

Your Name:	Current Grade		Target Grade End of Year	
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Internal Assessment	Working towards GCSE
Learner Aims	
Develop practical skills using safe techniques to produce a drawings ready for making	
Develop practical skills using safe techniques to produce an engineering outcomes.	

Introduction

Drawing Techniques for Engineering Learner evidence

Sir, I have lost my home work – It must be down to the vanishing point...

How important is Engineering drawing to a engineering student?

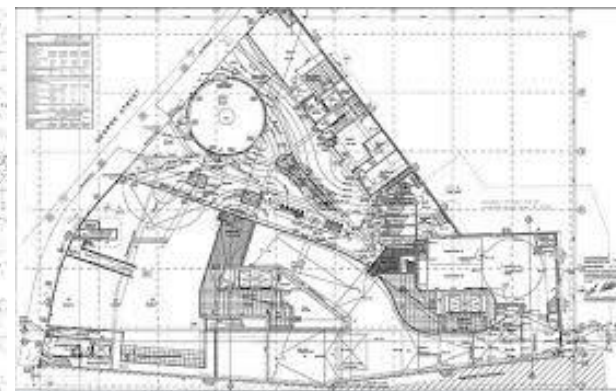
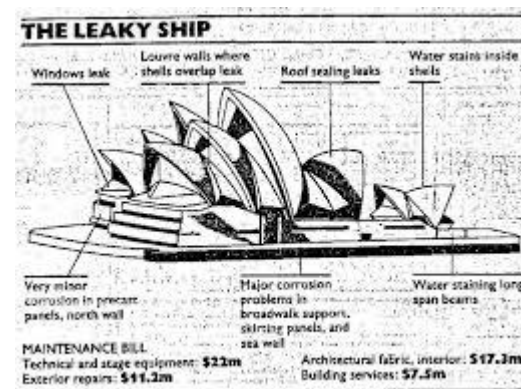
“This is a way to analyse your design before making, the drawings say what they mean. Depending upon the drawing will depend on the end result.

Engineering drawing is very important for an engineering student. It is the ‘lingo’ of engineering and without it your knowledge on that field will remain in-complete. **You may find drawing difficult** but you will be asked questions on it at the time of your interview. For your conceptual development , drawing is a major part of engineering.

When you will plan to design bridges , dams, buildings etc, your concept will be primarily expressed in the form of drawing. At present, different types of design software are available and they are relatively easy to use but for your proper understanding you should do manual /hand drawing at first. That will broaden your knowledge.

Another important point is , when you will get a drawing drawn by other engineers, they may not describe it elaborately to you; you need to understand it by seeing specific notations and related terms. So proper knowledge and understanding different terms of drawing (i.e projections, orthographic projections & assembly drawings and views) is a must in the field of engineering.

Shashi Ranjan world famous engineer for Arup engineer & architects. Builders of the Sidney opera house.



Introduction

**Drawing Techniques for Engineering
Learner evidence**

Sir, I have lost my home work – It must be down to the vanishing point...

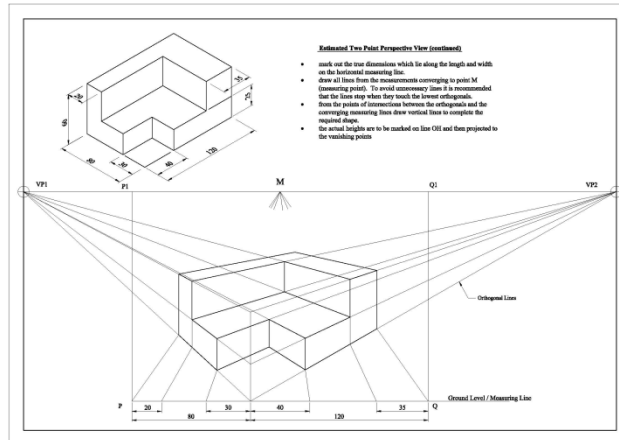
“What you are about to do is part of the EXAM questions . You will gain marks in the exam and course work for you drawings.
You are required to draw and render your ideas and understand engineering drawings.”

AQA GCSE Specification

Internet research

Drawing Techniques for Engineering
Learner evidence

T: Add Perspective engineering drawings at least 10 different drawings.



Internet research

Drawing Techniques for Engineering
Learner evidence

Key words

Perspective drawing Vanishing point
Engineering Drawing

Describe and explain in your own words

Add at least one Image

DO NOT COPY FROM THE INTERNET Example below.

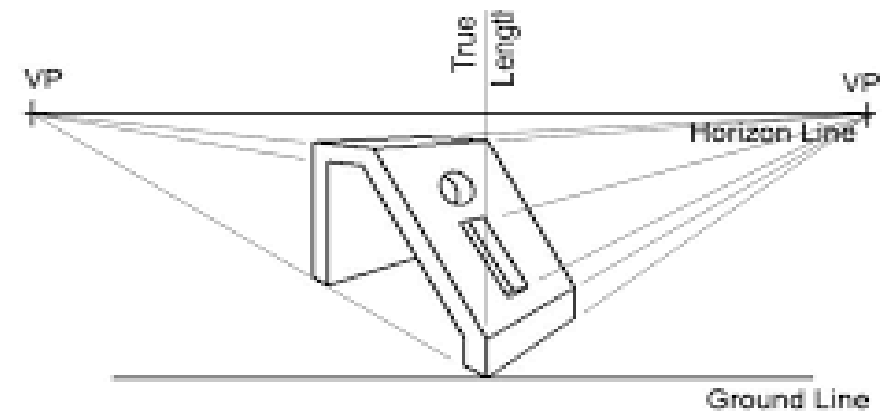
What is perspective drawing?

Perspective drawing is a set of technique used to draw a 3-dimensional scene onto a 2-dimensional surface. It is a great way to create realistic freehand or measured (to scale) drawings.

Why is perspective drawing used in Engineering?

Engineering drawings is a graphical language that communicates ideas and information from one mind to another.

Most especially, it communicates all needed information from the engineer, who *designed* a part, to the workers, who will *make* it.



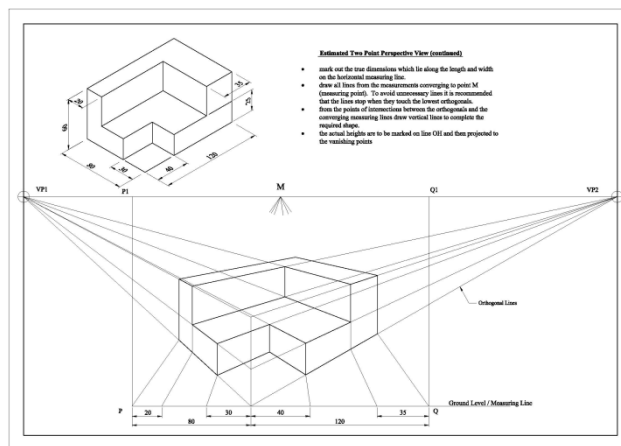
What is a vanishing point?

Internet research

Drawing Techniques for Engineering
Learner evidence

T: Add One point engineering drawings at least 3 different.

T: Add Two point engineering drawings at least 2 different drawings.



This is TWO point engineering drawings

Internet research

Drawing Techniques for Engineering
Learner evidence

Key words

one point perspective

two point perspective

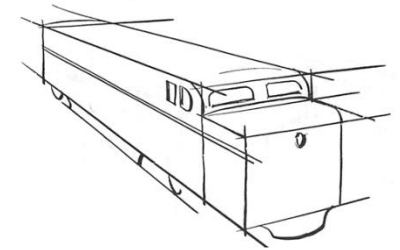
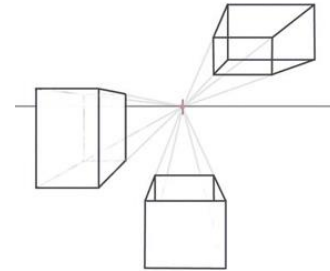
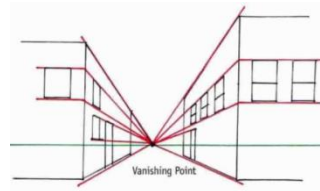
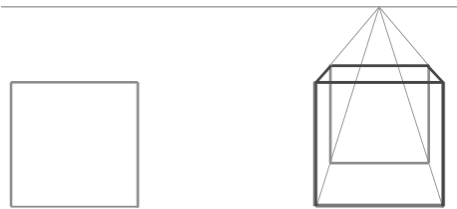
Describe and explain in your own words

Image

<p>What is one point perspective?</p>	
<p>What is two point perspective?</p>	

Practical.

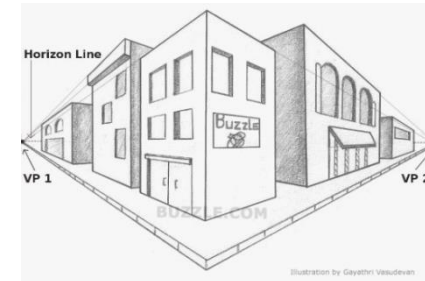
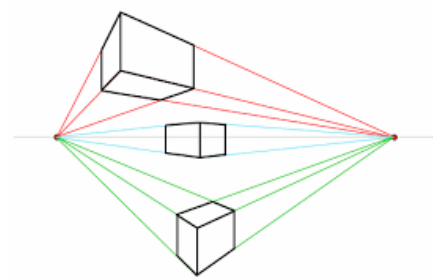
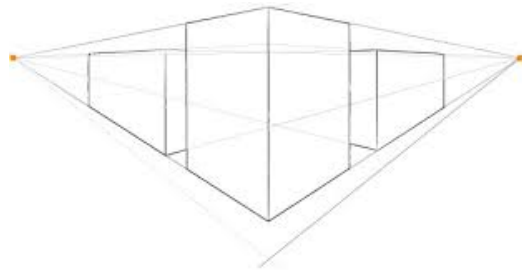
Drawing Techniques for Engineering
Learner evidence



What type of drawing is this?

Practical.

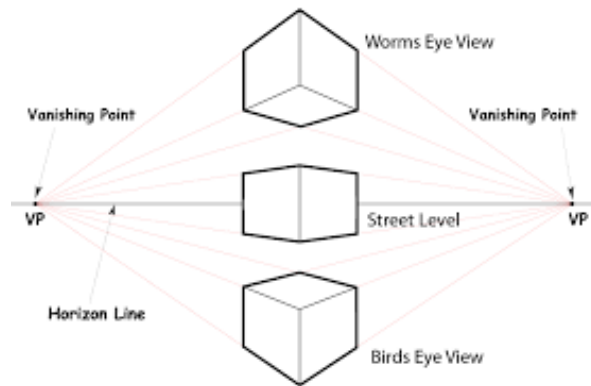
Drawing Techniques for Engineering
Learner evidence



What type of drawing is this?

Practical.

Drawing Techniques for Engineering
Learner evidence



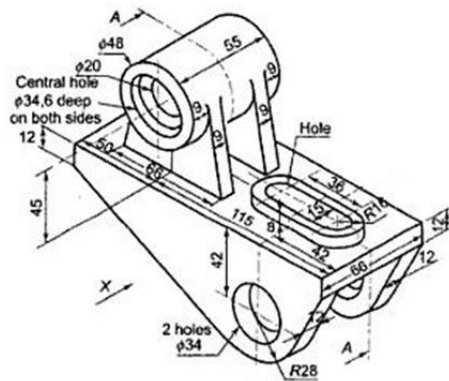
What type of drawing is this?

Internet research

Drawing Techniques for Engineering
Learner evidence

Past into web browser: <https://www.youtube.com/watch?v=fmYOwQ07tpg>

T: Add isometric engineering drawings at least 10 drawings.



Internet research

Drawing Techniques for Engineering
Learner evidence

Key words

Isometric drawing

Describe and explain in your own words

Image

What is **Isometric drawing** ?

Why is **Isometric drawing** used in engineering rather than **perspective** drawing?

Do **Isometric drawings** used in engineering show perspective? Explain your answer and reason for it.

What are the **three rules** when drawing **isometric**?

Your name:

Year 10 - GCSE Engineering

Practical.

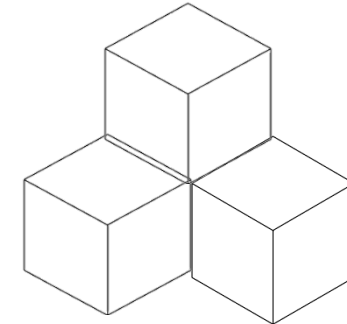
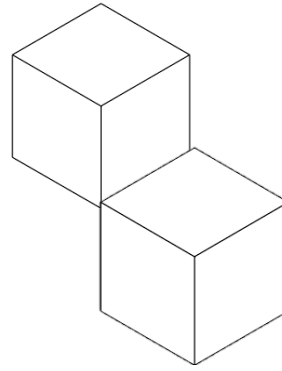
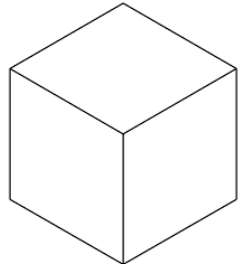
**Drawing Techniques for Engineering
Learner evidence**

Watched IsoSketch! Have ago!

Your name:

Practical.

Drawing Techniques for Engineering
Learner evidence

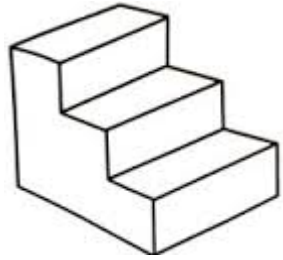


What type of drawing is this?

Your name:

Practical.

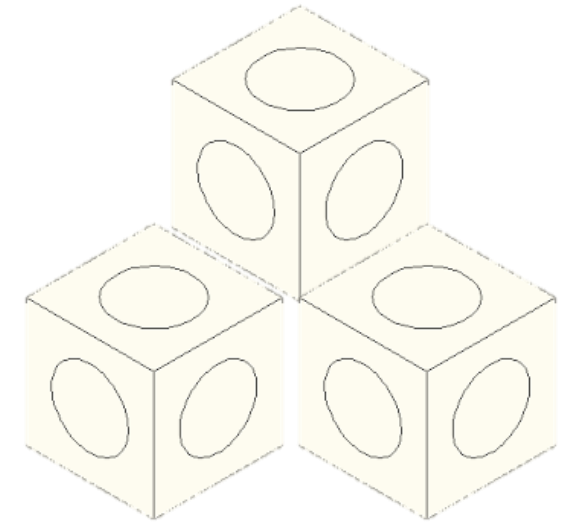
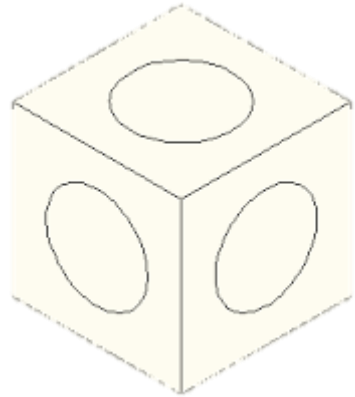
Drawing Techniques for Engineering
Learner evidence



What type of drawing is this?

Practical.

Drawing Techniques for Engineering
Learner evidence



What type of drawing is this?

Peer and self feedback

Drawing Techniques for Engineering
Learner evidence

<p>Write in your own words. Why is drawing important in engineering? Give examples of types of drawings used. Add images to support text.</p>	<p>Image/s to support text</p>

<p>Your positive comment What has gone well and why?</p>	
<p>Peer comment Better if...they...</p>	
<p>Your Red feedback comment. How will you improve you work? Respond to above feed back in sentences.</p>	

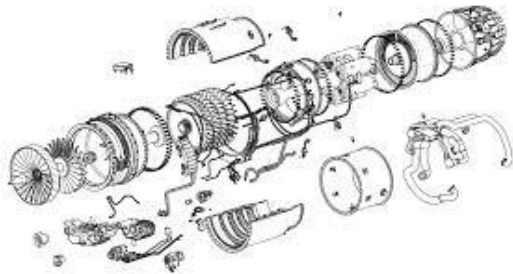
Current Grade	Target Grade End of Year	Effort Grade

Internet research

Drawing Techniques for Engineering
Learner evidence

T: Add Exploded view engineering drawings at least 3 different drawings label Exploded drawing

This is an exploded engineering drawing



T: Add sectional engineering drawings at least 3 different drawings label Sectional drawing

Internet research

Key words
Assembly drawings
Exploded view
Sectional drawings

Drawing Techniques for Engineering
Learner evidence

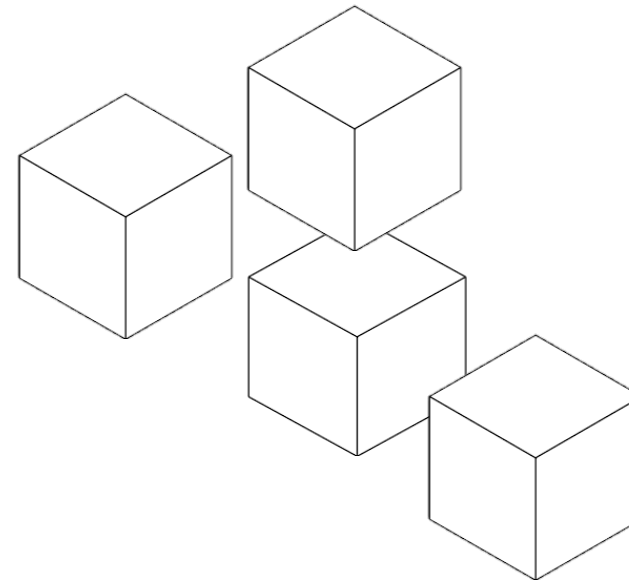
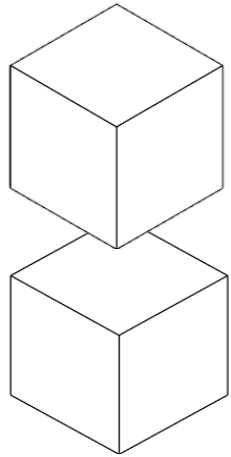
Describe and explain in your own words

Image

<p>What is an assembly drawing?</p>	
<p>Why is exploded view used in engineering drawing?</p>	
<p>What is a sectional drawing and why is it used in engineering drawing?</p>	

Practical.

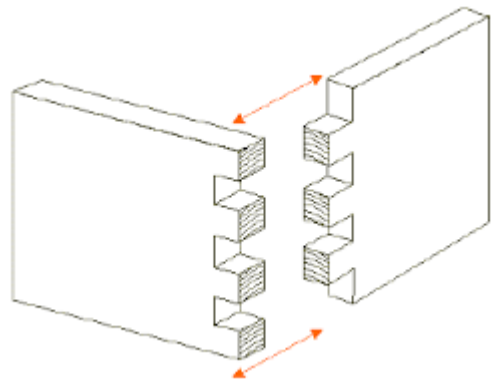
Drawing Techniques for Engineering
Learner evidence



What type of drawing is this?

Practical.

Drawing Techniques for Engineering
Learner evidence

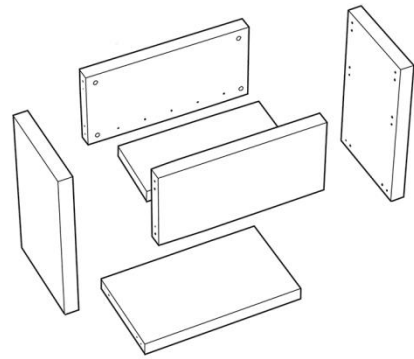


Have ago at copying this drawing

What type of drawing is this?

Practical.

Drawing Techniques for Engineering
Learner evidence



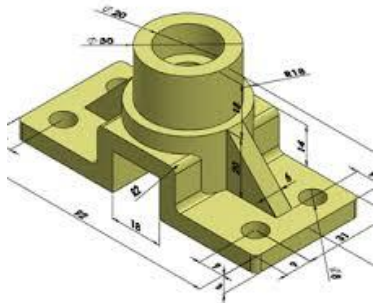
What type of drawing is this?

Internet research

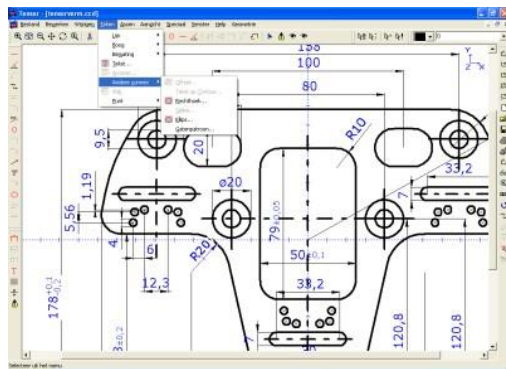
Drawing Techniques for Engineering
Learner evidence

T: Add **3D modelling drawings** at least 3 different drawings label 3D modelling drawing

This is a 3d engineering drawing



T: Add **2D CAD drawings** at least 3 different drawings label CAD drawing



Internet research

Key words

CAD (Computer Aided Design)

Rapid prototyping

3D modelling

2D design

Drawing Techniques for Engineering

Learner evidence

Describe and explain in your own words

Image

<p>What is an CAD? (its not just Computer aided design)</p>	
<p>Why is rapid prototyping used in engineering? How do drawings play apart in this?</p>	
<p>What is a 2D CAD design software? Why is it used in engineering for drawing?</p>	

Internet research

Drawing Techniques for Engineering
Learner evidence

T: Add X, Y, Z coordinates at least 5 different drawings label X, Y, Z coordinate drawing

This is a X, Y, Z coordinates engineering drawing



T: Add 3D CAD software at least 3 different drawings label 3D CAD Software



Internet research

Key words
X, Y, Z coordinates
CNC Router
3D CAD modelling

Drawing Techniques for Engineering
Learner evidence

Describe and explain in your own words

Image

<p>What is are X, Y, Z coordinates? Include at least three CAD software uses X, Y, & Z coordinates?</p>	
<p>Why is CNC router used in engineering? How does CAD drawings play apart in this?</p>	
<p>What is a 3D CAD design software? Why is it used in engineering?</p>	

Practical.

**Drawing Techniques for Engineering
Learner evidence**

In SketchUp create a workshop tool of your choice.

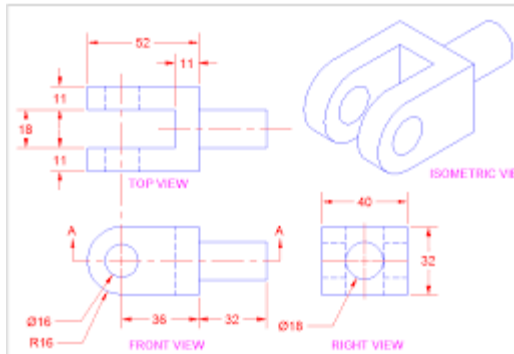
What type of drawing is this?

Internet research

Drawing Techniques for Engineering
Learner evidence

T: Add Orthographic projections at least 4 different drawings label the drawings

This is a X Orthographic projections engineering drawing



T: Add 2d views and 3d views of orthographic drawings at least 4 different drawings label images

Internet research

Drawing Techniques for Engineering
Learner evidence

Key words

Orthographic projection

2D View & 3D objects

Describe and explain in your own words

Image

<p>What is an Orthographic projection? Why is it used?</p>	
<p>Why is a 3D view important ? Why is it used in engineering?</p>	
<p>Why is a 2D view important ? Why is it used in engineering?</p>	

Practical.

Drawing Techniques for Engineering
Learner evidence

Using drawings methods you have learned so far, create design for you can crusher.
You will transfer your drawings into 2D designs for a can crusher in 2D Techsoft design.
This will be laser cut and assembled.

What type of drawing have you used and say why?

Practical.

Drawing Techniques for Engineering
Learner evidence

Create technical **Orthographic drawing** 2D designs for a can crusher in 2D Techsoft design.
This will be laser cut.

Practical.

Drawing Techniques for Engineering
Learner evidence

Create **3D Orthographic drawing** for a can crusher in 2D using Techsoft 2D design.
Include dimensions in mm not cm. Include **Why would you use mm not cm?**
Your designs will be made.

Tutor feedback

Evaluation of Drawing Techniques for Engineering
Learner evidence

Tutor positive comment	
Better if...	
Feedback comment. How you could improve you work?.	

Current Grade	Target Grade End of Year	Effort Grade

Practice Exam Questions

Drawing Techniques for Engineering
Learner evidence

1 Draw this desk using **one point** perspective.



Practice Exam Questions

Drawing Techniques for Engineering
Learner evidence

3 Draw an **exploded view** drawing of this submarine include turrets.



Practice Exam Questions

Drawing Techniques for Engineering
Learner evidence

Practice question (taken from exam)

2 Give one advantage and one disadvantage of using **Isometric** drawing rather than perspective drawing.

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Practice question (taken from exam)

4 Caroline is designing a child's toy. Suggest a **software package** she might use and draw the toy in 3D.

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Practice question (taken from exam)

5 In **orthographic projections**:

- a. What types of lines should be dashed?
- b. What units must the dimensions be given in?

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