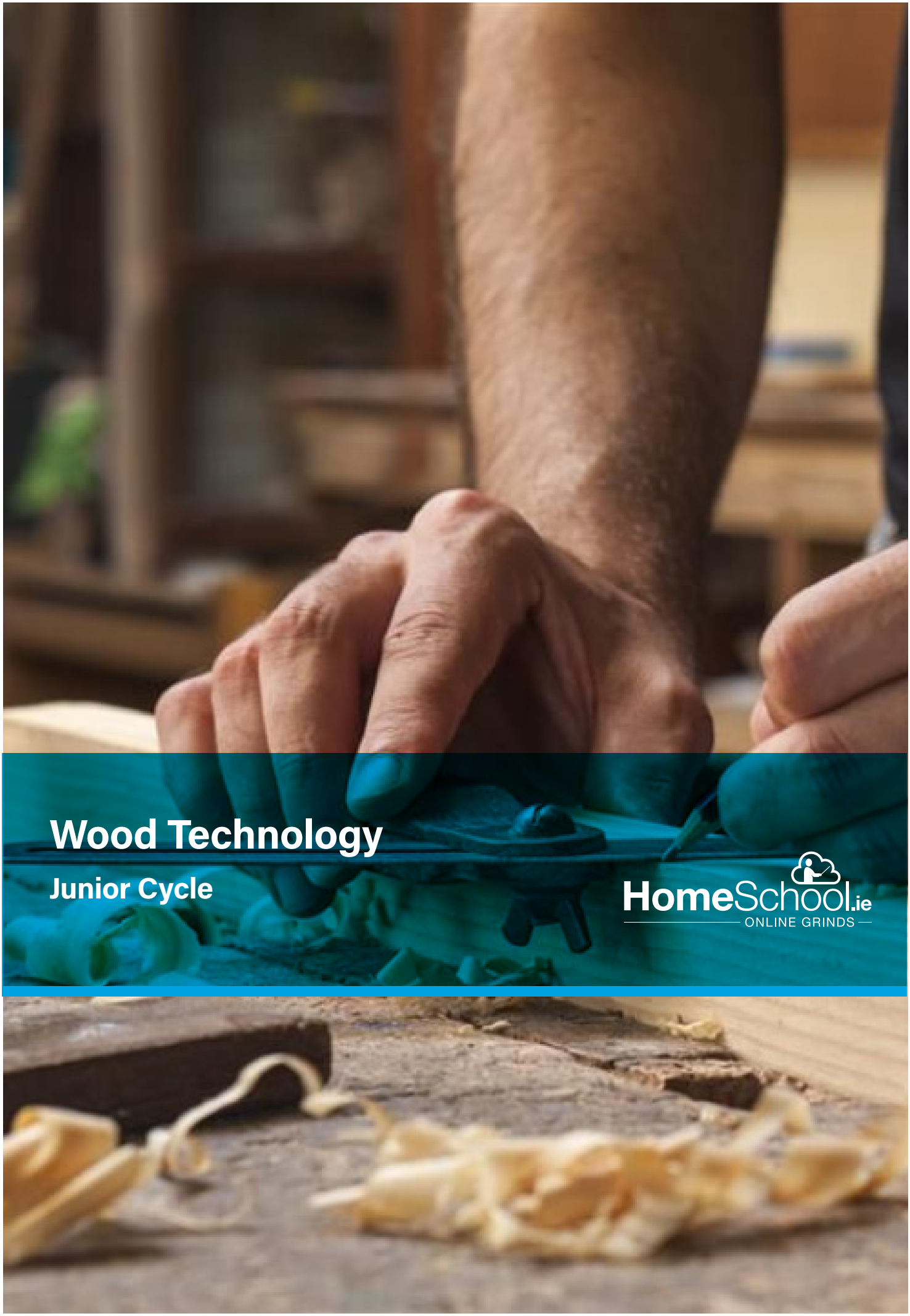


Wood Technology

Junior Cycle

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Subject: Wood Technology

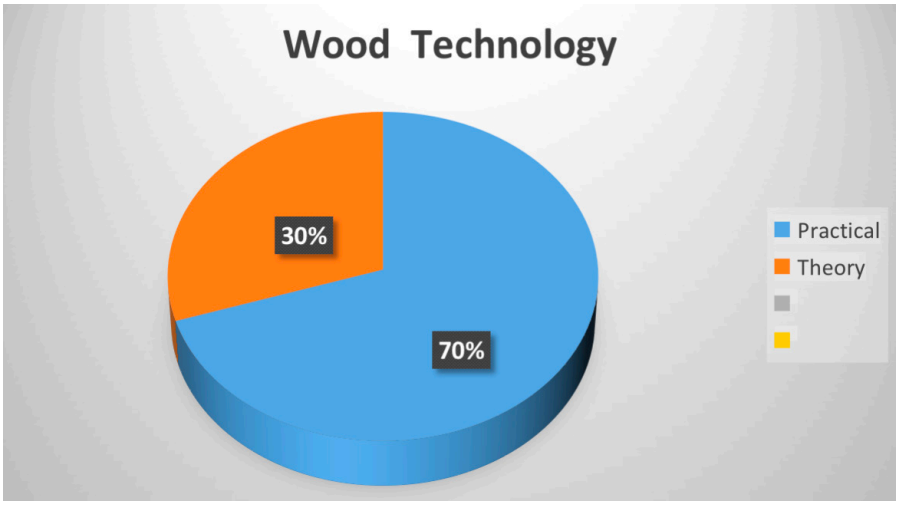
Lesson 1: Course Overview

1.0 Learning Intentions

We will learn to:

- The course content and everything we will cover on this course.
- Understand the benefits of trees in our environment.
- Develop knowledge of Irish Forestry.
- Identify different types of trees.

1.1 Course Breakdown



Theory

- Course Overview and Trees in our world (Theory)
- Hardwoods vs Softwoods and how a tree grows (Theory)
- Forestry, Timber and the environment (Theory)
- Conversion of Timber (Theory)
- Timber Seasoning (Theory)
- Defects and diseases in timber (Theory)
- Manufactured boards (Theory)
- Material properties, forces and adhesives (Theory)
- CBA1 and CBA2 (Theory)
- Hand Tools (Theory)
- Power Tools (Theory)
- Woodworking Joints (Theory)
- Exam Preparation
- Exam Preparation
- Wood Turning (key skill)
- Carving (key skill)
- Veneering (key skill)
- Laminating and Bending wood (key skill)

1.2 Notes Irish Forestry

Irish Forestry

Forest Cover: Ireland's forest cover has been steadily increasing over the years. As of 2021, forests covered approximately 11% of the total land area in the Republic of Ireland.

Forest Types: The majority of forests in Ireland are coniferous, mainly consisting of species like Sitka spruce, Scots pine, and Lodgepole pine. There are also smaller areas of broadleaf forests, including oak, beech, and birch.

Forest Ownership: The ownership of forests in Ireland is diverse. A significant portion of forests is privately owned, with farmers, individuals, and companies holding forested land. The state-owned forestry agency, Coillte, also manages a substantial amount of forest land.

Afforestation and Reforestation: Ireland has a national afforestation and reforestation program aimed at increasing forest cover and improving the sustainability of its forests. This involves planting new trees (afforestation) and replanting areas that were previously deforested or harvested (reforestation)
Economic Contribution: The forestry sector contributes to Ireland's economy through various means. Timber production, wood processing, and forest-based industries play a role in providing employment and generating economic value.

Environmental Impact: Irish forests have significant environmental benefits, such as carbon sequestration, biodiversity preservation, soil protection, and water quality improvement.

Recreation and Tourism: Many of Ireland's forests are accessible to the public and provide recreational opportunities like walking, hiking, and wildlife watching. They also contribute to Ireland's tourism industry, attracting visitors interested in exploring natural landscapes.



Tree Benefits

Trees provide numerous benefits to the environment, making them essential for maintaining a healthy and balanced ecosystem. Some of the key benefits of trees in our environment include:

Air purification: Trees absorb carbon dioxide during photosynthesis and release oxygen, making them vital in reducing greenhouse gases and improving air quality.

Climate regulation: Trees play a crucial role in regulating local and global climates. They help to cool the air by providing shade and through the process of transpiration, where water evaporates from their leaves.
Biodiversity support: Trees provide habitats and food sources for a wide variety of plant and animal species, contributing to biodiversity conservation.

Erosion control: The root systems of trees help prevent soil erosion and protect against landslides, maintaining the stability of hillsides and riverbanks.

Water management: Trees help to regulate water cycles by absorbing and retaining water through their roots, reducing the risk of floods and maintaining consistent water flow in streams and rivers.
Noise reduction: Trees can act as natural noise barriers, absorbing and diffusing sound, thus reducing noise pollution in urban areas.

Aesthetic value: Trees enhance the beauty of landscapes, parks, and urban areas, providing aesthetic pleasure to residents and visitors.

Energy conservation: Strategically placed trees around buildings can reduce the need for air conditioning in the summer and provide windbreaks in the winter, leading to energy savings.

Carbon reduction: Trees act as carbon sinks, storing carbon dioxide in their trunks, branches, and roots, which helps mitigate the impacts of climate change.

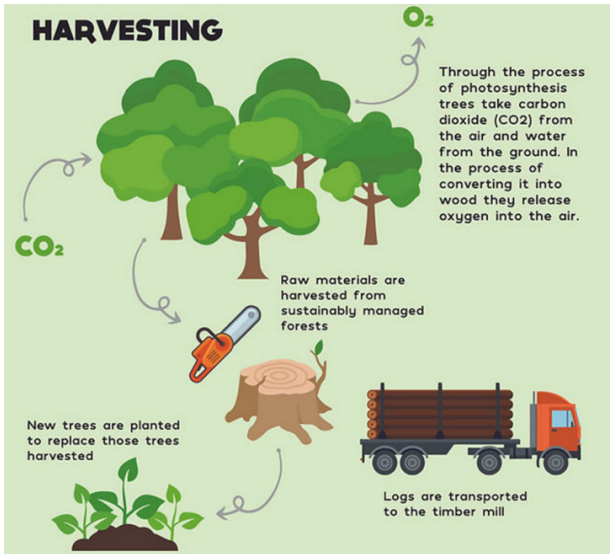
Improved mental well-being: Studies have shown that spending time in nature, including among trees, can reduce stress, anxiety, and depression, promoting better mental health.

Economic benefits: Trees contribute to the economy through the production of timber, fruits, nuts, and other products, as well as by attracting tourism to areas with beautiful tree-filled landscapes.

Air quality improvement: Trees help filter pollutants, such as particulate matter and ozone, from the air, leading to improved air quality and reduced respiratory problems for humans.

Wildlife support: Trees provide food, shelter, and nesting sites for various wildlife species, supporting their survival and promoting healthy ecosystems.

There are numerous types of trees found all over the world, and they can be classified based on various characteristics. Here are some common types of trees based on their classifications:



Broadleaf Trees (Deciduous Trees):
Coniferous Trees (Evergreen Trees):
Palm Trees:
Fruit Trees:
Fir Trees:
Beech Trees:
Maple Trees:
Oak Trees:
Tropical Rainforest Trees:
Conifers of the Northern Hemisphere:
Redwood Trees:
Eucalyptus Trees:

Deciduous

These are just a few examples of the many types of trees that exist around the world. Each type of tree has unique characteristics and plays a vital role in various ecosystems.

Give us hardwood timber

Lose their leaves in autumn – except holly

Trunk divides to develop large branches

Large broad leaves

Generally grow more slowly

Usually harder and more durable wood

Branches are generally larger and more irregular than conifers

Coniferous

Give us softwood timber

Evergreen - except larch

Have a straight trunk

Smaller branches

Needle like leaves

Seeds borne in pine cones

Symmetrical in shape

Grow quickly

Wood is usually softer and less durable than softwood

1.3 Excercise

Furniture maker crafts native Irish woodland in Wicklow

Planting trees has emerged as a low-cost, high-impact way of tackling the climate crisis. The furniture maker shown has planted more than 2,000 native trees on four acres of land at his home in Co. Wicklow. "What we have done here, we've planted native trees from native stock. Within 20 years, we have created a lovely woodland and native plants are gradually coming in. It's becoming a woodland. It's a future forest."



(a). (i) Give **two** reasons why this furniture maker has chosen to plant native Irish trees.

Reason 1:
Reason 2:

i. The images show the leaves of three native Irish trees.
From the following list, identify **each** tree leaf.

Scots Pine, Holly, Oak





1.4 Keywords

Biodiversity
Habits
Hardwoods (Deciduous)
Softwoods (Coniferous)
Harvesting

1.5 Homework Task

(b). The image shows the furniture maker walking through his forestry plantation.



(i) Discuss **two** benefits forestry has for people or our environment.

Benefit 1:
Benefit 2:

(ii). Describe, using notes and freehand sketches, **two** characteristics of a coniferous tree.

Characteristic 1:	**Characteristic 2:**