



Coimisiún na Scrúduithe Stáit

State Examinations Commission

Leaving Certificate Applied, 2015

Vocational Specialism

Graphics and Construction Studies

(240 marks)

Tuesday, 9th June, Morning, 9:30 - 11:00

General Directions

1. Write your examination number in this space:

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2. There are two sections in this paper.

Section 1 - Answer **both** questions.

105 marks

Q1 - Short answer questions

Q2 - Graphic Communication

Section 2 - Five questions - answer **any three**.

135 marks

Q1 - Construction

Q2 - Building Services

Q3 - Woodcraft

Q4 - Design and Manufacture
of Educational Toys

Q5 - Computer Aided Design

3. Write your answers in the spaces provided and include sketches as appropriate.

For the Examiner only		
1.	Total of end of page totals	
2.	Aggregate total of all disallowed question(s)	
3.	Total mark awarded (1 minus 2)	
4.	Bonus mark for answering through Irish (if applicable)	
5.	Total mark awarded if Irish Bonus (3 plus 4)	
Note: The mark in row 3 (or row 5 if Irish bonus is awarded) must equal the mark in the Total mark box on the script.		

For the Superintendent only			
Centre Stamp			
Section		Question	Mark
1	(Both)	1	
		2	
2	(Any 3)	1	
		2	
		3	
		4	
		5	
Total			

Section 1

COMPULSORY QUESTION 1

(60 Marks)

1. Answer ANY TWELVE of the following FIFTEEN short questions.


(a) Name the machine shown.

Name: _____

List **TWO** specific safety precautions that should be observed when this machine is in use.

1. _____




2. _____



(b) Name the woodworking tool shown.

Name: _____

In the space provided make a freehand sketch of this tool.


(c) The diagram shows a person scanning for underground services.

Name **THREE** services that are located underground.

1. _____

2. _____

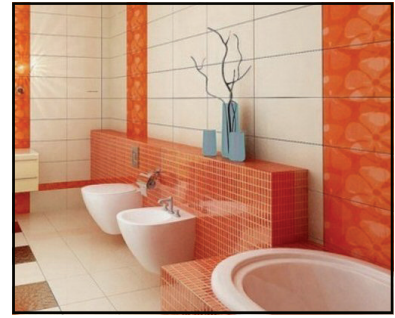
3. _____



(d) A bathroom requires 24m^2 of wall tiles.

(i) If tiles can be purchased in boxes of 3m^2 , calculate how many boxes of tiles will be required for the bathroom.

(ii) A box of tiles costs €18.50 plus VAT at 23%. Calculate the total cost to the customer for the above order.



(i)

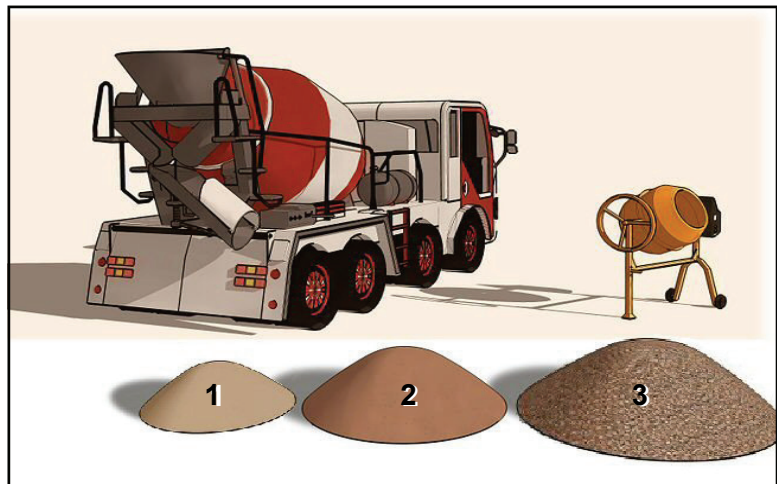
Answer: _____ Boxes.

(ii)

Total Cost: € _____

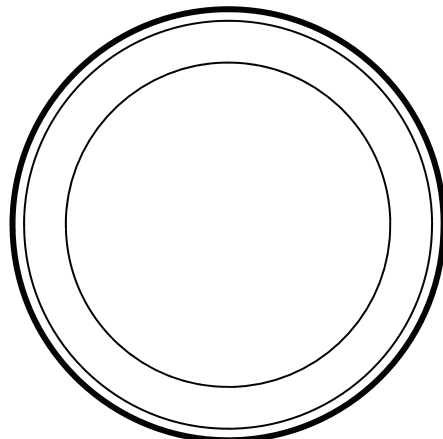
(e) When making concrete it is batched in a ratio.

If the ratio is 1:2:3 as shown in the image, name each of the constituents in the boxes below.



(f) Two prohibitive signs are shown on the right.

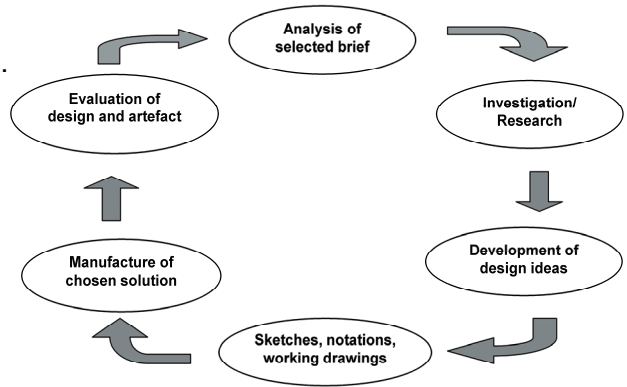
Using the circles below, design a similar sign which conveys the message: 'Drinking of this water is prohibited'.



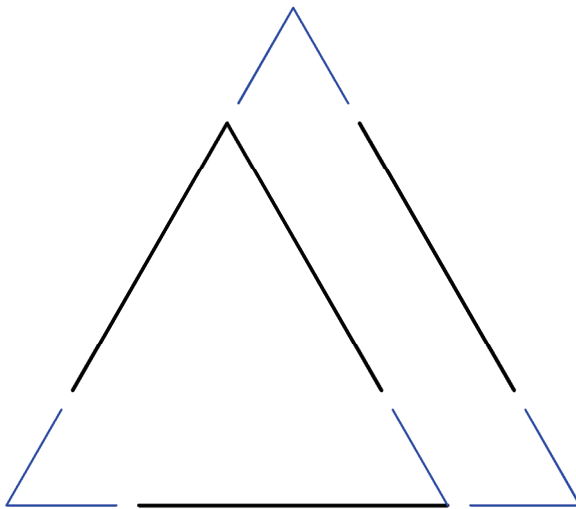
(g) A design process is shown.
 Explain any **TWO** stages in the process.

1. _____

2. _____



(h) The logo shown on the right is based on an equilateral triangle.
 Complete the drawing of the logo below.
 (You need not include the text or colour.)



(i) A metal used in the construction of houses is shown.

Name the metal: _____

Explain, using notes and sketches, where this material might be used.





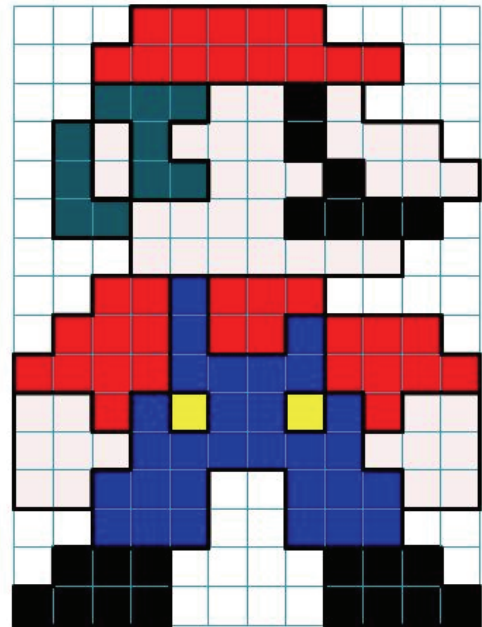
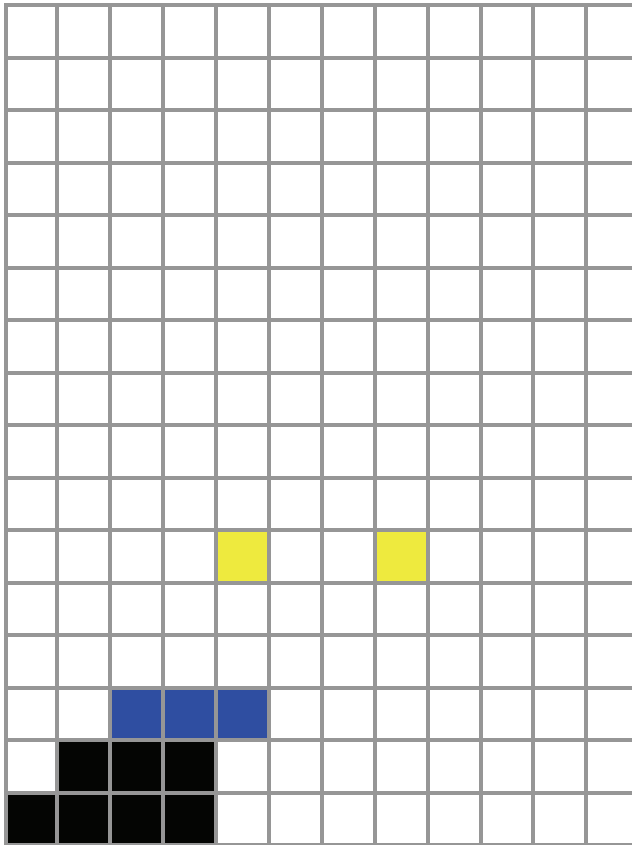
(j) The image shows a wooden mallet.
What wood are mallets normally made from?

Wood: _____

Why is this wood suitable for making mallets?



(k) Complete the "Mario" logo below using the grid provided.
Apply appropriate colour or shading to the completed logo.



(l) Name **THREE** materials used to make window frames.

1. _____
2. _____
3. _____



(m) The image on the right shows a bookcase which has three internal shelves. The rectangle below shows the outline frame of the bookcase. Use a graphic construction to divide the frame so that the three shelves are equally spaced.



(n) The image shows a puzzle in the shape of a train. Name a suitable tool for cutting out the curves.

Tool: _____

Identify **TWO** factors that should be considered when choosing a surface finish for such a toy.

1. _____

2. _____



(o) Identify **TWO** problems that may occur when pipes are exposed in frosty weather.

1. _____

2. _____



Section 1

COMPULSORY QUESTION 2

(45 Marks)

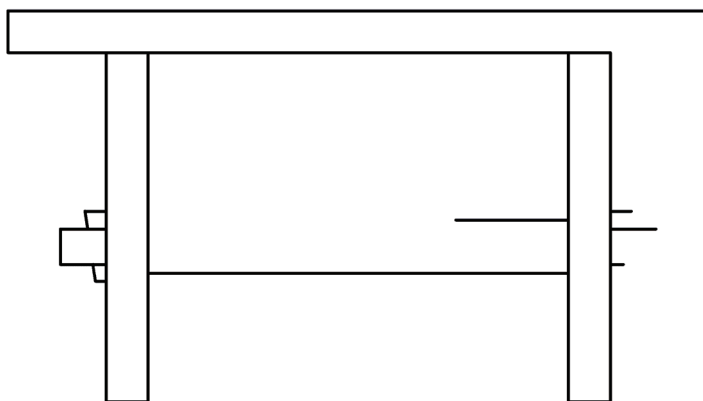
2. Graphic Communication

(a) The graphic on the right shows a pictorial view of a wooden stool.

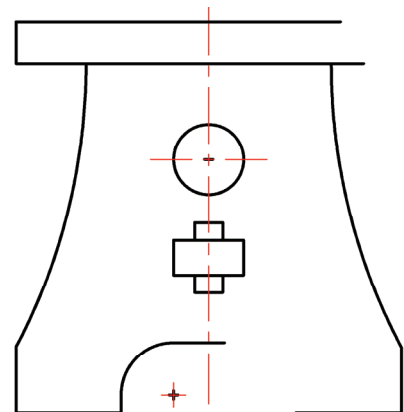
(1) Complete the Elevation, Plan and End View of the stool on the drawing below.

(Some hidden detail has been omitted for clarity. Hidden detail is not necessary.)

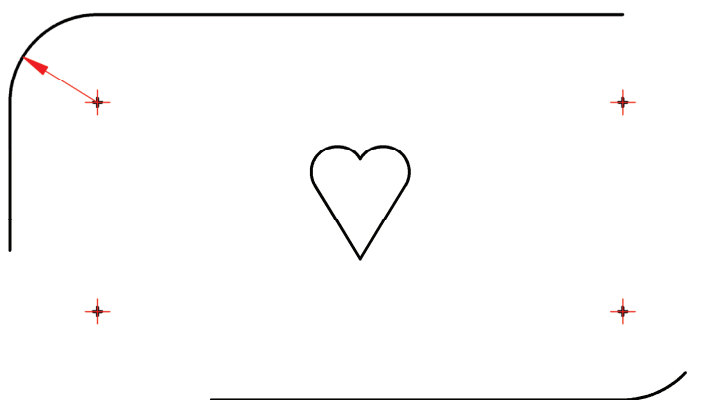
(2) Apply appropriate colour or shading to the **completed views** to enhance the drawing.



Elevation



End View



Plan

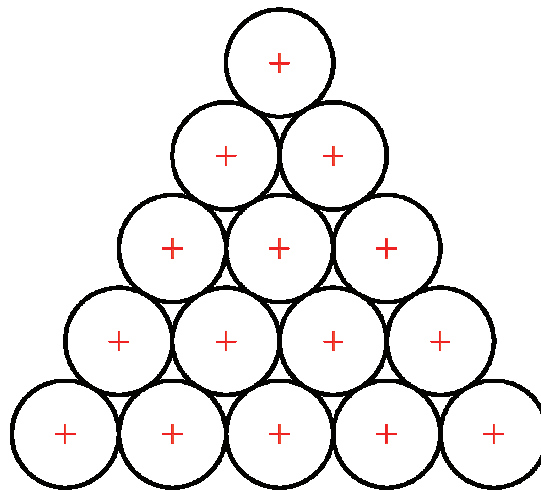


- (b) The image on the right shows a set of pool balls and a triangular box to store them.

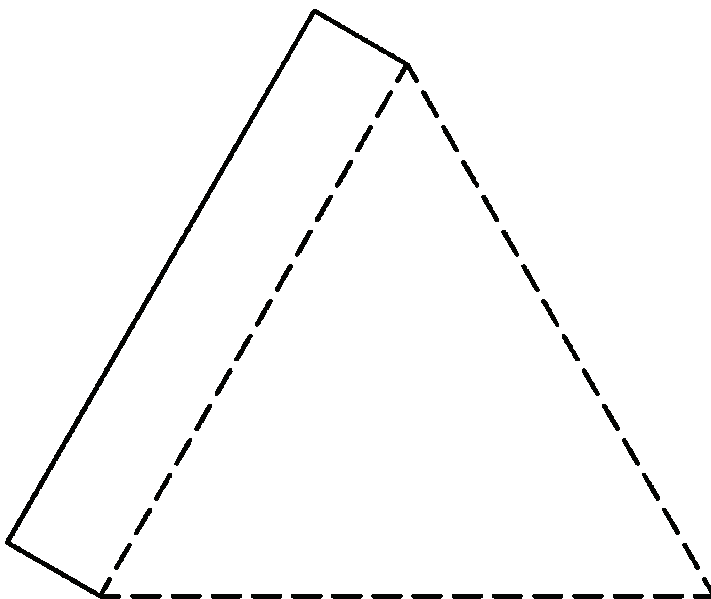
The drawing below shows the plan of the fifteen balls.



- (1) On the drawing below, draw the outline of the smallest possible triangular box that will hold the balls.

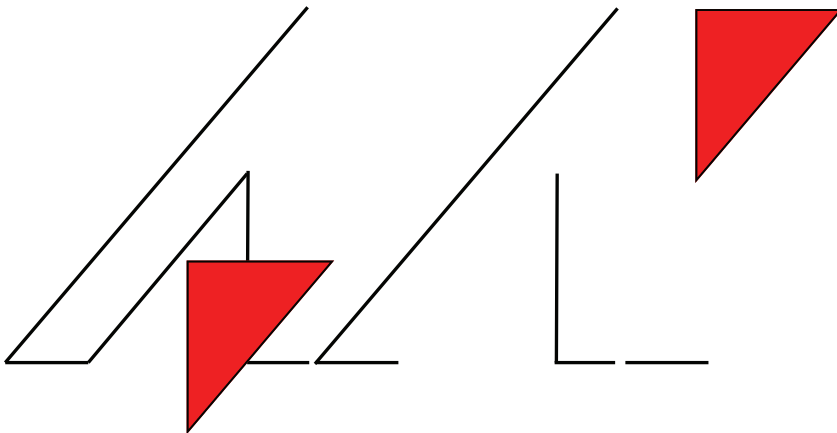


- (2) Complete the surface development of the box below. Two sides have already been drawn for you.

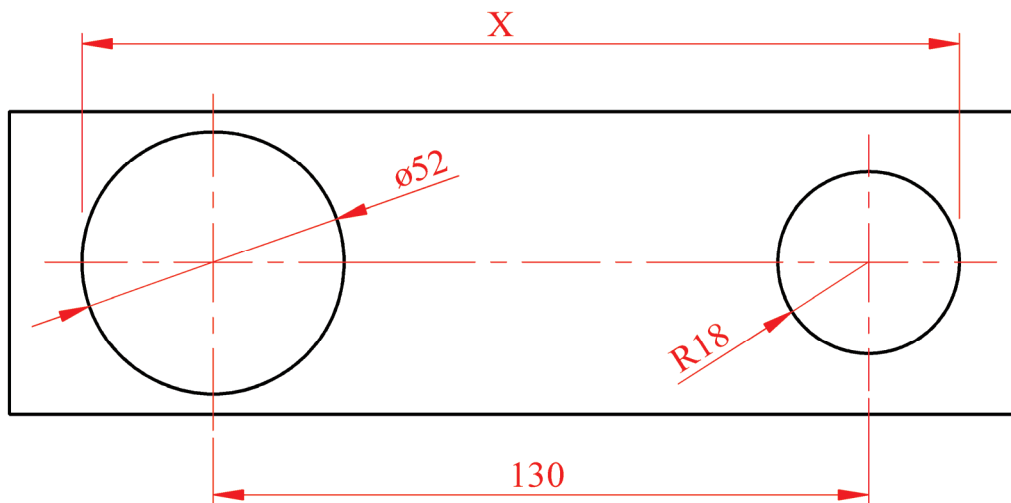


(c) (1) The image on the right shows a logo for a News channel.

A drawing of the logo, which is based on triangles, has been started below. Complete the logo and apply appropriate colour to the drawing. (You need not include the text.)



(2) Using the measurements given on the scale drawing below, calculate the distance 'X'.



Calculate X: mm

Section 2

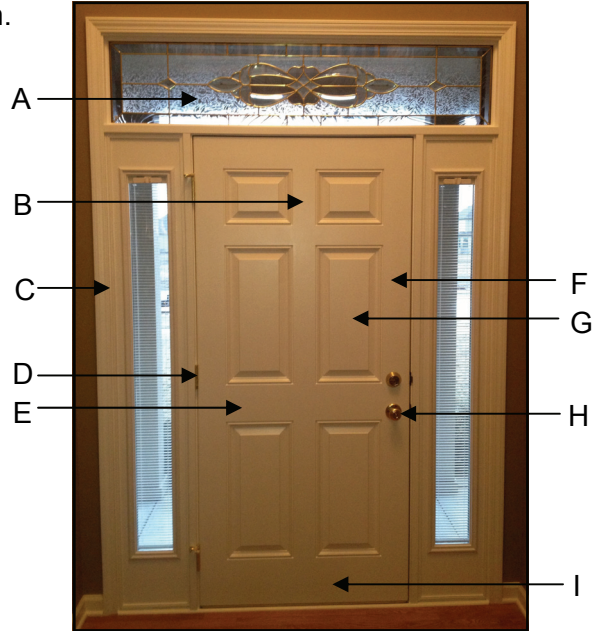
(135 Marks)

Answer ANY THREE questions from this section.


1. Construction

(a) (1) Name any **FIVE** parts of the door shown.

- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____
- G. _____
- H. _____
- I. _____



(2) Building regulations require that external doors be wheelchair accessible. This means that the threshold must be flat. Using notes and sketches show how this can be achieved while preventing water from entering the building.



USE A PENCIL ONLY







(b) (1) Carpenters use the item shown when fitting architrave around doors.

Name the item: _____

(2) Explain why this item is used.



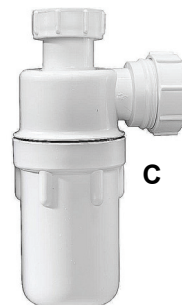
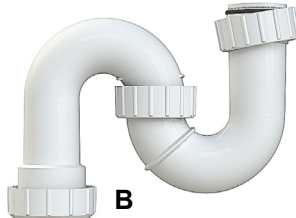
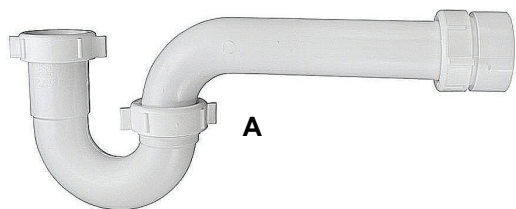
(c) The table below shows some items used by a plasterer.
Name **each** item and state what it is used for.

	Item	Use
1		Name. _____ Use. _____ _____ _____
2		Name. _____ Use. _____ _____ _____
3		Name. _____ Use. _____ _____ _____
4		Name. _____ Use. _____ _____ _____
5		Name. _____ Use. _____ _____ _____
6		Name. _____ Use. _____ _____ _____

2. Building Services


(a) (1)

(i) Name the **THREE** types of plumbing trap shown below.



A: _____ B: _____ C: _____

(ii) Select **ONE** of the above and, using notes and sketches, suggest where this trap would properly be used.



USE A PENCIL ONLY

(2) The diagram shows a blocked sink.

(i) Explain how a sink may become blocked.

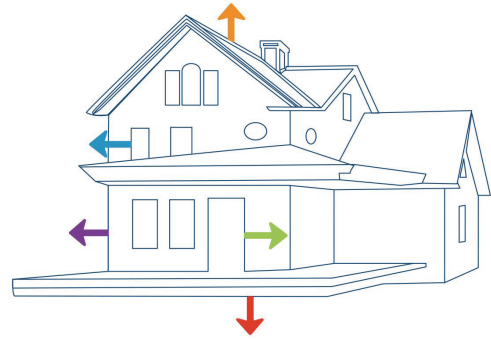


(ii) Explain how you would clear the blockage.

(b) (1) Name **TWO** materials used in the construction of a house, to prevent heat loss.

1. _____

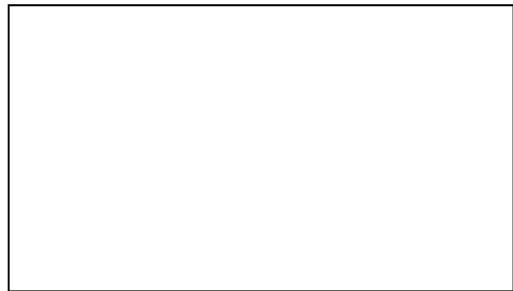
2. _____



(2) Identify **THREE** areas in the home where insulation materials are used and with the aid of notes and sketches, explain how the insulation is fitted to ensure maximum efficiency.

Area 1. _____

Explanation: _____



Area 2. _____

Explanation: _____



Area 3. _____

Explanation: _____



(c) Name **THREE** ways of reducing water use in the home.

1. _____

2. _____

3. _____



3. Woodcraft

(a) Four items used for joining wood are shown.

(1) Name **each** item.



1. _____ 2. _____ 3. _____ 4. _____

(2) Describe, using notes and sketches, where **and** how each of the above items would be used.



1.

2.

3.

4.

(b) (1) The graphic shows a cordless drill.

Name **and** explain the function of **each** labelled part.

	Name	Function
A		
B		
C		
D		
E		
F		



and part.

(2) The images below show two types of drill chuck. Name **each** type.



1. _____

2. _____

(3) Briefly explain how a drill bit is changed in each of the above chucks.

1. _____

2. _____

(c) Name the **THREE** drill bits shown in the images below and give an appropriate use for each bit.



Name: _____

Name: _____

Name: _____

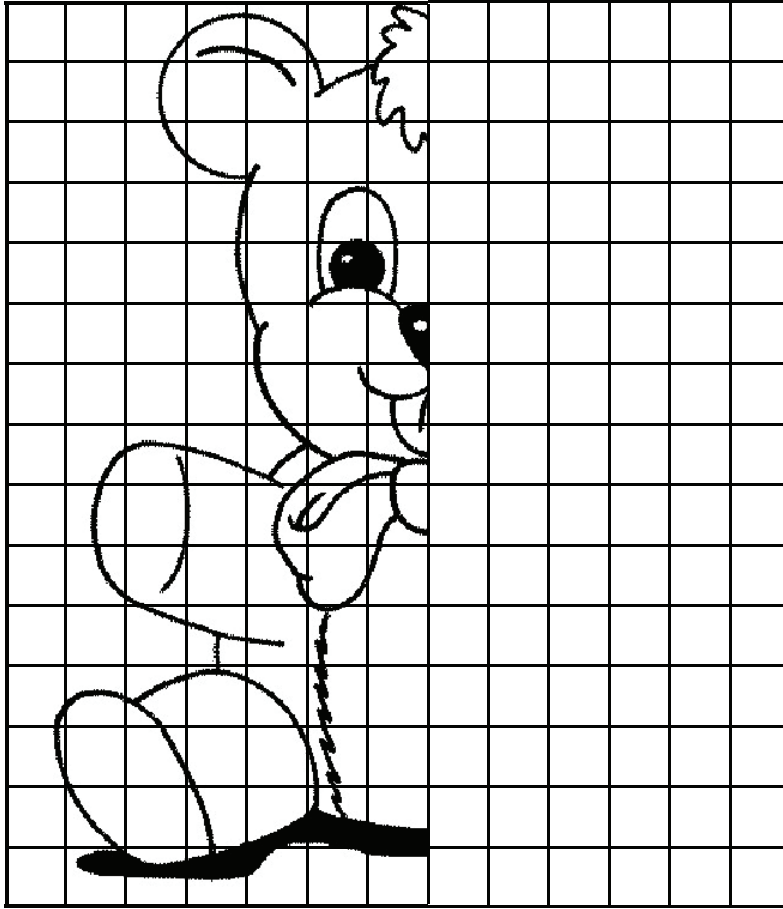
Use: _____

Use: _____

Use: _____

4. Design and Manufacture of Educational Toys

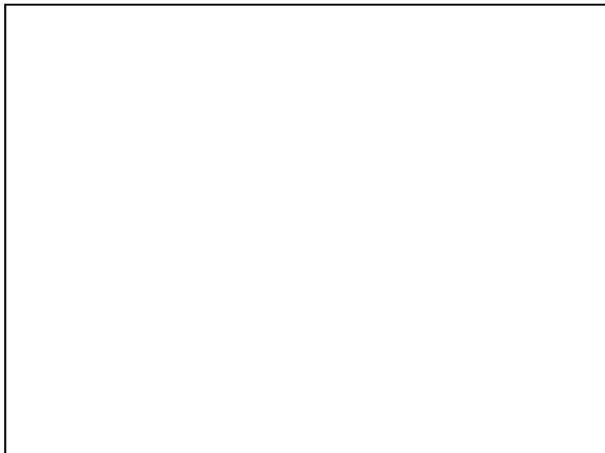
- (a) (1) On the grid below, draw the other half of the teddy bear as a mirror image.



- (2) The image on the right shows a book-end.

Name a suitable joint for the area circled and make a neat freehand sketch of the joint in the space provided.

Name: _____



(b) Explain **THREE** benefits of having a sample toy, such as the one shown opposite, when you are planning to make a similar toy.

1. _____

2. _____

3. _____



(c) (1) A non-toxic finish on wooden toys is an important safety consideration.

Give **TWO** reasons why this is of particular importance in the case of the toy shown in the image on the right.

1. _____

2. _____



(2) A remote control model airplane is shown in the image below.

The body of the toy is to be made from wood. Name a wood suitable for this part of the toy.

Name: _____

Why is this wood a suitable choice for this particular toy?

Reason: _____



5. Computer Aided Design

- (a) (1) Name any **FIVE** of the Computer Aided Design related items shown in the images.



1. _____ 2. _____



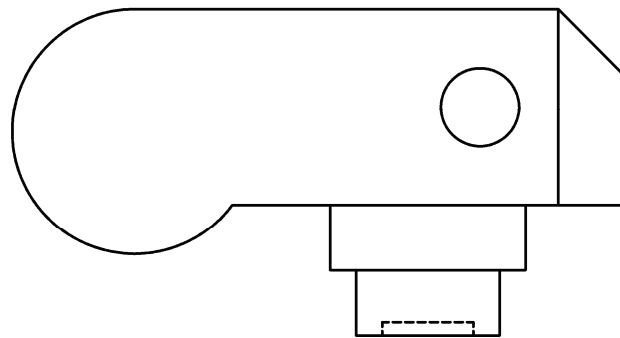
3. _____ 4. _____ 5. _____ 6. _____

- (2) 3D printers are becoming increasingly popular in the CAD industry. Briefly explain how a 3D printer works.

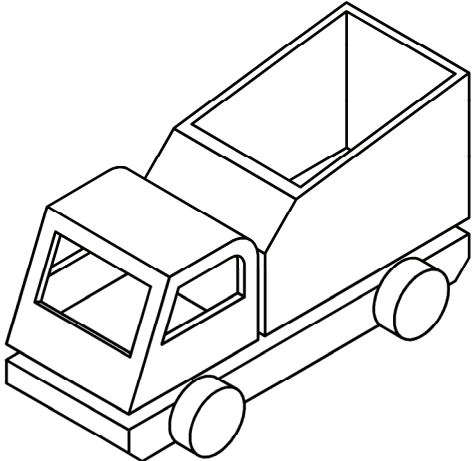
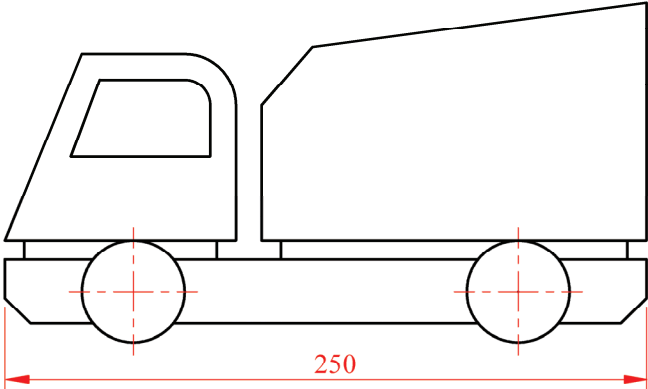


- (b) The CAD drawing on the right shows the plan of a digital camera. Using a ruler to measure, neatly insert on the drawing, an example of **EACH** of the following types of CAD dimension:

- (i) Linear Dimension (Horizontal)
- (ii) Linear Dimension (Vertical)
- (iii) Leader Dimension
- (iv) Aligned Dimension
- (v) Radius Dimension.



- (c) (1) Name a CAD package that you have used while studying Graphics and Construction Studies.
 Package: _____
- (2) List **FIVE** CAD commands/tools/features that would be used to produce the drawings below and briefly explain what each command/tool/feature does.



	Command/Tool/Feature	What it does
1	_____	_____ _____
2	_____	_____ _____
3	_____	_____ _____
4	_____	_____ _____
5	_____	_____ _____

- (3) Identify **ONE** career associated with the CAD industry and briefly describe what the job involves doing.

Career: _____

Job Description: _____

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