Year 7 Knowledge Organiser: Product Design

KEY EQUIPMENT

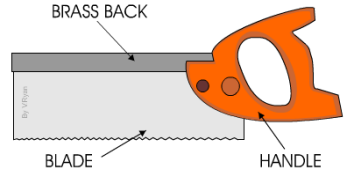
Tenon Saw		A hand saw with a stiff back that is used to cut straight lines in wood. These saws are particularly good for cutting joints such as finger joints or mortise and tenon joints.
Coping Saw		A hand saw that is used to cut curves and complex shapes in wood and plastic. Coping saw blades are much thinner than tenon saw blades which helps them to cut intricate designs.
File		Files are used to shape and smooth wood, metal or plastic. These can be used after cutting materials to ensure a smooth and accurate finish, and ensure joints fit with precision.
Pillar Drill		The pillar drill is used for drilling holes through material including a range of woods, plastics and metals. The material needs to be clamped to the drill table so that it does not move when drilling. The guard needs to be down and goggles need to be worn.
Glass Paper		Glass paper, also known as sandpaper is an abrasive sheet of paper used for sanding wood to make it smooth.
Disc Sander		A machine used to smooth the edges of materials. Unlike the belt sander, the disc sander moves in a circular motion and is better for smaller work or rounding corners.

HEALTH AND SAFETY

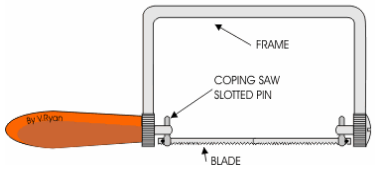
1. Always remove your blazer & tie long hair back when completing practical activities, as well as removing dangly jewellery and tucking ties into shirts.
2. Wear an apron.
3. Ensure all stools are put away and there are no trip hazards in the room.
4. Do not distract others when they are using tools or machinery.
5. Do not use tools and equipment without permission.
6. Do not use machinery without supervision, and ensure you are wearing goggles at all times.
7. Switch off machinery as soon as you have finished.
8. Be respectful of all tools and equipment.
9. Be tidy and put everything back in the correct place when you have finished.
10. Do not play with the vice when seated at the workbench.

TENON SAW AND COPING SAW

Parts of the tenon saw:

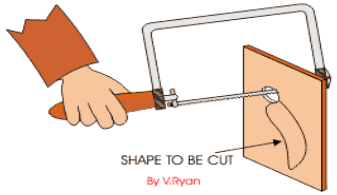


Parts of the coping saw:



How to hold the tenon saw:

Using a coping saw to cut shapes:



The tenon saw is a type of back saw. Back Saws get their name from the steel or brass back, labelled on the diagram above. The heavy back gives the saw its weight which is useful when sawing wood. The weight of the saw along with the forward sawing motion allows the saw to cut through woods relatively easily. Tenon saws are used for general sawing and cutting. They are used for cutting straight lines.

Coping saws are used for cutting a range of materials, including woods and plastics. Using a coping saw is a test of skill as it can be difficult to control and requires practice. A coping saw can be used to cut shapes in the middle of a piece of material. First, the blade is removed from the coping saw and then passed through a hole that has been drilled. The blade is then fitted to the coping saw frame. The saw can then be used in the normal way, cutting the 'internal' shape.

Websites / Blogs / Online Magazines to browse:

- Tate.org.uk/art
- Vogue
- Artreview.com
- Design Museum
- Wired
- Wallpaper
- Blueprint
- craftscouncil.org.uk
- artmonthly.co.uk
- elephant.art
- Pinterest

Galleries & Museums to Visit:

- Tate Modern
- Tate Britain
- The Design Museum
- The Fashion and Textiles Museum
- The British Museum
- The Victoria & Albert Museum

B. KEY WORDS

- **Design Brief:** A design brief is the statement a client gives to a designer outlining what they want their product to be like.
- **Hardwoods:** Woods that come from deciduous trees. Trees lose their leaves seasonally, in winter. Hardwoods are not always harder than softwoods. They have a wider variety of colour and texture than softwoods. For example: Oak
- **Manufactured Boards**: (aka Engineered Wood or Composite Boards) are sheet materials produced by pressing and bonding together wood particles, fibres or veneers to achieve particular characteristics - and to create a use for wood scraps/offcuts that would otherwise be discarded as waste. For example: MDF
- **Softwoods:** Woods that come from coniferous trees (they have needles, not leaves). They grow quickly, compared to most hardwoods. When sawn and planed they tend to be light & pale in colour. Softwoods tend to be cheaper than hardwoods due to their quick growth. For example: Pine
- **Specification:** A design specification is a list of criteria a product needs to address. Using the brief as a starting point for research, a specification can be written when more facts are known. Information needs to be found through research to help produce early design solutions and improvements.
- **Evaluate**: Assessing the strengths and weaknesses of something.