

**PROSIECT  
CARTREFI O  
BREN LLEOL**

**THE  
HOME-GROWN  
HOMES  
PROJECT**

# Education and Training

# Education and Training

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# EXECUTIVE SUMMARY

This report presents the progress in the Education and Training strand within the Home-Grown Homes Project, showing how Woodknowledge Wales (WKW) has worked to strengthen the skills pipeline needed for a low-carbon, timber-based built environment in Wales. Across schools, further education, higher education, and industry engagement, the report argues that achieving Welsh ambitions for forestry, timber manufacturing, decarbonisation, and sustainable construction depends on building clearer progression pathways, earlier career awareness, and much stronger links between educators and employers.

A major achievement has been the Timber 101 programme, which expanded from an initial concept into 12 webinars and workshops delivering 20 hours of learning to a wide professional audience, demonstrating strong demand for practical, expert-led timber knowledge. At school level, the report highlights innovative work using Minecraft Education, including the creation of *Forest Nation World* and the proposed *Forests for the Future Challenge*, alongside partnership work with Cymbrogi to embed sustainability, forestry, and modern built-environment themes into the Curriculum for Wales and new qualifications.

Within colleges, the report identifies progress in forestry education, especially the successful launch of new forestry qualifications at Black Mountains College, while also noting ongoing barriers to broader provision and to aligning wood occupations courses with the needs of modern timber frame and joinery industries. In response, the report proposes a new skills strategy in which FE provides introductory wood skills and a separate, industry-led intermediate layer develops job-ready competence through regional skills academies, hybrid delivery models, and stronger employer input.

At higher education level, the report shows growing alignment between Home-Grown Homes (HGH) outputs and courses at institutions such as the Centre for Advanced Technology (CAT) and the Welsh School of Architecture (WSA), particularly around sustainable building, circular economy thinking, forestry, and building performance.

The report positions education and training as a strategic enabler of Welsh industrial capacity, climate action, and long-term workforce development.

# RECOMMENDATIONS

The following recommendations are designed to capitalise upon the momentum created in this phase of HGH.

## **Recommendation 1: Welsh Forestry Skills Group**

For WKW to continue to Chair and organise the Welsh Forestry Skills Group. This is a unique group of organisations active in supporting the reduction in the skills gap in Welsh forestry.

## **Recommendation 2: Timber 101's**

To continue the Timber 101 webinar programme as part of WKW's knowledge sharing programme.

## **Recommendation 3: Minecraft Education**

Scaling the all-Wales Forests of the Future competition through Welsh Government backing, industry sponsorship, and formal integration into Hwb so it becomes part of mainstream curriculum delivery. This should include a national showcase and legacy programme, so the competition has long-term visibility, practical outcomes, and lasting educational impact.

## **Recommendation 4: Cymbrogi**

Forest industry organisations to continue to be approached to support the reach of Cymbrogi's education programmes into schools across Wales.

## **Recommendation 5: School Curriculum**

Continue support for Agored Cymru in developing new and existing school curricula in relation to natural and built environment subjects.

## **Recommendation 6: FE Provision**

Support FE provision in forestry across Wales by building links with key forestry and land-based organisations, helping connect the colleges, its courses, and its students to the wider forest industries network in Wales. This should include exploring practical development opportunities, including woodland visits, a possible Forest Industries Training Centre, a part-time industry-aligned course, clearer routes into work through placements, internships, mentoring, and signposting, guest lectures, workshops, site visits, and closer collaboration between tutors.

## **Recommendation 7: Strategy for Timber Skills**

Treat FE wood courses as introductory training, then add an industry-led intermediate pathway for timber frame and joinery skills. This would include co-designed Level 2-3 programmes, regional skills academy hubs, flexible delivery formats, and clear progression from school and college into placements, apprenticeships, and higher-skilled manufacturing roles.

## **Recommendation 8: HE Provision**

Continue to develop strong reciprocal partnership with a "coalition of the willing" HE tutor and students and the forest industries, giving students placements, live briefs, applied research, funding, and industry contacts while enriching teaching with professional insight. Proposed support includes project opportunity noticeboards, employer videos, guest teaching, workshops, specialist talks, and greater use of HGH guidance, reports, and woodland-related learning.

# ACKNOWLEDGMENTS

WKW would like to thank colleagues at the following organisations who have contributed to the work described in this report:

Agored Cymru  
Black Mountains College  
Bronwin and Abbey  
Careers Wales  
Centre for Advanced Technology  
Coleg Cambria  
Coleg Llandrillo Menai  
Coleg Sir Gar  
CONFOR  
Cymbrogi  
Hiraeth Architecture  
Institute of Chartered Forestry  
Lantra  
Pembrokeshire County Council  
Powys County Council  
PYC Ltd  
Natural Resources Wales  
Royal Forestry Society  
Siviculture Ltd  
Tai ar y Cyd  
Tilhill Ltd  
Welsh Government  
Welsh Local Government Association

WKW would also like to thank members of the Welsh Forestry Skills group, formed by the HGH team, and representing members from across the Welsh Forest Industries.

# INTRODUCTION

Education and training must be part of the strategic foundation for growing Welsh capacity in forestry and timber-based construction, and we need practical next steps for extending impact across the education system and industry. The education and training work package of Home-Grown Homes 2+, focused on how a stronger skills pipeline for forestry, timber manufacturing, sustainable construction, and low-carbon housing in Wales might be developed. It brings together work with schools, colleges, higher education institutions, and industry partners to show how awareness, teaching content, and progression routes can be improved from an early age through to professional practice.

Wales needs not just technical knowledge of timber and forestry, but also clearer pathways into careers, stronger links between education and employers, and learning opportunities that reflect the transition to a low-carbon built environment. We therefore undertook a broad range of activities. We ended up investing significant time into projects that would impact upon young people. Progress has not been easy, and barriers remain, especially around skills shortages, curriculum responsiveness, and the need for more structured partnerships between providers and employers. By themselves WKW cannot create or change teaching content in colleges and universities. The pressure that staff in these sectors are under is unprecedented, some of which are in survival mode, which has meant it has been difficult to add to their busy agendas and workload. Nevertheless we feel good progress has been made.

The work has helped create a foundation from which the impact will be experienced in the future, but only if the momentum gained in this phase of work is increased through collaboration and creative partnerships. This foundation is built upon the following key developments that need investment of both time and funding:

# TIMBER 101 WEBINARS

Originally planned as a series of timber grading courses, the timber 101 webinars were rebranded to include a much wider range of themes and subject areas. Woodknowledge Wales (WKW) ran its first Timber 101 workshops at WoodBUILD 2024. The success of these led to the planning and delivery of the current webinar series which forms part of this work package.

The webinars have been designed to develop greater understanding of timber – from tree to specification. They are free to attend and provide an expert-led introduction to timber as a construction material, designed to support informed and confident decision-making across the built environment. From architects and engineers to contractors, students and DIY builders, the series is open to anyone looking to understand how timber works – and how to use it well. It is also a resource for foresters who wish to understand more about the material they are producing

Topics included timber structures and properties, moisture behaviour, durability, coatings, modified and engineered wood, panel products, strength grading, and wood-degrading insects and micro-organisms. In total, the programme expanded beyond its original target of six webinars to deliver 12 sessions, including WoodBUILD

2025 workshops and webinars held between September 2025 and April 2026, providing 20 hours of learning. Attendance was strong, with 1,972 registrations and 786 attendees recorded across the sessions, showing clear demand for this kind of knowledge-sharing. The sessions were well delivered, widely promoted and pitched at the right level. We also identify opportunities for improvement, such as gathering more structured feedback, analysing audience demographics, refining delivery format, offering CPD certificates, and possibly developing in-person courses or a future Timber 101 Knowledge Hub.

The Timber 101 programme is now a successful and scalable training initiative supporting better timber knowledge across the Welsh supply chain. A more detailed report has been created for task 4.5 and will be published on the WKW website.

# SUPPORT FOR SCHOOLS

There is a real challenge in attracting young people into our industry. In fact, this has become an emerging threat to ambitions to build new homes and retrofit existing buildings. Many approaches are being explored to address this challenge, but whichever method employed, we believe it's essential to inspire young people as to the rewarding careers that can be found in forestry, and sustainable construction.

It was important to support young people in Wales because this is the stage when many young people begin forming ideas about future careers, subjects they enjoy, and what jobs feel open to them. If forestry and construction career opportunities are only introduced later, many students may already have made other career decisions. Early awareness helps challenge outdated stereotypes that construction is only manual, low-skilled, or male-dominated, when in reality it includes design, project management, sustainability, digital modelling, engineering, forestry, retrofit, and modern methods of construction. Reaching students earlier also helps schools link construction to subjects they already study, such as maths, science, design, geography, and environmental issues. This makes career pathways feel more relevant and achievable.

Inspiring younger learners can widen participation, especially among groups who are under-represented in the industry, and helps build a stronger long-term talent pipeline rather than trying to solve shortages only when students are about to leave school. It also supports informed choices at GCSE level, where subject decisions can influence later training and employment options.

Our strategy for work therefore focussed on three main areas:

1. Adding to the momentum created by the Hwb in promoting Minecraft Education as a learning resource in Welsh schools.
2. Working with Cymbrogi to embed sustainability in construction within the school curriculum.
3. Supporting Agored Cymru in developing new VCSE qualifications.

# MINECRAFT EDUCATION

## What is Minecraft Education?

Minecraft Education is a classroom-focused version of the popular sandbox game designed to support teaching and learning through interactive, immersive experiences. It provides educators with a flexible digital environment where students can explore concepts, solve problems, and create projects in a collaborative, game-based setting. In the classroom, Minecraft Education supports a wide range of subjects including science, geography, mathematics, and design, allowing learners to visualise complex ideas such as ecosystems, sustainable cities, or the natural environment.

Teachers can guide learning using built-in tools such as lesson worlds, non-player characters (NPCs), assessment features, and collaborative multiplayer modes, enabling both structured and exploratory learning. The platform encourages critical thinking, creativity, communication, and teamwork, as students work together to design, build, and reflect on their ideas. It also supports differentiated learning, allowing tasks to be adapted for different abilities

and learning styles. Importantly, Minecraft Education aligns well with the curriculum for Wales, by developing cross-curricular skills such as digital competence, literacy, and numeracy. By combining play with purposeful learning, it engages students in meaningful, hands-on experiences that make abstract concepts more tangible and relevant to real-world challenges.

### CASE STUDY: Forest Nation World

Minecraft is already being used to explore how we design the built environment in more than 25 countries. WKW therefore created Forest Nation World, an immersive environment for young people to explore, learn and create within the platform. Players can “grow” trees and then use resources (such as Spruce timber) to design and construct sustainable buildings.

Our ambition is for Forest Nation World to provide an engaging platform for young people to learn about the forest industries. This aligns with Hwb, Welsh Government's online portal for schools with a host of Minecraft resources to be used in the classroom such as the living sustainably scheme of work.

*Forest Nation World* provides an engaging, digital learning environment where young people can explore how forests are grown, managed, and utilised to build sustainable communities. The project aligns closely with Welsh Government priorities around net zero, housing, and green skills, positioning education as a key driver in developing a future workforce capable of delivering a low-carbon built environment.



**Forest Nation World** allows school students to learn by completing challenges associated with the Forest Industries.



**Sustainable Building Design** - Minecraft Education has functions that allow students to design and build sustainable buildings from bio-based materials.

# MINECRAFT EDUCATION

## What is Minecraft Education?

For teachers and students, the project provides a powerful tool to bring sustainability to life in the classroom. Using Minecraft Education, learners can “grow” virtual forests and use timber resources to design buildings, helping them understand complex concepts such as carbon capture, biodiversity, and sustainable construction through hands-on, experiential learning. This supports a wide range of curriculum areas including science (photosynthesis and ecosystems), geography (land use), design and technology (construction and materials), and digital competence through collaborative design and problem-solving.

The platform is accessed through Minecraft Education software, which is already available to Welsh schools, making the project easily deployable within existing classroom infrastructure. Teachers are supported with resources, lesson plans, and structured activities that integrate seamlessly into curriculum delivery. This ensures that the project enhances learning rather than adding additional burden.

What makes this initiative particularly innovative is its ability to connect education, industry, and policy within a single learning experience. By allowing students to recreate real-world timber buildings and explore forestry systems (including woodland design and creation) in a digital space, it not only builds knowledge but also inspires career aspirations. The immersive, game-based approach captures student interest and helps them see forestry and sustainable construction as exciting, with meaningful career pathways that contribute directly to tackling global warming.

When developing Forest Nation World we were able to utilise an existing lesson plan that aligned very well with our ambitions to raise awareness of sustainable building practices among under-16 year olds. This provides a structured series of lesson plans to guide students to design and build a sustainable building. We needed to create a new lesson plan to help teachers and school students think about the design and creation of new woodlands (appendix 1). This is an important development; we think new to the field and can support engagement with wider initiatives such as the National Forest programme.

Forest Nation World is now published on the WKW website with a description of what it is and a link to download the appropriate file. A link to the woodland creation scheme of work has also been published. The project is at a beta stage i.e. we have worked hard to test it and iron out glitches but there may still be issues that we are unaware of. As a result, we have sent the link to a discrete group for further testing:

- The webpage and download link have been sent to members of the Welsh Forestry Skills group for distribution to their organisations.
- The project has also been sent to the education representative in Pembrokeshire Local Authority for distribution to its 52 primary schools and 6 secondary schools.

Feedback is coming into the WKW team so that we can improve the resource including making it more accessible.



**Learning Space** - Minecraft Education can be used as a call to action to raise awareness of the forest industries.



**Group work** - Minecraft Education can be played alone or via teams of builders.

# MINECRAFT EDUCATION

## What is Minecraft Education?

### Forests for the Future Minecraft Challenge

As an extension to *Forest Nation World*, we developed the *Forests for the Future Challenge* (see appendix 2), a proposal for a schools competition for Wales to inspire young learners to engage with forestry, sustainability, and ways to tackle global warming. The initiative would invite Welsh schools to design community forests and woodlands using Minecraft Education, encouraging students to explore how woodlands can benefit local communities through biodiversity, carbon storage, land use, and sustainable resource management.

The challenge is structured around three main stages: a school-level competition, regional semi-finals, and a national final. Students would be encouraged to work collaboratively to research forests, select appropriate sites, and design woodlands that reflect local environmental and community needs. Projects may focus on areas such as school grounds, public green spaces, or urban “green corridors,” with an emphasis on engaging local stakeholders in the design process.

Schools would be supported through a dedicated Microsoft Teams platform that provides teaching resources, lesson plans, and videos. The Forest Nation World map would act as a ‘canvas’ within which the new woodland can be designed and created. The competition aligns closely with the Curriculum for Wales, promoting cross-disciplinary learning across Science and Technology, Humanities, Expressive Arts, and other areas. It also develops key skills such as creativity, critical thinking, collaboration, and digital competence.



**Participation** - HGH has created a Certificate of Achievement for those who contribute project work to Forest Nation World

Entries would be assessed using a structured rubric based on communication, digital creativity, understanding of sustainability, and curriculum integration. Students will progress through levels from Emerging to Advancing, reflecting their development.

WKW believe this project has significant potential to raise awareness of the value of forests within school aged children in Wales in way that aligns with Welsh Governments decarbonisation strategy as well as initiatives such as the National Forest for Wales. At this time (March 2026) the proposal has been seen by the HGH2 steering group and members of the Welsh Forestry Skills Group.

# MINECRAFT EDUCATION

## What is Minecraft Education?

### Next Step

The following five steps are proposed as a strategy to extend the reach of this project – focusing on resourcing the all-Wales Forests of the Future school's competition:

#### 1. Welsh Government endorsement:

Secure Welsh Government backing for the all-Wales Forests of the Future school's competition by embedding the challenge with Net Zero, curriculum for Wales, tree-planting targets, and ways of addressing skills deficits, unlocking education and climate funding streams to support national rollout.

#### 2. Industry sponsorship and challenge co-design:

Partner with forestry, construction, and land-based industries to sponsor regional challenges, provide real-world design briefs, and offer prizes, placements, and mentorship linked to woodland creation and timber supply chains.

#### 3. Integration into Hwb and curriculum delivery:

Embed the challenge within Hwb as a recognised national learning resource, enabling teachers to deliver it as part of curriculum planning rather than an “extra”, increasing uptake and consistency across schools.

#### 4. Local authority and landowner engagement:

Work with local authorities, Natural Resources Wales, and community landowners to connect student designs to real planting opportunities, creating a pathway from virtual forests to real-world woodland projects.

#### 5. National showcase and legacy programme:

Create a high-profile national final supported by government and industry, with winning designs developed further into pilot planting projects (e.g. as part of the National Forest for Wales), ensuring long-term impact beyond the competition and building a lasting programme identity.

### Sustainability in the Classroom

WKW partnered with Cymbrogi to support further engagement with schools in Wales. Cymbrogi is a learning organisation that helps learners and educators build the knowledge, skills and mindsets for sustainable futures. It puts nature at the heart of learning and addresses gaps in climate education, wellbeing, creativity, critical thinking and collaboration, aligned with the curriculum for Wales. Cymbrogi does not operate as a “project-per-school” model. Instead, they run Programme-based interventions, which are then delivered across multiple schools built around curriculum-linked, challenge-based learning, with sustainability, systems thinking, creativity and wellbeing at the core. Their flagship offers are as follows:

- Programmes (TCM, Young Changemakers, Futures Literacy)
- Pilots (TCM Lite)
- Themed learning modules (construction, land, future thinking)

### The Model

The Cymbrogi model combines the following components:

- Curriculum-aligned learning journeys.
- Real-world challenge briefs.
- External partners from business and civil society.
- Showcase or hackathon-style culminating events.
- Tailored pilots for specific places or sectors.

The features of the Cymbrogi approach are distinctive. They apply real-world challenge where pupils work on live problems including renewable energy, sustainable tourism, circular economy, and sustainable school design. They bring cross-sector partnerships to bear with industry and civic partners are not just sponsors; they appear embedded in the learning design. They focus on future-skills consistently centred around sustainability, systems thinking, creativity, collaboration and climate-smart futures.

# MINECRAFT EDUCATION

## What is Minecraft Education?

### Progress

WKW supported Cymbrogi through various means including planning meetings, supporting networking with forest industry organisations, wider promotion of Cymbrogi and their approach to the forest industries, attending Cymbrogi events with schools, reviewing Cymbrogi content to be delivered in schools, and helping to secure industry funding for Cymbrogi activity with schools. This activity focuses on the following areas.

### CASE STUDY: Tomorrow's Changemakers Programme (TCM)

This has been delivered in secondary schools across South Wales focusing on sustainability, enterprise and future skills. This included project-based learning and real-world industry links. The programme has been expanded via support from Morgan Sindall and the Admiral Group partnership helping to deliver teacher CPD, classroom projects and scaling the programme into more schools.

Pilot projects were completed with schools in Neath Port Talbot schools focusing on the theme of "Sustainable schools of the future". This was aligned to new school building in the County. Sustainable construction workshops were delivered in secondary schools focusing on low-carbon construction, the circular economy and careers in construction.

This programme was also delivered to Primary education cohorts (ages ~8–11) with activity focusing on nature-based learning, outdoor and experiential education, wellbeing, and collaboration. Outdoor learning projects were delivered at Cymbrogi's Pembrokeshire site which focussed on nature immersion, environmental learning, and creative/physical development.

A CPD programme of training for school teachers in Wales has been developed building on the activity described above. This activity focuses on climate education through project-based learning. The impact of this suggests each trained teacher reaches around 30 students.

The following schools have been involved in sustainable development projects with Cymbrogi:

- Ysgol Bae Baglan — part of the Tomorrow's Changemakers "Lite" pilot in Neath Port Talbot and the Sustainable School of the Future challenge with Morgan Sindall.
- St Joseph's RC School / St Joseph's RC Comprehensive School — also part of the TCM Lite pilot and the sustainable schools challenge.
- Milford Haven School — identified as a Tomorrow's Changemakers Hackathon finalist school, with the "Cafe} Cleddau" sustainable tourism idea.
- Ysgol Bro Dinefwr — identified as a hackathon finalist school for a renewable energy concept and also referenced in Cymbrogi-related material.
- Pembroke Dock School — publicly referenced in Cymbrogi's post about three days of circular learning focused on the 5 Rs.

Schools and learning Centres where work is in the pipeline, looking to be developed include the following:

- Ysgol Llangatwg.
- Dŵr-y-Felin Comprehensive School.
- Carmarthen Learning Centre.

### Futures Literacy Schools Programme (Emerging)

This programme is in a rollout phase. The activity focuses on working with school students teaching them how to think about the future, navigate uncertainty, and design better outcomes. Key partners for this work are the Future Generations Commissioner for Wales and Wrexham University. A roadshow is in the planning phase.

# MINECRAFT EDUCATION

## What is Minecraft Education?

### VCSE QUALIFICATIONS

#### CASE STUDY:

#### New Qualifications for Young People

Under our remit to support schools in Wales WKW worked with Agored Cymru to develop two new subject areas to be delivered in schools in Wales:

- VCSE and Work-related Foundation qualifications in Built Environment
- VCSE and Work-related Foundation qualifications in Agriculture, Horticulture and Forestry.

WKW attended steering group meetings and examined content proposals. Our aim was to ensure up to date practice in both forestry and the built environment are included in the teaching of these qualifications. The outcomes were as follows:

#### VCSE Built Environment

The Built Environment VCSE is a broad, modern and work-related qualification framework designed to introduce learners to the full construction and built environment sector rather than only traditional site trades. The foundation qualification focuses on core introductory knowledge, including understanding the industry, identifying sectors and job roles. It also highlights newer and emerging roles such as BIM technicians, drone surveyors, modular building technicians and digital construction coordinators, showing an effort to reflect how the industry is changing. The VCSE qualification now has stronger emphasis on the differences between new-build and retrofit, sustainability, renewable materials, innovation, energy efficiency, climate resilience and future-focused construction practice. It maps clear progression routes through roles and sector.

#### VCSE Agriculture, Horticulture and Forestry

The VCSE Agriculture, Horticulture and Forestry qualification is designed as a broad, practical and progressive offer that introduces learners to these land-based industries while building employability, technical understanding and clear progression routes. The qualification now includes forestry through Woodland Creation and Woodland Maintenance modules, thereby ensuring that forestry is embedded as a core pathway rather than an add-on. Practical activities such as tree planting, woodland visits, and environmental monitoring reinforce the work-related character of the suite and connect learning to real sector roles. The qualification has roots in a specifically Welsh context, including native and commercial forestry, sustainable land management, biodiversity, and biosecurity challenges.

# SUPPORT FOR COLLEGES

## Forestry & Woodlands

A major weakness in FE education in Wales was that only two Welsh colleges offered NVQ related forestry courses in Wales, both based in North Wales. WKW therefore focused on ways to support this delivery in South Wales. We continued to offer support to existing forestry courses at Coleg Llandrillo Menai (Glynllifon Campus) and Coleg Cambria highlighting the importance of the courses to our networks and inviting staff from each college to attend WoodBUILD and attending careers events. We are now supporting two new courses established by Black Mountains College and continue to support Coleg Sir Gar with ambitions to create a course in West Wales.

Staff from all four colleges are now part of the Welsh Forestry Skills Group, established during HGH2.

## CASE STUDY:

### Black Mountains College (BMC)

Black Mountains College was founded in response to the climate and ecological emergency. It presents itself as more than a conventional college: a community centred on regenerative practice, sustainable living, real-world projects, and learning that blends traditional craft with modern environmental approaches. Its core idea is that education should help people build a future in which both nature and human societies can thrive. The college emphasises systems thinking, justice and equity, agro-ecology, lifelong learning, and the idea of “nature as the classroom,” with teaching rooted in outdoor, applied, multi-sensory learning.

BMC evolved as a response to ecological crisis, then developed into an educational model focused on regeneration in environmental, social, and economic terms. Over time, BMC has built its identity around community-based change-making, inclusive admissions, curriculum design linked to justice and diversity, and strong local engagement. It aims to act as a model of innovative lifelong learning, a catalyst for a local circular economy, and a pioneer of agro-ecological practice.

BMC have been successful in launching their two Forestry NVQ qualifications. This is a very welcome development. Until very recently there were only two centres offering similar courses: at Wrexham and Glynllifon.

Forestry courses in South Wales addresses a major skills gap in Wales. BMC should be congratulated for this significant achievement. These courses are as follows:

### NVQ Forestry & Arboriculture at Level 2

This is an introductory course for students who want to start a career in trees, timber, woodland, and green-space work. It teaches practical outdoor skills with a strong sustainability and health-and-safety focus. Topics include tree identification, chainsaw maintenance and use, coppicing and greenwood working, site maintenance, vegetation and pest control, tool sharpening, signage and waymarker construction, maintaining site furniture and structures, and working with local communities. Students also complete an external chainsaw maintenance and felling course. The Level 2 course is designed as a foundation for work or further study. BMC lists progression into jobs such as forestry worker, tree surgeon, arborist assistant, woodland conservation officer, environmental ranger, and countryside ranger. It also supports progression to higher-level study in forestry, coppicing, agroecology, land management, and related areas. The course lasts one year from September to July, is fully funded, is open to learners aged 16 and over, and requires no formal grades, although students should be comfortable working at GCSE standard and using basic IT.

### Diploma in Forestry & Arboriculture at Level 3

The course is aimed at students who already have chainsaw qualifications and some prior experience. The course includes woodland management planning, practical forestry operations, tree felling and chainsaw use, silviculture, tree measurement and woodland sampling, planting and aftercare, forest recreation, land-based machinery, and legislation relating to trees in the UK. A major feature is an independent investigative project, which can involve practical or research-led woodland work. The Level 3 diploma is intended for students who want to deepen their skills and move into more advanced study, employment, or self-employment. BMC says it can lead to careers in forestry, woodland management, conservation, tree care, arboriculture, greenwood crafts, hedgelaying, and woodland consultancy. The course runs for one year from September to July in Talgarth, three days per week, is fully funded, and is open to learners aged 16 and over. Entry requires chainsaw certification and prior experience, with the Level 2 course recommended first for those without that background.

# SUPPORT FOR COLLEGES

## Support for BMC

WKW originally met team members met colleagues from BMC as part of a wider engagement with the Welcome to Our Woods initiative at Treherbert. This was in support of BMC developing teaching centres and courses in mid-Wales and the heads-of-the-valleys and how these can be aligned to the needs of the Forest Industries but particularly with a focus on the work underway in Treherbert.

WKW are now supporting BMC in the following areas:

- Networking and introductions – WKW introduced the BMC colleagues to the following organisations in order to support the course and students:
  - Tilhill
  - Bronwin and Abbey
  - Lantra
  - Welsh Government (Forestry and timber)
  - NRW
  - Careers Wales
  - Siviculture
  - Royal Forestry Society
  - CONFOR
  - Institute of Chartered Forestry
- Exploring opportunities for BMC students to visits to woodlands considering tree species, forest design, pathogens, nurseries practices.
- Exploring the possibility of a Forest Industries Training Centre potentially in one location or at several locations across Wales.
- The development of a part-time course that aligns to the needs of industry possibly with a day release component. To be developed with industry and to explore how this will be resourced with the help of experts in the sector.
- Signposting for work opportunities within the forest industries organisations in Wales.
- Offering guest lectures, workshops, site visits, and live project briefs, which allow students to see how their subject is applied in the workplace.

- Exploring opportunities for work placements, internships, mentoring, and networking opportunities, giving students practical experience, stronger employability skills, and a clearer understanding of career pathways.
- For tutors, we will encourage sharing new technologies, regulations, methods, and challenges from the sector. This can improve course content and ensure students are learning skills that remain relevant to employers. Welsh forest industry organisations can also support colleges by developing collaborative partnerships between tutors and employers to help shape curriculum design so that assignments better reflect industry expectations.

## Support for Coleg Sir Gar

WKW worked with colleagues at Coleg Sir Gar (Gelli Aur Campus) to explore whether an NVQ forestry programme could be established in West Wales. A forestry apprenticeship had been in place for a few years at Gelli Aur but then closed. We met at the Gelli aur campus and online with college staff and representatives of forestry organisations in Wales and forest industries staff in Welsh Government. Coleg Sir Gar staff also became active members of the Welsh Forestry Skills Group. Unfortunately, a new NVQ in Forestry has yet to emerge. This was due to a wide-reaching change in qualifications in Wales and so the Sir Gar team decided not to invest time in developing a new qualification only to have to change because of changes to the curriculum in Wales. Once the new curriculum for Wales has bedded in there is still scope to support colleagues at Sir Gar to explore how the forest industries in Wales can support a more formal NVQ qualification at Gelli Aur.

Importantly Sir Gar offers all the certificates of competence that a forest worker would require, qualifications that we know are prioritised by forest management companies in Wales. This is a positive step. WKW will continue to support the college e.g. by promoting land-based careers fair held at Gelli Aur to WKW's wider network through newsletters and social media.

# SUPPORT FOR COLLEGES

## TIMBER MANUFACTURING

Wood occupations Tutors at FE colleges in Wales struggle to adapt wood-occupation courses to meet the needs of the modern timber frame and joinery sectors in Wales because the sector is changing faster than colleges can easily redesign staff skills, equipment, qualifications, and employer links. WKW has previously identified skills and recruitment challenges across the forest industries and advanced timber manufacturing and even recommended creating a clearer education network to help employers engage with educators on curriculum, visits, placements, and jobs. This of course implies that those links are not yet strong or systematic enough. Timber frame is already a significant part of Welsh housebuilding, so the demand is not hypothetical; the training system must catch up with a real industrial need.

In practice, the barriers are several:

- Many tutors were trained to teach broader traditional wood trades rather than factory-based (off-site) timber frame manufacture, digital design integration, with modern quality control; or specialist joinery linked to low-carbon construction.
- Welsh FE colleges may lack the infrastructure to teach modern timber manufacturing realistically. However, it is not a giant leap to teach open or closed panel frame manufacture if a college is already teaching roof truss manufacture.
- Qualifications and timetables can be slow to update. This might be alleviated with Medr pushing a more responsive tertiary system that better reflects changing technologies and employer need.
- Employer demand in Wales can be regionally uneven, so it is hard for one college to justify niche provision without reliable student numbers and industry commitment. Even where there is closer alignment there are complex reasons why local colleges don't work with local manufacturers.
- FE tutors are often balancing recruitment, retention, safeguarding, assessment, and general workload pressures, leaving less time for industry engagement and course redevelopment

The issue is therefore systemic: colleges may want to align, but alignment requires investment, current industry input, and a more connected training pipeline

### Progress

WKW have struggled to engage with wood occupations tutors across Wales although some progress has been made with Coleg Cambria. WoodBUILD 2025 included panel representation from Coleg Cambria's external engagement team as well as some of the more prominent timber frame companies in Wales. The session highlighted some of the major challenges (reflected in what is said above) but also acted as a catalyst for further engagement. This included a follow up session at WKW timber frame Community of Practice where a representative from the college met the timber frame industry where challenges and opportunities were discussed. This has laid the ground for further engagement e.g. factory visits, placements, college visits, courses; but progress is slower than we would have hoped for.

Importantly WKW have also been invited to act as an employer validator to provide support to rethink some of the built environment qualifications run by City and Guilds. This is an opportunity to provide structured feedback on current built environment qualifications through surveys, questionnaires, and online meetings. WKW will review qualification content, assessment materials, assessment methods, core component questions, employer-set projects, and occupational specialism assessments. Our role will be to ensure qualifications are relevant, credible, and reflective of current industry standards and employer expectations. WKW will assess whether qualification titles are appropriate, whether language is suitable for learners, whether assessments are realistic, and whether the level of challenge matches workplace preparation. Our feedback will be used to refine qualifications and may be shared anonymously with regulators.

# SUPPORT FOR COLLEGES

## A New Strategy for Timber Manufacturing

In light of the above what is a practical training solution for the off-site timber manufacturing sector in Wales? Several manufacturers are already exploring the development of their own skills initiatives as a response to filling the gaps in provision at FE.

We propose a new strategy. College based wood-occupation courses in Wales should be treated as a broad introduction to timber focusing on safe workshop practice, hand and machine skills, materials knowledge, and basic employability skills. Then a separate intermediate skills programme should be built to prepare new entrants for the specific needs of factory-based timber frame manufacturing, on-site installation, CNC/digital workflows, and high-spec joinery. That approach aligns with recommendations from HGH, which has argued that Wales needs clearer learning pathways, better access to learning, stronger routes into work, and closer coordination between education and employers.

This proposed strategy would have five parts:

1. Define the role of Welsh colleges clearly. We suggest Welsh colleges focus on key themes such as improving introductory wood skills, awareness of safety, precision and measurements, reading drawings, basic joinery, working as a team, and awareness of timber careers.
2. Create an intermediate “industry-readiness” programme in Wales at Levels 2–3, co-designed by Welsh timber frame manufacturers and joinery firms, with the support of FE colleges, and Medr/CITB-aligned providers. The focus should be on production drawings, tolerances, QA, panel assembly, airtightness, moisture control, installation sequencing, and modern machinery. This would support Medr’s strategy which emphasises a more flexible, joined-up tertiary system that responds better to employer and economic need.
3. Deliver the industry readiness programme through an industry-led skills academy with three hubs across Wales (North, Mid and South). WKW has explicitly argued for a timber training academy and a cross sector education and skills group to identify needs, develop qualifications, and coordinate delivery across the supply chain. In practice, that academy could be led by a consortium of Welsh timber frame and joinery employers underpinning teaching and manufacturers providing factory-based training, equipment access, live briefs, and guaranteed work tasters.

4. Multiple delivery formats should be employed so provision is realistic for Wales: short bootcamps for job changers, 12–18 month new-entrant programmes, day release employer pathways, and specialist applied-skills routes. CITB’s Specialist Applied-skills Programmes already provide a model for structured new-entrant training leading to vocational competence, so a Welsh timber-frame/joinery pathway could mirror that structure.
5. Build the pathway around named progression points: school engagement, introduction to college, intermediate academy training, paid placement, apprenticeship or junior technician role, then upskilling into design, production supervision, or site management. WKW’s own work on schools, college roadshows, new course development, and pathways into work shows that the sector already sees the solution as a pipeline, not a single course.

Examples of delivering the above could include the following:

- 3 Regional Timber Skills Academy hubs (South/Mid North Wales) hosted by one organisation but governed by employers.
- A mobile specialist training unit shared across regions where provision is thin.
- An employer-sponsored 10-week conversion programme for FE completers.
- A factory-and-college hybrid apprenticeship pre programme run by manufacturers, CITB-backed providers, and FE partners.

# SUPPORT FOR HIGHER EDUCATION INSTITUTIONS (HEI)

Welsh universities are under serious financial pressure, with year-by-year deficits and increased borrowing pressures. Medr, the regulator, reported that Welsh higher education institutions' underlying expenditure in 2023/24 was £2.04 billion, and Welsh Government say most Welsh universities were in deficit and/or cutting costs to attempt to stay solvent.

For the sector, the combined shortfall across the eight Welsh universities was about £94 million in 2024/25, up from about £71 million the year before. The largest underlying operating deficits were Cardiff University at £33.4 million and Swansea University at £39.9 million. Universities Wales says Welsh universities already have relatively high external borrowing by UK standards, and later evidence notes that higher borrowing costs and low liquidity are making it harder for some institutions to invest while servicing existing loans.

The main drivers repeatedly identified are falling international student recruitment after visa-rule changes, rising pay and operating costs, changing demographics (so competing for smaller pool of school-leavers), constrained public funding, and a cut of about £11 million to Medr's recurrent higher-education budget for 2024/25. Welsh universities are therefore facing a mix of sizeable deficits, significant existing borrowing, and rising debt-servicing costs that together amount to a major financial sustainability problem.

In this environment, leadership attention often shifts toward restructuring, budget control, compliance, recruitment, and student retention. University curricula does not change overnight with tutors needing to go through several steps to make changes to courses. Courses are often regulated by professional bodies such as ARB. Students are also under significant pressures with busy timetables, long reading lists and exams. Staff have less time to redesign modules, build employer partnerships, arrange placements, or develop new specialist options. Financial pressure also makes universities more cautious about running niche courses unless student demand is strong enough to cover costs. Tutors are balancing several pressures at once: keeping courses running, supporting student wellbeing and employability, meeting institutional requirements, and coping with workload uncertainty. Medr is still actively pushing employer engagement, strategic course design, and employability, which suggests those priorities have not disappeared.

## PROGRESS

### Welsh School of Architecture

WKW reached out to all HEIs in Wales highlighting how there was an opportunity for organisations in the forest industries to support student recruitment (via lectures, placements, projects) onto courses that align with industry practice and needs. This approach has only been partially successful.

There is already strong overlap between themes taught at the Welsh School of Architecture (WSA) and the themes promoted in HGH reports, advice, and guidance. The clearest shared agenda is sustainability in the built environment. WSA has a longstanding focus on sustainability including a focus on timber, while HGH guidance is built around low-carbon construction, climate resilience, and better environmental performance in housing and timber systems.

One major overlap is low-carbon building and decarbonisation. WSA's Centre for Low Carbon Built Environment focuses on reduced energy demand, renewable energy, storage, comfort, and practical solutions for a high-quality built environment. HGH promotes very similar priorities through its policy guidance on reducing embodied carbon and improving housing performance. There is also clear overlap in building performance and environmental design. WSA's MSc in Environmental Design of Buildings teaches students to design healthy, comfortable environments that place minimal strain on global resources and to respond to growing sustainability demands in practice. HGH guidance similarly focuses on practical building outcomes, including timber-frame build quality, specification, performance, and long-term user experience.

# SUPPORT FOR HIGHER EDUCATION INSTITUTIONS (HEI)

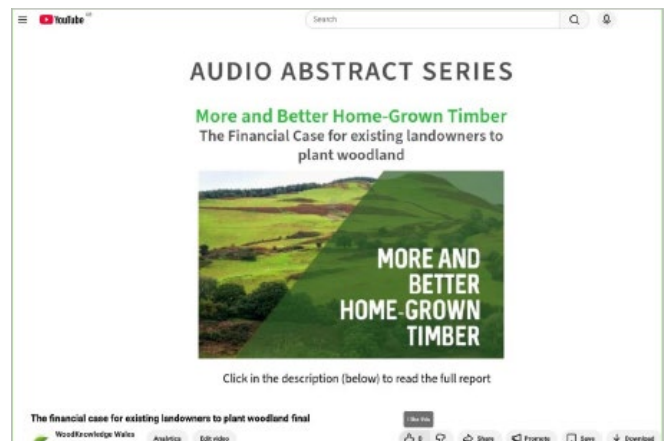
Another significant overlap is Wales-specific policy and practice. WSA research has informed Welsh housing policy, including the Innovative Housing Programme and the Optimised Retrofit Programme. HGH reports are also highly Wales-focused, working closely with Welsh Government linking forestry, manufacturing, social housing, and decarbonisation in a specifically Welsh context.

WKW are now exploring ways in which learning from HGH2+ can be embedded in the WSA learning programmes.

## Content Summaries

WKW also reached out to some student societies within Welsh HEIs promoting the opportunity to engage with the outputs of HGH and for a more general conversation about the work of HGH and its delivery partners. The most helpful feedback we received from HEIs was to present short summaries of HGH content so that students could assess for themselves whether the material is relevant for their study. In response we created a series of audio

summaries and podcasts for most of the guidance and reports created within HGH and published these on Youtube. We expect the use of these to grow overtime and increase the engagement with students.



**Content Summaries** - Audio summaries of much of HGH reports have been posted on Youtube.

## CASE STUDY

### The Centre for Alternative Technology (CAT)

The most significant alignment between HGH and Higher-level education programmes in Wales is with the Graduate School of the Environment at the Centre for Alternative Technology (CAT), an environmental charity and education centre based in North Wales. CAT works to promote practical solutions to global warming, with a strong emphasis on sustainability, environmental innovation, and public engagement. CAT combines education, research, and demonstration to help people understand and respond to climate and biodiversity challenges. Its wider work includes visitor engagement, short courses, community learning, and specialist teaching that explores renewable energy, sustainable building, environmental policy, land use, and behaviour change. Across its public-facing work, CAT presents itself as a place where people can learn not only the theory of sustainability, but also how to apply it in real life through firsthand, solutions-focused learning.

The Graduate School of the Environment is CAT's postgraduate study centre, offering flexible master's-level courses, diplomas, and certificates for people who want to build careers in sustainability. It offers full-time, part-time, residential, distance-learning, and blended study options, making courses accessible to students with work or family commitments. The school's courses take a big-picture, integrated approach to sustainability and are designed to develop knowledge, practical skills, research ability, and professional networks. Key areas include green building, sustainability and adaptation, and sustainability and behaviour change. The Centre's graduate programmes are intended to help students become effective changemakers who can apply sustainability principles in fields such as architecture, environmental policy, community resilience, and low-carbon development.

# SUPPORT FOR HIGHER EDUCATION INSTITUTIONS (HEI)

WKW (via HGH) and CAT continue to develop close working links via the skills agenda. This was reflected clearly in the skills strands at WoodBUILD 2025 where the Programme Leader at CAT was involved in several of the skills sessions, helping to shape the two days and explore areas where learning areas can be shared and developed further. There is a strong overlap between what CAT teaches and what HGH provides through its reports, guidance and project resources. The same core agenda comes through clearly: sustainability, climate response, low-carbon construction, regenerative use of natural materials, forestry/woodland management, and improving how buildings perform in practice.

The clearest shared theme is sustainable and low-carbon building. CAT's Green Building course teaches sustainable design principles, zero-carbon building standards, environmentally responsive materials, life-cycle assessment, construction techniques, and circularity across the building project life cycle. HGH promotes very similar themes in its guidance on timber cladding, wood fibre insulation, building performance evaluation, and timber-frame build quality, all aimed at delivering better-performing, lower-carbon homes.

Another major overlap is decarbonisation and climate adaptation. CAT courses are designed to help students address environmental change, create a more sustainable world, and examine how society should adapt to the impacts of global warming. It explicitly uses sustainability and adaptation transformation as a framework for climate action. WKW has the same decarbonisation focus central to its work, especially through the HGH project and its report on timber and decarbonising Wales, which links forestry and wood use to net zero, housing, and a low-carbon circular economy.

There is also a strong common theme around circular economy thinking and life-cycle approaches. CAT's Green Building course explicitly includes circularity in project management and building life cycles, along with environmental assessment and life-cycle analysis. HGH similarly frames timber as part of a circular economy and repeatedly links forestry, manufacturing, timber products, and construction into one joined-up system rather than treating them as separate sectors.

CAT teaches sustainable materials in the built environment, environmentally responsive materials, and firsthand work with sustainable building materials. This aligns well with HGH themes including increased use of home-grown timber, timber cladding, wood fibre insulation, timber windows, and broader use of timber products in construction.

Another clear connection is forestry, woodland creation, and land management. CAT's short courses include woodland management, and its wider study/career material mentions land management and natural resource management. This aligns well with HGH themes of woodland creation, afforestation, forest industries, and ecosystem services from forests and timber products, including practical guidance for landowners considering forestry investment. That means CAT's educational themes around woodland and natural resource management align well with HGH forestry-facing reports and briefings. There is also shared emphasis on build quality, evidence, and real-world performance. CAT presents its teaching as hands-on and evidence-informed, with advanced building analysis, research methods, and practical learning. HGH guidance is similarly practical and performance-oriented: its Building Performance Evaluation Guide looks at fabric performance, indoor environment, energy and water use, while its timber-frame guidance focuses on decisions that improve long-term performance and user experience.

A further overlap is in the areas of community and regional resilience. CAT teaches resilience pathways for cities and communities and frames sustainability as social as well as technical change. HGH connects timber and forestry to rural livelihoods, Welsh manufacturing, economic resilience, community wellbeing, and "better jobs closer to home." So, both organisations are concerned not only with environmental outcomes, but with how low-carbon transitions affect places, communities, and local economies.

# SUPPORT FOR HIGHER EDUCATION INSTITUTIONS (HEI)

## Next Steps

Colleagues at CAT are keen to develop a reciprocal partnerships with the Forest Industries: industry helps CAT students gain relevant experience, contacts and applied topics, while CAT benefits from current professional insight, stronger industry links and richer course content. Activity for the future is focused on practical ways in which forest industry organisations can better support CAT students and the CAT Graduate School through stronger, more structured collaboration. A key idea is to use CAT's existing work-based project module as a route for industry-linked placements, live briefs and applied research in areas such as forestry, manufacturing and the built environment. One suggestion is to create a modern "noticeboard" of dissertation and project opportunities, potentially including short videos from employers describing real problems

they would like students to investigate, with students then using these for dissertations or work-based projects. Sponsorship or at least travel and subsistence funding would be welcomed, since funded opportunities attract more interest and make participation more accessible. The value of guest teaching cannot be underestimated, including workshops support and specialist talks from those who worked on HGH and/or partners, especially on embodied carbon, life cycle assessment, forestry innovation and placemaking, to strengthen teaching in the Graduate School. There was also interest in using more HGH guidance (particularly new HGH2+ outputs) and reports directly in teaching, and in expanding woodland-related learning because CAT's short course provision is popular and could potentially grow further.

## TEACHER PACK: LESSON PLAN



### WOODLAND CREATION IN MINECRAFT EDUCATION



# DESCRIPTION

This teaching pack supports a multi-lesson project where learners design a new woodland using Minecraft Education Edition. The lessons introduce tree species selection, woodland planning, and the eco-system services that these provide.

Learners will identify how woodland designs can provide benefits to wider eco-systems, including for human society and also for the general well-being of the Planet. This project covers many aspects of the Science and Technology Area of Learning and Experience (AOLE). Learning objectives are mapped to what matters statements in the AOLE. In order to understand the meaning of designing a woodland and what defines an eco-system service involves substantial research. A range of reading techniques, such as close reading, skimming and scanning will also develop as part of this research. The project provides the learners with opportunities to develop their writing skills, especially in the initial research and planning phase and via the evaluation phase at the end of the project.

Critical thinking and problem-solving are at the heart of Science and Technology when analysing problems to develop models, solutions and innovations. This is an integral part of this project especially so during the woodland creation phase. When developing their woodland designs from their plans, learners will be making decisions and solving problems sub-consciously as part of their thinking processes. Planning and organisation are key in scientific and technological processes and learners will be organising and planning their projects and ideas, while setting their own goals within distinct requirements. They will also critically evaluate their own progress and results to further improve their ideas and outcomes.

# OVERVIEW

This Mine project has been developed to enrich the delivery of the Curriculum for Wales. Although specific AoLE have been identified in this scheme of work (SoW) these are not prescriptive. Educators should interpret this SoW and lesson support documentation and apply accordingly to the relevant age groups in terms of breadth and depth of application (and considering any other relevant AOLES). At the heart of the Hwb Minecraft: Education Edition projects is the development of the four core purposes of Curriculum for Wales and the underpinning integral skills of creativity and innovation, critical thinking and problem-solving, personal effectiveness and planning and organising.

## Areas of Learning and Experience

- Science and Technology
- Humanities
- Expressive Arts

## Cross Curricular Skills

- Literacy
- Numeracy
- Digital competence
- LCF
- DCF

### STAGE 1:

# INTRODUCTION AND RESEARCH - WHY PLANT WOODLANDS?

#### LEARNING OBJECTIVES

During this stage learners should be introduced to the project and initial research carried out into understanding the role of woodlands.

**Objective 1:** Learners to understand what trees, woodlands and forests are.

**Objective 2:** Learners to understand the range of eco-system services that trees and woodlands provide.

**Objective 3:** Learners to research examples of different woodlands and forests, locally and globally.

#### LESSON ELEMENTS:

- Class discussion about trees and woodlands
- How do the learners experience trees and woodlands (locally, visiting)
- Challenge pupils to define eco-system services
- Create a mind map about trees and woodlands and how they support different eco-systems including supporting bio-diversity and tackling climate change.
- Set an extensive writing piece under the title: "Why Woodlands matter"
- Draw a simple diagram showing how forests support wildlife.

### STAGE 2:

# PLANNING

#### LEARNING OBJECTIVES

In this stage, the learners will plan their woodland design on paper. The learners will use the knowledge acquired during the research stage and annotate the plan accordingly. The woodland design must include a mix of at least THREE different tree species and be designed to provide at least TWO ecosystem services.

**Objective 1:** To identify the requirements needed to design and plant a woodland with a mix of three tree species and two eco-system services.

**Objective 2:** To create a woodland "design specification" based on findings from objective 1.

**Objective 3:** To create a 2D plan of a new Minecraft: Education Edition woodland.

**Objective 4:** Explain the tree species mix in the woodland and how the design provides at least two eco-system services.

#### LESSON ELEMENTS:

- Draw up a woodland design specification. Provide some 1cm grid paper to the learners and the ratio of 1cm = 1 Minecraft block is explained. Please Note: the woodland should be no bigger than 64 blocks wide by 64 blocks deep by 64 blocks in height.
- Birds eye view of the woodland planned on paper
- Learners are encouraged to add elements to evidence the eco-system services provided e.g. pathways, wildlife, sitting areas, water, etc.
- Learners must annotate their work describing the tree species mix in the woodland and how it provides at least two eco-system services.

### STAGE 3:

## WOODLAND CREATION

#### LEARNING OBJECTIVES

In this stage, the learners will begin to create their woodland following their plan.

**Objective 1:** Create trees, soil types and ground cover using a mix of materials provided within the game.

**Objective 2:** The use of structure blocks should be considered as part of the creation stage. These will provide an opportunity to reproduce individual (or small groups) of trees to quickly expand the woodland. Encourage strategies to avoid obvious repetition in order to encourage diversity in the woodland design. A useful tutorial in using structure blocks can be found [here](#)

**Objective 3:** Ensure at least three tree species are used.

**Objective 4:** Learners should create the woodland to provide at least TWO ecosystem services.

**Objective 5:** Learners should create a chalkboard within the woodland area describing the tree species mix they have used and the two eco-system services the woodland provides.

**Objective 6:** This is where knowledge of structure blocks and their use is essential. A structure block can encompass any object that is 64 blocks<sup>3</sup> or smaller. Capture and export the entire woodland using one structure block

#### LESSON ELEMENTS:

- Login to Minecraft Education Edition and import the Forest Nation World map (forestnationworld mcworld) from the Woodknowledge Wales website.
- Ride the roller-coaster to the Forest Nation Hub and then travel to the Woodland Creation Zone.
- Create a woodland in the Woodland Creation Zone.
- Export the woodland using a structure block and save in the learner's home drive on the school network.

### STAGE 4:

## IDENTIFYING IMPROVEMENTS

#### LEARNING OBJECTIVES

During this stage, learners are encouraged to view other learners work and get inspired to improve their own work.

**Objective 1:** To identify strengths and weaknesses of their builds.

**Objective 2:** To suggest improvements for their builds and apply the improvements.

**Objective 3:** To share ideas with peers

#### LESSON ELEMENTS:

- Small group discussion about their woodland designs.
- Showcase designs to small groups.
- Apply changes/improvements to woodland designs.
- Share ideas and inspire each other.

### STAGE 5:

## EVALUATION AND PRESENTATION

#### LEARNING OBJECTIVES

In this stage learners will evaluate their builds against their initial plans (developed in Stage 2). Where improvements were made these should be explained as well as noting the successful parts of the build. Learners should present their build and evaluation using the Book & Quill ([Tutorial here](#))

**Objective 1:** Evaluate strengths and weaknesses of build.

**Objective 2:** To use Minecraft: Education Edition features: camera, book and quill, portfolio.

#### LESSON ELEMENTS:

Learners should do the following:

- Revisit the design specification.
- Identify specific elements of the build that meet design requirements.
- Use the book and quill to record and demonstrate their understanding of the role of trees, woodlands and forests in society and the environment.

# FURTHER ACTIVITIES

Further activities that the school might consider extending the learning gained from this project might include:

- Use structure blocks to import all learners woodlands into a single Minecraft Education World thereby making a unique forest and woodland landscape.
- Conduct a local woodland field visit.
- Calculate estimated carbon storage of the woodland.\*
- Invite a forestry professional to discuss woodland management. \*
- Recreate local woodlands of interest.
- Partner with community groups to help design new woodlands.
- Explore ways that the learning developed here can support projects within the [National Forest for Wales Programme](#).

\*Contact Woodknowledge Wales for more advice.

## FORESTS FOR THE FUTURE CHALLENGE



SCHOOLS COMPETITION  
2026-2027

woodknowledge  
WALES

# EXECUTIVE SUMMARY

The Forests for the Future Minecraft Challenge, launched by Wood Knowledge Wales (WKW), will be a national competition for schools across Wales running from 2026–2027. Its mission is to inspire young learners to design forests and woodlands that serve their local communities while promoting sustainability and awareness of climate change.

Using Minecraft Education, students will plan, build, and manage virtual forests, exploring themes such as biodiversity, land use, forest management, and the environmental benefits of trees. The competition follows three stages - local, regional, and national - with submissions due by 2 April 2027. Entries are judged on communication, digital creativity, sustainability understanding, and curriculum integration, with levels ranging from Emerging to Advancing. The challenge links closely to the Curriculum for Wales, encouraging

cross-disciplinary learning across Expressive Arts, Humanities, Science, and Technology, while developing creativity, critical thinking, and personal effectiveness. Teachers and learners are supported through a dedicated Microsoft Teams hub with resources, videos, and guidance. Ultimately, this initiative aims to empower Wales' next generation of environmental leaders, combining education, technology, and sustainability to shape the forests - and communities - of the future.

## WELCOME AND VISION

Wood Knowledge Wales (WKW) is proud to launch the first-ever Forests for the Future Minecraft Challenge, a national competition for schools across Wales.

This exciting project gives school learners in Wales the opportunity to design a forest or woodland that serves their local community. Through creativity, collaboration, and research, students will explore how to plan, design, plant and manage forests or the benefit of their communities. The aim of this competition is to inspire young learners as to the value of our forests and woodlands and how they play a vital role in the challenge to reduce global warming. Our vision is to inspire young people to become the next leaders responsible for forests and woodlands in Wales, and champions of sustainability in their communities.



Minecraft provides a creative platform to explore ideas.

# THE CHALLENGE

This is a national competition inviting individual schools to build a forest and woodland in Minecraft and then submit their ideas by **Friday 2 April 2027 at 5pm**.

### Research

To support your project, we have provided links to resources that describe what forests and woodlands are and the benefits that they provide. The themes that are important to explore are:

- Trees in all their rich variety.
- The relationship between forests and woodlands and biodiversity.
- Types of forests and woodlands including the names we give different groups of trees.
- How new forests can be planned and designed before planting.
- How land and soil choice is important.
- How new forests are planted.
- How existing forests are managed.
- The products that forests and woodlands provide for us.



Trees can be created block by block.

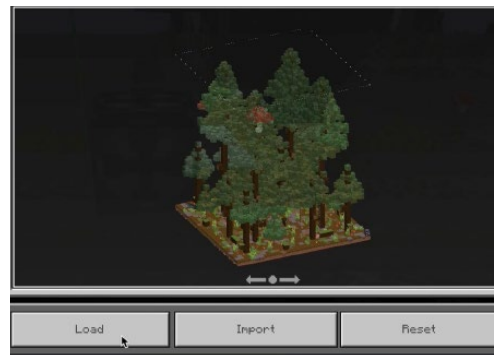
### Land

Study the environment that surrounds your school to identify opportunities for forest and woodland creation. Examples could be as follows:

- On school grounds if this is available.
- Open green spaces owned by a public or community body e.g. the council, a hospital, a sports club.
- Creating an urban forest that acts as a 'green corridor'.
- Improving and expanding an existing forest or woodland.

### Your Local Community

Try to engage with the local community e.g., clubs, landowners, local authority councillors. Projects that are co-created with members of the local community can be very positive and can evolve into bigger things.



Minecraft software includes design functions to design stands of trees or entire woodlands.

# COMPETITION STAGES

## STAGE 1: REGISTER & JOIN THE WKW CHALLENGE TEAM

1. Use your Hwb email address to register for the Forest of the Future Challenge Microsoft Teams group.
2. Once added, you will automatically join the General Channel.
3. In the General Channel, you'll find guidance directing you to the relevant channels for resources, announcements, and submissions.

The Challenge Microsoft Teams group has the following channels:

- Announcement Channel: Updates and event notifications (blue posts = Welsh, green posts = English).
- Resources Channel: All teaching and learning resources.
- Supporting Videos Channel: Stage-by-stage guidance videos from teachers.
- Q&A Channel: Post competition-related questions.

## STAGE 2: ACCESS AND REVIEW RESOURCES

In the MS Teams Resources Channel you'll find the following:

### 1 Overview of the Competition:

- Outlines the challenge purpose and key Areas of Learning Experience (AoLE) links.
- Highlights of opportunities to develop creativity, critical thinking, and personal effectiveness.

### 2 Scheme of Work: A "helicopter view" of the six stages of the challenge, with learning objectives and lesson elements.

### 3 Detailed Lesson Support:

- Activities and ideas for each stage, adaptable for age and ability.
- Encouragement for educators to be innovative and connect learning to local context.

### 4 PowerPoint Introductions

- Lesson launch slideshows for each stage.
- Also available as videos for flipped classroom use.

### 5 Starter Minecraft World – Sustainable School Base Map

- Editable base map representing a generic school site.
- NPCs representing sustainability champions provide tips and facts.

### 6 Terms of Use

- The Minecraft Starter World is licensed for educational use only via Hwb accounts.
- No resale, third-party access, or distribution outside educational settings.

### 7 Marking Criterion Rubric

- Separate rubrics for each entry level, assessing communication, digital content creation, understanding of sustainability & local context, and curriculum links.
- Levels: Emerging, Developing, Advancing.

### 8 Certificates: Editable participation certificate templates.

### 9 Supporting Videos Channel: Short videos guiding each stage of the competition.

### 10 Q&A Channel: Dedicated space for educators to ask questions and share ideas.

# COMPETITION STAGES

### STAGE 3: SUBMIT YOUR SCHOOL FINALISTS

The deadline for submission is **Friday 2 April 2027 at 5pm**. The submission requirements are as follows:

1. Complete the online Submission Form (found in the Submissions Channel).
2. Provide:
  - Names of learners (max group size: 10).
  - Link to video walkthrough of the Minecraft build.
  - Link to the Minecraft world file.
  - Link to planning documents.
  - Educator narrative describing research, AoLE links, and marking rubric scores.
3. Competition Phases & Dates

# ENTRY LEVELS

In line with 'Successful Futures', the Curriculum for Wales and its assessment arrangements are now built on Progression. This means that each Area of Learning and Experience (AoLE) includes progression steps, showing how a child should progress in their learning through each subject. In this way, learning and progression go hand in hand, bringing a purposeful approach to sequencing learning.

The steps are:

- Progression Step 1 & 2
  - Progression Step 3
  - Progression Step 4 & 5
  - ALN (Additional Learning Needs)
- 

# PHASES

The competition phases go from local at the level of the individual school, to Regional (based on Local Authority area), to National (Wales):

### 1. Phase One – Local Round (School Level)

- Deadline: TBC 2026
- Schools run their own internal competition.
- Each school selects one finalist per entry level they cover.
- Certificates of participation available for all learners.

### 2. Phase Two – Regional Semi-Final

- Regional winners announced: TBC 2027.
- Judged by Regional Consortium Digital Leads and WKW.
- Selection based on the marking rubric and how educators link the entry to the Digital Competence Framework and Curriculum for Wales.

### 3. Phase Three – National Final

- Summer Term 2027 - date and venue TBC.
- Live showcase of winning designs from each region.
- National winners announced per entry level.

# LINKS TO THE CURRICULUM FOR WALES

This proposal links to the curriculum in the following ways:

## 1. Expressive Arts

- 2D & 3D design, digital modelling, digital media.
- Use of video production and narrative to present ideas.

## 2. Health & Well-being

- Designing healthy, inclusive learning spaces.
- Understanding how environmental choices affect wellbeing.

## 3. Humanities

- Ethical citizenship and environmental stewardship.

## 4. Language, Literacy & Communication

- Presenting and explaining design proposals.
- Writing persuasive reports for sustainability initiatives.

## 5. Mathematics & Numeracy

- Measuring site areas and materials usage.

## 6. Science & Technology

- Wood science
- Understanding carbon capture through photosynthesis

## 7. Cross-Curricular Skills

- Literacy – Listening, reading, writing for specific audiences.
- Numeracy – Measurement, data collection, interpretation.
- Digital Competence – Collaboration tools, digital design, computational thinking.

## 8. Integral Skills

- Creativity & Innovation
- Critical Thinking & Problem-Solving
- Personal Effectiveness
- Planning & Organisation



Minecraft Education is already embedded as a tool for learning in Wales. The curriculum has recently been updated so what follows will need to change to reflect this.

### JUDGING CRITERIA

Entries will be assessed on four strands:

- 1) Communication – Clarity of presentation and explanation.
- 2) Digital Content Creation – Quality, complexity, and creativity of the design.
- 3) Understanding & Application – How well sustainability concepts are understood and applied to the local context.
- 4) Curriculum Links – Relevance to AoLEs and integration into learning.

### LEVELS OF ASSESSMENT

The levels that will be used to assess the work are:

- Level 1: Emerging
- Level 2: Developing
- Level 3: Advancing

Full descriptors are provided in the marking criterion rubric in appendix 1. The scoring method will be as follows:

- Emerging = 1 point
- Developing = 2 points
- Advancing = 3 points
- Maximum possible score = 12 points (3 points × 4 strands).

### CONTACT

For further information or to register:

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- Teams Q&A Channel: Available via the WKW Challenge Team.
- Website: <https://woodknowledge.wales/>



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