

# Working with Trees and Timber

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A toolkit  
for forestry  
careers



GROWING SCOTLAND'S  
WOOD-BASED BIOECONOMY  
THROUGH INVESTMENT  
& INNOVATION



Scottish  
Forest &  
Timber  
Technologies



Scottish  
Forestry  
Coilltearachd  
na h-Alba





# 1. INTRODUCTION

***Working with Trees And Timber has been developed for anyone in the industry who's been asked to speak to young people about careers in forestry. It signposts and provides easy access to the wide range of resources that have been created to promote the sector and which could be used or adapted in a variety of settings.***

## Rationale

Those of us who work in the industry already know the trees and timber sector can be a great career choice. When you combine the forecasts showing how the sector is set to grow substantially during the next decade with increasing calls to say we need more new entrants to join us, we have a job to do to inspire the next generation of the workforce to think so too.

One way of doing this is through taking part in career and school events. Such events vary greatly in terms of their audience as too do their format, location and duration, so flexibility and adapting to each situation is key. Where possible, it is also useful to tie in any activities with the Curriculum for Excellence so that they can feed into an establishment's on-going learning programmes.

It has been said that the best way to tell a story is to draw from what you know and there simply is no substitute for first-hand knowledge and experience. It should therefore be stressed that it is NOT the intention of this pack to stifle individuality or promote one particular mantra for every occasion. Rather, it presents some thoughts, comments and information from which ideas can be drawn and hopefully complement those of industry representatives attending career events.

It also provides links to organisations such as [Outdoor Woodland Learning \(OWL\) Scotland](#) groups, and others, who may be able to provide equipment, information and moral support at a more local level.

## Housekeeping & logistics

So, you've been asked to speak about forestry to a group of young people. Hopefully, your first reaction won't be ARGHHHH, what do I do, where do I start?!? But if it is, here are a few questions you may like to ask your host/s.

- How many people will I be speaking to?
- What are their ages?
- How long will I have to talk/have with them?
- Are there any individual needs I should be aware of?
- What are your policies for disclosure and risk assessment?
- Will we be indoors or outdoors?
- What equipment will be available?
- What sort of topics are students learning about just now?
- What do you expect/are hoping to get from the event?

## If ever asked to summarise the Scottish forestry and timber industry

Forests cover 19% of Scotland's land area (compared with 13% across the UK as a whole, 15% in Wales, 10% in England and 8% in Northern Ireland). The forest and timber industry spans the complete lifecycle of wood, from planting seeds to forest management, to harvesting and haulage through to timber processing (e.g. sawmills and wood for fuel).

This naturally low-carbon sector plays an important role in the construction, renewable energy and tourism sectors, the increasing use of sustainable, environmentally friendly materials like timber has the potential to make an even greater contribution and impact in many areas of society.

Forestry's contribution to the Scottish Economy has increased to £954M – rising 30% since the 2008 recession – and across the whole of the supply chain, the sector supports over 25,000 jobs.

## The industry's name in lights

Take a look at these short films about the industry.



**Animating forestry (Confor)**

[https://youtu.be/q\\_dhXbLj9mE](https://youtu.be/q_dhXbLj9mE) (1:44)



**There's more to Scotland's forests than meets the eye (FCS)**

<https://youtu.be/4M8v0k5Ydlg> (1:26)

## Virtually the real thing?

If you have access to virtual reality goggles and can control the stampede, this is a great way of getting kids interested!



**Forestry in Scotland 360 VR Experience (Scottish Forestry)**

<https://www.youtube.com/watch?v=WjDkBPw1x68&sns=em>





## 2. THE MODERN FOREST AND TIMBER INDUSTRY



### Nursery

Trees are grown in sheltered nurseries before they are planted as part of a new, well designed forest. It typically takes between one and three years to prepare trees for planting.



### Management

Once trees are planted, they need to be established and managed. Nurturing our woodland takes decades of planning, dedication and hard work.



## Harvesting

Technology is making the process of harvesting timber safer and more efficient. The modern day lumberjack sits in a protected cab and uses a high-tech control panel to manoeuvre the blades that cut the wood. Communication with the sawmill is vital and tells the machine operator what kind of wood to cut and how much is needed.



## Processing

The processing of the wood from our forests takes place in high-tech sawmills. Logs are scanned using 3D CAT scanners and are automatically cut into shapes required by designers. Modern processing is extremely efficient and no part of the product is wasted.



## Transport

Hauliers play a vital role in our modern forestry supply chain. They move millions of tonnes of logs from the forest to timber processors, often along remote, rural roads. Some timber is moved by sea and rail. Once processed, the timber products are then transported to suppliers for onward distribution.



## Designers and wood users

The wood that we harvest from our forests is of exceptional quality. It is a beautiful material for designers, architects, construction engineers and furniture makers to work with. It is also a reliable and sustainable material – using much less energy than other materials.





## Biomass and woodfuel

Wood can also be burnt to release renewable energy. Renewable energy from biomass boilers can power farms, homes and businesses. Woodfuel, in the form of logs or woodchip pellets can also be combusted in wood-burning stoves to warm up our homes and heat our water.



## Forests and people

Forests and woodlands provide opportunities for people to improve their physical and mental health and to play and learn in different ways. They enhance the quality of life for people living and working in towns and cities.



## Forests and the environment

We all benefit from the goods and services provided by our forests; biodiversity, timber, food, renewable energy, water purification and flood mitigation. Our forests are important natural assets!

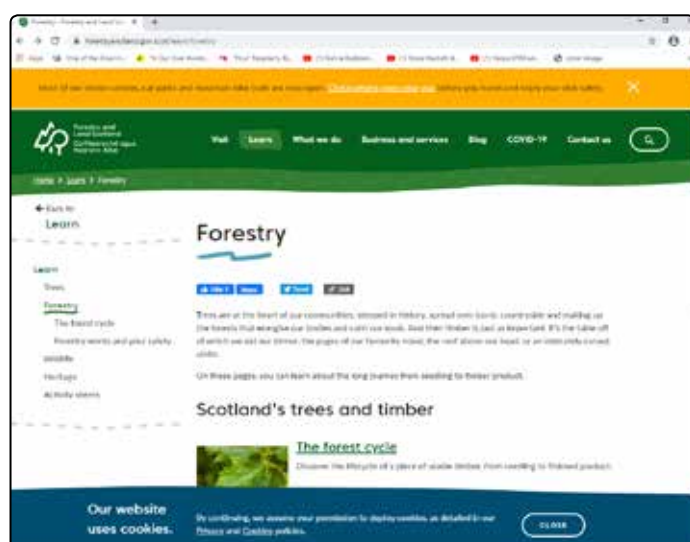
## Pick and mix presentations

If you're looking for an example PowerPoint presentation on Scotland's forest and timber industry...here is a video at <https://youtube.com/watch?v=4M8v0k5Ydlg>



## Scotland's trees and forests

Another useful source of ideas is Forestry and Land Scotland's learn pages. These explore the different species of tree which are found in Scotland, describe their uses and explain their journey from seedling to timber product.



Those folk with an appetite for machines and higher risk activities may be interested in this short film. But do warn them not to try any of it at home.



**Serious work, serious danger (FCS)**

<https://youtu.be/VXYf3VHbUy0> (1:31)

**Forestry (Forestry and Land Scotland)**

<https://forestryandland.gov.scot/learn/forestry>







## 3. OUR AUDIENCE

**No two individuals are the same but some characteristics and trends can be seen in different age groups. Some of those could influence what sort of approach is taken in terms of engagement and are listed below.**

### Warning

It's quite a long list so if you'd rather just read through some tips, jump to page 14.

Also highlighted in this section are examples of resources, information and activities that can be used with different age groups and/or during different situations. These are categorised as either short, medium or longer duration.

For those of us who might have left school a little while ago, here's a short reminder...

Age	School year	Level
3-5	Nursery	Early
5-6	P1	
6-7	P2	
7-8	P3	First
8-9	P4	
9-10	P5	
10-11	P6	Second
11-12	P7	
12-13	S1	
13-14	S2	Third/fourth
14-15	S3	
15-16	S4	
16-17	S5	Senior phase
17-18	S6	

**Fig. 1 Summary of student ages and school years in Scotland**



## Developmental characteristics<sup>1</sup> for aiding planning sessions with groups

### Ages 4-5 (P1)

- Becoming adept in motor skills
- Likes social situations;
- Longer periods of motor play and complex activities;
- Language is still simplistic;
- Tries to please;
- More reticent with age mates than adults;
- Will have tantrums;
- Marked curiosity - “why?”;
- Believes everything has a purpose.

### Ages 5-7 (P2 & P3)

- Needs to participate in activities that allow him/her to put things in order of size and to sort and classify objects;
- Very energetic, needs a variety of activities to maintain interest;
- Comprehends simple instructions.
- Enjoys imaginative play where she/he dresses up and assumes a role, usually from a real-life situation;
- Asks a great number of “why” questions;
- Persists longer at tasks/completes projects;
- More concerned with accuracy;
- A need for orientation to environment;
- Moving away from preferred fantasy towards realism;
- Tries to make sense of what is heard;
- Well-developed preferences.

### Ages 7-9 (P4 & P5)

- Has an increased attention span and stays with activities for longer periods of time;
- Generally obeys and accepts adults but beginning to challenge authority;
- Begins to assimilate/digest the experiences to which they were exposed;
- Sorts information into categories;

- Can be pensive, sad, negative, subdued;
- Enjoys helping others;
- Usually polite/considerate;
- More careful/persistent in work habits

### Ages 9-11 (P6 & P7)

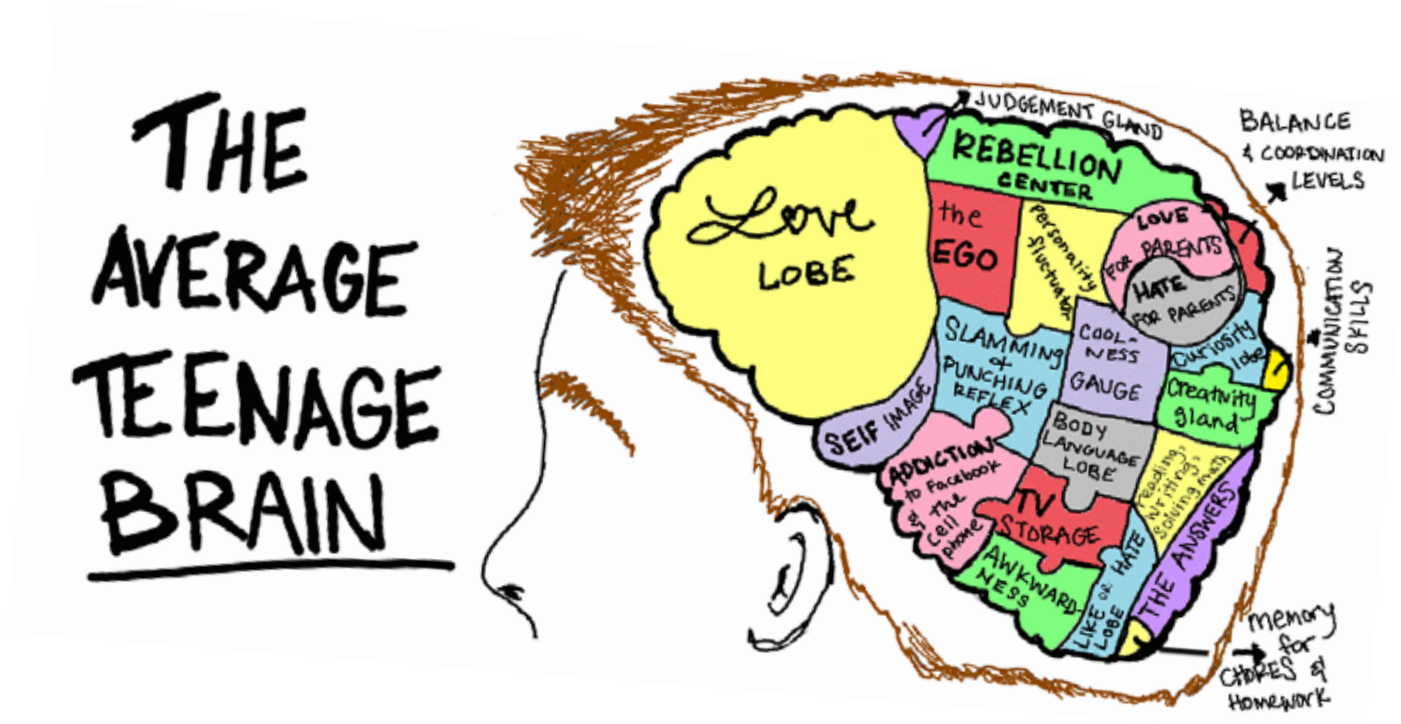
- Indicates increased independence and self-motivation;
- Can be easily discouraged;
- Flourishes in an atmosphere of praise and encouragement;
- Capable of critical thinking (i.e. detects flaws, questions and wants reasons for);
- Focuses on “winning” – in competitive situations;
- Chooses activities that intrigue and will persist with them;
- Less quarrelsome and less demanding;
- Does not hesitate to say “no”;
- Academic achievement is important;
- Uses math and reading skills in their play/ everyday life.

### Ages 11-12 (S1 & S2)

- He/she can read, interpret, and critically analyze author styles, opposing views, implied meanings and feelings for values expressed in literary forms;
- Can think in more abstract forms about cause and effect relationships;
- Can utilize thought processes to evaluate the appropriateness of an action;
- Very high interest in team games.



1. Taken from The Complexity of Childhood, Toronto Observation Guide and Developmental Characteristics of Teens – TIP sheet



### Early Adolescence (12–14 years)

- The brain undergoes growth changes resulting in the ability for more abstract thinking and improved problem-solving;
- Changes in the language domain allow for improved abilities to use speech to express oneself and understand sarcasm and irony, meaning adolescents will become better at arguing and questioning what they are told to do;
- Can feel awkward and self-conscious;
- Experience increased moodiness and a strong need for conformity and acceptance;
- Individuals with similar behaviours, interests and attitudes tend to form peer groups.

### Middle Adolescence (15–17 years)

- Teens become better at everyday planning and decision making. They are capable of understanding the consequences of their behaviour and planning for their future. However, these skills are often used inconsistently, who sometimes act first and think later;
- Teens begin to question who they are and what they should do with their lives. In attempts to answer these questions they begin to explore careers, religion, philosophical and political issues, and social causes;

- Older teens develop a stronger sense of self and rely less on the opinions of others, allowing older teens to better resist peer pressure than younger teens.

### Late Adolescence (18–21 years)

- The biggest developmental milestone during this stage is the transition from secondary school into higher education or work;
- Identity exploration is still occurring in regards to education, work, family role, and personal relationships;
- Peer pressure does not have as great an impact on decisions and values because improved cognitive abilities enable adolescents to consider and respect different points of view. In addition, youth at this stage tend to relate more to individual peers rather than groups;



## Tips for engaging youth

- In general, it is best to engage teens through the use of listening skills and activities rather than lecturing or advice-giving;
- Begin the meeting by simply asking about how their week has been going prior to starting any activity with them. Not only will this allow you to gauge how receptive the teen might be, but it will also make the teen more willing to listen to you because they feel that you showed interest and concern;
- Since adolescents are very self-concerned, try to engage them in discussion by asking how the ideas, subject situation, or outcome may impact their lives. Putting it in that context is a way of making the discussion personal and of interest to them;
- Reverse roles. Instead of the adult always being the teacher or mentor in the relationship, try learning something new from the teenager. This allows the teen to be an expert on a subject that you may know little about, which gets the teen participating and also helps to bridge the gap between generations;
- Use technology as a tool rather than topic of conversation. Teenagers do not view technology as one of their interests. To teens, technology is a normal part of daily life integrated into almost everything they do. Not only can you have them incorporate technology to complete projects and tasks, but also try to connect through various apps;
- Be sincere and genuine when working with teenagers. Teens are not expecting you to be trendy or cool, and trying too hard to be may backfire. They already know you are an adult and what they need is for you to be yourself and honest in your interactions.



## Examples of activities and resources

### Indicative ages: 4-5 (P1)

#### Short duration

- Super Sticks (Woodland Trust)
- Magic Wand (Woodland Trust)



#### Medium duration

- Early years/Level 1 tree measuring (OWL Scotland)
- Leaf Challenge (Forestry England)

#### Longer duration

- Early Years ideas (Early Years Outdoor Education)
- Adapted Harestanes woodland maths trail (OWL Borders Group)
- Mini den building (Woodland Trust)

### Indicative ages: 5-8 (P2-P4)

#### Short duration

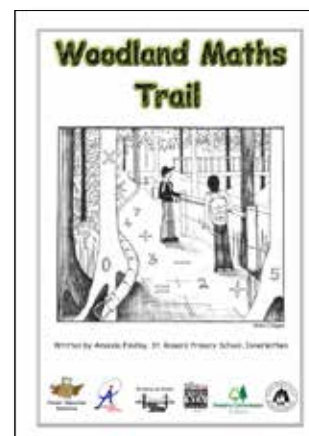
- Tree Rubbing (Forestry England)
- Stickmen/name badges/pencil holders
- Magic Wand (Woodland Trust)

#### Medium duration

- Level 1 tree measuring (OWL Scotland)
- Leaf ID (Woodland Trust)

#### Longer duration

- Adapted Harestanes woodland maths trail (OWL Borders Group)
- Summer woodland activities (OWL North East Group)
- Be a Wildlife Ranger (Forestry England)





## Indicative ages: 8-11 (P5-P7)

### Short duration

- What's in the trees (OWL Scotland)

### Medium duration

- Second level tree measuring (OWL Scotland)
- Twigs all look the same (Woodland Trust)

### Longer duration

- Be a Forester (Forestry England)
- Summer woodland activities (OWL NE Group)
- Be a Tree Scientist (Forestry England)

## More activities and resources for these age groups can be found on the following websites:

[Forestry England Tree Explorer](#)

[Outdoor Woodland Learning Scotland \(OWL Scotland\)](#)

[Tree Tools for Schools \(Woodland Trust\)](#)

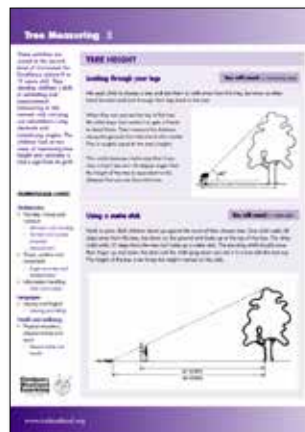
Looking further afield, there are some **great** forestry learning resource websites and virtual interactive tours such as:

### The Forest Academy

Become a forest expert and take a journey through the woods. Collect merit badges as you learn about trees and their environment.

### UPM's Forest Life

A tour of forestry focusing on harvesting, reforestation, forest health and other aspects of forest management.



## Indicative ages: 11-14 (S1-S3) and 14+ (S4-S6)

Rather than a more generic introduction to the forestry and timber industry, particularly through the sort of examples of outdoor activities and play ideas highlighted above, by this stage, pupils would be looking for careers advice, information and guidance that is more focused and sector-specific.

For example, at this level, students will be narrowing down their exam subject options, so information on which could be useful for a career in the forestry and timber sector would be helpful.

Formal careers events are likely to be incorporated into the school curriculum and could be run in a range of different formats such as “speed-dating”, market stands (career fairs) and workshops and have a number of industries represented.

### Short duration (e.g. speed dating/market stands)

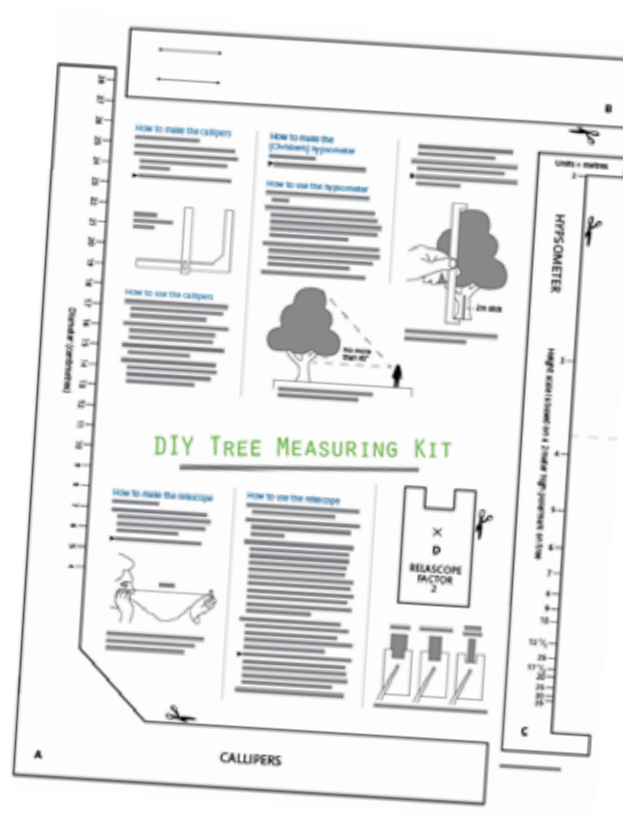
- Create a visually attractive/impactive stand/display
- Highlight breadth of forestry and timber industry (virtual reality goggles, suitably managed, are good for this but if unavailable, a looped presentation could be played)
- Describe range of job opportunities within the sector
- Provide advice on subject choices, where to study forestry and salary expectations
- Be prepared to answer questions

### Medium duration

- Run presentations on the forestry and timber industry
- Third/fourth level & Senior Phase Tree Measuring (OWL Scotland)

### Longer duration

- [Our forests, Our future](#)



### Tree Measuring

[https://www.owlscotland.org/images/uploads/resources/files/TreeMeasuring2019.6\\_December.pdf](https://www.owlscotland.org/images/uploads/resources/files/TreeMeasuring2019.6_December.pdf)



### Our Forest, Our future

<http://www.ourforestourfuture.org.uk/>





## 4. A CAREER IN FORESTRY AND TIMBER

### Where can they start?

Professor Ted Wilson has written his [Top Ten Tips](#) for starting a career in forestry, forest conservation and arboriculture.

Ted Wilson is a silviculturist and forest scientist. He is Director of Silviculture Research International and Adjunct Professor of Forestry, Faculty of Forestry, University of Toronto, Canada. His varied career in the UK and Canada has included roles in woodland management, forest policy, research and academia. His forestry passions include silviculture, professional education and public engagement with forest conservation issues.

### What jobs could they do?

The forestry and timber industry is so much more than lumberjacks cutting down trees. The following jobs are just a few examples of those within the sector.

- Assistant manager – forestry / harvesting / logistics / nursery / operations / sales / sawmill / woodland
- Building compliance officer
- CAD technician
- Chainsaw operator
- Contractor – establishment / fencing / harvesting
- Engineer – chemical / civil / maintenance / mechanical
- Forest ecologist
- Forest ranger – conservation / education / recreation / wildlife
- Forest surveyor
- Forest worker/craftsperson/woodman
- Forester – community / harvesting / recreation & tourism / social
- Forestry consultant
- Forestry foreman/supervisor/squad leader
- Forestry Liaison Manager
- GIS technician
- Land agent

- Landscape architect
- Machine operator
- Manager – contracts / forestry / harvesting / logistics / nursery / production / operations / sales / sawmill / woodland
- Policy advisor
- Product technician
- Sawmill operative
- Scientist
- Timber buyer
- Timber frame designer
- Timber haulier
- Wood machinist
- Woodland investment advisor
- Woodland / forest officer
- Yardsperson

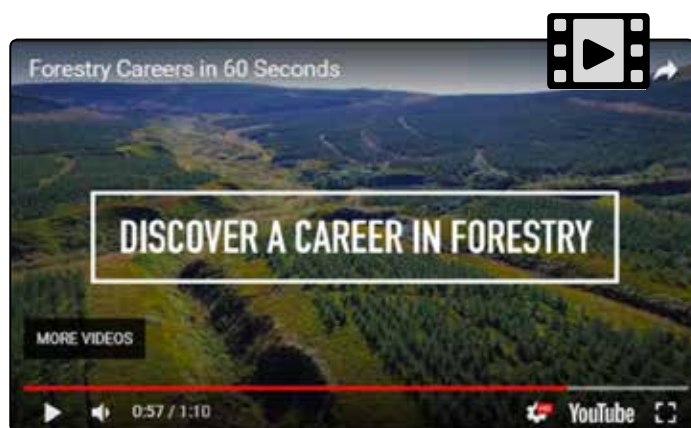
For more information on jobs and qualifications in forestry:

[LANTRA](#)

[CONFOR](#)

[Institute of Chartered Foresters](#)

[My world of work](#)



**Forestry careers in 60 seconds (ICF)**

<https://youtu.be/73050YM4CnY> (1:10)

## Selecting subjects

**National 4 and National 5** exams are the main qualifications sat by pupils at the age of 15/16 (S4/S5) with subject choices being selected by the end of S3. Some schools may select subjects before S3 so it's always best to check with individual schools.

National 4 (4) and National 5 (5) subjects which could be useful for a career in the forestry and timber sector include:

**Biology** (4 & 5)

**Engineering science** (4 & 5)

**Practical electronics** (4 & 5)

**Business Management** (5)

**English\*** (4 & 5)

**Practical metal working** (4 & 5)

**Chemistry** (4 & 5)

**Environmental science** (4 & 5)

**Practical wood working** (4 & 5)

**Computer Science** (4 & 5)

**Geography** (4 & 5)

**Science** (4)

**Design & Manufacture** (4 & 5)

**Mathematics\*** (4 & 5)

\*compulsory subject/s

The school leaving age is generally 16 (after the completion of National 4 and 5s), after which a student may choose to stay in full time education and study for **Higher** and **Advanced Higher** qualifications.

Higher exams can be taken by pupils at the age of 17/18 (S5) and 17/18 (S6) and further Highers and Advanced Highers during S6.

Highers (H) and/or Advanced Highers (AH) subjects which could be useful for a career in the forestry and timber sector include:

**Biology** (H & AH)

**Engineering science** (H & AH)

**Business Management** (H & AH)

**English** (H & AH)

**Chemistry** (H & AH)

**Environmental science** (H)

**Computer Science** (H & AH)

**Geography** (H & AH)

**Design & Manufacture** (H & AH)

**Mathematics** (H & AH)

## What courses are available?

Forestry and timber sector subjects are available across a wide range of qualifications from National Progression Awards to SVQs and Modern Apprenticeships through to Higher National Certificates, Diplomas and Degrees. Check out some of the courses available [here](#).





## Where could they study?

There are a number of colleges and universities across the UK where you can study for forestry or timber-related qualifications.

This [website](#) might help with linking to courses and entry requirements. The following websites also provide search by subject or university functions to help narrow down the choice.

[UCAS](#)

[Which? University](#)

The [Institute of Chartered Foresters](#) awards points to certain courses; these points, along with practical experience, can then be used as part of the process towards becoming a Chartered Forester or Arboriculturalist.

## What could they earn?

A very popular question! A good way to answer it is to highlight the salaries of current vacancies, details of which can be found on a number of websites such as:

[Civil Service Jobs](#) (search under Forestry or Scottish)

[Confor – Jobs in the forestry and timber sector](#)

[Countryside Jobs Service \(CJS\)](#)

[Environmentjobs.co.uk](#) (search under forestry, woodland or timber)

[Forestry Journal – Job Vacancies](#)

[Indeed](#) (search under forestry or timber)

Job Vacancy	Salary (£)	Sector
Forestry Climber	19833 – 21666	Public Sector
Change & Project Officer	28,115 – 30,159	Civil Service
Environment Forester	28,116 – 30,159	Civil Service
Forest Manager	30,000 – 35,000	Private
Woodfuel Manager	35,000 – 40,000	Private
Forest Manager	35,000 – 40,000	Private
Senior Outreach Manager	35,000 – 39,000	Charity
Timber Transport Project Officer	42,000	Private
Senior Project Manager	53,013 – 58,699	Civil Service
Civil engineer (bridges & structures)	42,668 – 46,480	Civil Service
Regional Manager	65,040 – 72,018	Civil Service

**Fig. 2 Vacancies and Salaries December 2020**



## 5. OUR FORESTS OUR PEOPLE

**If you have a bit more time, this film gives a great overview of our sector and can also be shown as shorter clips too (see below).**



**Our forests, our people (Confor)**  
<https://youtu.be/XM5AA-6DTIA> (9:55)





Humans and forests have been intertwined for centuries and from large productive forests to small woodland, modern day foresters work hard to support wildlife and the natural environment whilst managing a growing timber resource.

<https://youtu.be/n-US-dG-i6M> (2:05)



Climate change is one of the greatest threats we face today. By planting more trees and using more wood in our everyday lives, we can all play a part in tackling climate change.

<https://youtu.be/ZmLH8d4-Ac0> (1:58)



Sustainability sits at the heart of modern forestry design. Foresters take care to design forests which protect the environment, enhance biodiversity and create habitats and landscapes for future generations to enjoy.

<https://youtu.be/W-WqJyHsBiU> (2:09)



Modern forestry nurtures our economy in many ways. Our forests are creating a new and vibrant rural economy based around a renewable resource and support over 25,000 jobs in some of Scotland's most beautiful landscapes.

<https://www.bing.com/videos/search?q=uk+forestry+and+wood+videos&-docid=608043515570752858&mid=EE3B-52D4E4DAABB264D0EE3B52D4E4DAABB-264D0&view=detail&FORM=VIRE> (1:56)

## 6. OUR MISSION

**We have a demand  
to satisfy**

**We have an industry  
to promote**



**We have a spark  
to ignite**

**We have a GREAT  
story to tell**



## **Working with Trees and Timber**

by Claire Glaister FICFor  
on behalf of Scottish Forestry  
for the Scottish Forest and Timber  
Technologies Skills Group

Photography © Forestry and Land Scotland







Scottish  
Forestry  
Coilltearachd  
na h-Alba

Scottish Government  
Riaghaidh na h-Alba