







# Year 8 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.
Try Square		A try square is used for marking out pieces of wood and for checking that 90 degree angles are accurate. They are very useful when marking out joints.
Belt Sander		A machine used to smooth the edges of materials. Belt sanders still give a rough finish due to the abrasive paper having a high grit, but can prepare work ready for finer sanding with hand tools.
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.

## KEY WORDS

- **Iterative Design:** A cyclical design approach where designs are tested, evaluated and refined a number of times. 'Iterative' simply means the repetition of a process.
- **Design Brief:** A design brief is the statement a client gives to a designer outlining what they want their product to be like, eg 'Design, make and finish a box made from pine and acrylic.'
- **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.
- **Modelling/Prototyping:** Making a physical example of a product that has been designed in order to test its suitability and success. This often happens multiple times.
- **Renewable Materials:** Materials which can be replaced and will not run out e.g. trees to make wood and paper.
- **Non-Renewable Materials:** Materials which cannot be replaced e.g. oil to make plastics.
- **Sustainability:** Trying to control the reduction in the number of natural resources used in products in order for nature to remain unchanged.
- **Evaluate:** Assessing the strengths and weaknesses of something.
- **Testing:** Checking the suitability of a design product in use.

### Websites / Blogs /

### Online Magazines to browse:

- [Tate.org.uk/art](http://Tate.org.uk/art)
- [Vogue](http://Vogue)
- [Artreview.com](http://Artreview.com)
- [Design Museum](http://Design Museum)
- [Wired](http://Wired)
- [Wallpaper](http://Wallpaper)
- [Blueprint](http://Blueprint)
- [craftscouncil.org.uk](http://craftscouncil.org.uk)
- [artmonthly.co.uk](http://artmonthly.co.uk)
- [elephant.art](http://elephant.art)
- [Pinterest](http://Pinterest)

### Galleries &

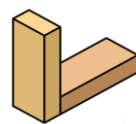
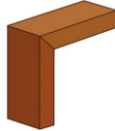
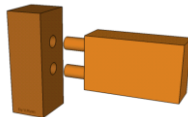
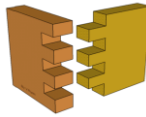
### Museums to Visit:

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


## 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 finished.
10. Do not play with the vice when seated at the workbench.

## TYPES OF WOOD JOINT

			
<b>Butt Joint:</b> The simplest type of joint, which is often strengthened with pins or nails.	<b>Mitre Joint:</b> Often used on picture frames, 45 degree angles are cut to create an attractive finish.	<b>Dowelled Joint:</b> Wooden dowels add strength and rigidity to this type of joint, which can also be glued.	<b>Finger Joint:</b> A simple joint which involves cutting multiple 'fingers' which are then glued.

## HOW TO MARK OUT FINGER JOINTS



1. Use a Tenon saw and bench hook to cut sections of wood. You will need 4 pieces in total to create a square box.	2. Number the sections of wood 1, 2, 3, and 4. This will be useful when cutting the joints and putting your box together later.	3. Stand one of the pieces on it's edge and use a pencil to draw lines the same thickness as the wood down the edges of each piece.	4. Carefully mark the 'fingers' within these pencil lines. Use a try square to keep your marking out at 90 degree angles.
--	---	---	---