



# Ross High School

Graphic, Design and Technology Department



**Introduction  
to  
Design & Manufacture  
Question Booklet**

## Introduction to Design

Q1 Product design is all about enhancing the quality of life for the people who use them, therefore having said that, state three other reasons why new products are continually being upgraded and replaced with new ones?

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Q2 How does the design cycle start, what kicks starts it into action?

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Q3 What is a design brief? Give a brief explanation.

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Q4 In your own words explain the difference between a **closed** brief and an **open** brief.

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Q5 A mechanic in a local garage has approached you as a designer. He has a major problem in that he can never find the right tool when he needs it as they are all scattered about his workshop. This is having an impact of the amount of time he takes to repair cars. In the space provided below and on the continuing page write an appropriate Brief for the mechanic.

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Q5 continued

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Q6 What is the purpose of brainstorming?

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Q7 Name four factors which will be required to be investigated before the design process takes place.

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## Market Research

Q1 Briefly describe what Market Research is?

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Q2 What is meant by having a **Monopoly** share of the market?

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Q3 Why is it so important to ensure that the right market segment is targeted?

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Q4 What are the two main types of Market Research?

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Q5 What is meant by the term **Marketable Product**?

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## Product Evaluation

Q1 What is a **Product**?

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Q2 What is a **Consumer**?

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Q3 Name three features which would be considered when buying a kettle.

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Q4 Most designers work as part of a team. Name five potential team members.

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Q5 What is the main task of the **Sales** person?

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Q6 What is the main task of the **Material Technologist**?

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Q7 What is the main task of the **Manufacturer**?

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Q8 What is the **Primary** function of a product?

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Q9 What is the **Secondary** function of a product?

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### **Consumer Demand**

Q1 State two pieces of information that are important to a consumer when choosing a product.

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Q2 What is an alternative name for **Consumer Demand**.

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Q3 The C5 was a great innovative invention in the 1980's but it never took off, why is this so?

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### Q3 Continued

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Q4 Where the C5 was essentially a disaster in terms of they never sold many, the VW Golf has been a great success. Why has the Golf been so successful?

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Q5 Planned obsolescence is where designers build in a maximum life span into a product. I.e. they plan for the product to last say 5 to 10 years before breaking down or not being wanted anymore by the consumer. Name two tactics they use to achieve this.

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### Manufacturing/Modelling Techniques

Q1 In the last 100 years product design has been transformed dramatically. Why is this so?

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Q2 Modern manufacturing is much more efficient than the old traditional methods. Give three reasons why this is so.

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Q3 Prior to manufacturing the finally designed products, they are usually firstly modelled in clay. Why is this carried out?

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Q4 In the old traditional days not so long ago everything was drawn by hand, but nowadays everything is drawn using 2D CAD (Computer Aided Drawing)? State two advantages for using CAD.

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Q5 What additional advantages does 3D CAD have over 2D CAD. Give three examples.

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Q6 Briefly explain what CAM/CNC is?

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## **Aesthetics**

Q1 Briefly explain what the study of Aesthetics is.

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Q2 Why is it important to make products look good?.

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Q3 Name five aspects associated with **Aesthetics**.

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Q4 What effect does the colour **RED** do to a product? Q5

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What effect does the colour **BLUE** do to a product?

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Q6 What effect does the colour **GREEN** do to a product?

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Q7 What effect does the colour **YELLOW** do to a product?

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Q8 Colour is probably one of the more important aesthetic features of a product. Give an example of how colour affects how we feel about a product.

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Q9 Name the three **Primary** colours.

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Q10 Name the three **Secondary** colours.

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Q11 How do we get a Secondary colour?

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Q12 Why would a designer make use of **Contrast** when designing a product?

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Q13 Lines are used at the design stage to enhance drawing ideas. Give two examples of how this is carried out.

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Q14 Balance in design is very important when designing products. Give an example of something that is out of balance.

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## Physiology

Q1 Give a brief description of what Physiology is about with respect to designing everyday products.

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Q2 Looking at the two valves on page 31, why is it important to create a bigger handle on the gas valve than the cooker valve?

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Q3 Looking at the bottom of page 31 there is a large safety button. Why does it have a big red button and a small green button?

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Q4 Why is the button **Red**?

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Q5 Why is a **Digital** display better than an **Analogue** display?

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## Ergonomics

Q1 Briefly explain what is meant by the term **ERGONOMICS**.

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Q2 Briefly explain what is meant by the term **ANTHROPOMETRICS**.

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Q3 When designing everyday products we design for a certain percentage of people, what is this percentage and why is this so.

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Q4 Shown opposite is a picture of an office chair. If you had to design a new range of office chairs what three Ergonomic factors would you have to consider when designing it.



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Q5 Shown opposite is a picture of a finger pressing a button. What anthropometric data would be required when designing such a button.



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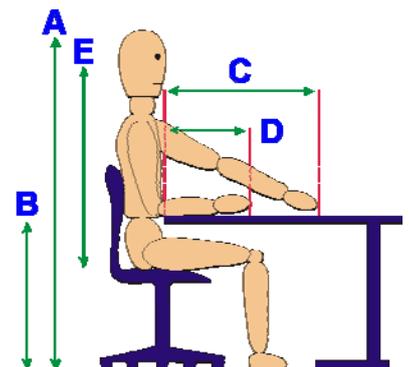
Q6 When designing door ways what size of percentile people do we design for and why is this so?

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Q7 If you were asked to design a mobile phone, why would it be important to take the 50<sup>th</sup> percentile sizes of both men and women?

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Q8 In the drawing opposite, an ergonomist is shown sitting at a desk. If you were asked to design the desk, what two factors would have to be considered to ensure its suitability?



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## Design Specification

- Q1 A design specification is where the designer or client specifies what a product must do. Read the information on page 42 and produce a five point design specification for a child's bicycle.

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## Material Selection/Planning for Manufacture

- Q1 When designing a product why is it so important to ensure the designer selects the correct material.

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## Evaluation

- Q1 Why is the evaluation such an important part of the design process?

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- Q2 When evaluating a product certain aspects have to be adhered to. Name three factors which must be evaluated

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