at existing products; studying anthropometric data about the users.

Q9.

1 mark for each reason why disassembly is useful (up to 2), plus up to 2 marks for clear description. For example:

- The designer can see how a competitor's product is made (1) and improve their own product by learning from it (1), e.g. improving its function and/or aesthetics (1)
- The designer can see which materials (1) and components (1) have been used
- It can help the designer improve the sustainability of a product (1), so parts can be recycled or reused (1)
- It challenges the designer to design better and improved products (1)

Q10. (4 marks)

Marks	Descriptor
4	Clear and detailed understanding of how the designer could research and gather information on the target market, and how this would clarify the user needs and wants to form a design specification.
3	Description and understanding of research, and some understanding of how it would clarify the user needs and wants.
2	Some description of research and some understanding of how the designer could gather information on the target market.
1	Simple understanding of research, e.g. find out anthropometric data so the kitchen products are comfortable to hold.
0	No answer or no relevant information.

Guidance:

- Establish the user's needs and wants from the products
- Use a questionnaire and analyse the responses to get a clear picture
- Research anthropometric data to find sizes so the products are ergonomically effective
- Interview parents and children about home cooking, the products they already use and the cooking activities children do
- Find out about dietary requirements and healthy eating patterns in families

- Use a survey to gather opinions on existing products and how they can be improved
- Measure children's hands to find the correct sizes for grips and handles
- Find out what weights children can carry safely

Q11. (2 × 3 marks)

Up to 3 marks each for focus groups and market research. Maximum of 2 marks for each technique if no example is given.

Marks	Descriptor
3	A very detailed and well explained example, showing clear understanding of the technique.
2	A simply described understanding of the technique using an example, or a well described understanding with no example.
1	A simple statement showing understanding of the technique, with no example.
0	No response or nothing worthy of credit.

Focus groups

- A primary source of information, unlike articles or online resources written by someone else
- A very specific way of researching by talking to interested people to help with designing, e.g. about a prototype product
- A group of people who share and discuss their opinions, which are observed, e.g. on the features of a recently released child's toy
- People can interact and share views, unlike an interview or survey which is usually done with one person
- Lets a designer or manufacturer talk directly with consumers

Market research

- Looking at what is already on the market (product analysis), e.g. evaluating the good and bad points of competitors' mobile phones
- A critical evaluation of the products a new product would be in competition with
- Identifying a gap in the market for a product
- Finding out whether developing a product is viable, e.g. Nespresso with their coffee pod machines
- May involve interviews or surveys

Q12a.

Any two valid items of research (1 mark each), e.g. the materials and equipment to be stored; their sizes; the quantity of materials and equipment; where it will be used (location or environment). Do not accept one-word answers.

Q12b.

Made from quality materials (1); easy access to equipment (1); strong construction (1).

Q13. (6 marks)

Marks	Descriptor
5 to 6	A detailed explanation of why designers must research and investigate existing products, with clear understanding of why this is needed before designing new products.
3 to 4	Good points of explanation, with some links to how investigation and research can inform the design of new products.
1 to 2	A basic explanation with one or two points, with little or no link to how existing products can inform new ones.
0	No response or nothing worthy of credit.

Full marks can be given for a single well-developed response. Relevant examples should be rewarded. Indicative content:

- To identify good and bad points in existing designs and avoid building in bad features
- To assess whether their ideas are commercially viable
- To identify problems with existing products
- Research and investigation inform prototypes
- To find out what materials existing products are made from, and how they are assembled and constructed
- To find the price of existing products so new products are competitively priced
- To understand competitors' designs and how function or use could be improved

- To find out what users think of existing products and what they would look for in a new, improved product
- To find out if existing products meet the needs and wants of their users and target market
- To avoid infringing someone else's intellectual property