



Victorian Certificate of Education

2009

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Figures

Words

Letter

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DESIGN AND TECHNOLOGY

Written examination

Monday 9 November 2009

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

<i>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
A	3	3	40
B	8	8	50
			Total 90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers, coloured pencils, markers, a shape template and a female human figure template and a male human figure template.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer book of 12 pages including a detachable Design Brief insert in the centrefold.
- Grid paper and male and female templates are included with the Design Brief insert.

Instructions

- Detach the Design Brief insert from the centre of this book during reading time.
- Write your **student number** in the space provided above on this page.
- You may use diagrams, notes or sketches to help explain your answers.
- Use the space provided in this book for your design brief drawings.
- Do not draw directly onto the grid paper or the human figure templates.
- All written responses must be in English.

At the end of the examination

- You may keep the detached Design Brief insert.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A**Instructions for Section A**

Answer **all** questions in the spaces provided.

Question 1

Julie is the mother of a small child who has just started to walk. Her child has a birthday in a few months and by then will enjoy playing with ‘pull-along’ toys. Julie has outlined in the design brief below her requirements for such a toy.

Julie’s Design Brief

I have a young son who is nearly two years old and who likes moveable toys. His second birthday is in **January** and I would like to give him a **pull-along toy** that can be attached to a string and will move smoothly behind him when pulled. These toys are **very popular** among my friends who buy them for their children.

The pull-along toy **should be different** and more interesting than a pull-along toy that I might buy in a shop, but it should still be a desirable toy for a small boy. I would like **an inexpensive toy** that is made from **natural materials** that are **environmentally sustainable**. The toy must be **handmade**, smooth and **painted in attractive colours**. The toy will, of course, need to be sturdy and **completely safe for my small son to use**.

For **each** design factor in the table below, select one **constraint** or **consideration** from Julie’s Design Brief.



Design factor	Constraints or considerations
Innovation	
Purpose, function and context	
Visual, tactile and aesthetic	
Materials – characteristics and properties	
Economics – time and financial	

(1 + 1 + 1 + 1 + 1) = 5 marks

Question 2

HOT TUB is a company which designs and manufactures baths for the Australian market. The company has recently released a high-priced bath that is innovative in its design and made from expensive materials (bath A below).

The company also produces a standard range of baths (bath B below). Bath B has traditional styling and is made from cheaper materials.

Bath A	Bath B
	
<p>Water capacity: 420 litres Material: Volcanic limestone and resin (Volcanic limestone is a rare material.) Size: height 630 mm, length 1670 mm, width 745 mm Free-standing bath</p>	<p>Water capacity: 380 litres Material: Acrylic Size: height 470 mm, length 1672 mm, width 755 mm Will need to be supported</p>

The manufacture of both these baths will have an impact on the environment.

- a. Identify one major impact.

1 mark

- b. Justify your choice of the major impact identified above.

3 marks

- c. Identify one criterion based on function that you could use to evaluate both bath A and bath B.

1 mark

- d. How would you test the baths to see if they met your evaluation criterion?

The primary function of both products is for the end user to be able to have a bath.

e. Name and explain a secondary function of bath A.

Name _____

Explanation _____

(1 + 3) = 4 marks

f. Identify an end user who would select bath A in preference to bath B.

1 mark

g. Explain how market research would assist in the design and development of bath A.

3 marks

Bath A is produced using a batch manufacturing system and bath B is produced using continuous manufacturing.

h. Identify an advantage of using a batch manufacturing system for bath A.

1 mark

i. Identify a disadvantage of using continuous manufacturing for bath B.

1 mark

The HOT TUB company uses quality management techniques during both forms of production. Poor quality management can result in a hidden cost to a company.

- j. Identify and explain a possible hidden cost to HOT TUB if quality management techniques are not used.

Possible hidden cost _____

Explanation _____

(1 + 3) = 4 marks

The HOT TUB company has asked for feedback about bath A.

The visual, tactile and aesthetic design factor has a range of fundamentals and applications. From the list below select one design **fundamental** and one design **application** evident in the design of bath A.

Design fundamentals	point, line, shape, form, texture, tone, colour, transparency, translucency, opacity
Design applications	balance, emphasis, repetition, movement/rhythm, pattern, proportion, space/composition/spatial organisation, surface qualities

- k. Design fundamental _____

Design application _____

2 marks

- l. Explain how the selected design fundamental and design application have been incorporated in the design of bath A.

4 marks

Total 28 marks

Question 3

Flash Electrical Manufacturing Company produces small electrical appliances such as kettles, toasters and sandwich makers. It has a policy to include an end user (customer) feedback form inside the packaging of its appliances.

**Flash Electrical Manufacturing Company
Customer Feedback Form**

Name: _____

Address: _____

Age Group: 20–30 31–40 41–50 51–60 60+ (Please circle)

Male Female (Please circle)

Appliance: _____

Model Number: _____

Appliance purchased from: Myer Target K-Mart Electrical retailer
(Please circle)

Other: _____

How did you find out about us?

TV Ad Newspaper from a friend Product Reputation Internet Site
(Please circle)

Please return this form to:

Freepost 1678, Flash Electrical Manufacturing Company
PO Box 1169 Geelong
Victoria 3320

Completed feedback forms will be put in a competition to win a DVD player.

- a. Explain how this customer feedback form would provide the manufacturer and distributor with marketing information.

3 marks

- b. Discuss a disadvantage of this method of customer feedback.

3 marks

- c. Name another method of collecting marketing information which a manufacturer could use.

1 mark

Total 7 marks

END OF SECTION A

SECTION B**Instructions for Section B**

Read the Design Brief insert. Select **one** product that you intend to design and answer the following questions.

Question 4

Name the product you will design and the specific tourist site or area you are promoting.

If you choose to design the garment, state whether it is for a male or a female.

One of the specifications of the Design Brief requires that the product will appeal to a young audience aged 17–29.

a. Identify how you have met the requirements of this specification in your design.

1 mark

b. Develop one evaluation criterion, in question form, that could be used to evaluate this specification.

1 mark

Total 2 marks

Question 5

Name one of the materials you will use to construct your product.

a. Describe a specific test you would use on your selected material to assess its suitability for your product.

2 marks

b. At what stage would you conduct this test? Select one stage from the list below.

Retail and consumer use	Design and production
Evaluation and modification	Distribution

Stage _____

1 mark

c. Explain why you consider this stage would be a useful and appropriate time to conduct the test.

3 marks

Total 6 marks
SECTION B – continued
TURN OVER

Question 6**Annotated design option**

Read the Design Brief and draw and annotate a design option for the product you have selected on page 7.

Use the blank space below for rough ideas.

i. Function/Suitability for intended use	3 marks
ii. Clarity and detail of drawing	3 marks
iii. Details of construction and materials	3 marks
iv. Representation of Victoria or reference to a particular site or aspect of Victoria	3 marks
v. Unique, innovative and modern in design	3 marks
vi. Appeal to a young audience	3 marks

Space for rough working

Draw your design on this page.

Total 18 marks

SECTION B – continued
TURN OVER

Question 7

In constructing your product you will have used at least two processes with a degree of difficulty, including one from the **degree of difficulty list** included in the Design Brief insert.

Name one **process** from the **degree of difficulty list** and then answer the questions which follow.

Process _____

- a. Name one tool or piece of equipment that you would need to use for the chosen process.

_____ 1 mark

- b. Name one potential hazard when using this tool/piece of equipment.

 _____ 1 mark

- c. Describe the safety procedures which should be followed to control risks when using this tool/piece of equipment.

 _____ 2 marks

- d. Is the process you named mainly functional/structural or decorative?

_____ 1 mark

- e. Explain why this process is mainly functional/structural or decorative.

 _____ 2 marks

- f. What planning/preparation would you need to do before implementing the process?

 _____ 3 marks

Total 10 marks

Question 8

Finishing is very important when constructing a product. Describe a finishing process, with a degree of difficulty, that you would apply to your product.

3 marks

Question 9

a. Define **Australian Standards**.

2 marks

b. Give one **reason** why **Australian Standards** should be considered when designing and producing your product.

2 marks

Total 4 marks

Question 10

a. Identify an aspect that would be important for you, as the designer, to know about the client/end user of your product.

1 mark

b. Describe how your design would appeal to the client/end user in terms of this aspect.

3 marks

Total 4 marks

Question 11

List **three** factors that you will need to consider when you calculate a price for the product you have designed.

3 marks

Please remove from the centre of this book during reading time.

Isometric grid paper is included with the design brief to assist you with your design.

D E S I G N B R I E F

Tourism Victoria is trying to encourage more young Australians to visit Victoria.

Tourism Victoria has found that young people aged 17–29 think Victoria caters only for older people and is not really a ‘fun’ place for young people to visit. The organisation wishes to change this view and has decided to create a travelling fair that will tour Australia promoting Victorian tourist sites in a contemporary way. The fair will consist of a ‘Big Top’ similar to that used by a travelling circus.

The tourist sites to be promoted will include, among other places, the historical goldfields, the 90 mile beach in Gippsland, the Murray River, the Twelve Apostles along the Victorian coast, the snowfields and Federation Square in central Melbourne. All these places will be promoted within the Big Top. The Big Top will also feature aspects of life in Victoria including nightlife and food.

In the Big Top there will be an interactive information centre. This will be an area for an interactive display where people can access information through a laptop, charge or download information onto their iPods and view videos. There will also be an area for a small coffee shop.

Tourism Victoria has invited students from around Victoria to develop products that will be used in the fair.

The products must have the feel and look of being part of Victoria. Students may design a product that is related to a specific area or site. The area or site could be one of those listed above or a tourist site that you would like to promote. Tourism Victoria has emphasised that the products developed should be contemporary and should avoid stereotyped images, such as kangaroos, koalas or boomerangs.

TURN OVER

You **must** choose **one** of the following products.

1. A garment or outfit suitable to be worn by a male or female working at the fair
2. A table and chair setting for the coffee shop that will be situated within the Big Top
3. An identification badge **and** a neck lanyard* or neck chain for the identification badge **and** a wrist band/bracelet, to be worn by someone working at the fair
4. Condiment unit for coffee shop tables (A condiment unit contains a covered sugar container and containers for salt and pepper.)
5. A high-tech multimedia station (incorporating chair, monitor, space for personal computer and stereo sound) for people using the online interactive information centre
6. A stand for recharging or downloading information for at least 12 iPods at the same time

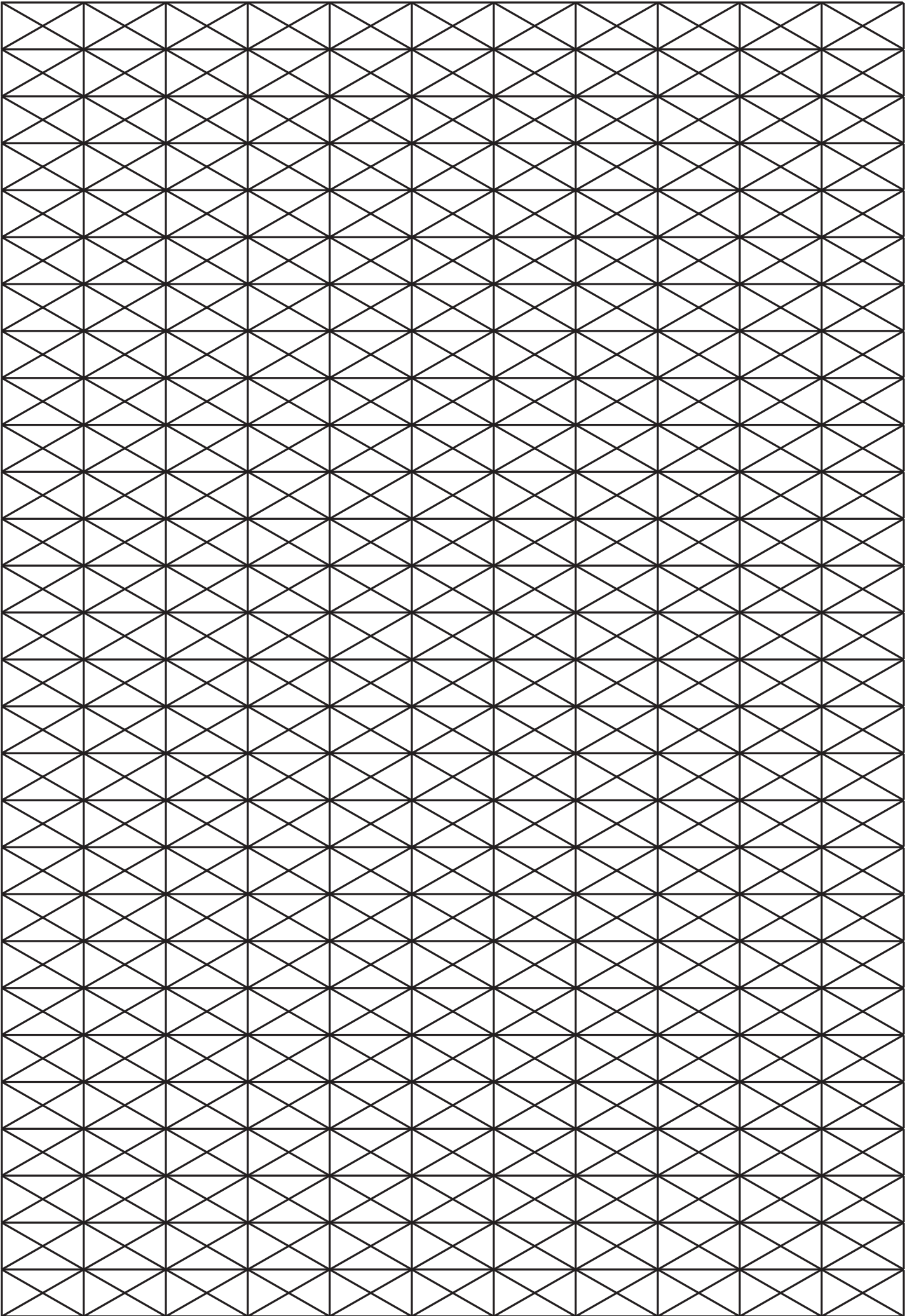
* A lanyard is worn around the neck and holds an identification card or badge.

Your design should

- be unique, innovative and modern in design
- represent Victoria or refer to a particular site or aspect of Victoria
- contain at least two processes with a degree of difficulty;
one of these processes must be from the degree of difficulty list below
- be constructed from at least two materials. These materials can be within the same category or from two different categories
- relate to a young audience.

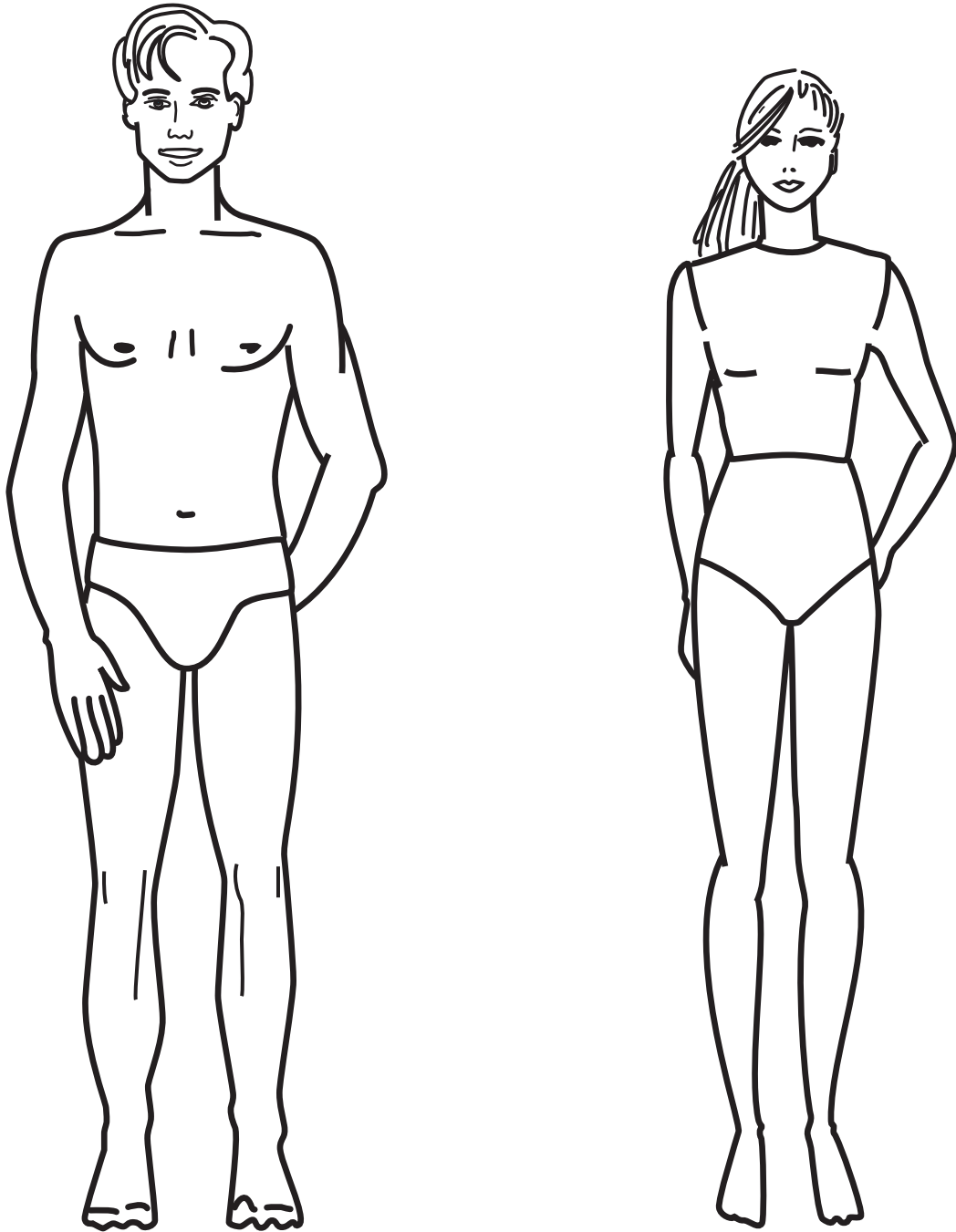
Degree of difficulty list

Wood/Metal	Textiles	Plastics/Ceramics
<ul style="list-style-type: none"> • laminating • dovetail joining • metal folding • welding • milling • routing • riveting • ripping • staining • rolling • annealing • enamelling • biscuit joining • turning (on lathe) • twisting • forging • veneering • fastening 	<ul style="list-style-type: none"> • rouleau making • collar making and attaching • cuff making and attaching • surface decorating • boning • buttonhole making • dyeing • hemming • overlocking • zip insertion 	<ul style="list-style-type: none"> • sand blasting • casting • glazing • vacuum forming • slumping • riveting • drilling



Do not draw your final design on this grid.

Use for tracing **not** drawing.



END OF DESIGN BRIEF INSERT