



Victorian Certificate of Education 2008

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Figures

Words

Letter

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DESIGN AND TECHNOLOGY

Written examination

Monday 10 November 2008

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

Section	Number of questions	Number of questions to be answered	Number of marks
A	3	3	45
B	7	7	45
			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 15 pages including a detachable Design Brief insert in the centrefold.
- Human figure templates and grid paper 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.
- 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

Michael is a Year 11 student just beginning his VCE. Michael needs a new desk as soon as possible so that he can study properly. The desk will be placed in Michael's bedroom.

The table below lists the specifications that need to be taken into account in the design of Michael's new desk.

	Specification
A.	Michael is 1.6 metres tall.
B.	Michael's desk needs to be strong enough to hold his computer and should contain easily opened drawers.
C.	Michael's bedroom is quite small.
D.	Michael needs a place for his design folio and textbooks.
E.	The desk should not have sharp edges.

Below is a table listing design fundamentals.

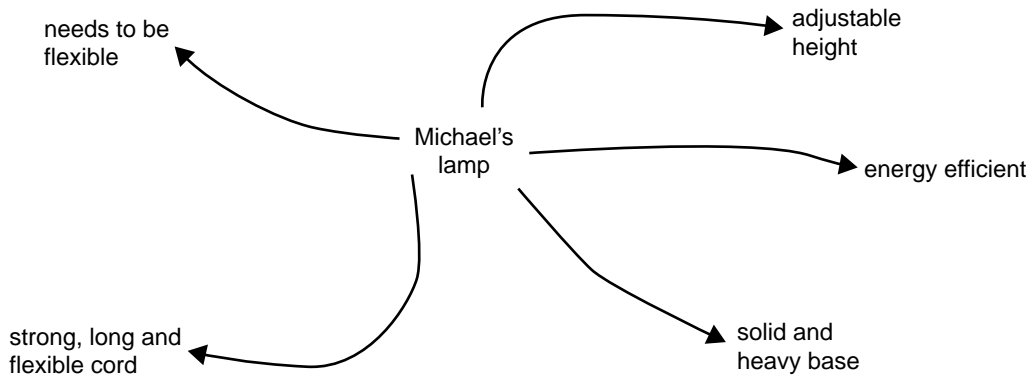
- a. Match each of the specifications (**A.–E.**) from the table above to the relevant design fundamentals below.

Design fundamental	Specification
Safety	
Context and environment of product use	
Need	
Reliability	
Ergonomics	

5 marks

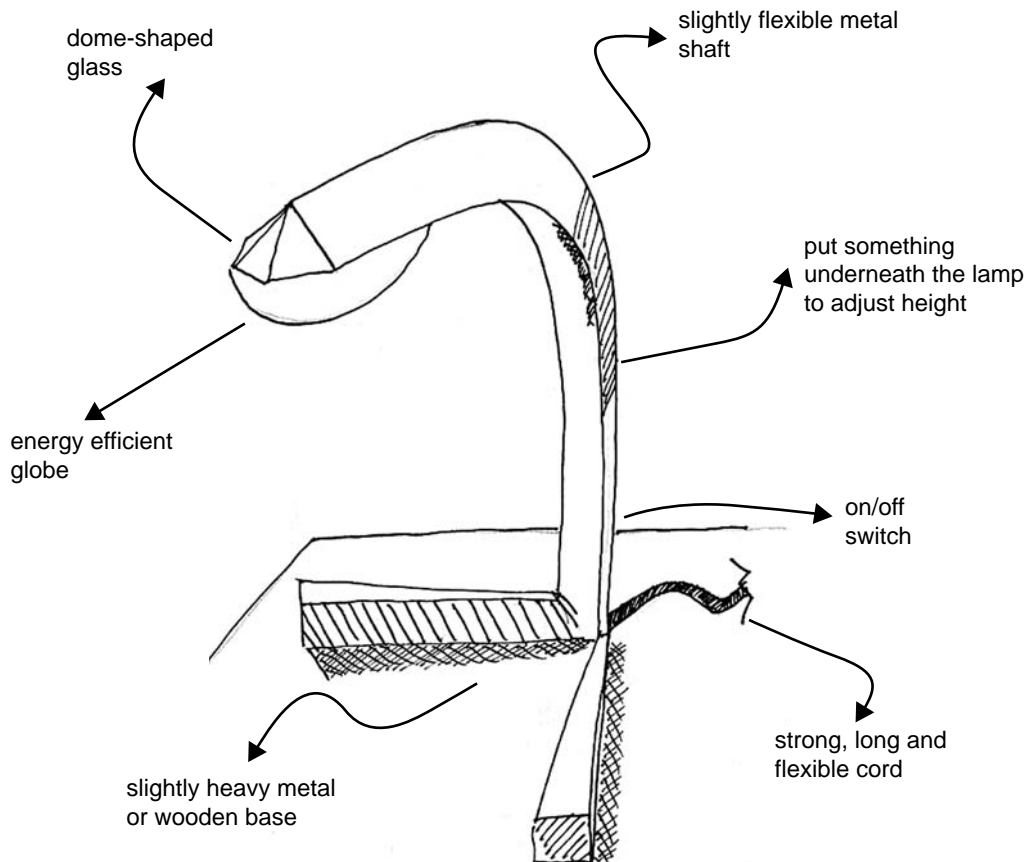
Michael's sister, Catherine, is a tertiary design student. Michael has asked Catherine to design a lamp for his new desk.

Below is the beginning of a concept map that Catherine used to incorporate some of Michael's needs for his lamp.



- b. i. Why did Catherine start with a concept map?

Below is one of Catherine's design options for the lamp. In the annotations Catherine has noted some of Michael's design requirements.



Catherine did not use a method of weighting the criteria to assess the design options.

- ii.** Explain why it is important to weight the criteria.

1 + 3 = 4 marks

Catherine and Michael have different views about what is important in the design of the lamp.

Michael considers the height and adjustability of the lamp to be the two (equally) most important factors, but Catherine thinks that the most important factor is the look of the lamp.

- c. i.** Explain why Catherine might think the look of the lamp is the most important factor.

- ii.** Why is it important for Catherine to consider Michael’s view?

2 + 3 = 5 marks

During the production stage Catherine realises that she does not have the equipment she needs to make the glass dome shape.

d. List **three** things she could do.

3 marks

Catherine also realises that she cannot make the shape that she wants for the lamp from metal.

e. What has Catherine failed to do before presenting the design option to Michael?

1 mark

Catherine has realised that the role of the client and the client's needs are also very important.

f. i. List **one** piece of information Catherine could have collected about Michael to assist in her lamp design.

ii. Justify the importance of this information.

1 + 2 = 3 marks

Total 21 marks

Question 2

When commencing a new design, designers need to consider every stage of the development and use of a product. Some consumers now choose products from companies that are consciously trying to reduce their impact on the environment.

Kelly is an industrial designer who works for a white goods company which manufactures refrigerators, washing machines and dryers. She has been asked to do an LCA of one of the products that she has designed.

- a. What does LCA stand for?

1 mark

Kelly has been asked to consider what might happen to this product when it is no longer functional and cannot be repaired.

This is considered the disposal stage.

- b. i. List two **issues** concerning the problem of disposal that Kelly could consider when she is designing her product (excluding material).

1. _____

2. _____

- ii. Select one of the issues above and comment on why Kelly's company must consider this.

As a result of considering the disposal of the product, Kelly will rethink the materials she specifies to be used.

- iii. Explain how material choice impacts on product disposal.

2 + 3 + 3 = 8 marks

- c. i. How can Kelly's company reduce the energy used in the manufacture of its white goods?

- ii. Name one benefit (other than saving money) of reducing use of energy in **manufacture**.

1 + 1 = 2 marks

Kelly wishes to reduce the impact that transportation and distribution of her company's products have on the environment.

d. List two methods Kelly could recommend to help reduce this impact.

1. _____

2. _____

2 marks

Total 13 marks

Question 3

Some designers initially make small quantities of the products they design. However, if there is an increased consumer demand, they may have to produce much larger quantities.

Mark and Jenny are two young designers. Mark is a jewellery designer who makes one-off products. Jenny is a fashion design graduate whose designs have become successful. Jenny has now begun to design for batch production.

Mark makes original one-off jewellery.

a. List two advantages of one-off production.

1. _____

2. _____

2 marks

Mark's designs have captured the attention of a multinational company. This company is interested in mass producing the jewellery that Mark has designed.

b. Explain one benefit of mass production to the end user.

3 marks

Jenny originally made one-off garments.

c. Identify one change she needed to make to ensure her designs were suitable for batch production.

2 marks

The manufacturer of Jenny's garments needs to implement quality management techniques to ensure the garments are of a high quality.

d. Name a quality management technique and describe it.

Name _____

Description _____

1 + 3 = 4 marks

Total 11 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.

Name the product you have selected to design. _____

What is the specific age of the child that this product will be designed for? _____

Question 4

- a. i. Why is it important to develop criteria for evaluation before designing the product?

- ii. Develop **one** evaluation criterion, in question form, that could be used to evaluate the product you will design.

2 + 1 = 3 marks

- b. Testing is done at different stages of design development, production and on the final product.

- i. Describe one test that you would conduct for your product.

- ii. At what stage would you conduct this test?

- iii. Why is this test important?

2 + 1 + 3 = 6 marks

Total 9 marks

SECTION B – continued
TURN OVER

Question 5**Annotated design option**

Read the Design Brief and draw and annotate a design option for the product you have selected on page 11.

i. Function/Suitability for intended use	3 marks
ii. Age-appropriate appeal	3 marks
iii. Clarity and detail of drawing	3 marks
iv. Details of construction	3 marks
v. Safety considerations	3 marks
vi. Innovation and creativity	3 marks

Space for rough working

Draw your design on this page

Total 18 marks

SECTION B – continued
TURN OVER

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Question 6**Visual, tactile and aesthetic design factors**

Fundamental	Application
point, line, shape, form, texture, tone, colour, transparency, opacity	balance, emphasis, repetition, movement/rhythm, pattern, proportion, space/composition/ spatial organisation and surface qualities

List one design fundamental and one application, from the lists above, which relate to your design.

Fundamental _____

Application _____

Explain how the fundamental and the application selected above have been used in your design.

4 marks

Question 7

There are many Australian Standards; some are required by law and some are adopted by choice.

Explain why you might need to refer to Australian Standards when designing your product.

3 marks

Question 8

a. Name **one** complex process that you would use when making your product.

_____ 1 mark

b. You are required to carry out a risk assessment of the process you named above.

i. Name one hazard associated with this process.

ii. List one potential injury that could occur during this process.

iii. State one risk control measure to reduce this potential injury.

1 + 1 + 1 = 3 marks

Total 4 marks

Question 9

The end user will need to know how to look after this product. Provide two instructions for the care of the product. (You may do this in point form.)

1. _____

2. _____

2 marks

Question 10

If a product promotion is to be a success, it needs to be suitable for the product and aimed at the appropriate target group.

- a. Do you think **newgeneration.com** has chosen the right method of selling their products? Discuss.

3 marks

- b. How could **newgeneration.com** create an awareness of the website to the target group?

2 marks

Total 5 marks

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

Included with the design brief are child figure templates and isometric grid paper to assist you with your design.

D E S I G N B R I E F

newgeneration.com

Your task is to design a product for newgeneration.com

An online store called **newgeneration.com** is a new initiative which specialises in clothing, furniture, toys, and play equipment for children between the ages of 4 and 12 years.

The company intends to sell products that are different and innovative to parents, grandparents and other adults.

Research has shown that people who buy products from the Internet are usually very busy and time is very important to them.

The customers of **newgeneration.com** will expect to purchase safe, high quality products for children.

You are being asked to design a product suitable to be sold by **newgeneration.com**.

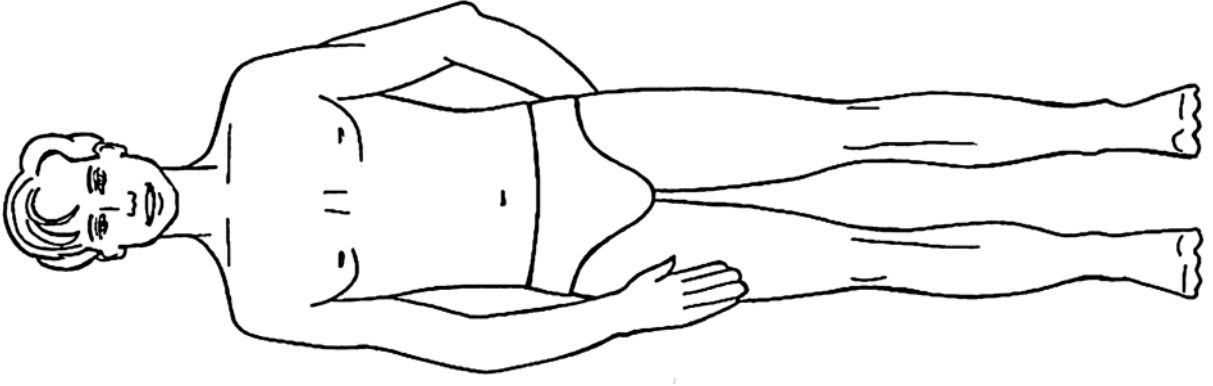
You will be required to design the chosen product in the material(s) of your choice, remembering that some products can be made using combinations of different materials. Your design must meet the following requirements.

- You must nominate the specific age of the children you are designing for and make this obvious using annotation. Your product must be suitable for the age you nominate.
- It must visually appeal to the specific age of the child.
- The product must be interesting and innovative. You should annotate the aspects of your design that you believe make it interesting and innovative.
- Your design drawing must include annotations that show **clearly** how you think the product will be constructed.
- You must consider safety aspects that are relevant to the product.
- Your product design must include one complex process.

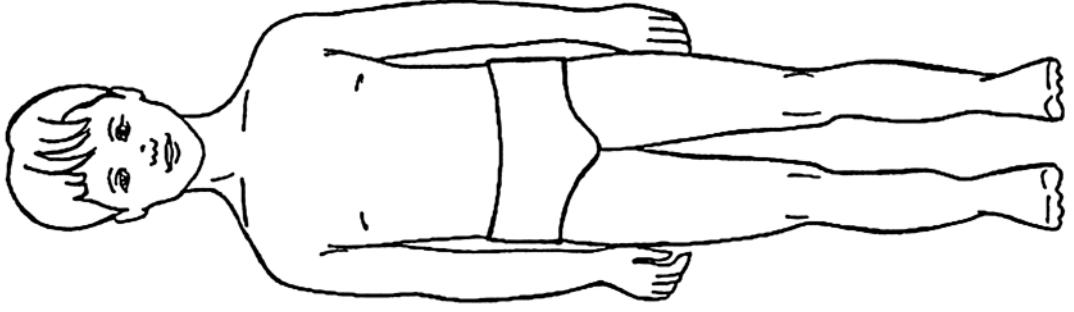
You **must** choose **one** of the following products.

1. **A cubby house**
2. **A storage/display unit** for a particular collection of toys (for example, a 'beanie kids' collection or a model car collection)
3. **A beach party outfit** (not a swimming costume) for a picnic and games on the sand
4. **A set of containers** for a child's bathroom, including mug and toothbrush container and small soap dish
5. **A mobile** with moving parts to hang from the ceiling
6. **A child's garden set** (for example, wheelbarrow, trowel and shovel)

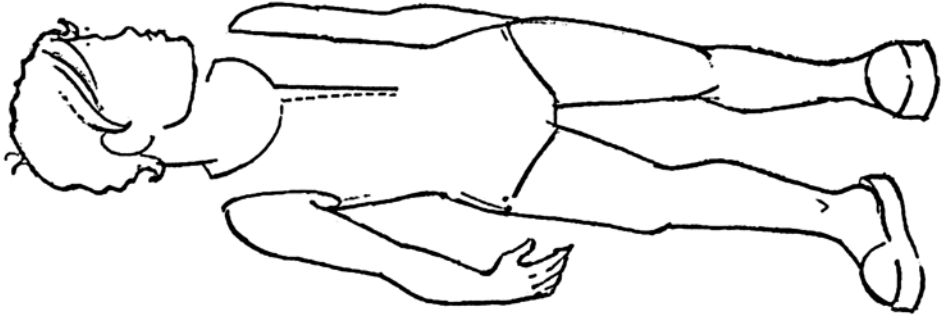
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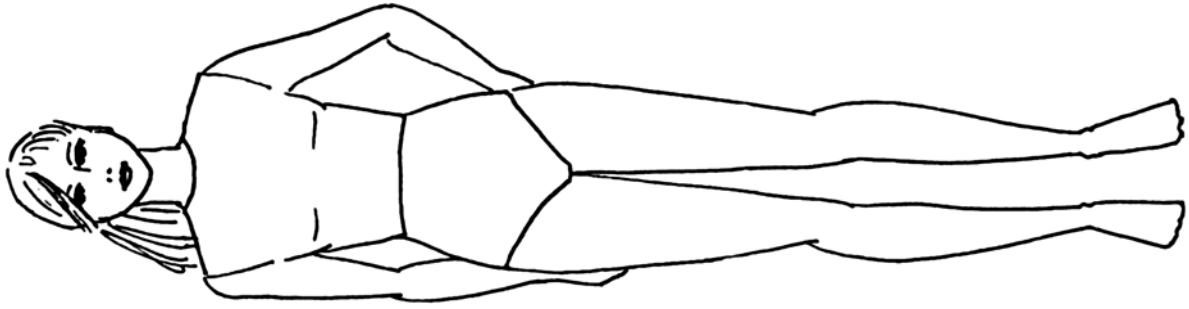
Male 10-12



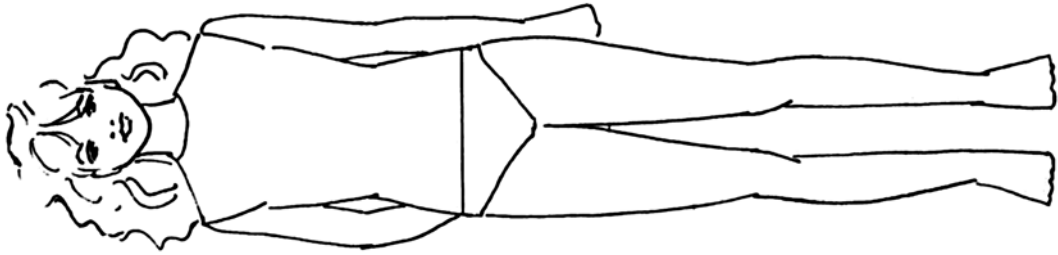
Male 6-9



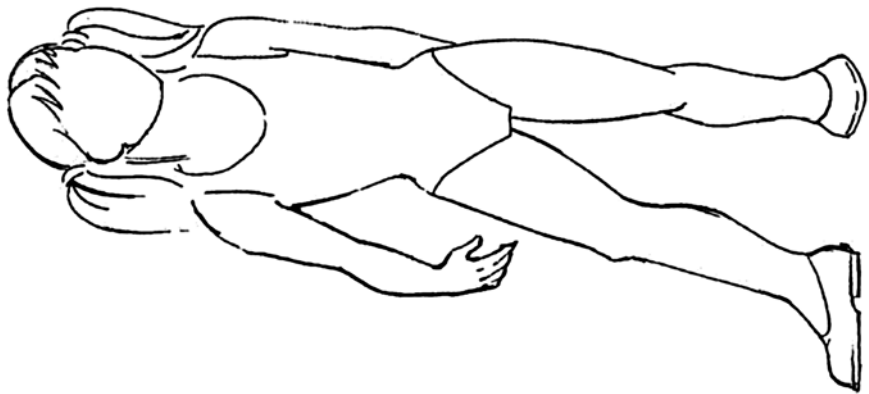
Male 4-5 years



Female 10-12

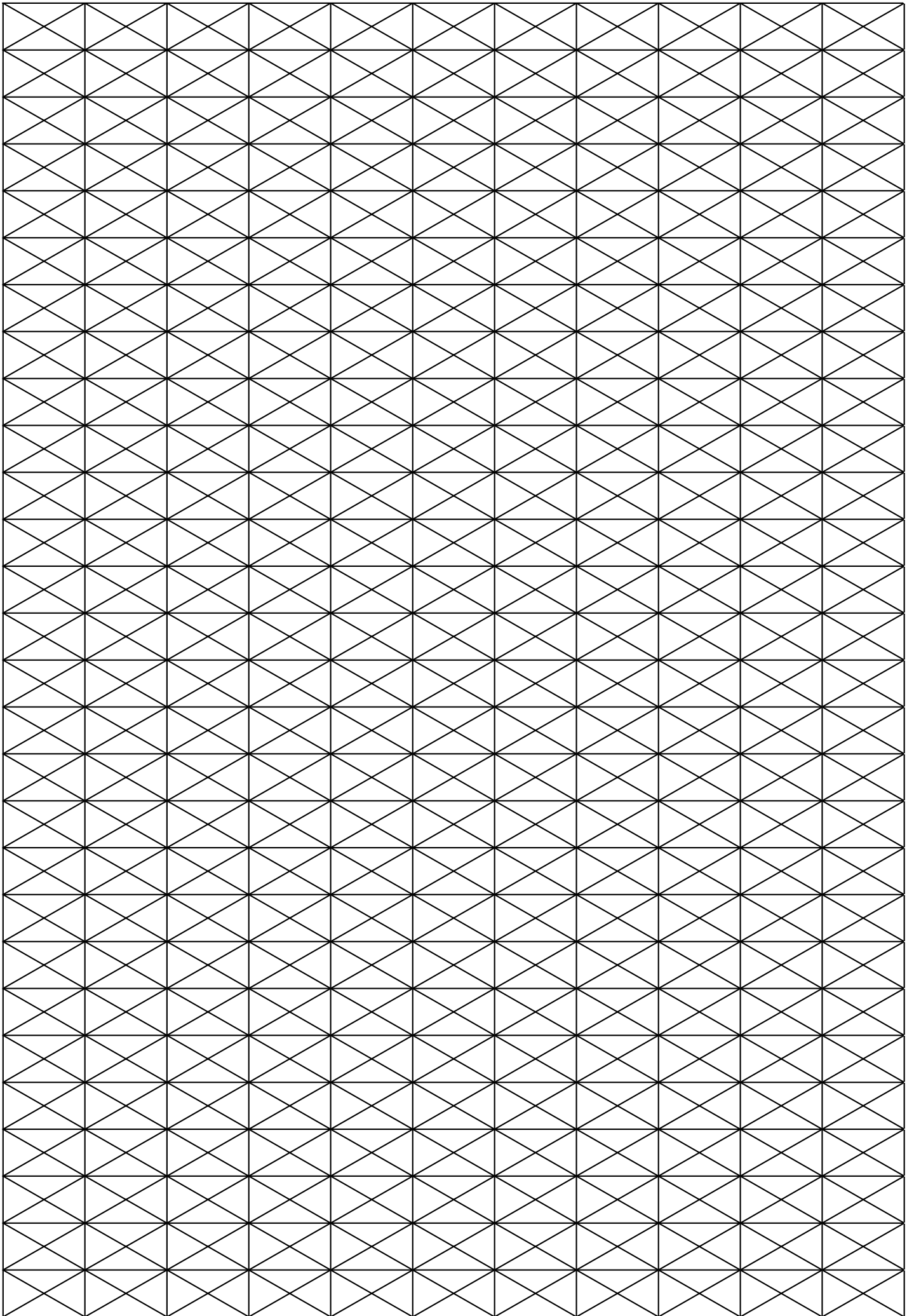


Female 6-9



Female 4-5 years

TURN OVER



END OF DESIGN BRIEF INSERT