

Task 1 – Photograph



(Source: Herdman, 2023)

Task 2 – The Learning Journey

The photograph that has been taken for this piece of work shows an expanse of open-ended play opportunities for children to conduct. The children can explore, investigate, question and experiment in the environment, which allows for a holistic way of learning mathematical and scientific concepts in the outdoors.

We decided to go to the school field today, as we read a book on insects and it provided lots of discussions on insects, wildlife, and the outdoors.



(Source: Adventures in Storytime (and beyond), 2023)

The children were putting on their wet weather gear and I pretended to put my wellies on a child, they said, “no, that’s too big for me, I’m little”, so I asked, “who has big feet then?” the child laughed, and said, “you have big feet”. We measured feet and I agreed, so I put the welly on.



(Source: Stockport Grammar School, 2021)

We stepped into the field and a flock of birds flew from the trees, a child shouted, “that frightened me, there were loads, how did they fit in the tree?” One child said, “ I can climb up there, watch,” he ran over to the tree and started to climb, while another tried to swing from a branch which promptly snapped. Another child said, “it’s too tall, you need a ladder,” a different child said, “ no, you are too heavy it will snap like it just did, birds are light.”



(Source: Bigstock, no date)

I asked if the children would like to find objects that they think are heavy and light so we could investigate them, some joined in whilst others went to a different tree which had fallen and started to walk across the trunk, they started to think about how it had fallen and after discussion they decided “the wind did it”.

I provided the children with baskets and left rulers, measuring tapes, and weighing scales nearby. The children collected items and showed each other what they had found, one child said, “ I’ve got the heaviest mine is huge, see?” Another child said, “no that will be light, it’s a stick”, then a child shouted, “I need help,” so I went over to help them collect a rock that they said “will be heavy as my grandad throws rocks in the river and makes a big splash”, I brought it back to where the children were and sat with them as they explored, investigated and questioned each other. They took turns using the tools and discussed colours, shapes, sizes, and weights of the items. After a while they all agreed that the rock was the heaviest and the flower was the lightest, but the big stick was “cool” and wanted to bring it back to school. This activity links to the exploring pathway in the non-maintained curriculum where children are given opportunities to explore, investigate and discover in their environments Welsh Government (2022) and progression step 1 of the mathematical and numeracy section in the new curriculum where it states I can investigate, collect, and record data found in my environment Welsh Government (2022).



(Source: Sarah Ransome, no date)

I then went over to children looking at some bushes, I listened to their conversations about spiders, and how they found webs everywhere, so this “must” be where they live, so I offered them magnifying glasses. I also provided pots and factual books. The children continued to search until one child said, “I’ve found something,” the other children went over to look. One child declared “it is an ant, another child said “no it’s too big” then the third child asked if I knew what it was, so I suggested we had a look in the books to see if we could find it. We all searched the books to see if we could match the insect, then a child said, “it’s a millipede, and showed us a picture from her book, but the other children disagreed and said, “a millepede has a million legs, and this has 1,2,3,4,5,6 legs,”. We continued to search the books when a child said, “I think I’ve found it”, the children looked back and forth at the insect and agreed, we had found an earwig. I read facts about the ear wig like where they live and what they eat. I then asked where we should return him too and they said we should take him back to where we found him, so he was able to go back into the dark like we had just learnt.



(Source: Go Valley Kids, 2023)

Another group of children had collected different items for a den. They had a range of sticks, stones, and leaves and decided to use the big tree as support, so that it made a “big circle triangle around the trunk.” They placed the sticks against the tree, but when they looked, they realised they were “too small” even after placing them at different angles, “right let’s sort the sticks out, we need long sticks so that we can all fit in” said one child. The children sorted the sticks into categories of “short” and “long” and realised that they did not have enough long sticks so set off to find more. They then started to construct the den, but the sticks kept falling, I suggested they

dug the sticks into the ground, and one child said, “good idea”. A child tried to push the stick into the ground, but it wouldn’t work, I said “what do you think we need to do if one of you cannot push this stick in the ground?” another child shouted, “we all do it”, so they each stood around the stick and pushed, and it went into the ground.



(Source: Play of the wild, 2019)

Once the sticks were “safe” they evaluated and decided they needed “carpet,” one child said, “it must be soft,” so they decided the softest thing they had were the leaves, so laid those on the floor. One child asked, “why are there so many leaves on the floor?” I explained that the seasons are changing, and we are now starting to experience Autumn, a child interrupted and said, “in Autumn leaves fall off trees and change colour,” I agreed, then another child said, “and the squirrels shake them off when they collect acorns ready for Winter when there isn’t any food for them”.



(Source: Have fun outdoors, 2022)

The children stepped back and admired their den, but noticed the items they had left, “what can we do with the other bits?” said one child. “We could make pictures”. The children each created a picture, one made “just circle stones,” whilst others used all the items, but followed similar patterns. This activity links to the physical pathway Welsh Government (2022) where the child is able to express themselves in large and small spaces and the science and technology progression step 1 Welsh Government (2020) in exploring properties of materials and choosing different types of material for particular uses.



(Source: Childhood by Nature, 2018)

Just before we left, we sat down and looked through the items we had collected, we took turns in investigating and discussing what we could use them for. We discussed how our time would be different if it were a different type of weather or season and the children all agreed that they enjoyed having the freedom to run and explore.

Task 3**RISK BENEFIT ASSESSMENT**

Location / Activity:	School Field	Date:	17 th September 2023
Assessor:	Natalie Herdman	Review date:	17 th October 2023

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
Exploring the area including to find items such as conkers, stones, leaves, sticks, plants, insects, and wildlife	Opportunities for exploring the environment, make observations and communicate ideas. Opportunities to count and sequence items that they can touch. Physical development of gross and fine motor skills as they reach, collect and bend for items. Develops immunity to germs as they collect items.	Children could wander off. Fallen trees, branches which could lead to injuries such as scratches, infections, bruises. Bites, stings – Allergies to bites Poisonous plants, such as nettles Dangerous items could be in the field – such as	Children and adults	Ensure ratios are maintained. Staff are to be vigilant of all areas – look out for any potential dangers and rectify. Appropriate clothing worn. Guidance given to children about where they can and cannot go. First aid kit, mobile phone and qualified first aider to attend walk. Awareness of everyone's medical needs.	L

	Develops social and communication skills. Allows for exploration, investigation, and curiosity to be developed. Opportunities for schema play	rubbish and animal faeces. ‘Stranger danger’ – nobody other than school staff should have access but be aware.		Activities of warning prior to attendance on what is dangerous, e.g., nettles, glass, and strangers. Reminders to children not to taste anything. Use water provided to wash hands	
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
Walking on diverse types of uneven surfaces	Opportunities to develop spatial awareness. Supports the development of vestibular balance and proprioception. Develops opportunities for mathematical and scientific language and understanding of gradients, textures, and forces. Opportunities to develop coordination.	Slips, trips, and falls which could cause injuries such as cuts, bruises, sprains, and other injuries	Children and adults	Appropriate footwear to be worn. First aid kit, mobile phone and qualified first aider to attend walk. Staff are to be vigilant of all areas – look out for any potential dangers and rectify. Prior to attending the field, children given opportunities to develop walking on different surfaces such as using	L

				steppingstones, and wobble boards to walk along. Discussions on walking slowly to start with to allow them to become familiar with new surfaces. Ensure ratios are maintained.	
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
Bug hunting	Opportunities for learning about living things. Opportunities to share curiosities with others. Opportunities to build empathy for the world around them	Bites, stings – Allergies to bites Overgrown bushes could lead to injuries such as scratches and infections. Slip, trips, and falls could cause bruising and sprains.	Children and adults	First aid kit, mobile phone and qualified first aider to attend walk. Staff are to be vigilant of all areas – look out for any potential dangers and rectify. Awareness of any allergies Ensure ratios are maintained. Discussions of dangerous plants and insects prior to visit	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
Den building	Opportunities to explore properties of materials for certain uses. Opportunities for types of schema play Opportunities to develop mathematical and scientific understanding as they discuss number, size, weight, colours, and shapes. Opportunities for creativity, imagination, and teamwork. Develops problem-solving skills. Opportunities for proprioception skills to be developed.	Slips, trips, and falls could cause injuries such as cuts, bruises, sprains, and other injuries. Items collected could cause cuts, bruises, or infections	Children and adults	Adult supervision and ratios maintained. Staff are to be vigilant of all areas – look out for any potential dangers and rectify. First aid kit, mobile phone and qualified first aider to attend walk. Prior discussions on risk of items likely to be found in the field.	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
Freedom of space which allows children to run, jump, roll, crawl, and climb	Ability to be curious about how they can interact physically with the world around them. Ability to explore movement and direction and develop their muscles. Develop their understanding of different textures, from soft grass to hard stones, and sticks. Develop their understanding of the world around them – seasons and how different weather can alter the environment. Ability to be free from the constraints of the classroom and dictate their own learning through their interests.	Children may wander off. Risky play where they are more active may cause slips, trips and falls, cuts, and bruises.	Children and adults	Ensure ratios are maintained. Appropriate clothing worn. First aid kit, mobile phone and qualified first aider to attend walk. Guidance given prior to walk on where children can and cannot go.	L

	Supports the development of vestibular balance and proprioception				
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Task 4

The role of the adult in supporting and engaging children in mathematical and scientific concepts in the outdoors is essential, as they facilitate the child's play by providing an engaging environment which encourages curiosity, discovery, experimentation, and prediction (Welsh Government 2022).

Learning through Landscapes (2023a and 2023b) maintains the outdoors can provide opportunities for children to experience mathematical and scientific exploration in ways, such as weather, seasons, building, matching, sorting, learning about minibeast and wildlife.

Tovey (no date) suggests that the Froebelian approach has an increasing relevance for children's play and learning as Froebel believes that children learn best through self-directed first-hand experiences, which offers the space and freedom to try new things like exploring, experimenting, and investigating the world around them. This enables children to learn concepts such as speed, gravity, and gradients. If adults create this environment Froebel believes it would develop a child's imagination, curiosity, and creativity. Tovey (2013) says that an adult needs to be able to observe, support and extend on children's learning, encourage curiosity and questions, and help them to problem solve. Adults should help children to reflect and extend their thinking by having meaningful conversations. However, if the adult does not have the ability to nurture a child's curiosity and engagement, they could lose opportunities for learning.

Bilton (2010) agrees with Froebel and states that being outdoors enables children to have space and time to follow their current interests. White (2020) concurs with Froebel and Bilton (2010) and states that given the choice outdoors is where children are most likely to choose to play, so providing opportunities for real life experiences and playful exploration enables them to learn about the world around them.

According to Pound (2006) Malaguzzi also agrees with Froebel and claims outdoors to be the 'third teacher'. Malaguzzi suggests that the adults are to be partners, nurturers, guides, and researchers to the children as they play outdoors.

Tinney (2022) says that adults need to take time to evaluate the outdoor environment, as it is an integral part of a child's learning experience. Tinney (2022) believes that an adult's role is to observe children and adapt areas in accordance with their play, they may provide loose parts which develops children's imagination, curiosity, and creativity, or they could allow risky play, but take time to explain the risks rather than not allowing them. This will develop the child's confidence and enable them to be more competent which links closely with the four purposes in the Welsh Government (2021) new curriculum for schools and the Welsh Government (2022) curriculum for the non-maintained settings, as they want children to be ambitious, capable learners, enterprising and creative contributors, ethical and informed citizens and healthy and confident individuals.

Additionally, Play Scotland (no date) says that loose part play is more widely acknowledged after Simon Nicholson's article the theory of loose parts. Nicholson recognised that children have a need to make and build things, which develops their curiosity and supports their discovery and invention which supports mathematical and scientific learning. Play Scotland (no date) also discussed Gibson's (1979) affordance theory, which describes how everybody views things differently and suggests that allowing children to experience the outdoors in their own way enables them to develop discovery and invention. Both theories are brought to life in the outdoors as children can explore a variety of loose parts which allows their imagination to develop. Lastly Play Scotland (no date) say that an adult's role in this type of play is to recognise children's play processes and assist in their learning when needed.

Pratt (2011) believes that if children are provided with opportunities for outdoor play, it enhances their ability to learn mathematical concepts as the outdoors provides authentic real-life experiences which allows children to learn through their senses.

Carbon (2013) agrees that children learn through their senses and says that being outdoors provides perfect opportunities for exploration, as it enables children to

scaffold their learning, as they can feel the weight of items they find, they can see the colours of things which will further develop their knowledge.

Gompertz, Hincks, Hincks Knight (2011) says that children learn scientific concepts in the outdoors as it enables them to connect with the world around them and begin to see how things work. In being outdoors their observational skills develop and they start to realise the effect they have on the world and develop a sense of empathy for living things.

Learning through Landscapes, (2023c) state that the Welsh Government believe outdoor learning has potential to develop mathematical and scientific skills such as enabling pupils to develop their imagination and curiosity, allows them to gain empathy for the environment and enables them to assess and experience risk which develops their resilience and confidence. Welsh Government (2022) suggests that the new curriculum will provide rich and authentic opportunities to stimulate the children's senses, which links to Pratt (2011) and Carbon (2013) research into how young children learn mathematical and scientific concepts through their senses.

Worth (2020) suggests that young children are not simply curious questioners, they like to actively take part and think about things. They are motivated by the need to know, so that they can understand and make sense of the world, which is why the adult must have the same motivation to develop the children's natural curiosity of scientific enquiry. Worth (2020) says that adults need to provide stimulating environments with exposure to the natural world and be able to model, mentor, challenge and guide young children. Worth (2020) also points out that for children to develop an understanding they need to have formed relationships to allow for cooperative and collaborative conversations, they need to be able to share thinking, listen to others and debate any ideas which allows for scientific enquiry where they ask questions, use prior knowledge to predict, and plan what to do next.

Skinner and Stevens (2012) point out that children can learn mathematical concepts through being actively involved, exploring, being creative and thinking in a critical way. Skinner and Stevens (2012) believe that adults need to be co-players and children need to be the co planners of their learning and believe that outdoors is a way in which children can learn about mathematical concepts in a larger and more natural way, as there are opportunities for den building, digging, climbing, making

potions, and finding collections of different items. When the children conduct these types of activities it allows for them to marvel, discover, and take risks that they may not be able to do inside.

However, research undertaken by Bento and Dias (2017) suggests that time outdoors is being restricted due to changes in society, which is disconnecting people from the natural world. Bento and Dias' (2017) research found that a culture of fear can affect how the adult feels towards outdoor play.

Bento and Dais (2017) research recognised the work of a rural kindergarten who took the initiative to create an outdoor project, however they did not use the outdoors as they found the indoors to be safer, so to overcome this they provided training and asked the adults to carry out observations on the children whilst playing outdoors, which showed children taking risks, socializing and connecting with the natural environment.

Benton and Dais (2017) say that exploring the natural world is important to capture children's attention and interest in the world around them. A child's sense of discovery and fascination can enable them to make connections with the natural world and enable mathematical and scientific concepts to be learnt, such as weight, volume, and time as they use the natural resources available to them. The adults in this environment also must feel comfortable and motivated during their time outdoors otherwise it will affect how the children view the outdoors.

Furthermore, Bilton (2020) conducted research into how teachers felt about outdoor teaching and acknowledged that values have an impact on how teachers view outdoor learning, the research showed, teachers who valued the outdoors were those who themselves had good experiences as a child. Another item to note was the lack of training into outdoor provision, as many of the teachers gave limited responses to what children can learn in the outdoors, so if training was provided would this be worthwhile if the teacher had adverse feelings towards the outdoors? Research undertaken by (Kalburan, 2022, p.1-15) investigated how preschool teachers developed after undertaking training on outdoor learning. Research demonstrated that like (Bilton, 2020, p.12-20) it showed that play experiences can be affected by teachers' values, knowledge, and experiences. However, the research

showed how the course had evolved their pedagogical approach in children's development and their own personal development.

Moreover, Learning through Landscapes (no date) agrees with (Bilton, 2020, p.12-20) and believe that for children to gain the best out of the outdoors you need to have adults who value and enjoy being outdoors themselves. The adults need to recognise the potential of supporting children's development and be able to create a stimulating environment, which promotes experimentation, discovery, and curiosity which are skills linked to mathematical and scientific thinking.

Additionally, according to Waters and Rekers (2019) research is being undertaken into the outdoor classroom, and some of the items under consideration are the impact on risk negotiations and early scientific enquiry as children explore the natural world around them. Waters and Rekers (2019) acknowledge that for this type of learning to take place there are several issues to consider. Firstly, adults responsible for the children will need to understand the children and their development, so the child's play becomes a learning experience without the need for adult led activities. Secondly, Waters and Rekers (2019) acknowledge the availability of quality outdoor spaces and adult's own values and feelings towards the outdoors, especially regarding risk due to litigation and own fears. Lastly, inclement weather can be a barrier due to adults in the setting and parental views.

However, Ryder Richardson (2014) believes the outdoors provides deeply engaging experiences for children with opportunities for learning about items such as living things, plants and many other real-life materials and says that adults are crucial to unlocking children's potential. Ryder Richardson (2014) states that adults mostly have a more relaxed approach to the outdoors and will play more with the children, which in turn means that the children respond differently as some are less inhibited in the outdoors. This links to research undertaken by McInnes et al. (2013) who say that children who are given more opportunities for self-directed play with an adult nearby watching for play cues, develop a greater use of language as they see the adult as a support in their play.

White (2011) agrees with Ryder Richardson (2014) and says that children need engaging adults who value and enjoy the outdoors, as they can see the potential outdoors can have for the children's well-being and all areas of development

including mathematics and science. White (2014) acknowledges that there are barriers to children being outdoors such as parents concerns over safety, but stresses that it is the job of the adults to facilitate opportunities for outdoor play.

White (2011) also acknowledges research by (Waller, 2007) who describes the adults role as a reflector, thinker, researcher and the co-constructors of knowledge and believes that having these skills adults are able to identify and build on children's interests, scaffold their play, provide opportunities for child-initiated play and enable them to impart information about the natural world and their environment which allows for sustained shared thinking.

Lastly, the Welsh Government (2022) recognise the importance of engaging experiences, environments and adults and believe that for meaningful and holistic learning to take place it starts with the adult. The adult needs to be interested and skilful in what they are providing and must be observant as the children play, so that they can plan enriching experiences linking to the children's needs and interests. When the children are exposed to the engaging experiences and environments this will allow for cross curricular learning as the children will be exposed to natural ways of learning skills, such as quantity, number, shapes, and patterns and be able to compare, sort and identify items. The authentic experiences allow the children to connect with the world around them and gain an understanding of how they can look after it and will be able to learn how things work and solve problems.

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