

General Certificate of Education  
Summer 2001  
Advanced Subsidiary Level Examination



**DESIGN & TECHNOLOGY: PRODUCT DESIGN  
(3D DESIGN)  
Unit 1 Materials and Components (PD1D)**

**5551**

Friday 8 June 2001 Morning Session

**In addition to this paper you will require:**

- normal writing and drawing instruments;
- a 12-page answer book;
- graph paper is available on request.

Time allowed: 1 hour 30 minutes

**Instructions**

- Use blue or black ink or ball-point pen. Pencil and coloured pencils should only be used for drawing.
- Write the information required on the front of your answer book. The *Examining Body* for this paper is AQA. The *Paper Reference* is PD1D.
- **Answer all questions.**

**Information**

- The maximum mark for this paper is 100.
- 24 marks are allocated to each question and 4 marks overall are for quality of written communication.
- Mark allocations are shown in brackets.
- This paper carries 30 per cent of the total marks for AS and 15 per cent for A Level.
- You are reminded of the need for good English and clear presentation. The quality of your written communication will be assessed across all questions.

**Advice**

- Your answers should be illustrated with sketches and/or diagrams wherever you feel it is appropriate.



---

Each question carries 24 marks.

You should spend 20 – 25 minutes on each question.

Answer **all** questions.

---

- 1 The design of a product may be influenced by its function, production methods and the materials used in its manufacture.

Compare and contrast the two children's toys shown in the photographs below. You should make particular reference to the materials used and the methods of manufacture.

*(2 × 12 marks)*



- 2 (a) Re-distribution or casting is a process of manufacture which usually involves the forming of a material while it is in a liquid state.

Name a product or component, name the material from which it is made and describe the process of manufacture. *(12 marks)*

- (b) Suggest, giving reasons, a suitable application for **each** of the following adhesives.

(i) Epoxy resin

(ii) PVA glue

(iii) Tensol cement

(iv) Contact adhesive

*(4 × 3 marks)*

- 3 This question is about the materials and processes involved in the manufacture of wooden dining tables.

- (a) (i) Name a suitable material for making the underframe and legs of a dining table and give reasons for your choice. *(5 marks)*

(ii) Describe, with the aid of sketches, **two** methods of joining the legs and underframe together and explain the advantages of each. *(8 marks)*

- (b) (i) Name a man-made material suitable for the top of the table and state the advantages which the use of this type of material would have over the use of solid timber. *(6 marks)*

(ii) Suggest, giving reasons for your choice, a suitable surface finish for the table and explain how it is applied. *(5 marks)*

- 4 Listed below are **four** products together with the materials from which they are made. With reference to the working properties of each material, and any other factors which you consider to be relevant, explain why the material is suitable for the product and is preferable to other materials.

(i) Mobile phone case made from ABS *(6 marks)*

(ii) Expanded polystyrene packaging *(6 marks)*

(iii) Aluminium foil kitchen wrap *(6 marks)*

(iv) High carbon steel woodwork chisel *(6 marks)*

**END OF QUESTIONS**