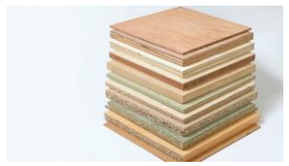
Year 9
Subject: Technology

Episode 1

Health, Safety and Using the Workshop



Episode 2

Timbers

When selecting a timber-based material, there are many different types to choose from. Hardwood and softwood are types of timber that come from many different trees. Manufactured boards such as MDF are man-made from recycled material and other boards such as plywood are man-made from layers of wood.

Hardwood and softwood do not relate to the density of the material but where the material originates from.

Hardwoods lose their leaves in winter meaning they have a closer cell structure and take longer to grow. This makes them more expensive. Example: Mahogony

Softwoods keep their leaves all year round. They have a looser cell structure and they grow quicker making them less expensive. Example: Pine.

Episode 3

Accurate Measuring and Marking

Use the following equipment to help measure and mark out accurately.

Ruler - for measuring shorter lengths, widths and thicknesses

Tape measure - for measuring long distances, particularly in the building trade

Try square - for marking out angles that are 90 degrees to an edge

Mitre square - for marking out angles that are 45 degrees to an edge

Sliding bevel - to mark an angle that you set to an edge

Marking gauge - to scratch a line that is parallel to an edge

Mortise gauge - to scratch a set of parallel lines to an edge

https://www.bbc.co.uk/bitesize/guides/zkvny4j/revision/8

Episode 4

Computer Aided Design (CAD)

Computer aided design (CAD) is the use of computer software to design new products in 3D. This enables businesses to visualise new designs in a variety of materials and send images around the world for collaboration and consultation. BBC.

Advantages	Disadvantages
Ideas can be drawn quickly.	Expensive to set up.
Designs can be viewed from all angles.	Needs a skilled workforce.
Consumer feedback can be given before production.	Difficult to keep up with technological change.
A range of ideas can be tested.	Computers can fail.

Episodes 5 & 6

Computer Aided Manufacture (CAM)

Computer aided manufacture (CAM) involves using computers to control machines to undertake the production of goods. By using CAM, designs can be sent to CAM machines such as laser cutters, 3D printers and milling machines. BBC.

Advantages	Disadvantages
Fast and accurate production.	Expensive to set up.
Machines can run constantly on repetitive tasks.	Needs a skilled workforce of engineers.
Good for producing on a mass/flow production line.	Downtime required for maintenance.
Less material wastage.	Computers and machines can fail.

Key Terminology

Terminology	Definition
Hardwood	Wood from a tree that loses its leaves in winter.
Softwood	Wood from a tree that keeps its leaves all year round.
Mitre Square	For marking out angles that are 45 degrees to an edge
Sliding Bevel	To mark an angle that you set to an edge
Mortise Gauge	To scratch a set of parallel lines to an edge
CAM	The use of computer software to design new products in 3D
CAD	Involves using computers to control machines to undertake the production of goods.

Episode 1

Question	Answer
Who is responsible for the safety of everyone in the workshop?	Everybody is.
Are all accidents preventable?	Yes, if everyone follows the rules.
Should you be trained on machinery before using it?	Yes, so that you use it correctly.
What could happen if you wear the wrong clothing/footwear?	Loose clothing could get trapped in machines and improper footwear could cause a fall.
What is PPE?	Personal, Protective, Equipment.

Episode 2

Question	Answer
What is Hardwood?	A type of wood that loses its leaves during winter.
What is Softwood?	A type of wood from a tree that keeps its leaves all year round.
What is MDF?	A man-made wood produced from recycled material.
What is plywood?	Man-made from layers of wood.
Give an example of a type of hardwood.	Mahogany
Give and example of a type of softwood.	Pine

Episode 3

Equipment	Use
Ruler	For measuring shorter lengths, widths and thicknesses
Tape Measure	For measuring long distances, particularly in the building trade
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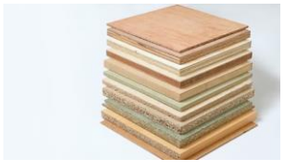

Year 9
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Episode 4

Question	Answer
What does CAD stand for?	Computer-aided Design.
What is CAD used for?	The use of computer software to design new products in 3D
What does it allow businesses to do?	To visualise new designs in a variety of materials and send images around the world for collaboration and consultation.
Name an advantage of CAD.	It is quick to do.
Name a disadvantage of CAD.	It is expensive to set up.

Episode 5 & 6

Question	Answer
What does CAM stand for?	Computer-aided Manufacture.
What is CAM used for?	It involves using computers to control machines to undertake the production of goods.
What does it allow businesses to do?	Designs can be sent to CAM machines such as laser cutters, 3D printers and milling machines
Name an advantage of CAM.	Fast and accurate.
Name a disadvantage of CAM	It is expensive to set up.

Key Terminology

Terminology	Definition
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