

tinyforest
earthwatch
EUROPE

SUPER TINY, SUPER POWERFUL

**SCOTTISH CURRICULUM
TEACHERS PACK**

EDU.EARTHWATCH.ORG.UK



GETTING STARTED

A Tiny Forest is a dense, fast-growing, native woodland that is roughly the size of a tennis court. These miniature forests are not only an attractive location for wildlife, but for people as well, and can provide a range of benefits (ecosystem services) in the fight against climate change. The specific planting and management style used to create a Tiny Forest means that they grow rapidly and, as such, provide all the benefits of a traditional forest, faster. Across the world, 3,000 Tiny Forests have been planted and have since been adopted by schools, communities, companies and estate owners to support environmental education and awareness activities, and to reconnect people with nature.

A Tiny Forest not only benefits the planet, but is an amazing resource to learn about climate change and nature. We encourage schools and communities to take ownership of the forest, embracing the many social and environmental benefits it offers. Your Tiny Forest will be an amazing resource to immerse yourself and your students in nature and learn more about the environment. This booklet will provide ideas of activities you could use, links to the national curriculum and support for how to utilize your forest as much as possible!



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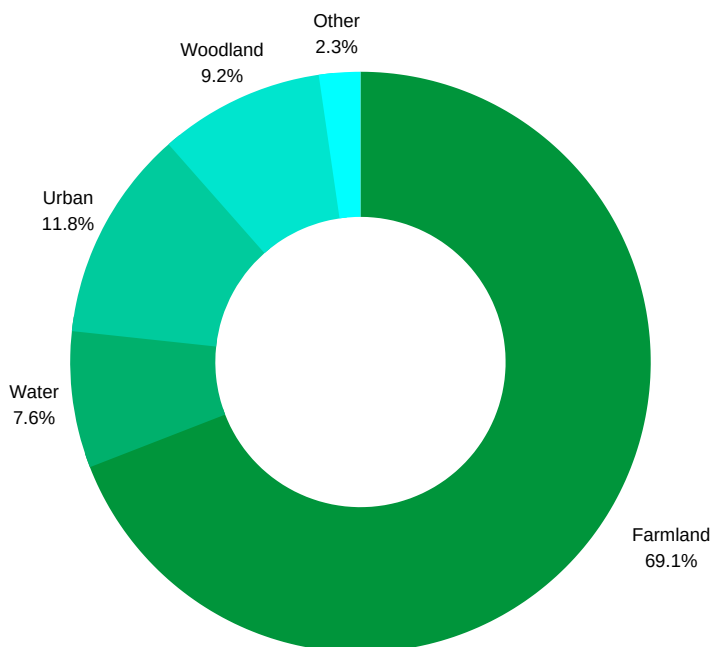
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WHY DO WE NEED TINY FORESTS?

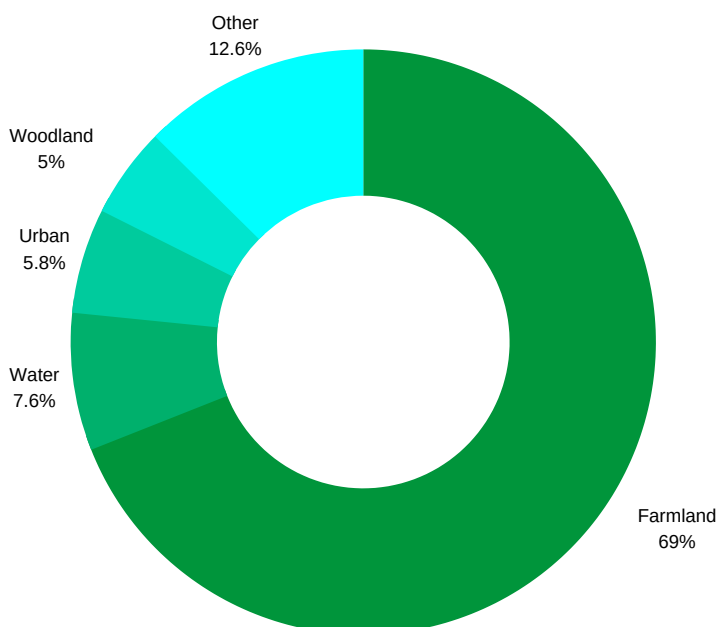


THE PROBLEM

Environmental issues like flooding, pollution, heat stress and loss of biodiversity are increasingly affecting cities where an increasing number of people are choosing to live, and this is only expected to worsen in the face of climate change. Land use is rapidly changing and more and more of our space is being taken up by urban areas and farmland, removing woodland in the process. Tiny Forests help to reduce the impacts of climate change, support urban wildlife, and reconnect people with nature.



Land Use in England in 2010



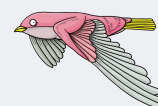
Land Use in England in 2018

SOME FACTS

The 6 warmest years recorded globally have all fallen after 2014, with 2016 being the hottest year ever recorded.

Trees take in carbon on an active basis, but also store it. The UK Government has committed to increasing tree planting to 30,000ha of trees a year by 2025. Deforestation is a double threat, in that it releases the carbon that has been stored whilst also removing a forest's ability to take carbon in from the atmosphere.

Over half (56%) of UK species assessed have declined in population size since 1970.

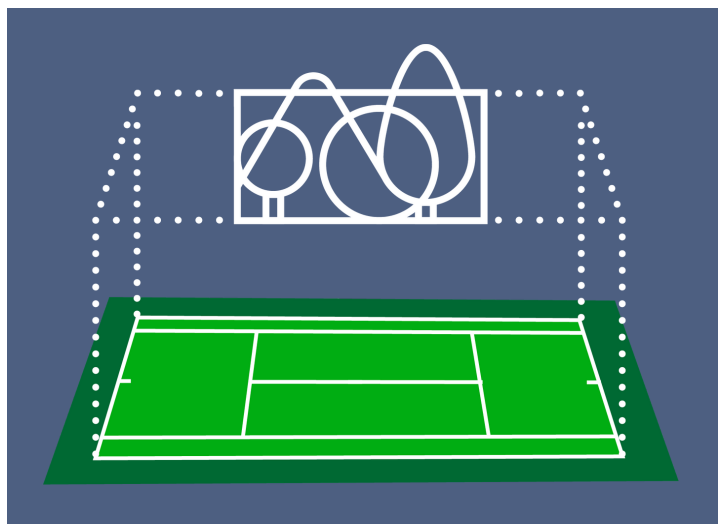


WHY DO WE NEED TINY FORESTS?



THE SOLUTION

A Tiny Forest will be planted in a space the size of a tennis court (200m²), using 20 or more different tree and shrub species that are native to the UK. Native tree species are used as they are adapted to the climate, attractive to native wildlife, and are more resilient to challenges associated with climate change. Each site is assessed prior to planting and tree species most suitable for the site characteristics are chosen.



Though the forests are small, they still bring all of the benefits of natural forests. 600 trees are planted densely in a small area, to maximise the potential of the space. This also encourages the forest to grow quickly. In addition, soil preparation, whereby compaction is reduced and additional biomass is added to improve the water retention and nutrient availability, further helps the trees to establish. A helping hand is needed occasionally to water and weed the Tiny Forest whilst it is still young. However, we want the forest to be as natural and self-sustaining as possible, resulting in a maintenance-free Tiny Forest after 3 years, providing a new area of green space, perfect for learning and immersion in nature.

It has been estimated that a Tiny Forest will absorb 450-600kg of CO₂ every year for the first 4 years of growth, compared to 130-140kg total uptake in a natural forest of the same size in 4 years. The forest will provide other benefits in this time too; in the Netherlands, 7 Tiny Forests attracted almost 600 species of animals. The forest also processes, filters and stores large quantities of rain water, and reduces air and noise pollution in urban areas. Similarly, the forest offers great social benefits, such as channels for businesses to be more sustainable and allowing communities access to nature to support wellbeing and learning.

LEARNING OUTCOMES

- Learn about the processes, causes and effects of climate change
- Learn about a forest's role in mitigating climate change
- Understand what an ecosystem and a habitat is, and how ecosystems like forests can support life
- Understand the importance of scientific research, including how to conduct an experiment, data collection and the importance of accuracy and reliability

WORKING WITH THE CURRICULUM: SCIENCE

GENERAL

- Develop curiosity and understanding of the environment and my place in the living, material and physical world
- Demonstrate a secure knowledge and understanding of the big ideas and concepts of the sciences
- Develop skills of scientific inquiry and investigation using practical techniques
- Develop skills in the accurate use of scientific language, formulae and equations
- Apply safety measures and take necessary actions to control risk and hazards
- Recognise the impact the sciences make on my life, the lives of others, the environment and on society
- Recognise the role of creativity and inventiveness in the development of the sciences
- Develop an understanding of the Earth's resources and the need for responsible use of them
- Express opinions and make decisions on social, moral, ethical, economic and environmental issues based upon sound understanding
- Develop as a scientifically-literate citizen with a lifelong interest in the sciences
- Establish the foundation for more advanced learning and future careers in the sciences and the technologies.

SPECIFICS

First

- I can explore examples of food chains and show an appreciation of how animals and plants depend on each other for food.

Second

- I can use my knowledge of the interactions and energy flow between plants and animals in ecosystems, food chains and webs. I have contributed to the design or conservation of a wildlife area.
- Through carrying out practical activities and investigations, I can show how plants have benefited society.

Third

- I have collaborated on investigations into the process of photosynthesis and I can demonstrate my understanding of why plants are vital to sustaining life on Earth.
- I can explain some of the processes which contribute to climate change and discuss the possible impact of atmospheric change on the survival of living things.

Fourth

- I understand how animal and plant species depend on each other and how living things are adapted for survival. I can predict the impact of population growth and natural hazards on biodiversity.
- Through exploring the carbon cycle, I can describe the processes involved in maintaining the balance of gases in the air, considering causes and implications of changes in the balance.

WORKING WITH THE CURRICULUM: LITERACY

GENERAL

- Communicate, collaborate and build relationships
- Engage with and create a wide range of texts in different media, taking advantage of the opportunities offered by ICT
- Extend and enrich my vocabulary through listening, talking, watching and reading.

SPECIFICS

First

- I can show my understanding of what I listen to or watch by responding to and asking different kinds of questions.
- To help me develop an informed view, I am learning to recognise the difference between fact and opinion
- When listening and talking with others for different purposes, I can exchange information, experiences, explanations, ideas and opinions.
- I can communicate clearly when engaging with others within and beyond my place of learning, using selected resources as required

Second

- I can show my understanding of what I listen to or watch by responding to literal, inferential, evaluative and other types of questions, and by asking different kinds of questions of my own
- To help me develop an informed view, I can distinguish fact from opinion, and I am learning to recognise when my sources try to influence me and how useful these are
- When listening and talking with others for different purposes, I can: share information, experiences and opinions; explain processes and ideas; identify issues raised and summarise main points or findings

Third

- I can show my understanding of what I listen to or watch by commenting, with evidence, on the content and form of short and extended texts
- When listening and talking with others for different purposes, I can: communicate information, ideas or opinions; explain processes, concepts or ideas; identify issues raised, summarise findings or draw conclusions.

Fourth

- I can show my understanding of what I listen to or watch by giving detailed, evaluative comments, with evidence, about the content and form of short and extended texts.
- I can communicate in a clear, expressive manner when engaging with others within and beyond my place of learning.
- When listening and talking with others for different purposes, I can: communicate detailed information, ideas or opinions; explain processes, concepts or ideas with some relevant supporting detail; sum up ideas, issues, findings or conclusions

WORKING WITH THE CURRICULUM: HEALTH & WELLBEING

GENERAL

- Understand and develop my physical, mental and spiritual wellbeing and social skills
- Understand how what I eat, how active I am and how decisions I make about my behaviour and relationships affect my physical and mental wellbeing
- Participate in a wide range of activities which promote a healthy lifestyle
- I make full use of and value the opportunities I am given to improve and manage my learning and, in turn, I can help to encourage learning and confidence in others
- Representing my class, school and/or wider community encourages my self-worth and confidence and allows me to contribute to and participate in society.
- Through contributing my views, time and talents, I play a part in bringing about positive change in my school and wider community
- I value the opportunities I am given to make friends and be part of a group in a range of situations

SPECIFICS

First

- Through taking part in a variety of events and activities, I am learning to recognise my own skills and abilities as well as those of others

Second

- Opportunities to carry out different activities and roles in a variety of settings have enabled me to identify my achievements, skills and areas for development. This will help me to prepare for the next stage in my life and learning.

Third

- I am developing the skills and attributes which I will need for learning, life and work. I am gaining understanding of the relevance of my current learning to future opportunities. This is helping me to make informed choices about my life and learning.

Fourth

- Based on my interests, skills, strengths and preferences, I am supported to make suitable, realistic and informed choices, set manageable goals and plan for my further transitions.

WORKING WITH THE CURRICULUM: NUMERACY

GENERAL

- Interpret numerical information appropriately and use it to draw conclusions, assess risk, make reasoned evaluations and informed decisions

SPECIFICS

First

- I have explored a variety of ways in which data is presented and can ask and answer questions about the information it contains.
- I have used a range of ways to collect information and can sort it in a logical, organised and imaginative way using my own and others' criteria.

Second

- Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading.
- I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way.

Third

- I can work collaboratively, making appropriate use of technology, to source information presented in a range of ways, interpret what it conveys and discuss whether I believe the information to be robust, vague or misleading.

Fourth

- I can evaluate and interpret raw and graphical data using a variety of methods, comment on relationships I observe within the data and communicate my findings to others.



Evidence of learning can come in many forms; Tiny Forests are unique in their ability to provide a vast array of learning opportunities, in or out of the site. You could record stories of the lessons conducted in the forest, provide worksheets that link to the impacts of climate change or select student work that demonstrates their learning process of climate change and climate action. You could begin a school blog that records the students' experiences and observations as the forest matures, or conduct surveys with students or the community to research the impact the forest has had on learning.

OUTDOOR LEARNING

As part of Learning for Sustainability, outdoor learning is an expectation for all children in Scotland's education system. Since 2006 Scotland has moved towards a curriculum and professional standards for teachers that requires outdoor learning to be a 'regular and progressive experience for all learners'. Research shows that outdoor learning contributes positively to children's quality of life, social development, and attitudes towards academic pursuits. In particular, a number of studies highlight the positive benefits of enhancing physical health, such as increased activity level and reduced illness. Outdoor learning and play facilitates physical and motor skills, such as coordination and enables children to develop stronger connections to the natural environment, while their social skills, such as self-confidence, increase (Perlman et al., 2020). A summary of seven Scottish education studies found that young people value experiences that feel authentic and contingent, relating to the hands-on nature of practical activity, encounters with animals, being exposed to the effects of the weather and not always knowing what will happen next (Nicol et al., 2007.)

In 2008, it was identified that, when planned and implemented well, learning outside the classroom contributes significantly to raising standards and improving pupils' personal, social and emotional development. It has been demonstrated that academic fieldwork outside the classroom enhances the teaching of science and geography, and that practical work encourages young people in the academic pursuit of science. Despite this, there has been a marked decline in the quantity of fieldwork provided within the UK, often due to lack of teacher confidence, perceived risk, cost, curriculum pressures and assessment. Children are the citizens, scientists and leaders of the future. Instilling in our children a love of the outdoors, along with an understanding of scientific processes, environmental concerns and the need for sustainable solutions, will lay the foundations for environmentally sound behaviour in the decades to come.

To help reverse the trend, Earthwatch aims to:

- Encourage outdoor learning, instilling wonder of, an interest in and a passion for wildlife and the environment;
- Engage pupils in real science, making it approachable and fun and showing first-hand how evidence is collected and how facts differ from opinions;
- Connect pupils with the UN Sustainable Development Goals (SDGs), demonstrating how environmental and social issues are connected, and how everyday decisions impact our planet's future locally and globally.



For more key findings on outdoor education see: <https://education.gov.scot/improvement/Documents/hwb24-ol-support.pdf>

RISK MANAGEMENT

It is important that teachers and group leaders should consider the following safety guidelines when conducting activities outside the classroom with their students:

- Ensure you have visited and have a good understanding of the site before taking students. It is important to risk assess for potential hazards, taking a note of slippery slopes/banks, uneven ground, harmful/stinging plants, ticks, exposure to sun or inclement weather, etc.
- If you discover glass or other sharp objects at the site then it is important that these are disposed of safely and the activity is abandoned for another time or site. The site ideally needs to be regularly maintained and risk assessed by a member of staff to ensure regular visitation can take place.
- Make sure that all participants are appropriately briefed on potential hazards and how to mitigate these prior to engaging in the activities.
- In order to provide adequate supervision, a ratio of teachers/adults to students of 1:10 is recommended.
- Ensure you and your students cover any open wounds on your hands and wash hands after doing activities outdoors and before eating.
- Ensure students are monitored at all times when outdoors and that they are considerate when observing and recording UK wildlife.
- Be careful not to disturb lots of wildlife by observing too closely. Wildlife such as nesting birds are protected by law, so please respect them and give them space. You can observe birds near nest sites using binoculars or with your own eyes from a safe distance of 5-10 metres.
- When working outside, use this helpful code to help your students remember how to stay SAFE:
Spot – spot the dangers
Advice – follow safety signs and advice
Friend – stay close to a friend, teacher or family member
Emergency – shout for help and know the correct emergency number to call



ADDITIONAL RESOURCES

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Woodland Trust

- The Woodland Trust has great tools, resources and programmes for learning more about trees in schools.

OWL Scotland

- Outdoor & Woodland Learning Scotland has teachers packs and lesson plans that are linked to the curriculum and provide useful information about forests and outdoor learning.

Royal Forestry Society

- The Royal Forestry Society has great plans and action booklets to help young people to learn more about trees.

BBC Teach

- BBC Teach has lesson resources and videos to complement learning about trees. The resources come with lesson plans and resources for further learning.

Trees for Cities

- Trees for Cities provides ideas for assemblies and lessons to help learn about the importance of trees in urban environments.

My Forest School

- My Forest School provides a platform for teachers to manage resources and helpful tools for students to create their own action plans and tools.

DAYS AND HOLIDAYS

SEPTEMBER

World Recycling Day

DECEMBER

World Soil Day

MARCH

World Wildlife Day
British Science Week
International Day of Forests and Trees
WWF Earth Hour

MAY

Hedgehog Awareness Week
Outdoor Classroom Day
Mental Health Awareness Week

JULY

National Moth Week
World Nature Conservation Day

OCTOBER

World Animal Day
World Teacher Day
World Habitat Day
World Mental Health Day

FEBRUARY

Go Green Week
International Day of Women in Science
Fairtrade Fortnite

APRIL

Earth Day
City Nature Challenge
National Gardening Week

JUNE

World Environment Day

THE SUSTAINABLE DEVELOPMENT GOALS

On 25 September 2015, the 193 countries of the UN General Assembly adopted the 2030 Development Agenda titled Transforming our World: the 2030 Agenda for Sustainable Development. The Sustainable Development Goals are a set of seventeen aspirational 'Global Goals' with 169 targets between them. The goals and targets will stimulate action over the next fifteen years in areas of critical importance for humanity and the planet.

To achieve the Global Goals by 2030 we need ALL young people to know and care about them. The UN Global Goals form a plan to shape OUR future, and we need to act to make sure they are achieved.

Lots of great resources, lesson plans and videos helping to introduce the SDGs can be found at:
www.worldslargestlesson.globalgoals.org/
www.practicalaction.org/global-goals
www.project-everyone.org/films/



SDG 3: Ensuring good health and wellbeing to ensure everyone leads a healthy life. This includes mitigating the impacts of air, water and soil pollution and contamination, all of which are exacerbated by climate change, in addition to efforts to reduce death and poor wellbeing due to mental health related illnesses.



SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace, global citizenship and appreciation of cultural diversity.



SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable. Provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.



SDG 13: Urgent action must be taken to win the fight against climate change. This includes climate resistant infrastructure, global legislation and action to prevent further damage and reverse the impacts that are already placing increasing pressure on our planet. Included within this is better and more accessible climate education to raise awareness of the causes and impacts of climate change and better equipping communities to act.



SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss. Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.

OTHER PROJECTS

FRESHWATER WATCH

FreshWater Watch is a global project in which individuals and communities monitor, protect and restore their local water resources. We train people around the world to measure the health of their local bodies of fresh water. The resulting data provides the evidence needed to support efforts to improve water quality. As water experts, we know that we will only improve freshwater habitats by working together. By monitoring their local waterbodies, our citizen scientists around the world contribute data and knowledge to a unified global effort to improve the health of fresh water for everyone.

NATUREHOOD

Naturehood is a community wildlife project that will connect you, your school and your neighbours with nature on your doorstep. Naturehood aims to enhance awareness and understanding of local wildlife and its needs by conducting research about the effectiveness of actions in helping wildlife to thrive. The project aims to build communities that value nature, and empower individuals to monitor and act for local wildlife in gardens, school grounds and community spaces, providing a thriving network of wildlife-rich green spaces that benefit people and nature.

PLASTIC RIVERS

Plastic Rivers offers practical, evidence-based steps to tackle the plastic pollution on our doorsteps, so that everyone can be part of the solution. The issue of plastic in the oceans has attracted a lot of attention in recent years. But did you know that the vast majority of the plastic in our oceans comes from the rubbish in rivers? We urgently need to confront this problem, and stop plastics from getting into our rivers. We've developed a plastics 'top offenders' report and a plastic footprint calculator to help you tackle the plastic problem.

ONLINE RESOURCES

There are more courses, resources and videos available on our online learning portal, earthwatch-ed.org.uk. You'll find information about all of our citizen science projects, as well as helpful and informative guides that will teach you more about climate, sustainability and the environment. We also have tonnes of great resources for kids to get outdoors and explore the world around them.

STAY SOCIAL



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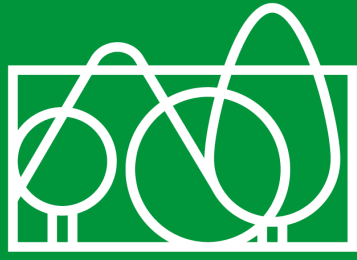


<https://www.facebook.com/earthwatcheurope>

SPEAK TO THE TEAM

If you have any questions or need any further information, please do not hesitate to contact our team via email -

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