

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
TOTAL	



General Certificate of Secondary Education
June 2015

Design and Technology: Graphic Products

45501

Unit 1 Written Paper

Wednesday 17 June 2015 1.30 pm to 3.30 pm

For this paper you must have:

- a black pen, a pencil, a ruler, an eraser, a pencil sharpener and coloured pencils.

Time allowed

- 2 hours

Instructions

- Use black ink or black ball-point pen. Use pencil and coloured pencils 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 outside the box around each page or on blank pages.
- Do all rough work in this answer book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 120.
- Section A relates to the context given in the Preliminary Material that was previously issued.
- You are reminded of the need for good English and clear presentation in your answers. Quality of Written Communication will be assessed in Question 4.

There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

Section A

Answer this question in the spaces provided.

Section A is about designing.

You are advised to spend 32 minutes on this question.

Design Theme: Prototype block modelling of children's hand held products based on the theme of wildlife.

Look at the Design Brief and Design Criteria below.

Design Brief

A company wants to introduce a new hair brush for children.

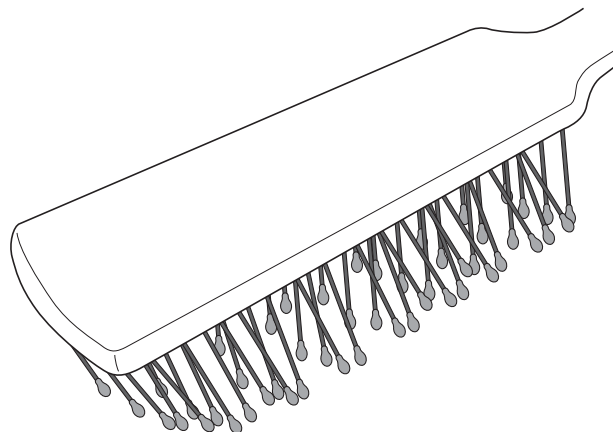
Design Criteria

You have been asked to design the handle for the hair brush. Use the hair brush head shown below as a starting point for the shape and decoration of your designs.

The hair brush handle must:

- be based on the theme of wildlife
- appeal to children up to the age of 10 years
- be suitable for small hands to grip.

Hair brush head



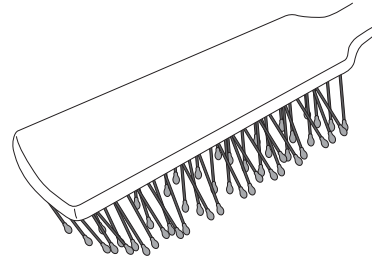
Turn over ►

- 1 (a)** Use the design criteria below to produce a series of annotated sketches which show the initial ideas and development of your designs for the hair brush handle.

Design Criteria

The hair brush handle must:

- be based on the theme of wildlife
- appeal to children up to the age of 10 years
- be suitable for small hands to grip.



Marks will be awarded for:

- effective use of the design criteria
- creativity and quality of the development, including an indication of colour
- notes explaining your sketches.

[4 marks]

[10 marks]

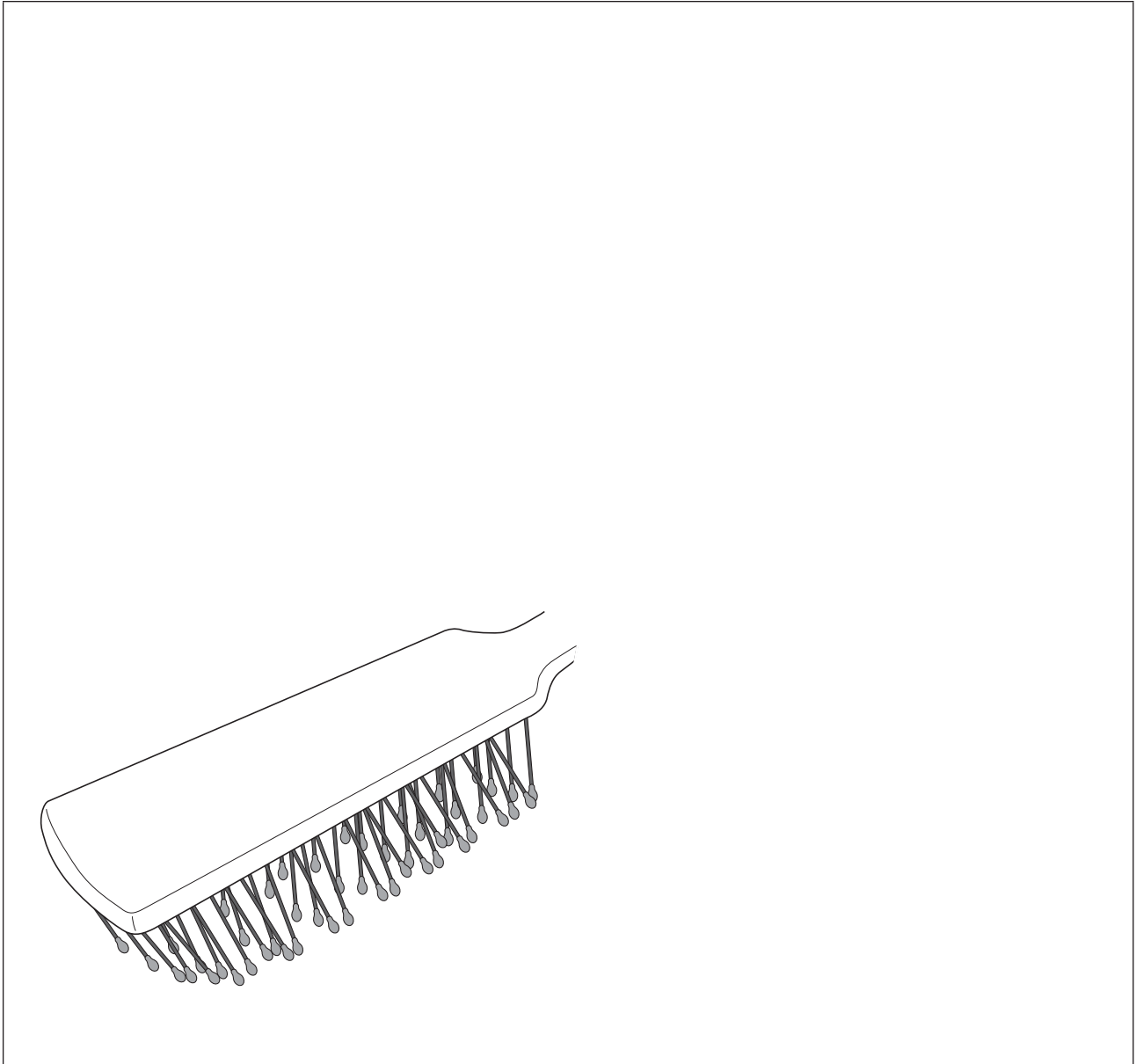
[3 marks]

A large, empty rectangular box with a thin black border, occupying most of the page. It is intended for the student to write their answer to the question on the previous page.

Turn over ▶

- 1 (b)** Using the hair brush head shown below, produce a coloured three-dimensional (3D) drawing of your final handle.

[10 marks]



1 (c) Evaluate the final hair brush handle you have drawn in part **(b)** against **one** of the design criteria given on page 4.

[3 marks]

.....

.....

.....

.....

.....

.....

1 (d) (i) Name a suitable block modelling material for a prototype of your hair brush handle.

[1 mark]

.....

1 (d) (ii) Name a suitable smart material for a prototype of your hair brush handle.

[1 mark]

.....

32

Turn over for the next question

Turn over ▶

There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

Section B

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

This question is about representing data. You are advised to spend about 16 minutes on this question.

2 (a) Draw a line to match the method of representing data with its graphical form. An example has been completed for you.

[4 marks]

Graphical Form

Method
Line Graph
Histogram
Pie chart
Bar chart
Pictograph

Popularity of Different Sports in School

Reports: totals by month
Totals by month for 2009

Varieties of apples in a food store		
Red Delicious	🍏 🍏 🍏	Key 🍏 = 10 apples 🍏🍏 = 5 apples
Golden Delicious	🍏 🍏 🍏🍏	
Red Rome	🍏 🍏 🍏 🍏	
McIntosh	🍏 🍏	
Jonathan	🍏 🍏 🍏 🍏🍏	

Results of Maths Test

Daily high temperatures for one week

Turn over ▶

2 (b) Describe **one** advantage of using a pictograph to represent data.

[2 marks]

.....

.....

.....

.....

2 (c) The results of a questionnaire to find out which fruit is most popular in a school canteen are shown in **Figure 1** below.

Complete the pictograph in **Figure 2** using the data in the table below.

Each symbol in the pictograph represents 10% of the result.

Marks will be awarded for:

- accuracy of data
- use of symbols
- labelling the graph.

[4 marks]

[3 marks]

[3 marks]

Figure 1





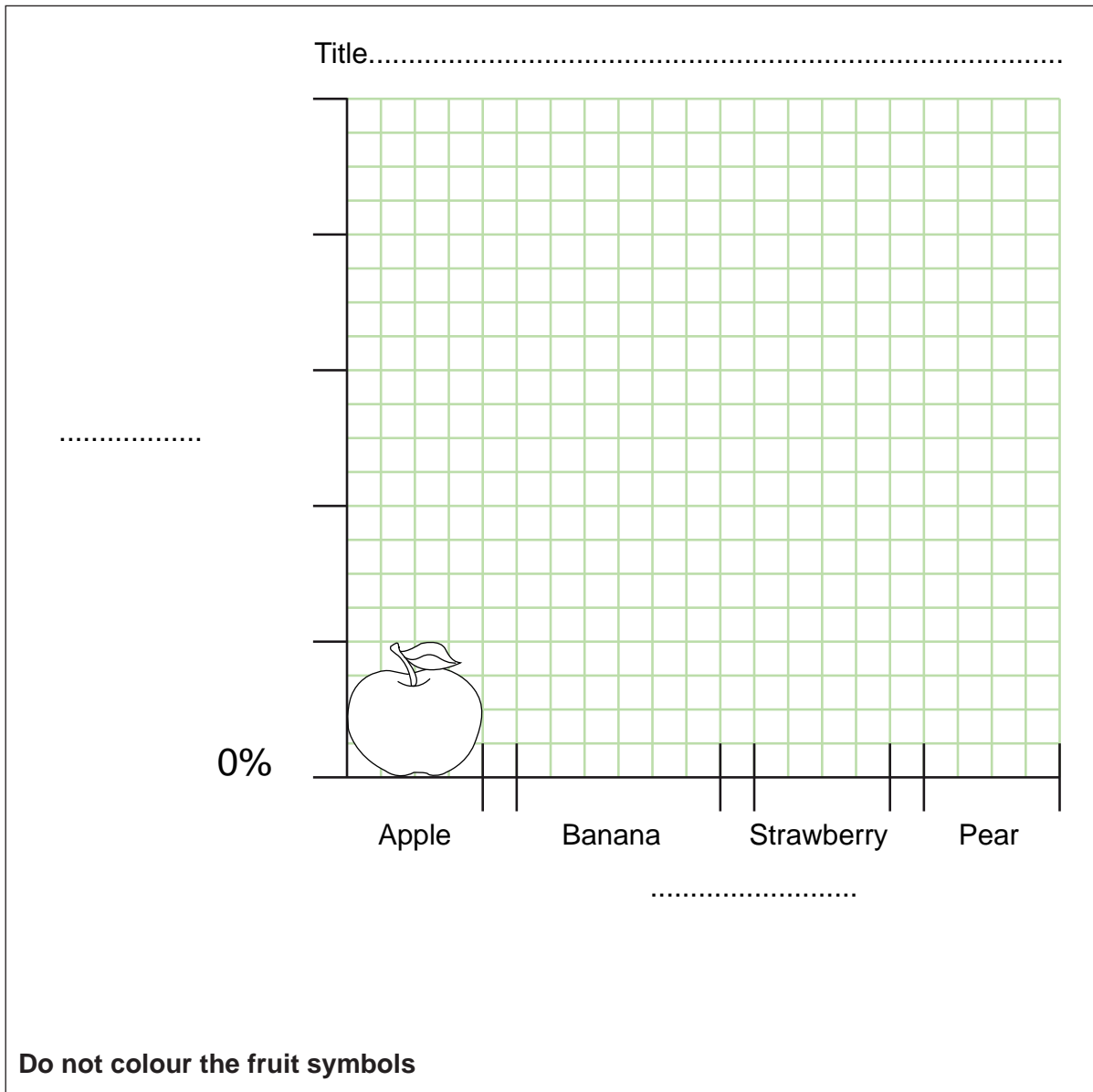
Fruit	Key	Percentage
Apple		40%
Banana		30%
Strawberry		20%
Pear		10%

Figure 2



16

Turn over for the next question

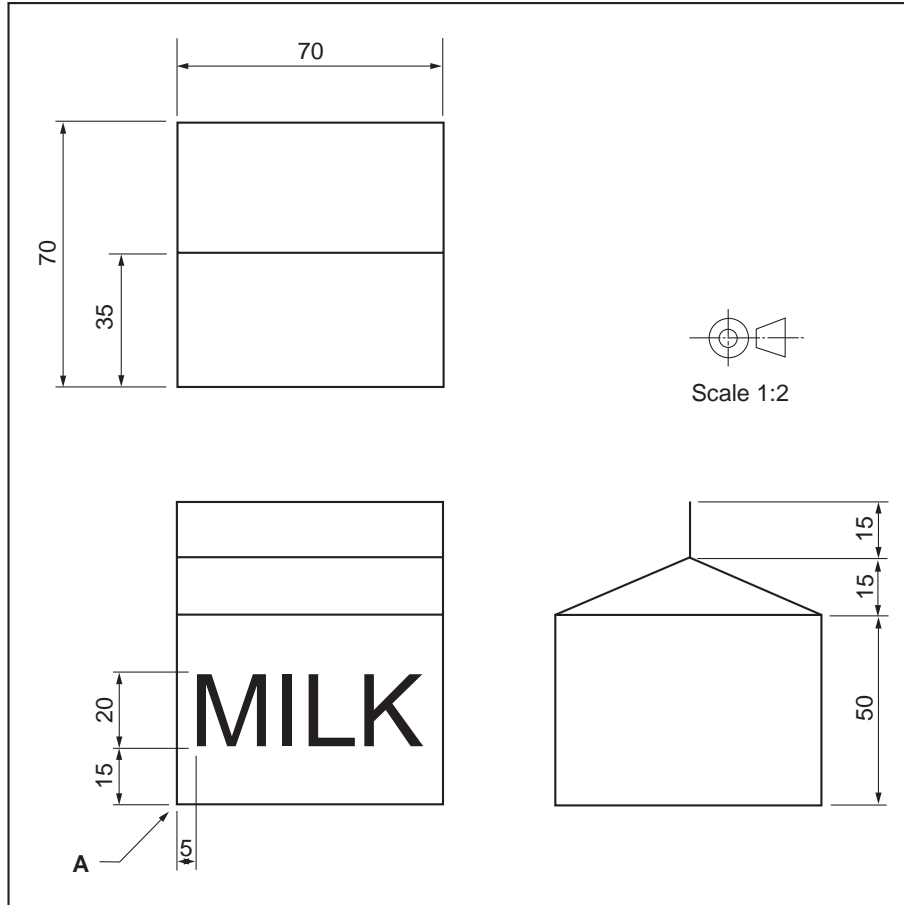
Turn over ▶

This question is about three-dimensional (3D) sketching.

You are advised to spend about 20 minutes on this question.

- 3 The orthographic drawing shown in **Figure 3** is of a milk carton.

Figure 3

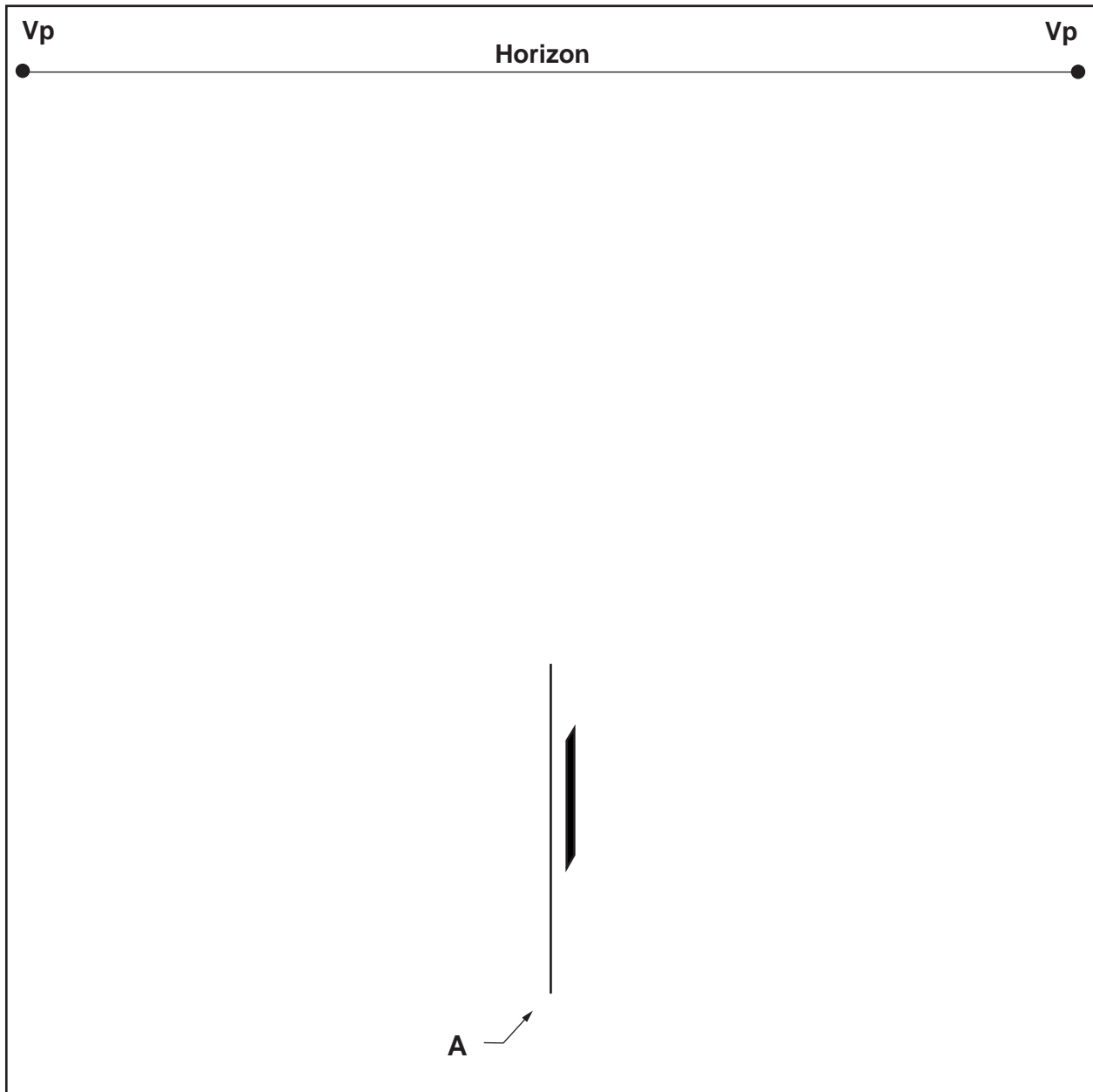


Dimensions are given in millimetres (mm)

- 3 (a)** Using the information in **Figure 3**, complete a full-size two point perspective drawing of the milk carton. The front edge of the carton has been drawn for you at point A in **Figure 4**.

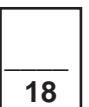
[12 marks]

Figure 4



- 3 (b)** Complete the word 'MILK' on the front panel. The stem on the left hand side of the letter 'M' has been completed for you. Estimate any sizes not given.

[6 marks]



Turn over ▶



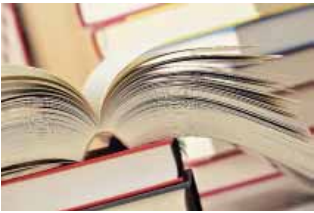

This question is about the scale of production.

You are advised to spend about 14 minutes on this question.

5 (a) Below is a list of different types of production methods.

Complete the table below.

An example has been completed for you.

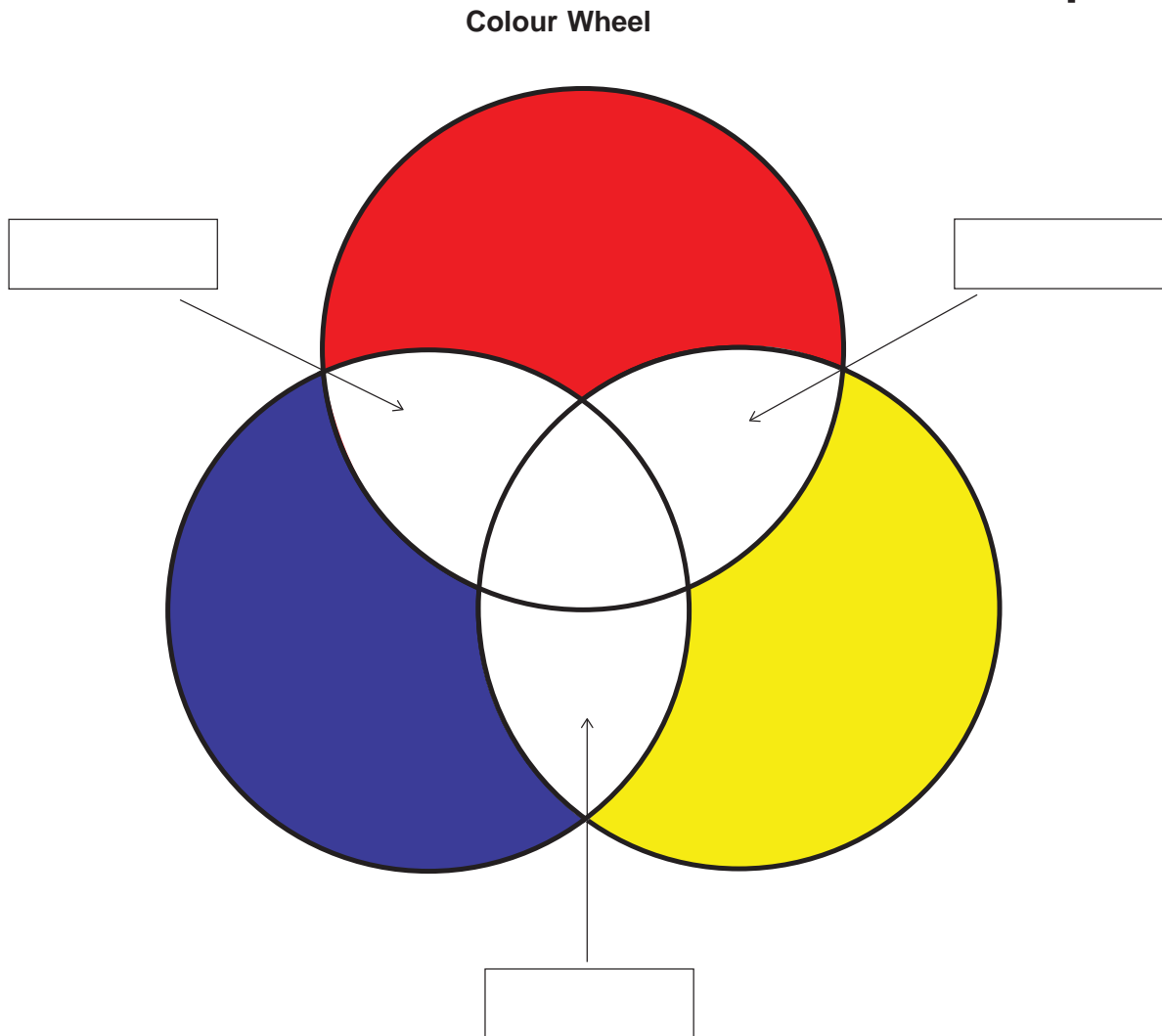
Scale of production and example	Describe the production method
<p>One-off production</p> 	<p>One-off production is when only one of the product is made. It is usually a unique or specialised product.</p>
<p>Batch production</p> 	<p style="text-align: right;">[2 marks]</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Mass production</p> 	<p style="text-align: right;">[2 marks]</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Continuous production</p> 	<p style="text-align: right;">[2 marks]</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

Turn over ►

5 (b) Red, blue and yellow are the primary colours.

In the colour wheel below, label the secondary colours that should appear in the overlapped areas indicated.

[3 marks]



5 (c) Study the signs below.

Figure 5



Figure 6



Explain how colour is used to help communicate the meaning of these signs.

5 (c) (i) Figure 5

[2 Marks]

.....

.....

.....

.....

5 (c) (ii) Figure 6

[2 Marks]

.....

.....

.....

.....

5 (d) Giving an example, explain why the use of colour is important when considering the aesthetics of a product.

[3 marks]

.....

.....

.....

.....

.....

.....

Turn over for the next question

Turn over ▶

This question is about quality control and industrial processes.

You are advised to spend about 16 minutes on this question.

6 (a) Explain why quality control is important when printing a graphic product.

[3 marks]

.....

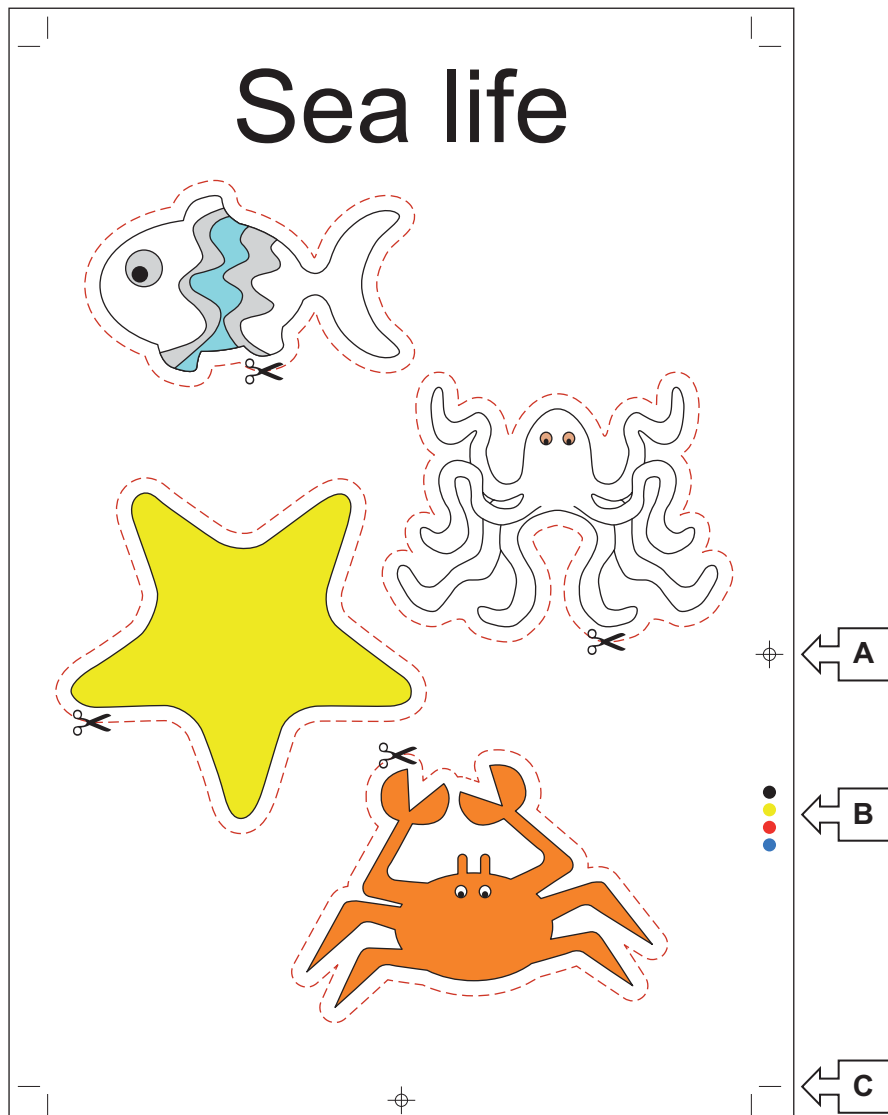
.....

.....

.....

6 (b) Figure 7 shows a printed page from a child's sticker book before it is trimmed and assembled into a complete book.

Figure 7



The marks around the edge of the page have different meanings.

Give the name of each mark labelled in **Figure 7**. Explain how each mark is used.

[3 marks]

Label A.....

Use

.....

[3 marks]

Label B.....

Use

.....

[3 marks]

Label C.....

Use

.....

6 (c) (i) The starfish is going to be foil blocked.

Explain this special printing effect.

[2 marks]

.....

.....

.....

6 (c) (ii) Explain why foil blocking increases the cost of producing the sticker book.

[2 marks]

.....

.....

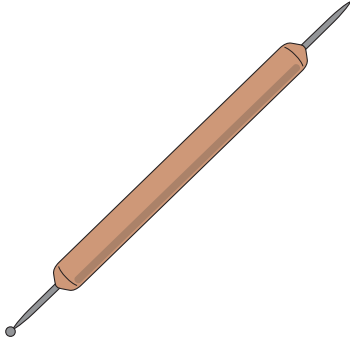
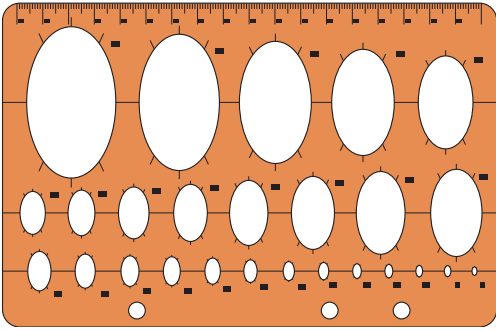
.....

Turn over ▶

This question is about equipment and templates.

You are advised to spend about 14 minutes on this question.

7 (a) Two pieces of equipment used in a graphics studio are shown below. Complete the table.

	<p style="text-align: right;">[2 marks]</p> Name of equipment Use
	<p style="text-align: right;">[2 marks]</p> Name of equipment Use

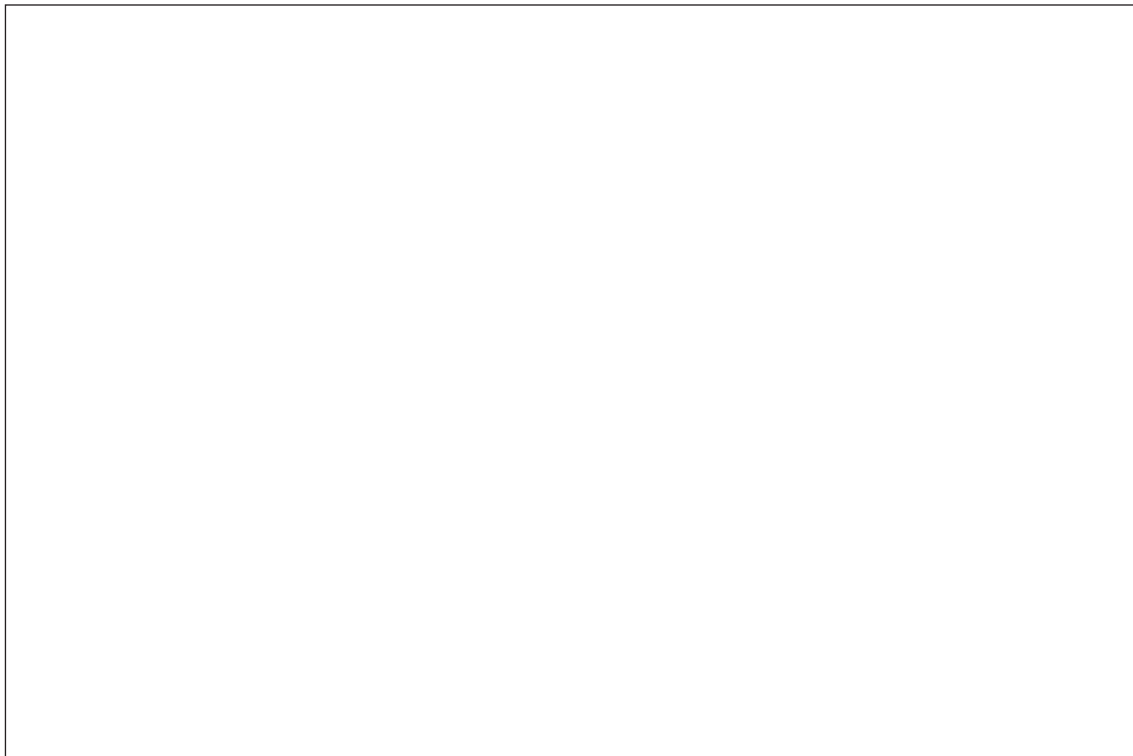
7 (b) Study the picture of the sailing boat shown below.



A designer wants to make a stencil of the sailing boat. The stencil will be used to put a painted border around the walls of a nursery.

Draw a suitable stencil of the sailing boat in the box below.

[6 marks]



Turn over ▶

7 (c) (i) Name a suitable material for making the stencil you have drawn in part **(b)**. **[1 mark]**

.....

7 (c) (ii) Explain your choice of material. **[2 marks]**

.....
.....
.....
.....

7 (d) Name a piece of Computer-Aided Manufacturing (CAM) equipment for cutting out a stencil. **[1 mark]**

.....

14

END OF QUESTIONS

There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

There are no questions printed on this page

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

Acknowledgement of copyright-holders and publishers

Permission to reproduce all copyright material has been applied for. In some cases efforts to contact copyright-holders have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements in future papers if notified.

Question 5 (a) © Thinkstock
Question 5 (c) © Thinkstock
Question 7 (b) © Thinkstock

Copyright © 2015 AQA and its licensors. All rights reserved.