

# Resistant Materials

## Year 7 Homework Booklet

Name:

Teacher:

Form:

- This book is your property, if you lose it you must buy a new one
- Bring it to each lesson

I will get my homework marked at the start of each lesson.

For my technical knowledge I need to know:

- How to spell the word correctly
- What the meaning is
- How and where it is used

**Homework 1: Research different types of soft woods and where they originate from.**

Research a range of different types of soft woods:

- Include where they originate from
- How they can be finished
- Their properties
- Where they are used

## Homework 1:Softwoods

Where does pine originate from?		2
What are the general properties of softwoods?		2
Where are softwoods usually used?		2

## **Homework 2: Research different types of hard woods and where they originate from.**

Research at range of different types of hard woods:

- Include where they originate from
- How they can be finished
- Their properties
- Where they are used

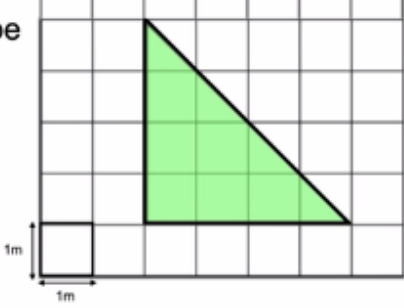
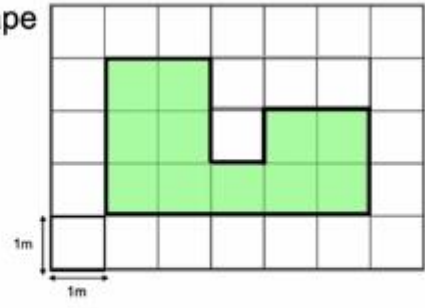
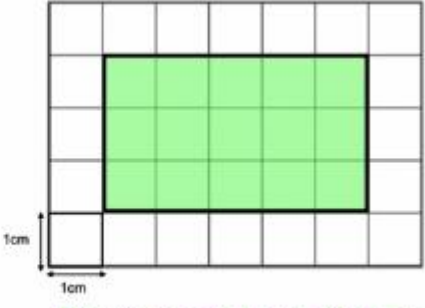

## Homework 2: hardwoods

Question	Answer	Marks
What type of trees does hardwood usually originate from?		1
What are the general properties of hardwoods?		2
What are finishes applied to wood and name a suitable finish for sapele?		3
What are properties of oak?		1

### Homework 3: Maths counting squares

- Complete the answers to the questions on the next page.

# Homework 3: Hegarty maths

Question	Answer	Marks
<p>Work out the area of the shaded shape on the metre (m) grid.</p>  <p>Diagram not drawn to scale</p>		2
<p>Work out the area of the shaded shape on the metre (m) grid.</p>  <p>Diagram not drawn to scale</p>		2
<p>Work out the area of the shaded shape on the centimetre (cm) grid.</p>  <p>Diagram not drawn to scale</p>		2
<p>Work out the area of the shaded shape on the millimetre (mm) grid.</p>  <p>Diagram not drawn to scale</p>		2

## **Homework 4: Research different types of manufactured boards and how they are made.**

Research a range of different manufactured boards:

- Include how they are made
- How they can be finished
- Their properties
- Where they are used



## Homework 4: Manufactured boards

Question	Answer	Marks
What are manufactured boards made from?		3
Why are veneers applied to manufactured boards?		2
How are laminated boards made?		2
What are the properties of plywood?		2

## **Homework 5 : Look at the advantages and disadvantages of using manufactured boards compared to natural timbers**

Research a range of different manufactured boards:

- Look for advantages of manufactured boards against natural timbers

## Home work 5: Manufactured boards advantages and disadvantages

Question	Answer	Marks
<p>What are the advantages of using manufactured boards? Explain why they are advantages compared to natural timbers?</p>		8

## **Homework 6 : topic test next lesson, revise all topic areas.**

Revise:

- Softwoods-properties-use and where they originate from-finishes
- Hardwoods-properties-use and where they originate from-finishes
- Manufactured boards-properties-use- finishes
- Manufactured boards how they are constructed- advantages and disadvantages compared to natural timbers

## Homework 6 : Topic test

Question	Answer	Marks
What is the difference between a hard wood and soft wood?		2
What are the advantages of using manmade boards?		3
Name two types of softwood?		2
Name two types of hardwood?		2
Name two types of manufactured board?		2
Name two types of finish that can be applied to wood?		2
Why are finishes applied to woods?		2
Name a type of finish that can be applied to manufactured boards?		1
Explain one of the finishing processes associated with manufactured boards?		3
What do you measure squares using?		1
<b>Total</b>		20

## **Homework 7 : Research advantages and disadvantages of using CAD/CAM compared to traditional techniques.**

Research the advantages of using computer aided design:

- Looking at programs that are used
- Advantages
- Disadvantages

Research the advantages and disadvantages of using computer aided manufacture:

- Look for different types of machines
- Advantages
- Disadvantages

## Homework 7 : Research advantages and disadvantages of using CAD/CAM compared to traditional techniques.

Question	Answer	Marks
Name different types of CAD software?		1
What does CAD stand for?		1
What does CAM stand for?		1
Give 3 advantages for using CAD/CAM?		3
Give 3 disadvantages for using CAD/CAM?		3

## Homework 8 : Research different shaping tools and machines

Research a range of different shaping tools and machines, examples are below:





- **sander**
- **plane**
- **belt sander**
- **planer**
- **thicknesser**

Research:

- What materials they would be used for
- Advantages and disadvantages



## Homework 8 : Research different shaping tools and machines

Question	Answer	Marks
<p>What is the name of the tool and what is its use?</p> 		2
<p>What is the name of the tool and what is its use?</p> 		2
<p>What is the name of the tool and what is its use?</p> 		2
<p>What is the name of the tool and what is its use?</p> 		2

## **Homework 9 : Research health and safety aspects within a technology lesson**

Research:

- Different PPE equipment that can be used
- How we can prevent as much dust within the workshop
- Machine maintenance

## Homework 9 : Research health and safety aspects within a technology lesson

Question	Answer	Marks
Name two hazards that can occur when using the fret saw?		2
Name two precautions that you can take to prevent the hazards on the fret saw?		2
What can be used to prevent dust within the workshop?		3

## Homework 10 : Research different types of saws and revise all topics end of topic test

Revise:

- Softwoods-properties-use and where they originate from-finishes
- Hardwoods-properties-use and where they originate from-finishes
- Manufactured boards-properties-use- finishes
- Manufactured boards how they are constructed- advantages and disadvantages compared to natural timbers
- **Hegarty Maths** (mm, cm and m and area of square and parallelogram) complete fix up 5
- Computer aided manufacture and computer aided design-programs-machines-advantages and disadvantages
- Different shaping tools and machines-**Sander, plane, belt sander, planer, thicknesser**- use-Advantages and disadvantages
- PPE equipment-prevent dust within the workshop-machine maintenance

Research History on saws look at: **Egyptians saws, Mill saws, Band saws and Chain saw**









Write a sentence down explaining about the saw include at least two points from the list below

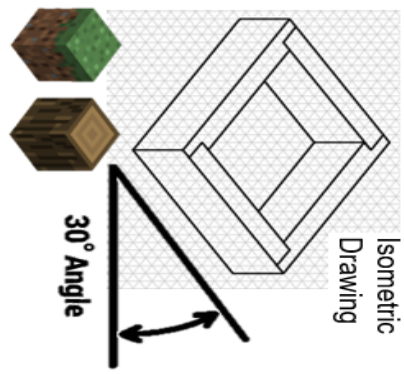
- Dates
- Materials were used to make the saw
- What material the saw cut
- Where the saw originates

## Homework 10 : Egyptians saws, Mill saws, Band saws and Chain saw





Question	Answer	Marks
What type of materials were used to produce the Egyptian saws?		2
How were mill saws driven/powerd?		2
Who was William Newberry?		2
What type of saw was also used for cutting bones?		1

# Y7 Resistant Materials Revision

	Lap Joint
	Tenon Saw
	Bench Hook
	Glass
	Paper
	Pliers
	Vice
	File




Advantages of using Computer Aided Design (CAD)	Disadvantages of using Computer Aided Design (CAD)
<ul style="list-style-type: none"> <li>• Designs are easily edited and mistakes can be altered</li> <li>• Designs can be made quickly to a high level of accuracy</li> <li>• Designs files can be sent digitally and quickly</li> </ul>	<ul style="list-style-type: none"> <li>• CAD software costs a lot of money</li> <li>• CAD requires skill to use, which can take a long time to learn</li> <li>• Designs might get deleted</li> </ul>

PPE Sign	Meaning	Activity	Hazard
	Wear goggles	When using <b>machinery</b> that creates debris or dust	You could damage your eyes.
	Wear gloves	When handling hot or sharp objects	Your hands could be cut/ burned.
	Wear ear protectors	When using loud machinery	You could damage your hearing.
	Wear dust mask	Using machinery or chemicals that create dust or fumes	You could damage your lungs.

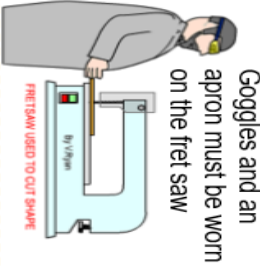
**Maths: Area**  
The area of a 2D shape is a measure of the spec inside its perimeter. **We measure using squares:**

1mm<sup>2</sup> "one millimetre squared"  
1cm<sup>2</sup> "One centimetre squared"

**Area = length x width**

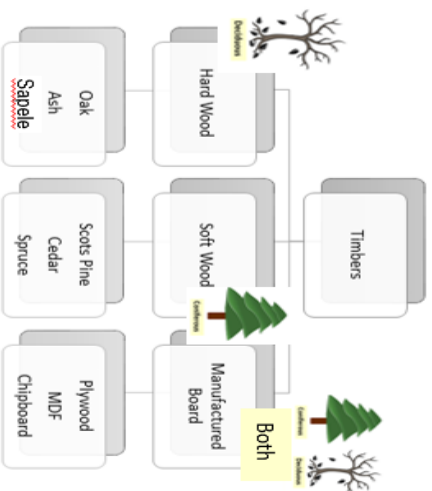


Goggles and an apron must be worn on the fret saw



FRET SAW USED TO CUT SQUARE

- Finishing Natural Timbers**
- Types of finish:**
- Paint, Stain, Wax & Varnish.
- Advantages:**
- Seals the wood to protect the surface from heat and water.
  - Enhance the grain.
  - To colour the surface.
  - To improve aesthetics
- How to apply:**
- Smooth with glass paper, apply first coat along the grain with paint brush. Wait until dry and repeat 3 times.



Advantages	Disadvantages
<p><b>Natural Timber</b></p> <ul style="list-style-type: none"> <li>Naturally strong</li> <li>Long lasting / durable</li> <li>More aesthetically pleasing than manufactured board</li> </ul>	<p><b>Manufactured Board</b></p> <ul style="list-style-type: none"> <li>Available in many sizes and thicknesses</li> <li>Cheaper than because it is made from young, soft wood trees</li> <li>Finishes can be easily applied</li> </ul>
<ul style="list-style-type: none"> <li>Prone to warping</li> </ul>	<ul style="list-style-type: none"> <li>Less aesthetically pleasing that natural timber</li> </ul>
<ul style="list-style-type: none"> <li>May have defects, e.g. knots in the wood</li> </ul>	<ul style="list-style-type: none"> <li>Is held together with glue and resin which makes them non biodegradable and non recyclable.</li> </ul>
<ul style="list-style-type: none"> <li>More expensive because the trees must grow to a certain size before they can be cut.</li> </ul>	<ul style="list-style-type: none"> <li>Prone to warping over time if not supported.</li> </ul>

**Finishing manufactured boards**

**Veneer** - A sharp blade cuts very thin layers wood called veneer. A layer of veneer can be glued onto less expensive manufactured board to produce a more attractive finish and imitate natural timbers but maintain the properties of a manufactured board.

**Lamination** - Laminating involves bonding by gluing strips of materials together in layers to create a strong structure. An example of this is wooden beams.

