



Green Touch

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Studies on benefits of Forest School


**GREEN
TOUCH
LANDSCAPES
LTD**

We don't cost the earth

About Us


Our founder Matthew Whittaker began his early years in industrial Blackburn, before relocating to the rural village of Warton. Finding the contrast truly striking, Matthew finally was able to engage with nature in a way that he had never been able to in his previous urban setting. He found the move to be truly transformative and enjoys being able to provide children with a little slice of that experience through Green Touch Landscapes. As our green spaces are continually diminishing it is our intention to enhance whatever space you have, in order to maximize its potential for outdoor education.

Forest School is a child-centred educational approach that is increasingly being recognised as an innovative way to get children active and learning. It allows them to learn, explore and play in a safe and natural setting, and offers opportunities for holistic growth through play exploration and supportive risk taking.



For the last few years we have focused on bringing outdoor education products to schools. We are now expanding our nationwide to ensure children across the county can benefit from our products. This will mean products such as our Outdoor Classroom and Mud Kitchen will be essentially available as a 'flatpack'. We will be able to provide instruction videos or 1-1 training to local councils/schools etc for them to arrange the installation of the products themselves. This is something which we are very excited about launching and will be trialing this throughout schools in England throughout 2024.

By taking Green Touch Nationwide, our goal is to not only build a successful business for ourselves, but to support local businesses and bring employment opportunities to the community, all whilst knowing the products we are creating are to help bring back beauty to our public spaces and engage us all with nature.



How Outdoor Play Helps Children stay on task

A research Project looked at how well preschoolers stayed on task, after 1 hour of playing outdoors, compared to when they had not played outside beforehand. To measure how 'on task' they were, researchers observed each individual child every 2 min during a 30-minute session indoors and recorded whether they were on or off task. This was done for 21 children aged 3-5, across 2 conditions: After outdoor play and after no outdoor play.



For boys and children from Low SES families, on-task behaviour was improved after outdoor play. (For other children, on average it did not seem to make a significant difference).

The more active the outdoor play was, the more on-task the children were afterwards.

This was a small study, and more research would need to be done before results can be generalised. It is one of many studies however that suggests time outdoors can help support self-regulation. These findings also make us think about several important things.

- Children who are off task in class sometimes lose playtime as a result. This will only make them find it even harder to be on task after playtime.
- Children who are considered to have difficulty staying on task are often disproportionately boys and children from lower SES families – the very children who benefit most from outdoor play (yet also the most likely to miss it as a punishment)
- In this study, more physical play meant better attention afterwards. Yet in many schools, some types of more physical play are discouraged due to being too rough or too dangerous! Some schools even ban running in the playground! Who tends to engage in this rough, physical play? **BOYS!**

Far from being a 'waste of time' more play outdoors could save time overall if children are more focussed and on task afterwards. Studies such as these suggest active outdoor time could also help narrow the attainment gap between groups of children.

Studies like this highlight why Forest School Areas are critical to primary schools. Our outdoor classrooms, den building areas, mud kitchens and phonics boards are not just designed for children to play in. They are designed to ensure children can learn actively and aid to the overall well-being of the children.

Building dens requires children to assess and select the materials that are most appropriate for each job. By moving and manipulating them to make them fit for purpose children can improve on teamwork and fine motor control skills. The den building area also teaches children responsibility and the finite reality of things, as at the end of the session they will need deconstructing for the next group.

With our Mud Kitchens we can repurpose and provide all the utensils needed for the kitchen, but asking the children to stock the kitchen themselves can be a great idea too. It allows them to develop a sense of ownership whilst promoting the idea of sharing, as no one child will have everything they need to make a successful mud pie.



Outdoor Learning & Stress

Research was carried out in reception classes (4-5yr olds) in 4 different schools in East London by Gemma Goldenberg.

75 Children took part in the study, although only 45 of them consented to wear the hear rate monitors needed to be included in these analyses on stress.

The children took part in 8 sessions in their usual indoor classroom and 8 sessions in an outdoor area on the school site. In total throughout the project there were 56 indoor and 56 outdoor sessions

Each indoor session was made up of

- 5-10 mins of 'carpet time' – where the children were all seated on the floor and their usual teacher a story or did a maths activity.

- 30 Mins of choosing time – where the children could free flow around a selection of tabletop and floor activities.

The study was designed to disentangle SPECIFICALLY the impact of being outdoors, so all these other variables were kept the same both indoors and outside.

- Activities on offer for choosing time.
- Resources used.
- Size of Space children had to play/learn in
- Seating arrangements for carpet time e.g lines vs circles.
- Rules about movement e.g no running or climbing inside and outside.
- The adults who were leading the sessions
- Time of day that the sessions took place.

Wearable ECG monitors were used to measure children's heart rate and a decibel meter to measure noise.

The children also word and actigraph which measure the amount and type of movement they engaged in. This was to find out if children's heart rates lower when they're outdoors (suggesting lower stress, if so, why?)

Gemma found that yes children's resting heart rates were lower outdoors. In fact, on average they were almost 3bpm lower outside. The data was run through software for statistical analysis which confirmed that this difference was statistically significant. This calculated the probability of this finding being down to pure chance is less than 0.001%

The study also brought to our attention that sessions outdoors were quieter. Whether children were seated and listening to the teach, or actively learning during choosing time, the sessions outside were on average around 3DB quieter for carpet times and 4DP quieter for choosing times. Again, the analysis showed these differences in noise were statistically significant.



Gemma went back to do more analysis, to unpick more about the relationship between noise and stress. She found that indoors there was a statistically significant relationship between noise during carpet time, and stress. As the noise levels increased, children's heart rates increased which is what we would expect.

When this analysis was run using only the outdoor data, the relationship was no longer statistically significant. There was no longer a meaningful relationship between noise and stress. So, even if it did become noisier outside, the children's heart rates did not seem to increase in line with the noise.

At this point the study had suggested that being outside is offering some sort of 'protection' against the stress inducing impact of the noise and no one else seemed to have studied this before.

The analysis was run again to double check and looking at only the loudest outdoor carpet time sessions. Even in these noisy sessions, heart rate did not increase in the way it did outdoors.

What if the lower heart rates do not actually mean the children are less stressed? What if for some reason they move around less outside and that is why their heart rates are lower?

The actigraph data was checked to compare how much the children moved inside and outside. From this it appeared that Lower outdoor heart rates do not seem to be caused by less movement outdoors.

All of this tells us that there seems to be something about the experience of being outside which is less stressful for children, and it is not just because it is quieter. Being outdoors is providing some sort of buffering effect against stress/noise.

We understand that weather conditions in the UK simply mean all classes can not be outdoors, and we would not advise that they should be. Young children need to learn how to behave socially and how to learn. Mixing both indoor education with some outdoor education





Blood Pressure and Green Spaces

Blood Pressure is an important health indicator because high BP is a risk factor for other health problems including strokes, asthma, heart attacks and kidney disease.

Research has been undertaken linking access to green spaces with reduced risk of high blood pressure. In summary, a recent systematic review and meta-analysis (Zhao et al., 2022) incorporated 52 analyses involving over 5.2 million participants.

Results showed a decrease in blood pressure and hypertension in greener living environments, with higher levels of greenspace within 500m of people's homes significantly associated with lower blood pressure. One study looked at how green the environment was in which people grew up, and how this might influence their blood pressure as an adult (Bijens et al., 2020)

The research used data from adult twins, distinguishing between twins who had lived at the same address their whole life, and those who had moved to a different area. For those remaining at the same address, significant associations were found between nighttime blood pressure and residential greenness exposure. For twins who had relocated - exposure to greenness during early life was still associated with blood pressure but exposure during adulthood had no significant effect.

This therefore suggests that greenspace during early childhood is the most important and has lasting effects throughout the lifespan.

However, no associations were found between blood pressure and the distance you live from major roads in early life, suggesting these effects of greenspaces on BP are not due to reduced road noise or traffic pollution. The study postulated instead that the underlying mechanism could be maternal stress which has a knock-on effect on children's blood pressure and then persists into adulthood.

Does this therefore then suggest that exposure to green spaces as a parent could affect your child's blood pressure in adulthood?

The idea is further supported by a longitudinal study of over 500 participants which found that living further from green space at birth was associated with high blood pressure in adulthood, suggesting that the perinatal period may be a critical time to access nature (Jimenez et al., 2020)

"Correlation is not causation" – we need to interpret these sorts of finding critically.

We do need to ask ourselves – what else could be involved in living in green areas (which could be affecting blood pressure). Does living in a greener place mean you are richer? Have a less stressful job? A bigger home? Less crime in your neighbourhood? A less hectic place of life? All these things could impact BP rather than it being a direct 'Nature effect'.

Well-designed studies should try to take these other variables into account (and some of them do). This can never be done perfectly. So, where we see promising correlational evidence, we also want to try and back this up with Experimental research. Lucky for us, the research exists.

Dozens of experimental studies (most of which have been conducted in Japan where the government have invested a lot of money in research to tackle stress) have studied the same participants doing the same activities in different environments and evidenced that being in natural environments causes their blood pressure to reduce.

At Green Touch Landscapes, we want children to engage with nature and the outdoors as much as possible which is why we are so passionate about creating forest school areas. Urban planning should factor in green and natural places in cities which are accessible to all.

Children should have access to green outdoor spaces during the school day. The importance of nature access during very early childhood should be promoted and explained so parents can reap the benefits.



Benefits of Forest School for Children



- **Connection with Nature:** In an increasingly urbanized world, many children in the UK have limited exposure to nature. Forest School provides them with regular opportunities to connect with the natural world, fostering a love for nature and environmental awareness.
- **Physical Development:** Forest School activities often involve physical challenges such as climbing trees, balancing on uneven terrain, and exploring natural surroundings. These activities promote gross and fine motor skills development and overall physical fitness.
- **Social Skills:** Forest School encourages teamwork, cooperation, and communication among children. Working together in outdoor activities fosters social skills like sharing, negotiation, and conflict resolution, promoting positive social interactions.
- **Emotional Well-being:** Spending time in nature has been linked to improved mental health and well-being. Forest School provides a supportive and non-judgmental environment where children can express themselves freely, reducing stress and promoting emotional resilience.
- **Creativity and Imagination:** Natural environments stimulate creativity and imaginative play. Children can engage in activities like building shelters, crafting with natural materials, and storytelling, which enhance their creativity and imaginative thinking.
- **Confidence Building:** Engaging in outdoor activities and overcoming challenges in a natural setting boosts children's self-confidence and self-esteem. Success in activities like fire building or outdoor cooking gives them a sense of accomplishment.
- **Learning Through Experience:** Forest School promotes experiential learning, where children learn by doing. This hands-on approach enhances their problem-solving skills, critical thinking, and decision-making abilities, making learning more engaging and effective.
- **Environmental Awareness:** By immersing children in natural environments, Forest School helps them understand the importance of conserving nature. It instills a sense of responsibility and environmental stewardship from an early age.
- **Resilience:** Exposure to changing weather conditions and adapting to outdoor challenges helps children develop resilience and coping skills. They learn to appreciate the natural world despite discomforts, building mental and emotional resilience.
- **Academic Achievement:** Research suggests that outdoor learning experiences, like those in Forest School, can positively impact academic achievement. The hands-on and holistic approach to learning can enhance children's engagement with the curriculum, leading to improved educational outcomes.

Forest School is particularly valuable because it provides a counterbalance to the indoor, screen-dominated lifestyle that many children experience. It aligns with the UK's rich natural heritage and contributes to the development of well-rounded, environmentally conscious citizens.



Benefits of Forest School for Elderly



Forest schools and nature-based activities are not exclusively for children; they can also be highly beneficial for the elderly population. Engaging in nature-based activities, including those in forest school settings, offers numerous advantages for seniors:

- **Physical Health:** Spending time outdoors encourages physical activity, whether it's walking, gentle exercises, or simply moving around in a natural environment. This can improve cardiovascular health, balance, and overall mobility, reducing the risk of falls and promoting overall well-being.
- **Mental Health:** Nature has been shown to have a calming effect on the mind. Being in a natural environment can reduce stress, anxiety, and symptoms of depression.
- **Social Interaction:** Participating in forest school or nature-based activities provides opportunities for social interaction and companionship, reducing feelings of isolation and loneliness. Group activities in outdoor settings can foster a sense of community and belonging among elderly individuals.
- **Sensory Stimulation:** Nature engages multiple senses – the sound of birds chirping, the feel of the wind, the scent of flowers – providing rich sensory stimulation. This sensory experience can be particularly beneficial for seniors, enhancing their overall sensory perception and quality of life.
- **Cognitive Stimulation:** Nature-based activities can involve various cognitive challenges, such as identifying plants and animals, problem-solving in outdoor environments, and learning about local ecosystems. These activities stimulate the brain and support cognitive function.

- **Improved Sleep:** Exposure to natural light and physical activity during the day can regulate sleep-wake cycles, leading to improved sleep patterns. Better sleep is crucial for overall health, especially for the elderly.
- **Sense of Purpose:** Engaging in activities like gardening, birdwatching, or nature conservation projects in forest school settings gives seniors a sense of purpose and accomplishment. Having meaningful activities to look forward to can improve mental well-being and overall life satisfaction.
- **Emotional Well-being:** Being in nature often evokes positive emotions and a sense of wonder. The beauty of natural surroundings can enhance emotional well-being, providing moments of joy and contentment.
- **Therapeutic Benefits:** Nature-based activities can be therapeutic for individuals with certain health conditions, such as dementia or chronic pain. Horticultural therapy, for example, has been shown to have positive effects on physical and mental health.
- **Environmental Connection:** Engaging with nature fosters a sense of connection to the environment. This connection can lead to increased environmental awareness and a desire to contribute to conservation efforts, promoting a sense of purpose and fulfillment.

In summary, forest schools and nature-based activities for the elderly offer a holistic approach to well-being, addressing physical, mental, social, and emotional aspects of health. Being in nature provides a nurturing environment that supports the overall quality of life for seniors, making these activities highly beneficial for the elderly population



Our Study Partners

The Studies

- How Outdoor Play Helps Children stay on task
- Outdoor Learning & Stress
- Blood Pressure and Green Spaces

This information has been gathered from the @phd_and_three which is the instagram account of psychologist and education expert, Gemma Goldenberg.

Gemma did her PhD on the impact of being outdoors on children's stress, attention and self regulation and is co-founder of www.nestkids.co.uk who provide training on using psychology and neuroscience to support work with children.

They run online and face to face sessions on the science behind outdoor learning as well as a range of other topics. Check out www.nestkids.co.uk for more details and follow Gemma's Instagram accounts for more fascinating research about the outdoors, the brain and wellbeing @phd_and_three @nestkids.co.uk

