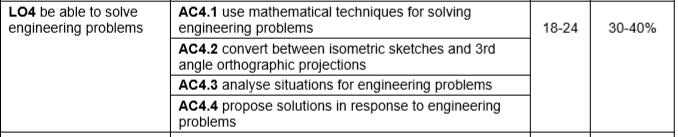
**Engineering drawing and problems revision**

***This means you need to be able to:***

* Identify different objects from different viewpoints
* Describe how objects are changed between orthographic and isometric viewpoints
* Explain the area and volume of materials to work out what is used and wasted.
* Analyse how engineering problems are worked out e.g. area or materials used.

***Learning intent***:

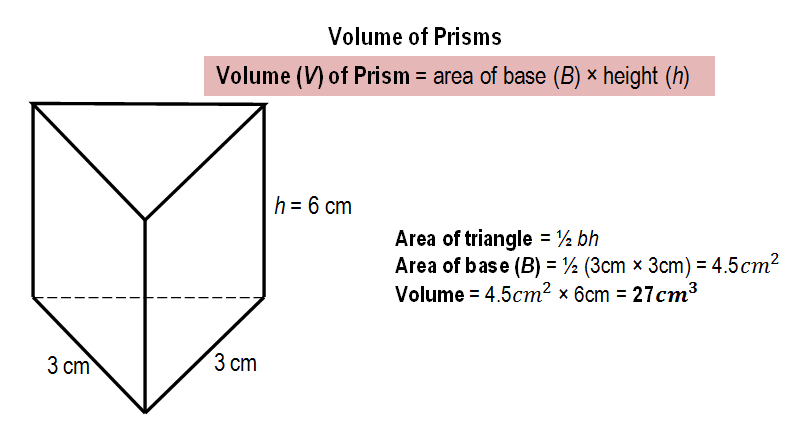
Understand different types of drawing in engineering, work out the information you can get from these and calculate the materials used and wasted.

***Success criteria:***

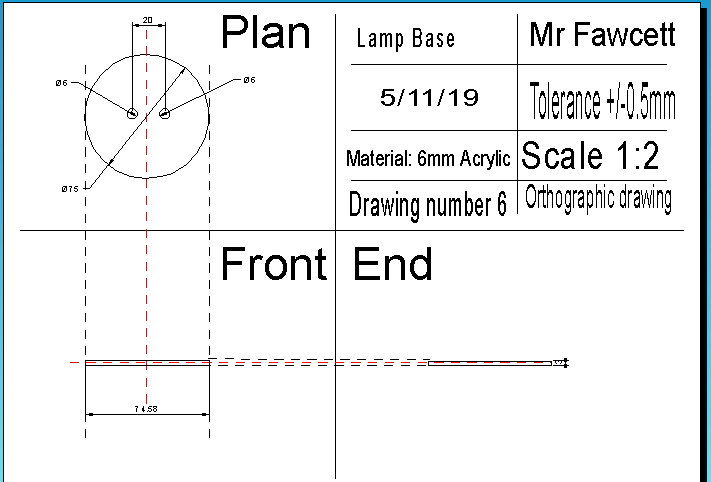
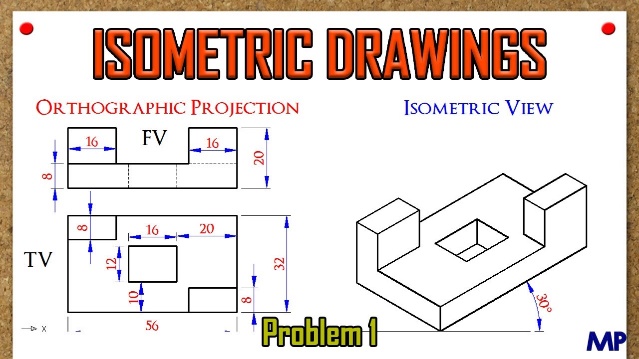
L2 Distinction: Detailed and clear explained engineering designs with construction lines showing objects from different viewpoints. Accurate calculations of materials used with all working out and units shown.

L2 Merit: Clear explained engineering designs with some construction lines showing different viewpoints. Accurate calculations with most of the working out and units shown.

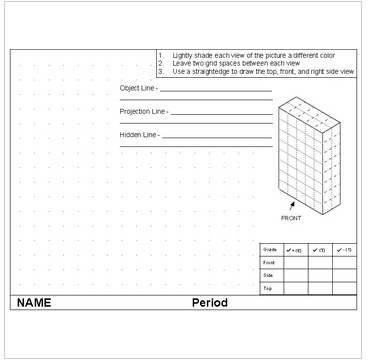
L2 Pass: Engineering designs showing different viewpoints and construction lines. Mostly accurate calculations with some working out and units.

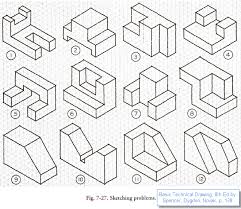


***WAGOLL:*** *(shown at L2 Distinction level)*



**Orthographic drawing techniques**





FRONT

END

PLAN

**Further questions:**

What information goes in the title block?

How is hidden detail shown on orthographic designs?

PLAN

**Further questions:**

What is the difference between centre and alignment lines?

What measurements are used on orthographic designs?

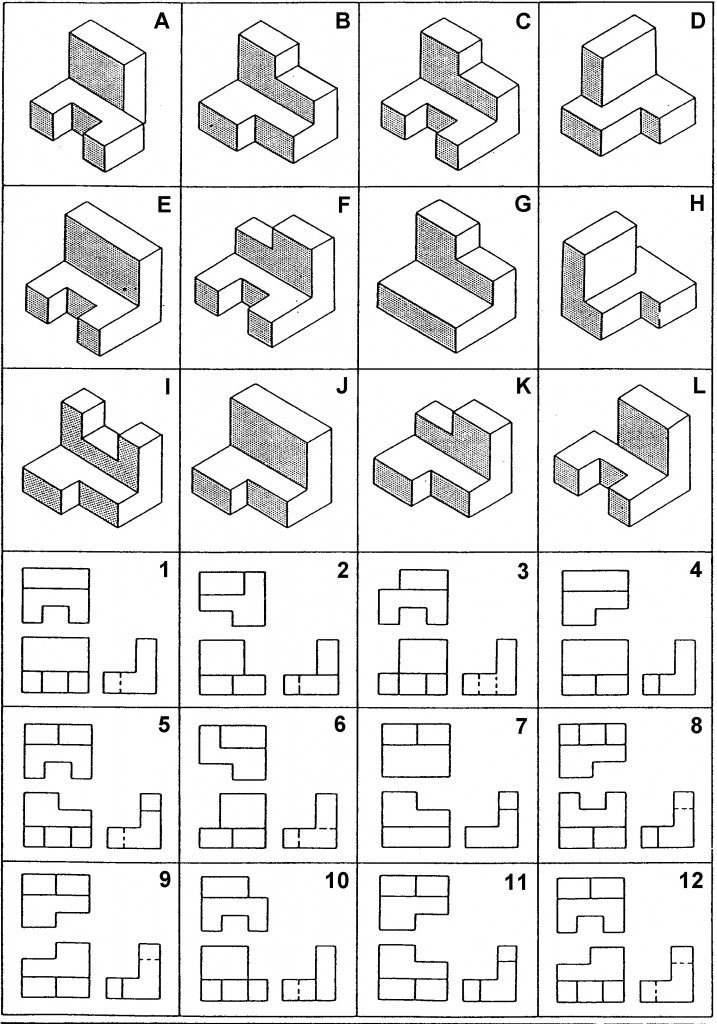
FRONT

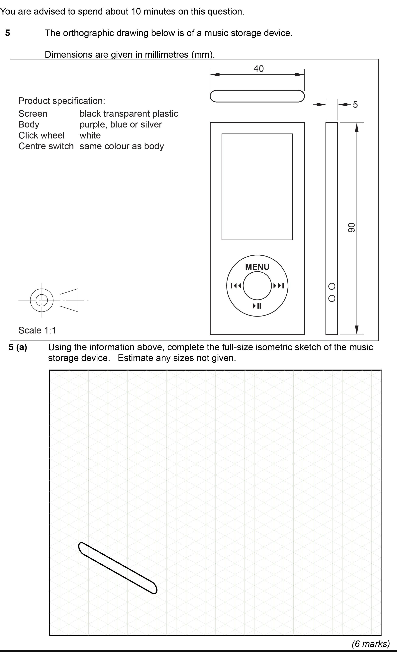
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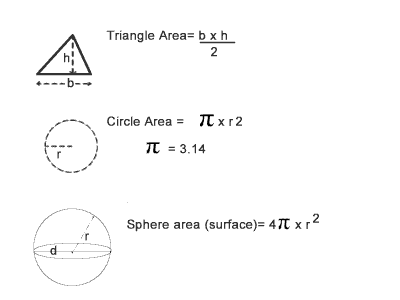
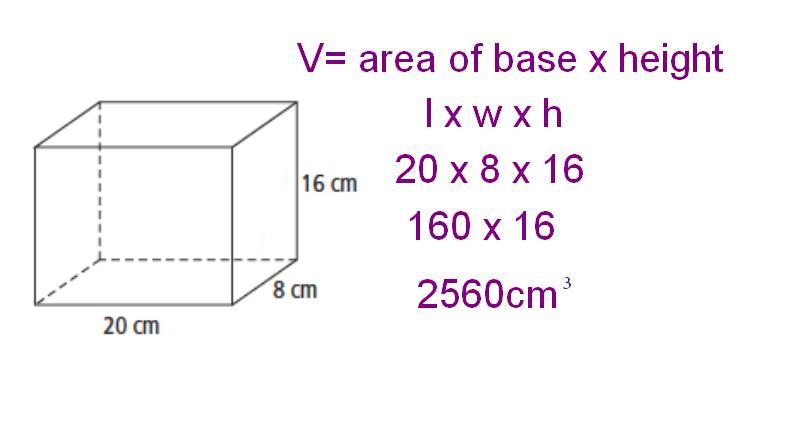
PLAN

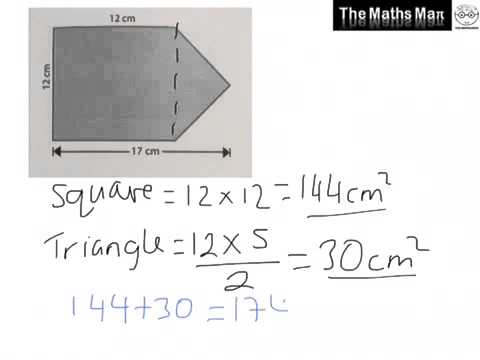
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**Converting between isometric to orthographic drawings:** 

**Isometric drawing**

**Formulae and calculations needed:**

[](https://www.google.co.uk/url?sa=i&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DCYekNDKVtJo&psig=AOvVaw3bR-6pOf8gs4l9T8gJ6gNL&ust=1577273726315000&source=images&cd=vfe&ved=0CAIQjRxqFwoTCPDTk_eYzuYCFQAAAAAdAAAAABAD)**Questions: SHOW ALL YOUR WORKING!**

1. Calculate the area of plywood needed to produce a model of a house with measurements shown opposite.

Area of square:

Area of triangle:

Total area of shape shown:

1. The depth of the house is 20cm. Calculate the volume of material required.
2. Calculate the area of shapes A, B, C and D below. Calculate the volume of shapes E, F and G. All measurements are in mm. 