

I confirm AI was not used for this assignment. I confirm I have copies of my drafts and notes which I may be asked to provide in evidence.

Gnoll Country Park Portfolio

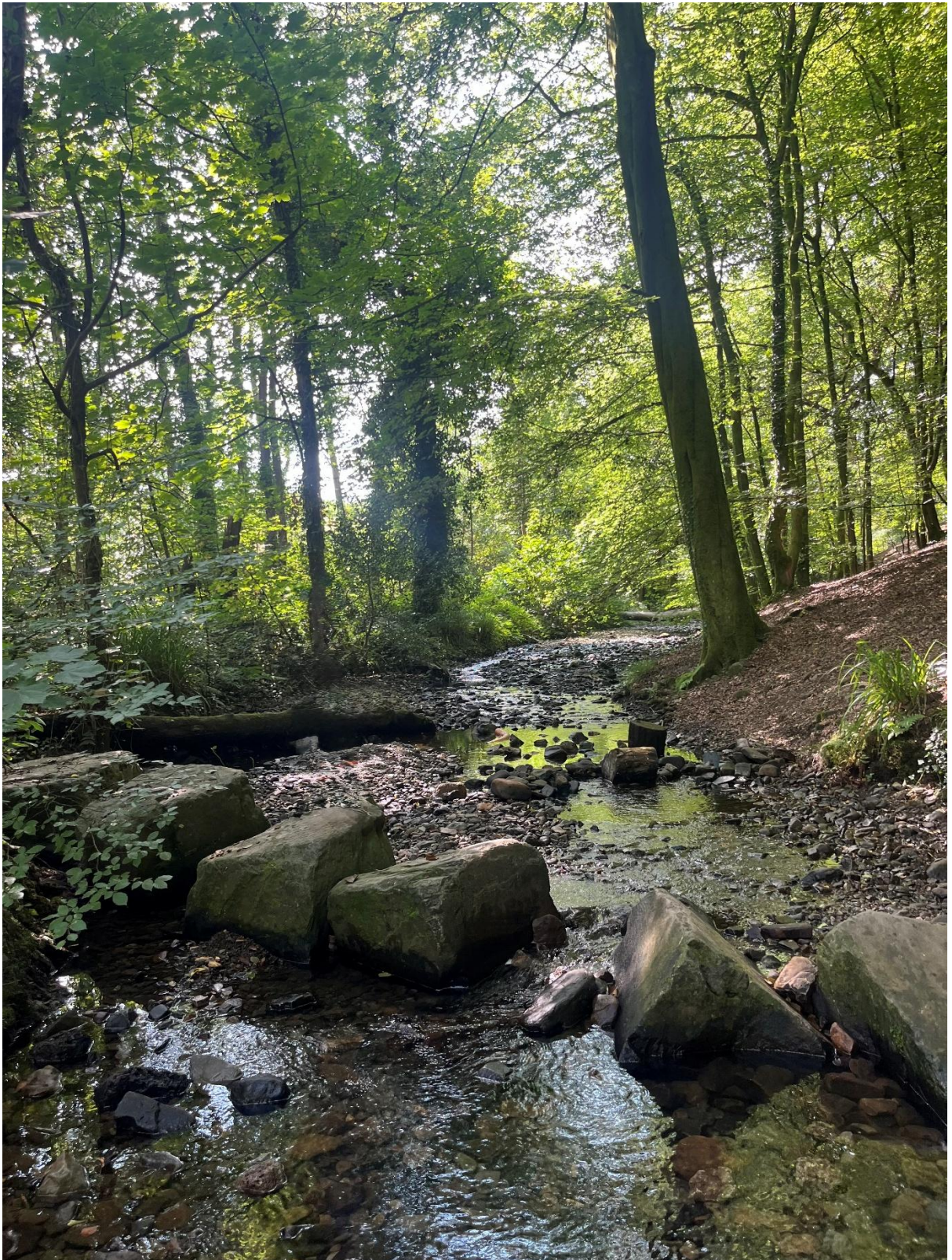
1.Photo

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1. Photo



(Hill, 2026)

2. Learning story

The environment in the photo can offer various experiences for the children. I thought this area would be an excellent opportunity for children aged 3-4 to learn maths and science through open-ended play. I wanted an environment where the learning could be very much child led. Welsh Government (2024) curriculum for non- maintained settings promotes the use of outdoors to help children gain an understanding of mathematical concept through experience and opportunities. This activity will also follow frameworks set out by the Department of Education (2025, p.15) stating ‘children are expected to explore the world around them’. For this outdoor activity, every child had a paper bag with their name written on there so they could collect objects and materials they could potentially use to make faces of their family back in the classroom as our concept this term is relationships. We also bought magnifying glasses to encourage the children explore to see what different shapes, animals, and materials. We had hired a bus to transport us to and from the venue as there were twenty children participating in this activity. Before getting off the bus, the children were counted with all the children joining in, chanting, 1... 2... 3... and so on.

After a quick reminder of the rules to keep everyone safe, the children were left to go off and explore on their own accord. You could see from the children’s eye direction where they intended to go. Children ran to the edge of the stream to look at and what was in the water. Children started to form a queue to take turns over the rocks using them as stepping stones. A number of children ran over to the ground where there were many loose parts such as bark, sticks, and stones.

I walked over to the children by the stream and said, “what are you doing here?” There were various responses such as “looking for bugs” and “this stone is slippery.” I explained the rocks were slippery because they were wet and had a certain type of algae growing on them from the water. “We need to be careful when we see rocks this colour as they could be very slippery and we don’t want to hurt ourselves!” Most



children had crouched down with their hands in the water, some more confident than others as some children said, “it’s so cold!” We talked about how the stream would be cold as we were only now at the end of winter and entering spring. We briefly spoke about the four different seasons and what we might find entering spring. Children suggested more leaves on the trees and flowers starting to appear. I told them most flowers start to appear in spring as this is when everything starts to warm up. We also discussed how this part of the stream was very shady as there were lots of tall trees stopping the sunlight from warming up the water. From this a child then exclaimed, “look at the sun through the trees.” The children talked among themselves deciding that there was only a little bit of sunlight coming through. Another child then said, “the sun is making the water sparkle.” I replied, “the sun light is reflecting off the water.”

I presented the children with the question of what would happen if we threw a stone into the stream. One child said, “It would splash!” I agreed and told them it was a great answer before throwing a stone in. I then asked the question of what happened. “Did you notice the ripples?” The children nodded and said, “yes we did!”

I walked over to the children on the bank. These children were using the magnifying glasses in one hand with their brown paper bags in the other. “Look Miss!” one child shouted as they were holding the magnifying glass over their eye. They had realised it changed the size of their eye depending on where they held it and found it hilarious. “Oh goodness, you have a big eye” I jested with them. “It’s the magnifying glass” they reassured me as he had moved it to reveal his eye. When I asked the children what they had collected so far, they opened their bags to show me a selection of leaves, sticks, and stones. I asked one child who had collected stones, “what do you like about this

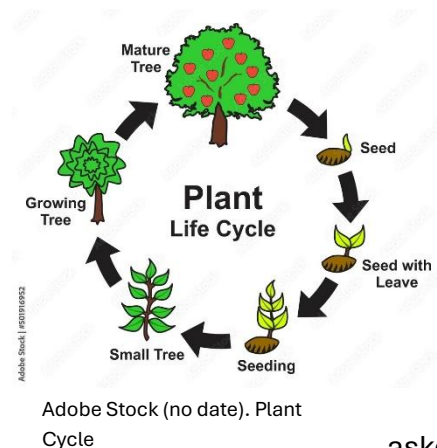
stone?” They replied, “It looks nice and smooth.” I suggested they chose their favourite stones to take back to the classroom as having so many would make it too heavy and potentially break their paper bag. I encouraged them to look for other loose parts by asking “what could we collect to use to make faces that would be lighter than stones?” I could see them thinking and then they shouted, “leaves for hair!” I praised their suggestion and suggested looking for lots



Pinterest (no date). Loose Part Face

of different shapes and different coloured leaves as we all have different colour and types of hair. They took their friend with them and off they went to hunt for more leaves.

Other children then offered up their bags to show me what they had collected. One had various sized twigs but held up the longest saying “look how big this is.” “Wow” I exclaimed. I encouraged them to find the biggest stick and the smallest stick they had found to see if there was much difference in



size.” What do you think would happen if you threw one in the stream” I asked. The children had difference in opinions with some thinking it would float and some thinking it would sink. They decided they wanted to find out. One child had found an acorn which they were very proud of. I



Forest School Finder (2025).
Child in Woods

asked him if he knew what it was and he said no. I explained an acorn is a seed and pointed to a grown acorn tree. “This big tree came from this small seed, and then the tree drops their acorns to make more trees.” The child gasped in amazement. “How?” he questioned. “When you plant a seed in the soil, and when it has lots of sunlight and rain, plants can grow very big and strong.” “Can we plant it?” he responded. I told him that sounded like a great idea, and we could take it back to the classroom and monitor it over the next few weeks to see if anything happens. I asked if he could think of a good place for it to try and grow and he suggested on windowsill, so it has sunlight.

I spotted some children with the magnifying glasses looking at the tree trunks. “We are looking for bugs!” I asked if they had found any and they had only found a few. I asked, “where do bugs like to live?” One child said, “worms like mud.” “They do!” I confirmed. “Bugs also like to live in dark, cool wet areas too!” I asked where some bugs might be hiding. The children were unsure so I suggested to lift some stones to see what they could find underneath. I reminded them to be careful with the insects, not to hurt them and to be respectful of their homes. One child stayed by the tree still looking at the trunk. I asked if she was okay and she said, “yes miss I’m looking at the pretty patterns.” “This is called bark” I told her. “Lots of trees have different looking bark and it’s there to

help protect the tree from getting damaged or getting poorly.” I asked the girl, “how does this bark feel.” She smoothed the bark and she said, “this feels hard and rough.” I agreed and said, “I wonder what other sort of bark we can find here.”

Our time was up and I called the children back to the bus. They all looked muddy, tired but looked like they had all thoroughly enjoyed. They made sure they had their paper bags and were excitedly showing their friends what they had found whilst lining up to get onto the bus. Again, the children joined in counting, making sure everyone was there. We all got back on the bus and headed back to school to discuss what they had found and anything they may have learnt today.

3. Risk-benefit assessment

Location / Activity:	Gnoll Country Park	Date:	12/03/2026
Assessor:	Lydia Hill	Review date:	12/09/2026

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Children exploring in the stream	This will help support children's vestibular balance from climbing over the rocks. Children will learn to monitor their own risks. Will help support gross motor skills with bending, reaching, balancing. Can also support a child's coordination.	Slipping on rocks causing head or bodily injuries. If a particularly cold day, and someone falls in, there may be a risk of catching hyperthermia.	Children/ adults	Explain to children the rocks may be slippery. Wear appropriate footwear/ clothing. Use arms to balance. Move slowly and test rocks to see if they are stable first. Use adult support to help children who feel unsure. Ensure there is a first aid trained member of staff there. Take spare clothes in case children need to change.	M

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Uneven ground	Support vestibular balance. Children developing own awareness of environment. Also supports proprioception with becoming aware and being able to coordinate different parts of their body.	Could fall, slip or trip causing minor injuries. In serious situations could cause bodily/head injuries.	Children/adults	Warn children ground is unsteady with loose materials on the surface. Tell children to take their time. Ensuring the child to adult ratio is suitable. Having someone who is first aid trained. Appropriate footwear to be worn. Identify safe routes and remind children to look where they are planning to walk.	L

Collecting materials to take back to the classroom	Knowledge about surroundings. Supports with learning mathematics and science. Children can explore their surroundings and follow their interests. Promoting fine motor skills with picking up small objects. Bending down can also help develop stomach, legs, and arm muscles.	Hidden rubbish, broken glass, rusted metals, sharp sticks. Can result in broken skin, cuts, infections. Lifting heavy rocks can result in fingers or toes getting hurt.	Children	Tell children to not pick up rubbish and only natural materials that will fit in the paper bag. Adults are to pick up any rubbish they may see. Not to wave sticks around and handle items carefully. Ensuring there is a member of staff on the trip who is first aid trained.	L
Weather conditions	Experiencing different senses depending on the weather. Children can learn to navigate and keep themselves	If it is too hot, then the risk of sun stroke/ burning and dehydration may occur. Windy	Children/ adults	Asses the weather before to see if there are any warnings issued. Ensure appropriate clothing and footwear are worn. Sun cream and cooling clothes to be worn in hot weather. Coats,	L

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
	safe by noticing potential risks to themselves and the environment around them.	conditions can lead to branches falling and debris blowing about. Sudden weather changes can also make the environment more slippery.		waterproofs in rainy conditions. Appropriate footwear to be worn.	

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Wildlife risks	Exploring nature, learning about the world around them. Experimenting with different materials. Understanding difference in seasons and exploring habitats.	Animal droppings, nettles, thorns, poisonous plants, insect bites, tics. Low bearing branches could go into someone's eye.	Children/ adults	Emphasise that nothing should be put into mouths. Ensure hands are washed as soon as possible. Take antibacterial gel and wipes to be able to clean hands. Children to be told to be kind and gentle to nature and to respect the wildlife and insect they may find.	M

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Children exploring on their own	Encouraging independence, free will and self-directed learning. Developing self-awareness. Can encourage teamwork and build confidence in a child. Help children to become active explorers and build resilience.	Children going too far away. Being in blind spots not being able to see the children.	Children	Establish boundaries for the children so they understand how far they are allowed to explore. Buddy up so children are not left alone and have support from peers. Ensure the correct ratio of adults to children is in place. Adults are to stand in various spots to be able to see children and remind them of boundaries.	L

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Playing with Soil and other natural materials	Children can play with the mud creating a multisensory experience. Feel the texture and explore how it can change in with water. Children playing, pinching, and rubbing the soil between fingers will support fine motor skills.	Children consuming mud can make them unwell. Could contain animal faeces and other bacteria that can get trapped under their nails.	Children/ adults	Ensuring hands are being washed thoroughly as soon as possible, paying special attention to under the nails after session and before consuming anything to eat.	L

4. Academic Writing

This section will evaluate the role of the adult and how they can support the learning of scientific and mathematical and numeracy skills outdoors. It will discuss how adults can create or provide enabling environments that inspire children's curiosity and holistically support them. The use and the importance of the environment will also be considered as well as relatable theorists.

Piaget (cited in Twomey and Westermann, 2016) describes children as 'little scientists', believing that children build their own understanding of the world around them.

Similarly, Welsh Government (2024, p.4) in the Welsh curriculum state children are 'ambitious, capable, learners'. Gibson (1979) states an affordance is an opportunity provided by the environment, offered to anyone with the ability to perceive and use it. White (2011) and Karshna (2021) note there are affordances specific to education outdoors. Khan *et al.* (2024) suggests a child may not be aware of some affordance on their own, but with the help of an adult to support and guide, a child can become aware of the affordances. Clark (2023) believes expansive spaces, freedom, and risk to be a few outdoor affordances. However, despite the evidence supporting outdoor learning, the importance of it is often overlooked in favour of academic standards (Lee and Patti Ensel, 2020) with Coates and Pimlott-Wilson (2019) declaring that outdoor play is declining. This can cause children to miss fundamental learning opportunities such as, physical, cognitive development, problem solving, and critical thinking. Outdoors is often associated with better wellbeing, and children with higher wellbeing learn more effectively which will also transpire throughout their life (Hernández-Torrano *et al.* 2025). The Education Hub (2020) shows New Zealand's early childhood curriculum states wellbeing 'is an important foundation on which other learning depends'. UNICEF (no date) recognise even though children are spending less time outdoors; there is an increase of research for learning outdoors and its benefits.

Moving on now to consider the role of the adult in the outdoor environment and how they can support with mathematical, scientific and numeracy skills. Learning can be enriched by adults who model, guide, challenge thinking, and create engaging environments along with thoughtfully planned experiences in the natural world (Cohen and Waite-Stupiansky, 2020). Elsby (no date) agrees and recognises children learn and

develop well in supportive environments where adults provide guidance and encouragement and help them gradually build on their learning over time. Piaget cited in Veraksa and Pramling Samuelsson (2022) and Bruner (1983) both hold the view that children must experience something meaningful to learn. Modelling and guidance can be seen in Bruner's (1976) theory of scaffolding, meaning learners are supported in building new skills and understanding. Bruner's (1976) scaffolding theory is underpinned by Vygotsky's (1979) concept of zone of proximal development (ZPD). ZPD is support offered by the more knowledgeable adult to break down a task making it easier to be completed by the learner. Although Bruner's (1976) theory is fifty years old, it is still very much relevant and is a key theory for effective teaching today (Taber, 2018). Welsh Government (2024) agree stating modelling mathematical skills and language will support children with their mathematical competences.

In the outside environment adults can observe and recognise opportunities for new learning experiences such as thought-provoking questions or encouraging others to join to collaborate (Sprouts, 2019, 1:20). Barrett (no date) discusses how observing children's play allows an adult to learn about the child, what they are interested in and learn about their development. Adults observing are in the category of 'play maintenance' when considering the play cycle (Swansea University, 2023). The main component to the play cycle is that it is controlled by the child (Macdonald, 2022, p. 7). If an adult were to intervene and guide the play this would be considered 'adulteration' (King and Sturrock, 2020. P. 53). Barrett (no date) states to wait to be invited into the child's play and wait for opportunities to scaffold. One way to encourage this is asking open ended questions and these are also found to increase their complexity of their scientific exploration (Cankaya *et al.* par 6; Bateman, 2022). The adult within the learning story observed the children playing and waited for children to engage by asking questions or making gestures to initiate conversation. The adult also asked open ended questions such as, 'what could [be collected] to use to make faces that would be lighter than stones?' Open-ended play is flexible, encourages creativity and imagination and allows children to direct their play (Playgroup NSW, 2026). When an adult observes, it allows for open ended play, again encouraging exploration and a chance for the child to learn new concepts through it (Department of Education and Training, 2017 cited in

Campbell and Speldewinde, 2020). Coates and Pimlott- Wilson (2019) draw attention to the links between play, learning, and development. Te Whāriki values play as meaningful learning (Department of Education, 2026). Throughout the learning story the children were learning about mathematical and scientific concepts through play. One example of scientific concepts was discussing the change in seasons and what could be expected to be seen.

National Children's Bureau (no date) has suggested that adults can support children with mathematical and science concepts through choosing an appropriate environment and using the outdoors. Malaguzzi believes the environment is of such importance, he refers to it as the 'third teacher' (the Guilitots Playful Learning, (2019, 8:56) with the other two teachers being adults and other children. Bento and Diaz (2017) report research findings show children can learn and apply mathematical concepts during outdoor play by using their bodies as tools for learning. This can not only make maths enjoyable but create opportunities for meaningful use of mathematics in the real world (Grigg and Lewis, 2026). Cohen and Waite- Stupiansky (2020) maintains when a child is trying to predict the outcome, displaying curiosity, or observing and asking questions, they are doing as a scientist does. Within the learning story the adult encouraged the children to hypothesise with whether a stick would float in the stream or not. This also encouraged the children's curiosity resulting in them wanted to experiment and find out the answer. Welsh Government (2024, p.22) states children 'develop an understanding of mathematical language, concepts and skills through multi-sensory play and authentic experiences.' This shows children learn holistically needing a range of factors to learn and develop their understanding. The adult encouraged mathematical language using terms such as, lighter, heavy and reflecting.

Despite living over one hundred years ago, Freidich Froebel (1782- 1852) still has his work and principles being used in the educational system today (Froebel Trust, no date). Froebel is a key advocate for children learning from nature resources and the environment (Smedley and Hoskins, 2020; Scacchi, 2019; Frost and Sutterby, 2017). Froebel (1782- 1852) believed the adult to be the facilitator and support the children but not taking over (Froebel Trust, no date). Again, this principle can be linked back to Bruner (1976) and Vygotsky (1979). Lee and Patti Ensel (2020) believe learning science

and maths is supported through exploration. Bento and Diaz (2017) draw attention to when children are exploring concepts such as weights and talking about what they are doing, new vocabulary is used. The adult in the learning story demonstrated this when encouraging the children to consider that the stones may be too heavy and potentially break the paper bag. Forming connections is a central Froebelian principle such as linking new learning to prior knowledge (Tovey, no date). Likewise, this can also be seen in Piaget's theory, adding new information to existing schemas known as assimilation (Yuen, 2020). A schema is an organised set of existing knowledge that represents recurring patterns drawn from related experiences (Farzanfar, 2023). The Welsh Curriculum also states to encourage learners to build up 'a body of knowledge' and build the skills to link and apply that knowledge in other contexts (Welsh Government, 2022).

Turning now to loose parts, which are open ended objects or materials that children can move, manipulate, or use as they choose (Flannigan and Dietze, 2017; Nicholson, 1971). The Guillitots Playful Learning (2016, 00:30) add 'they require the children to use their imagination'. Swansea University (2023) suggests adults can also be loose parts as they are in the child's external environment. (Gibson, 1977 p.15) believed to a certain extent, that the affordances of the environment can be altered, much like loose parts. Providing opportunities with loose parts is widely recommended to promote mathematic and scientific skills (Cankaya *et al.*, 2025) by using them to build, throw, group, count and many more uses. Therefore, adults need to create or provide an environment that offers loose parts such as sticks, stones, and pinecones to encourage children to use mathematical and scientific skills. The environment chosen for the learning story offered loose parts such as sticks, rocks, bark, leaves, and the adult asked the children what other loose parts they could potentially find. By posing this question to the children, they were encouraged to think and explore.

According to Cankaya *et al.* (2025) and Welsh Government (2024) children show more scientific and mathematical behaviours with loose parts than in more controlled conditions such as classrooms. Campbell *et al.* (2018) suggests this could be because outdoor settings encourage creative play and appears to be enrich and encouraged children to explore their surroundings more deeply. Swansea University (2023, 00:23)

agrees, maintaining loose parts can stimulate play as a child experiences the external world through their senses. Campbell *et al.* (2018) maintain children spent longer periods engaging in self-directed investigations and problem solving trying to find answers to their own questions. This clearly shows that the outdoor environment is motivating children to engage for longer. Children found sticks within the learning story with the adult noticing an opportunity to encourage some mathematical concepts by suggesting the children arranged them in size.

Patti Ensel (2020, par 2) state 'the natural environment is a living school, dynamic and full of wonders.' It is thought children are born with a sense of wonder but require an adult to share that enthusiasm with them to support learning. According to Welsh Government (2023), enabling adults support learning by modelling enthusiasm and enjoyment, and by using learners' curiosity to take advantage of meaningful teachable moments. Cremin *et al.* (2014) state that both early years creativity and science education value children's exploration and investigation, as well as their thinking about ideas and concepts. Welsh Government (2024) note when developing mathematical understanding, children need sufficient time to observe, explore, investigate, and experiment to promote problem solving. Similarly, Department of Education (2025, p.15) state children should be able to make observations. Cremin *et al.* (2014) note it is apparent from their research that in engaging, playful, and exploratory environments, young children interact with materials, ask questions, work together, and identify and solve scientific problems. However, Cremin *et al.* (2014) also draw attention that this is often done with support or guidance from their teacher. Therefore, adults need to scaffold and model for children, encouraging them with critical thinking, making meaningful connections and develop a deeper understanding of scientific and mathematical concepts.

Lastly, Welsh Government (2024) recognise how outdoor learning can promote mathematical concepts by exploring and providing opportunities for child lead learning where adults can scaffold their development through a well organised environment. However, even though the curriculum supports the use of outdoors, Bilton (2020) suggests that teachers have had little to no training on use of the outdoors with staff unsure how to utilise outdoor environments. There are many other reasons why people

are reluctant to take learning outside such as cost (Khan *et al.* 2024), health and safety, parental concerns (Scott *et al.* 2022) being a few. When considering curriculums, New Zealand's *Te Whāriki* curriculum is a strong advocate for outdoor learning. Much like the Welsh Curriculum, Department of Education (2026) expresses New Zealand's curriculum declares young children should be supported to investigate, discover, appreciate, and understand the world around them and their exploration involve every part of their environment. The Welsh curriculum and New Zealand's curriculum also ties in with the UN Convention Rights of a Child particularly with article 29 in respecting the environment (UNICEF, no date).

In conclusion the benefit to outdoor learning goes beyond mathematic and scientific concepts and can support holistic development. It does not have to cost money, and the natural environment provide opportunities for learning. Working in line with the curriculum and frameworks will give a holistic approach to working outdoors and enable adults to integrate mathematical and scientific concepts. However, despite the evidence of supporting learning, there are still a multitude of reasons to why affordance of outdoor learning is lacking (Waters, 2017). From researching it is apparent that teachers do not feel confident or enjoy the outdoors and there appears to be little or no training on this area. Not encouraging and promoting outdoor education will have a negative effect on children with learning to observe, explore and experiment. Therefore, given the evidence to support the importance of outdoors, more training needs to happen for staff to feel confident in delivering outdoor learning and can model and scaffold effectively.

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