



Year 7 Knowledge organiser MYP - Product Design

Section 1:1 - Key vocabulary - Related concepts

Function - How does the product work?

Form - What does your product look like?

Aesthetics - What embellishments will be added to your product?

Innovation - How creative/unique is your work/product

Evaluation - How do we reflect on our progress?

Market and Trends - Who are you designing your product for?

Ergonomics - How is the product user friendly?

Adaptation - How does the product change depending on different contexts?

Communication, Knowledgeable, Reflective, Caring

Section 1:2 - Woods

Hardwoods - Hardwoods are timber produced from deciduous trees that have broad leaves. **For example - Beech, Oak, Balsa and Jelutong.**



Softwoods - Softwoods are timber produced from coniferous trees that have needle-like leaves. **For example - Scots Pine, Parana Pine and Western Red Cedar**



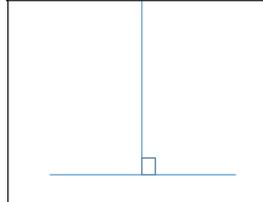
Manufactured boards - are sheets of wooden material such as **medium density fibreboard (MDF)** made from processed timber. Boards are made from a variety of materials such as bonded fine wood dust as in **MDF**, bonded larger wood chips as in chipboard, bonded veneers as in **plywood** and a bonded composite of battens and veneers as in **blockboard**. The advantage of manufactured boards over timber planks is that they are produced in large boards of even thicknesses.

Section 1:3 - Isometric drawing

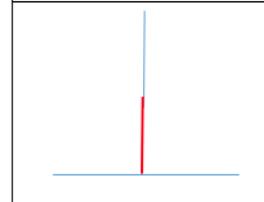
Isometric Projection

Key words: parallel right angle vertical horizontal diagonal equal isometric edge

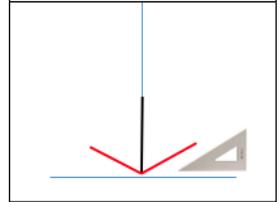
1. Draw a guide line vertical down the page centre of the page and horizontal across the page to form a right angle.



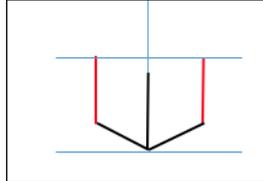
2. Draw the first vertical line of the cube on the centre guide to the length required.



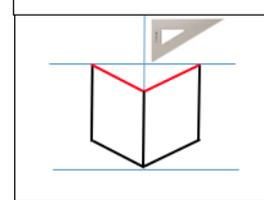
3. Add in the base lines of the cube at 30° angles to the horizontal guide line.



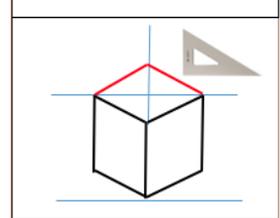
4. Create the side of the cube by drawing two vertical lines the same length as your centre line and parallel to the centre guide line.
5. Add in a new guide line across the top of the two new lines



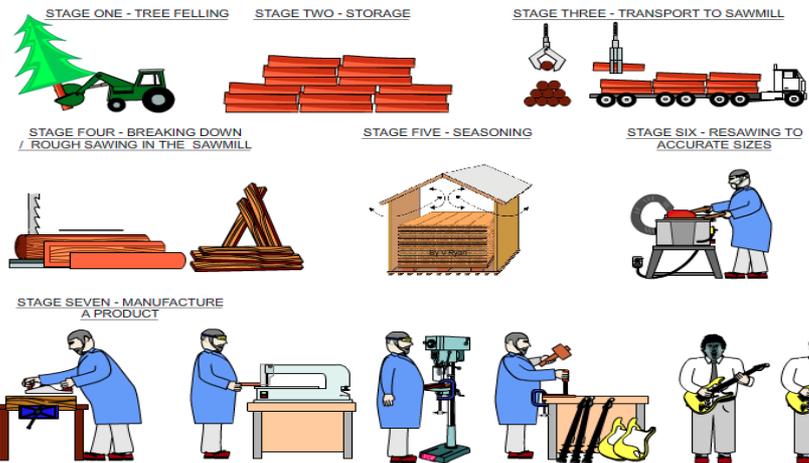
6. To make the top front of the cube, draw two lines parallel to the two base lines at 30° by connecting the centre line to the two sides.



7. Add in the top back edges of the cube at 30° angles to the horizontal guide line.

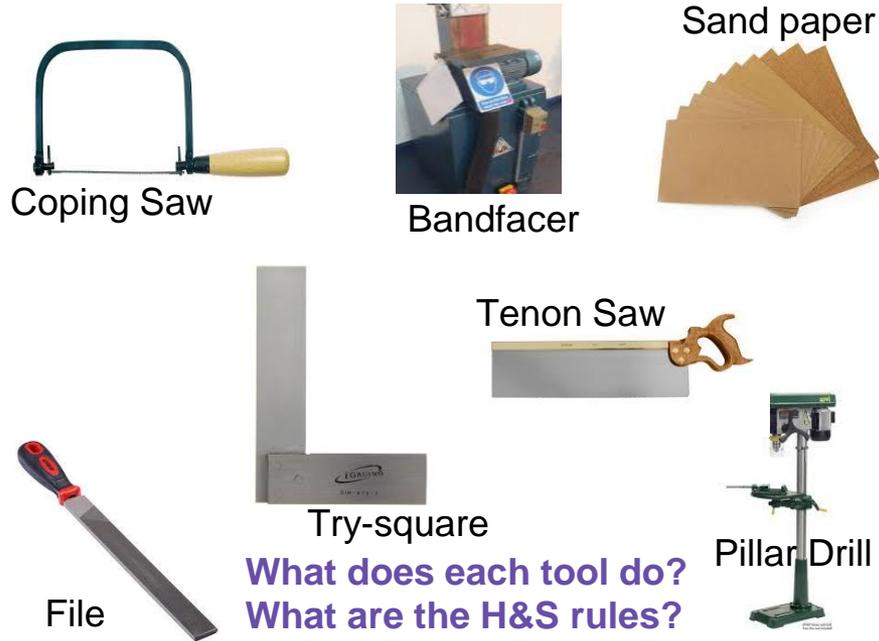


Section 1:4 - Raw material to a product



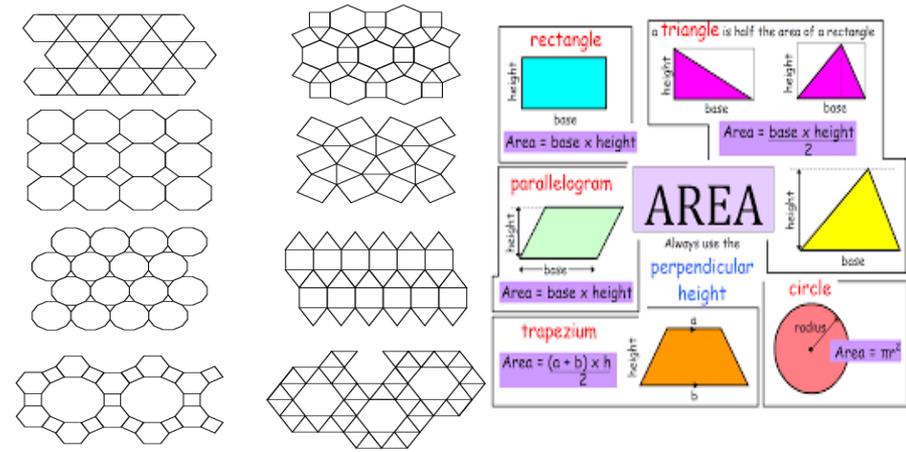


Section 1:5 Tools and processes



What does each tool do?
What are the H&S rules?

Section 1:6 - Tessellation/ Area



Area: The area of a flat, or plane figure is the number of unit squares that can be contained within it. The unit square is usually some standard unit, like a square meter, a square foot, or a square inch.

Tessellation: an arrangement of shapes closely fitted together, especially of polygons in a repeated pattern without gaps or overlapping.

Section 1:7 - Testing my product

Waterproofing test - how can we ensure our products are waterproof? How will this differ between industry and a school setting?

Scratch resistance test - how can we ensure our products are scratch resistant? How will this differ between industry and a school setting?

Drop test - how can we ensure our products are durable? How will this differ between industry and a school setting?

How did this link to real life manufacture?

Section 1:8 - Finishing techniques

Finishing Natural Timbers

Timbers can be treated with a number of surface finishes these include **Paint, Stain, Wax & Varnish.**

Applying these finishes can:

- Seal the wood to protect the surface from heat and water
- Enhance the grain & surface
- To colour the surface
- To give a specific aesthetic appeal.