

SAMPLE RESISTANT MATERIALS

GCSE EXAMINATION PAPER

CENTRE NUMBER

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CANDIDATE NUMBER

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SAMPLE PAPER 2

SURNAME _____

FORENAME(S) _____

CANDIDATE SIGNATURE _____

2 HOURS ALLOWED

Materials required for this examination:

- normal writing and drawing instruments
- a calculator
- a protractor.

Instructions to candidates:

- Use black ink or black ball-point pen. Use pencil only for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write on blank pages.
- Do all rough work in this book. Cross through any work that you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.
- The question in Section A relates to the context referred to in the Preliminary Material that was previously issued.
- All dimensions are given in millimetres unless otherwise stated.
- You are reminded of the need for good English and clear presentation in your answers.

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SECTION A

Answer all the questions

In this section you will be asked to:

- Write a Design Specification.
- generate a range of designs.
- develop an idea.

Design Brief:

A manufacturer of remote control organisers, has asked you to produce a range of designs for an organiser to be used in a living room / bedroom / study.

Produce **five** designs for a remote control organiser, for a living room / bedroom / study.

Below are shown a number of typical living rooms /bedrooms, where remote controls may be used.



Design Specification.

1. Write three design requirements of a remote control organiser. Include an explanation for each of your requirements.

Example:

Requirement: The organiser should be designed/manufactured, to hold a range of different sizes of remote controls.

Explanation: Remote controls for different electronic equipment are never the same size. They vary in size and their shapes differ slightly.

REQUIREMENT 1: _____

EXPLANATION: _____

(3 marks)

REQUIREMENT 2: _____

EXPLANATION: _____

(3 marks)

REQUIREMENT 3: _____

EXPLANATION: _____

(3 marks)

TO HELP YOU ANSWER
THIS QUESTION

<http://www.technologystudent.com/rmflsh1/remote10.html>

<http://www.technologystudent.com/rmflsh1/remote11.html>

<http://www.technologystudent.com/rmflsh1/remote12.html>

<http://www.technologystudent.com/rmflsh1/remote13.html>

This question is about creative design.

You are advised to spend about 15 minutes on this question.

2. Read the design brief and your design requirements again, before attempting the question below.

Sketch **FOUR** different designs for a remote control organiser.

All your designs must store a range of remote controls.

Marks will be awarded for creativity and imagination. **(4 X 5 marks)**

QUESTION 2 CONTINUED:

TO HELP YOU ANSWER
THIS QUESTION

<http://www.technologystudent.com/rmflsh1/remote14.html>

<http://www.technologystudent.com/rmflsh1/remote15.html>

<http://www.technologystudent.com/rmflsh1/remote16.html>

Question 3. This is concerned with developing a design.

You are advised to spend about 12 minutes on this question.

Choose **one** of your designs from Question 2.

Develop your initial design to a final version. Include of notes and sketches.

You will be awarded marks for:

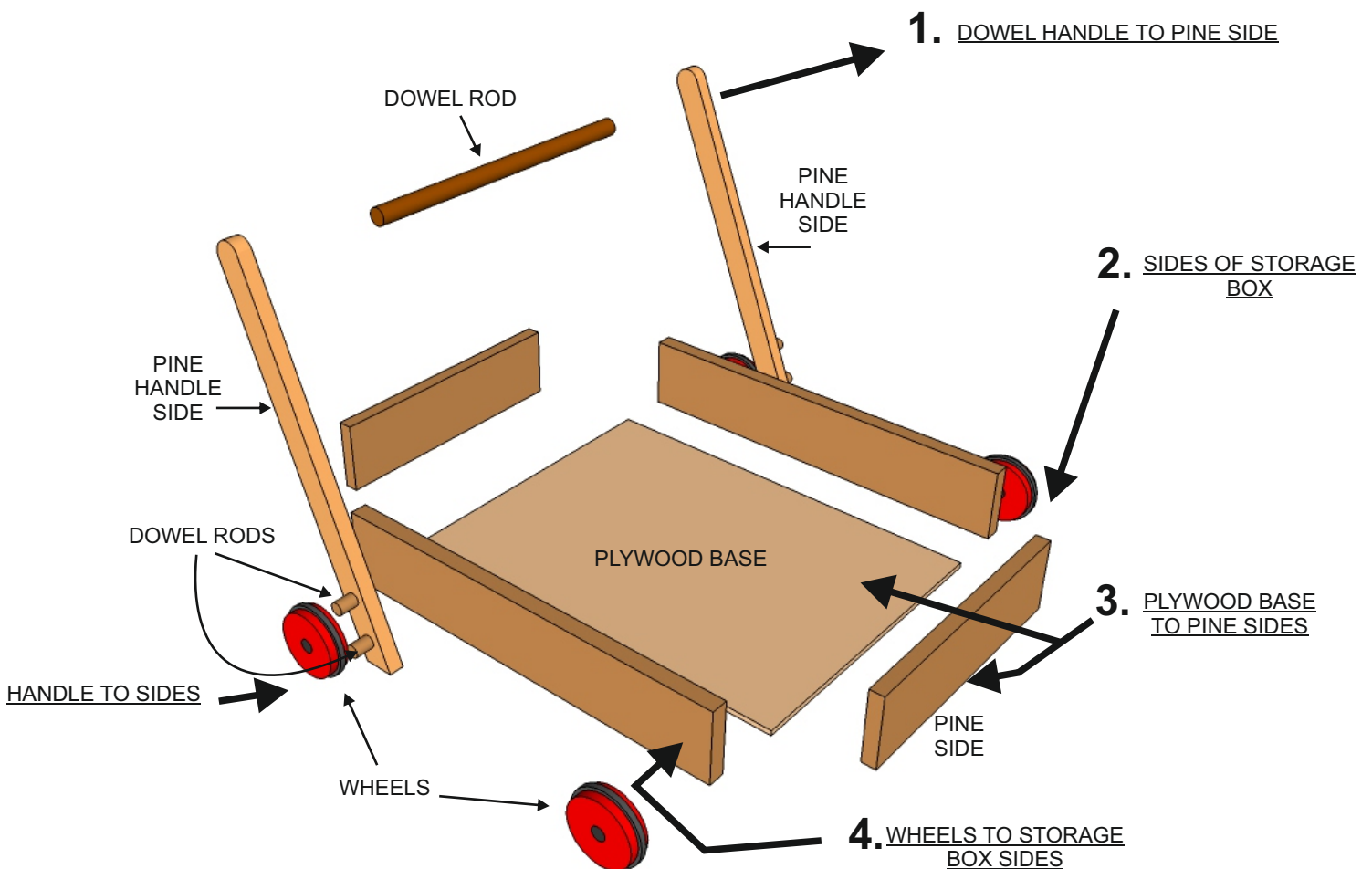
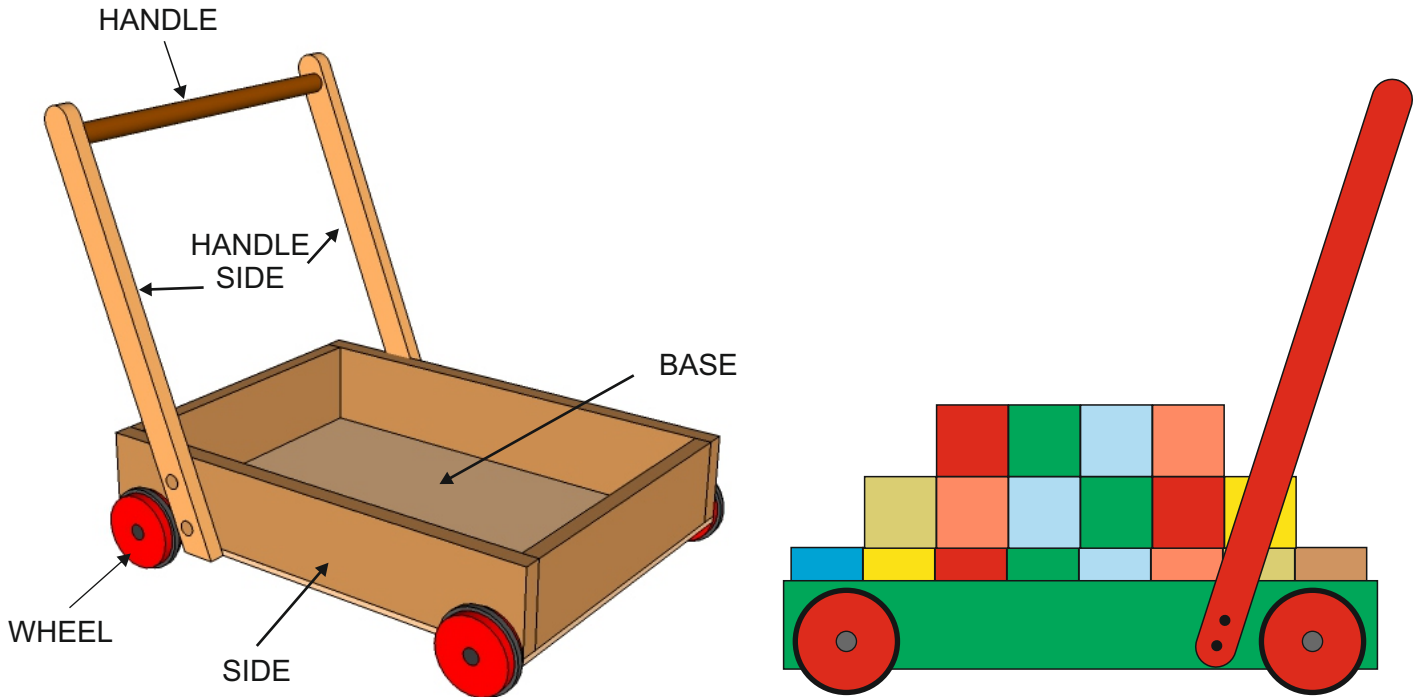
- how you developed your design to meet the needs of the user. **3 marks**
- details of manufacture / construction. **3 marks**
- details relating to functions, features and sizes. **3 marks**
- your explanation of materials and finishes. **2 marks**

QUESTION 3 CONTINUED:

SECTION B
Answer all the questions

4. This question is about manufacturing a product.

Carefully study the drawings of the 'building block trolley for a young child, shown below.



4a. Using notes and sketches describe how you would manufacture the trolley in a typical workshop (**excluding the wheels**)

The trolley is for use by a young child and consequently pay particular attention its safe use.

In your answer, include an explanation of:

- each stage of manufacture **5 marks**
- sketches. **3 marks**
- notes. **3 marks**

Include the names of all the equipment you would use.

ANSWER THIS QUESTION ON THE NEXT TWO PAGES
USING THE TABLE PROVIDED

QUESTION 4a.

Use this table for your notes and sketches

<p>STAGE 1:</p> <hr/> <hr/> <hr/> <hr/>	
<p>STAGE 2:</p> <hr/> <hr/> <hr/> <hr/>	
<p>STAGE 3:</p> <hr/> <hr/> <hr/> <hr/>	
<p>STAGE 4:</p> <hr/> <hr/> <hr/> <hr/>	

QUESTION 4a CONTINUED

STAGE 5:

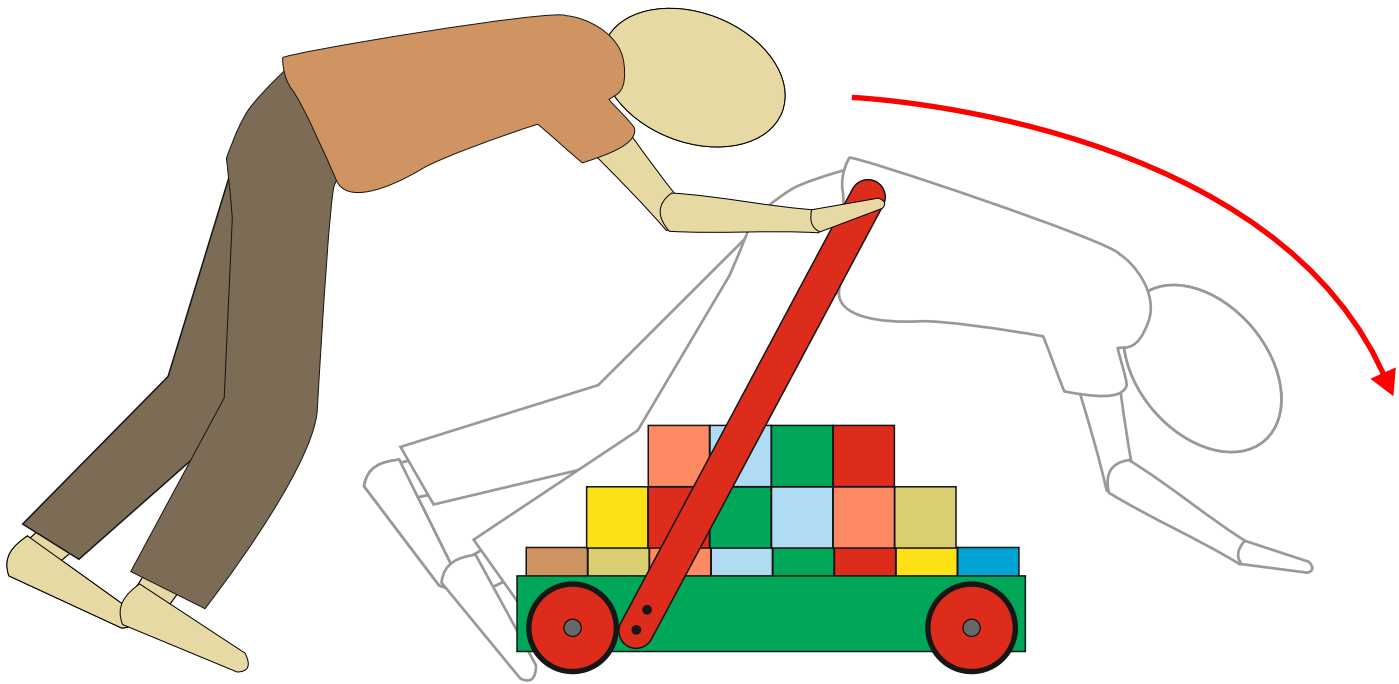
STAGE 6:

STAGE 7:

STAGE 8:

STAGE 9:

4b. Describe a potential health and safety issue concerning the folding handle and use of the trolley by young children. (See the diagram below). **3 marks**



4c. The building block trolley has been altered so that the handle can be folded level with the storage / base. This is seen in diagrams A, B and C.

DIAGRAM 'A'

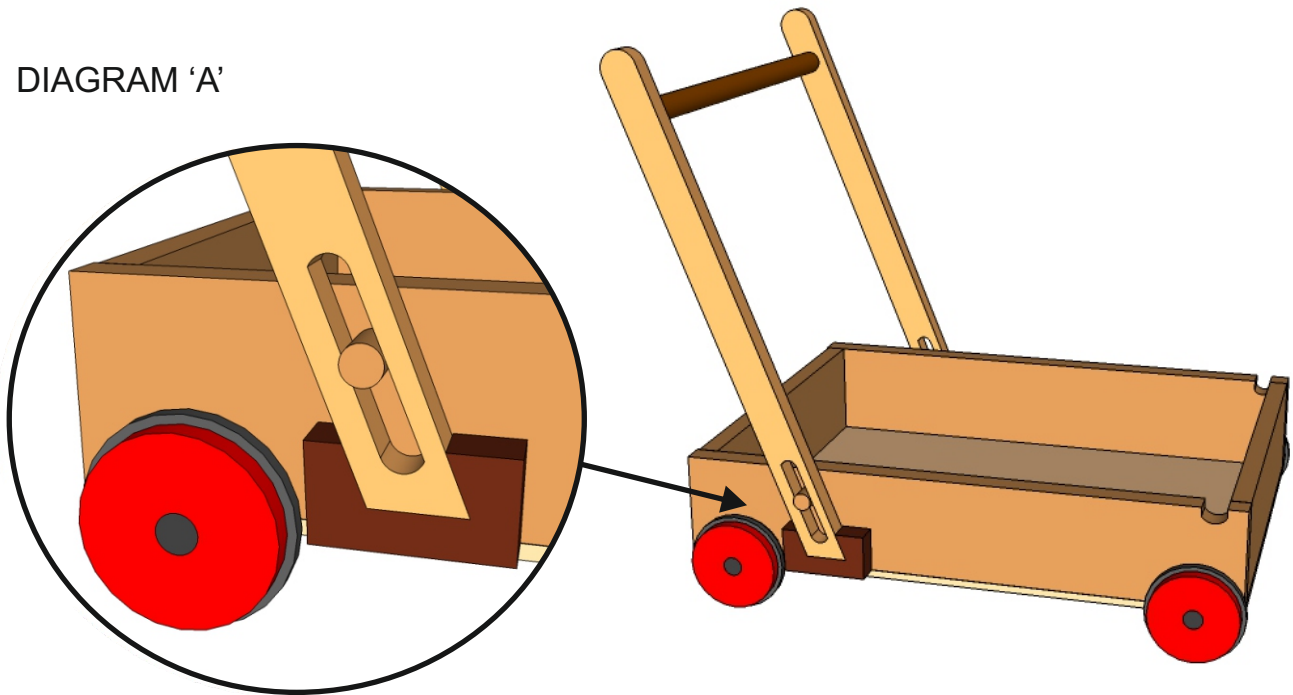


DIAGRAM 'B'

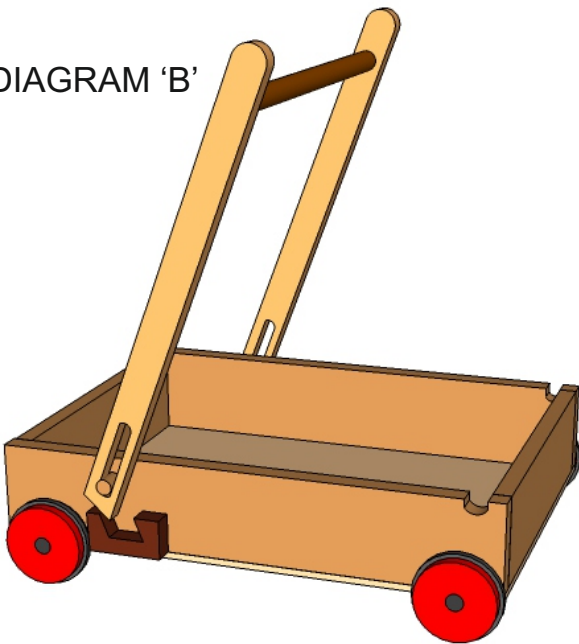
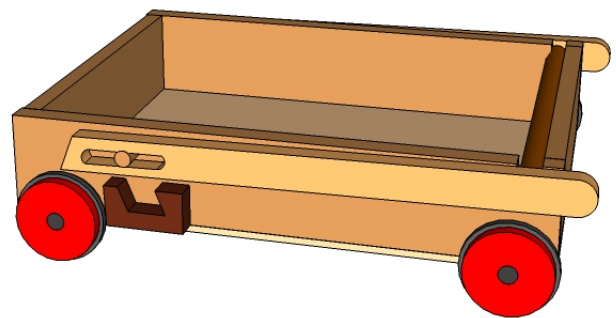


DIAGRAM 'C'

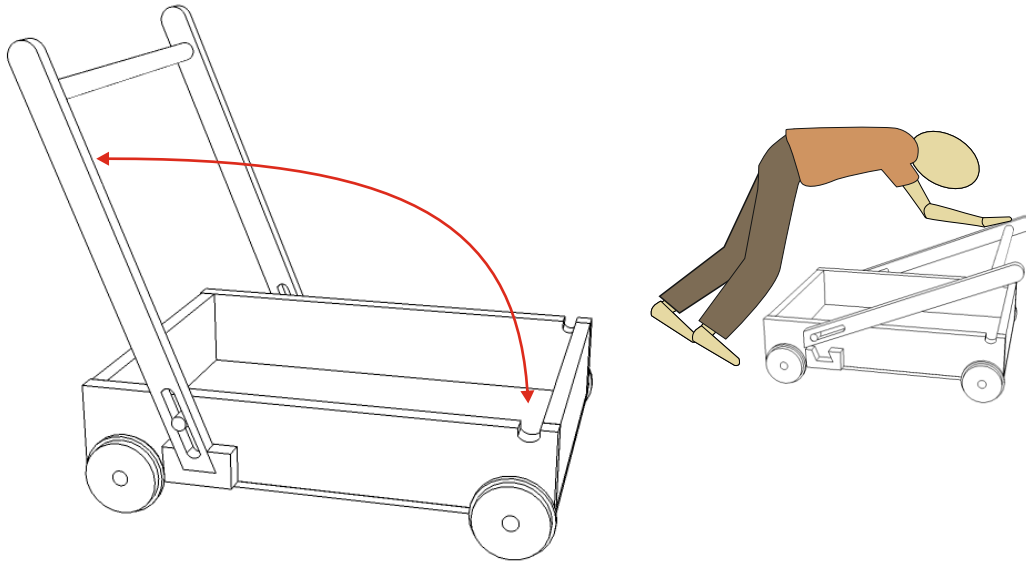


Describe the alterations to the trolley that allow the handle to fold down. **3 marks**

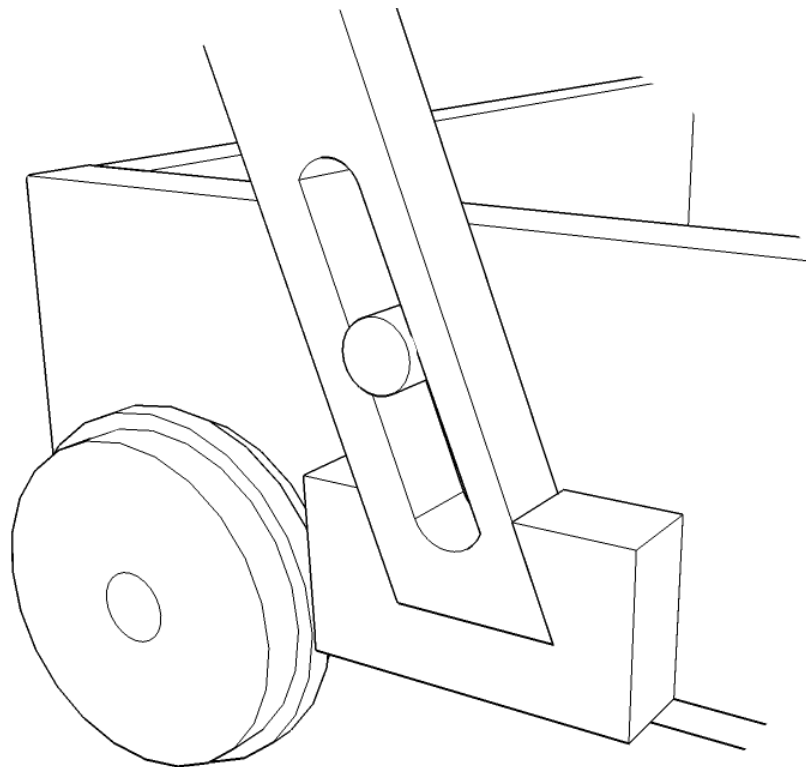
4d. The trolley folds away to save space when the building block trolley is put in storage. However, a similar design fault has been identified. It is possible that the handle could fold accidentally when the trolley is pushed. This could result in an accident (see diagram below).

A locking mechanism is needed, that will fix the handle in position and not allow it to fold away accidentally.

Sketch a potential mechanism on the diagram opposite. Add labels and notes to help explain your design. 5 marks



ADD YOUR DESIGN TO THIS DIAGRAM



Question 5 is concerned with materials and their properties.

5a. Select one of the products shown in the table below. Then, describe two of the features that mean it is suitable for manufacture on a production line. 2 x 2 marks

<p>STEEL CHAIR</p>  <p>TO HELP YOU ANSWER THIS QUESTION</p>	<p>PACKAGE</p>  <p>TO HELP YOU ANSWER THIS QUESTION</p>	<p>POLYPROP CHAIR</p>  <p>TO HELP YOU ANSWER THIS QUESTION</p>
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<p>TO HELP YOU ANSWER THIS QUESTION</p>	<p>http://www.technologystudent.com/prddes1/barcelona2.html http://www.technologystudent.com/grp08/pack1.html http://www.technologystudent.com/prddes1/polyprop2.html</p>
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PRODUCT: _____

FEATURE 1: _____

FEATURE 2: _____

5b. For the product you selected in question 5a - name and describe one of the industrial processes used in it's manufacture. 8 marks

TO HELP YOU ANSWER
THIS QUESTION

<http://www.technologystudent.com/prddes1/barcelona2.html>
<http://www.technologystudent.com/grp08/pack1.html>
<http://www.technologystudent.com/prddes1/polyprop2.html>

INDUSTRIAL PROCESS: _____

DESCRIPTION OF MANUFACTURING PROCESS
INCLUDE NOTES AND A SKETCH(S)

6. This question relates to environmental issues

6a. Explain each of the following environmental terms. 3 x 2 marks

TO HELP YOU ANSWER
THIS QUESTION

<http://www.technologystudent.com/prddes1/downcyc1.html>

Downcycling:

TO HELP YOU ANSWER
THIS QUESTION

<http://www.technologystudent.com/prddes1/closetloop1.html>

Closed Loop Recycling:

TO HELP YOU ANSWER
THIS QUESTION

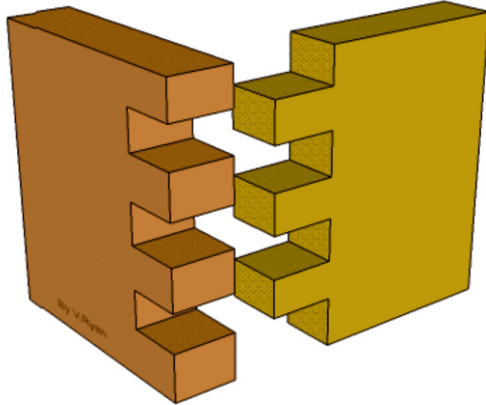
<http://www.technologystudent.com/prddes1/envirmod1.html>

Environmental Modernism:

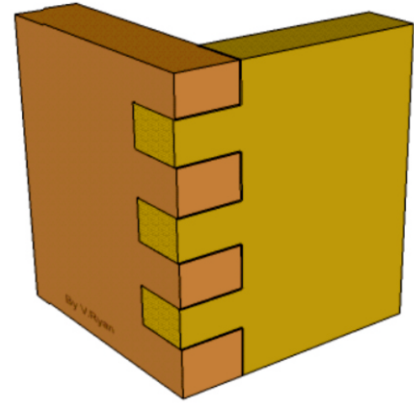
7. This question is concerned with planning and manufacturing

7a. Below are two views of a typical finger/comb. Draw up to six stages of the marking out and cutting one set of 'fingers'. **12 marks**

DISASSEMBLED



ASSEMBLED / GLUED



1	2
3	4
5	6

8. This set of questions is about Inclusivity and products.

8a. What is an inclusive design? 2 marks

**8b. Why can this adjustable office chair be regarded as an inclusive product?
4 marks**

TO HELP YOU ANSWER
THIS QUESTION

<http://www.technologystudent.com/prddes1/pod1.html>



9. This set of questions is concerned with production methods and product systems.

**TO HELP YOU ANSWER
THIS QUESTION**

<http://www.technologystudent.com/joints/scalep1.htm>

http://www.technologystudent.com/joints/revcard_oneoff1.html

http://www.technologystudent.com/joints/rev_batch1.html

9a. What is the difference between Prototype Production and Batch Production? Include an example of a product manufactured by each system. 4 marks

TO HELP YOU ANSWER
THIS QUESTION

<http://www.technologystudent.com/joints/pet1.html>

<http://www.technologystudent.com/joints/pety2.html>

10a. The products shown below are manufactured from POLYETHYLENE TEREPHTHALATE, PET, PETE, (POLYESTER).



Write two reasons why this type of material is suitable for the products above. *2 marks*

REASON 1:

REASON 2:

10b. The clothing is manufactured from nylon.
Write two reasons why this material is suitable. *2 marks*



TO HELP YOU ANSWER THIS QUESTION

http://www.technologystudent.com/joints_fish/nylon1.html

REASON 1:

REASON 2:

TO HELP YOU ANSWER THIS QUESTION Follow the link below.

<http://www.technologystudent.com/prddes1/kite1.html>

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11a. These questions are related to British Standards and European Standards (8 marks in total)

What is the British Standards Institute? 2 marks

11b. What is the British Standards Institute Kite Mark? Include a sketch. 2 marks

11c. What is the Conformance European Symbol? Include a sketch of the symbol. 2 marks

11d. How do the two standards differ? 2 marks

TO HELP YOU ANSWER THIS QUESTION Follow the link below.

<http://www.technologystudent.com/prddes1/standard1.html>

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12a. What is a standard component. Give one or more examples in your answer.
4 marks

TO HELP YOU ANSWER THIS QUESTION Follow the link below.

<http://www.technologystudent.com/prddes1/standard9.html>

12b. Write 4 advantages to a designer and manufacturer, of using standard components in a new product. 4 marks
