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# GCSE

# DESIGN AND TECHNOLOGY

8552/W Paper 1  
Report on the Examination

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## **General**

A well-received paper with evidence of schools preparing their students effectively for the 2023 examination.

## **Section A**

This section requires students to respond to a mixture of multiple-choice questions (MCQs) and short answer questions covering the specification's core technical principles.

## **Section B**

This section tests students on the specialist technical principles section of the specification. It allows students to demonstrate their deeper knowledge and understanding of at least one material category.

## **Section C**

This section tests students on the designing and making principles section of the specification

## **Questions A1 to A10**

These questions followed the established multiple-choice format with a broad coverage of core technical principle content.

### **Question A11 – manufactured boards**

A two-part question testing recall and understanding of manufactured boards.

**11.1** Any specific named manufactured board was a credit worthy response.

**11.2** Evidence of one advantage for manufactured boards in general was acceptable. The response did not have to be correct for the specific manufactured board given in 11.1.

### **Question A12 – planned obsolescence**

Many correct responses were given, with students providing an example to clarify their response. Consumable products like batteries, glues, pens and tissues were not accepted as example products.

### **Question A13 - crowd funding**

Many clear responses with lots of references to low start-up costs, promoting products, and raising additional investment funds in small amounts from a group of people.

**Question A14 – gear train**

Clear reference to gear C was required, indicating a clockwise motion at a slower speed than gear A and gear B. Responses referring to ‘turning left’ were not credited. Some students did not understand how gear rotations change direction when they mesh and how they speed up or slow down depending on gear ratio.

**Question B15 – calculating the cost of buttons.**

Where the correct answer was provided with no working out visible all available marks were awarded. Where working is given but the final answer is incorrect, method marks can be credited if shown, eg  $1500 \times 5 = 7500$ . Students should be encouraged to show their working wherever possible as this allows them to pick up some marks even if their final answer or last step of a calculation is wrong.

**Question B16 – aesthetic considerations**

There were several instances where students showed little or no understanding about the meaning of the word aesthetics. As a result, responses were sometimes inappropriate, eg talking about recycling as well as functional requirements of materials. Some impressive responses such as considering component positioning eg, hinges and screws being hidden to improve aesthetic were rewarded.

**Question B17 – vehicle pie chart**

This question provided opportunities to show working before completing the pie chart for the two missing sectors. Where no working was shown, and the graphic response was inaccurately drawn marks were lost. Students need to be reminded to show working to gain method marks where correct understanding has been shown.

**Question B18 – commercial processes**

**18.1** There was some evidence of confusion between a specific main material and stock form. This impacted on the amount of credit that could be awarded. Any specific main material for the process chosen by the student was credited. No marks were awarded for generic materials eg, wood, metal, plastic, textile etc.

**18.2** The mark scheme identifies the responses accepted for each process. Where a process was not selected but the stock form given matched the main material given in 18.1, a mark was awarded.

**18.3** Responses that talked about advantages of the chosen material were not credited as they did not answer the question set. Generic responses, eg cheap or efficient, were not credited without additional clarification.

**Question B19 – tools, tool use and safe use.**

**19.1** Many correct tool names given. Common misconceptions were coping saw and tenon saw named for the hacksaw. The chisel was also incorrectly identified as a screwdriver in a limited number of responses.

**19.2** The provided explanations showed a good understanding of correct tool use where the correct tool name had been given in 19.1.

**19.3** Many high-quality responses for all the identified tools, showing a good understanding of safe and correct tool use

**Question B20 – production methods**

The extended response question this year had a focus on production methods. Students responded well, allowing the full range of marks to be used appropriately. The best responses clearly referenced batch, mass and continuous production methods back to prototype or one-off production. Relevant, quality examples were provided to support responses. Once again, several students made use of the additional pages to provide a detailed discussion and show their knowledge and understanding around production methods and application.

**Question C21 – prototypes**

Several strong responses with detailed descriptions, eg how prototypes can be used to test function, and to gain end user opinion and feedback. However, some students were unclear on the role of a prototype in making products fit for purpose. Instead, they talked about different scales of production and advantages and disadvantages of each. Responses like this did not answer the question asked and therefore did not receive credit.

**Question C22 – bags to carry belongings and equipment**

**22.1** A very well answered question allowing students of all abilities to respond at the appropriate level. Good analysis of the given specifications provided a good starting point for many students to then develop effective evaluative points in their responses.

**22.2** A range of good ergonomic points considering the straps and handles of both bags and how they could be adjusted for comfort. Anthropometrics was not as effectively considered, with only implied reference to human size eg, hand sizes. Some students were aware of percentile ranges and approached the question from this standpoint.

**Question C23 – calculation involving component with seven holes**

**23.1** Several students did not read the question correctly. They divided the distance between the short sides and arrived at an incorrect answer of 60.

**23.2** Responses dividing the length of the component by 8 were correct. Responses taking the combined diameters of the seven holes were also marked correct as per the published mark scheme. Some students did not show any working and possibly lost a method mark which they might have gained.

**23.3** Responses using either accepted answer from 23.2 to arrive at 8mm or 8.875mm were credited. Some students did not show any working and possibly lost a method mark which they might have gained.

**23.4** Both the maximum and minimum possible drill sizes had to be given for the mark.

### **Question C24 – work of others**

Many good responses; referring to seeking inspiration from others, to see what the competition looked like and identify weaknesses in existing designs and improving them were common answers. Some students made good reference to avoiding copyright infringement.

### **Question 25 – user centred design**

Students had a clear understanding that the focus of user centred design must be the client and/or end user. Some responses used examples from students' own NEA work and how the identified client was used to provide meaningful and constructive feedback to develop effective products. Many good clear examples were used to enhance clarification and demonstrate understanding of user centred design.

### **Question C26 – communication of the radio alarm clock**

**26.1** For one mark to be awarded, specific reference to 3rd angle and/or orthographic were required in the given response.

**26.2** The addition of the solid bottom line to the given side view was the most readily accessed mark. Whilst some students were able to draw a button(s) correctly, marks were lost if they were not correctly draw using hidden detail lines.

**26.3** Where attempted, many responses did show most features. The biggest challenge was to provide the correct shape of the lozenge button and give it 3D qualities to access the full four marks.

### **Question C27 – audio and visual recordings**

Two advantages were required to acces the full four marks. Both could be for either audio or visual recordings, but in many instances students provided one for audio and one for visual recordings. Responses talking about design sheets and sketches were not acceptable responses. Many students made reference to ease and speed of creating recordings to inform the development of design ideas at a later time. In addition, responses showed how recordings could be revisited at a later date for key information and shared with potential customers and end users.

### **Question C28 – fair trade and global warming.**

Fair trade - common responses for fair trade focussed on paying fair wages and supporting communities, eg education and healthcare in the developing world. Responses developed the idea

of social responsibility (customer choice) and how companies would not like the 'bad press' if customers were aware of poor working conditions.

Global warming – the best responses considered the use of fossil fuels and how these produced CO<sub>2</sub>, adding to global warming. Other responses mentioned deforestation and how the removal of trees reduces the planet's capacity to remove CO<sub>2</sub>.

### **Mark Ranges and Award of Grades**

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.