

Part 1

Outdoor play area. (Pearson, 2023)

2. The photograph I have taken and chosen is an enclosed area within grounds of a school which is used for childcare. The area is enclosed and has various different slopes and levels as well as different ground coverings such as grass and concrete pathway, together with trees and a tree trunk. It is an interesting landscape with different surfaces, gradients and features. Children using this area are between the ages of 2 and 4 years old and are encouraged to use curiosity, discovery and experimentation to increase their holistic learning opportunities. The outdoor environment lends itself to so many ways of developing mathematics and science concepts.

Although there are many learning and development areas for children within the area chosen already I decided to enhance the provision for them further to develop mathematical, numeracy and science skills. One of the key benefits of outdoor play is building on the concepts of maths and science. Before children even start to perceive their playing is mathematical, we are helping the children to prevent, lessen or challenge them from developing negative connotations regarding mathematics.

Mathematical, numeracy and science experiences outside can be endless. Here are some of my ideas of how I would like to enhance the area. The fallen tree trunk is a place to sit as well as a place to find mini-beasts and discover the life cycle of them. Looking at all the natural resources such as the trees, fallen tree trunk, grass, weeds, flowers there are natural loose parts such as berries, stones, boulders and cones. There are so many mathematical and science opportunities to learn from whilst playing.

As stated in A Curriculum for funded non-maintained nursery settings the environment that we provide for the children should be paramount to children's authentic experiences and through their exploration of the environment they will develop a sense of belonging and an understanding and appreciation of the world around them.

Bucket scales are added to the grounds to encourage the children to weigh and measure. They can do this by weighting stones, cones, shells and other loose parts to measure and compare. Questions can be asked such as 'What do you think will be the heaviest?' 'Why do you think that?' 'Why do you think that will happen?'

Kicking some balls to measure distance is both fun and intuitive and encouraging the children to come up with ideas of how to measure the distances also.

Collecting and measuring sticks of different shapes and sizes is enjoyable and then asking them to make a length such as the length of one of their peers using a natural material such as twigs and sticks encourages them to learn about length as well as seeing how many they will need to make that distance. Providing the children with baskets to collect the items, counting the items and then discussing the properties of the items before they do their estimates and measuring tasks. Providing the children with magnifying glasses also encourages the children to use their curiosity and discovery. Exploring mathematics opportunities in the outdoors is endless.

According to A curriculum for funded non-maintained nursery settings, the outdoor environment provides opportunities that inspire awe and wonder allowing each child to be individual and explore the world around them. Whilst assessing risk outside, the outdoors helps in

the development of resilience and confidence. Children love to play and experiment with a selection of materials and learn about their properties. Different textures and tools outdoors offers authentic opportunities.

A must in the outdoor area is a mud kitchen. This encourages holistic development. Measuring with a water jug in the kitchen and talking about more or less water, experimenting with the mud as to whether it is too runny of thick develops experimental and chemistry skills. Measuring and weighing with the saucepans and pans and the mud in different thicknesses depending on the water added offers curiosity and exploration activities. Using scales the children can experiment by measuring the weights on leaves, sticks, mud, stones and any other materials that they can weigh and comparing them about each other whilst thinking if we add more to this or take some away what will happen.

Using clay to press onto different shapes such as tree bark and then removing to reveal the shape on the imprint is interesting and exciting for children to see and do. It gives them a chance to think as to how and why the print would be on the clay.

Making patterns on leaf bunting from leaves which the children can collect and thread onto string or twine in a sequence is an important part of pattern making. Plenty of string is provided so that any children that want to can join in and make their own bunting. Also the children are encouraged to find sticks and then to collect whatever interests them in the outdoor area to put onto the sticks. They can use different sizes, colours and shapes and compare with the patterns too.

There is plenty of space for the children to run around whilst using their gross motor skills and then the tasks such as the collecting of items are encouraging the use of fine motor skills. This physical development connects to both science and maths.

Different schemas test different mathematical and scientific concepts and children show an interest in them.

Making a music wall from shapes and attaching to one of the tree trunks is something to do with the children and have their input and suggestions involved in making it. Attaching different shapes of pans, pan lids, dustbin lids, different size tins, cylindrical wind chimes, triangles and long chime bars all add to form a successful music wall. The children can sort them according to their shape or size and this gives opportunity for the impact of the attributes to be explored such as shape, composite material and size.

Rolling down the banks and the uneven grounds and slopes after a risk benefit assessment teaches the children about gravity. They can roll cars or stones or other items down the slopes and they can see how gravity works. They can measure speed also and see what gets down the slope the fastest and whether they are the biggest or smallest items. Rolling tyres down the bank and racing them encourages the children to investigate speed.

The freedom to play, investigate, question and experiment creates a mathematically rich environment and this is created by children having the freedom to play whilst investigating, questioning and experimenting with open ended resources and loose parts such as sand, water, mud and gravel.

Mathematics, numeracy and science link with other areas of learning experiences. All of these experiences put together in the above environment invite many learning opportunities in mathematics, numeracy and science through learning through play for the children encouraging them to be ambitious, capable learners and enterprising, creative contributors as stated in a curriculum for funded non-maintained nursery settings.

I follow in our setting the child-led approach encouraging curiosity and awe and wonder and I would have the above resources readily available. I would however wait and follow the children, encourage their curiosity about learning about the world around them and provide what is needed to enhance their holistic development.

3. RISK BENEFIT ASSESSMENT

Location / Activity:	Outside area	**Date:**	26th September 2023
Assessor:	Sharon Pearson	**Review date:**	26th October 2023 or earlier if necessary

The boxes in the table below will expand as you type into them; pre-entered text is simply for illustration. You should delete irrelevant items and replace with text relevant to your circumstances.
Your overall risk rating – Low, medium or high – is based on your judgement about whether the BENEFITS of the activity or opportunity outweigh the RISKS.

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

Outdoor play-weather – rainfall, hail, frost, ice, snow. Cold, sun, heat, wind, fog, electrical storm	Children experience different weather at a safe level with suitable clothing	Adults and children – injury from slips, trips and falls, chilblains, ingestion of snow, heatstroke, sunstroke, sunburn, sun damage, dehydration. Injury from falling debris, irritation to eyes/ears.	Adults and children	• First Aid Kit and First Aid trained staff to be available at all times when children are outdoors • Staff to be vigilent at all times • Parents/carers are encouraged to supply appropriate clothing for the weather and a change of clothes. There is a supply of spare clothes in Wraparound. • Depending on how heavy the rain/hail, the children may have to return indoors • Reduce area of play if necessary • Area of shelter provided • Gritting and/or snow removal from pathways • Discussion with children about safety in relation to weather • Outdoor play to end should there be too much ice to play safely • Outdoor play to be restricted to shorter periods throughout the day where necessary • Parents/carers are asked to apply sun-cream that will last for the duration of their child's session and also sun hats • Staff to be mindful of duration of exposure and times of day as per 'sun safe' guidelines • Children and adults encouraged to drink more water	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
				• Any falling trees or plants to be put out of bounds • Fences etc checked on an on-going basis • Areas to be swept regularly • Outdoor play to end if debris or severity of wind causes risk • If fog is too think to allow full visual of all children, reduce the play area size • If fog severe and visibility of all children is unsafe, outdoor play to end • If electrical storm, no outdoor play	

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 surfaces, drains, pile of leaves	Learning about risk taking, balance	Adults and children – may slip, trip and fall and injure themselves	Adults and children	• Outside area checked before use each day • Drains are covered with yellow anti-slip paint • Leaves are swept and disposed of • Grass is cut regularly • Obstacles are removed • Staff supervision at all times	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
Animals - insects	Children make new discoveries and observations and learn different concepts.	Adults and children – Insect bites, stings, allergies, animal faeces	Adults and children	• Report significant amount of bees/wasps to NPS and if a nest is present/suspected. Restrict access to area if bees/wasps are swarming or if there is an excessive number present • Outdoor area to be visually inspected daily for animal waste and if present disposed of appropriately using disposable gloves. Contact the caretaker. • Staff are aware of any children with allergies • First Aid Kit and First Aid trained staff to be available at all times when children are outdoors	L
Poisonous plants/shrubs	Outdoor learning and children get shown what to avoid and not touch	Adults and children – hurt by plants, pricks, cuts, stings,	Adult and children	• Daily checks of poisonous plants/shrubs ensure they are cleared by the caretaker	L

Digging, planting and mud kitchen	Enabling children to use a sensory experience to play and create whilst outside	Children – compost in eyes or mouth, possible slip hazard, Mis-use of tools resulting in injury/cutting self or others	Children	• Commercially bought compost used only for planting • Compost will be promptly rinsed out of eyes or mouths • Children are instructed before starting of the dangers involved and the proper behaviour expected particularly in relation to throwing compost at other children and the use of the tools safely • Equipment is checked and cleaned regularly • Planting activities are done outside • The ground is swept after activity time and during the session if needed to prevent slips • Dustpans and brushes are easily accessible to the children and they are encouraged to sweep up themselves • Compost swept up is disposed of and not reused • Digging and planting tools and tools on mud kitchen is appropriate and safe and checked for defects • Only appropriate soil is used in mud kitchen • Children and staff wear appropriate clothing	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
Rolling down the bank and rolling loose parts down the bank	Turn taking, risk taking	Children rolling themselves or loose parts into each other and children slipping.	Children	• Staff to be vigilent at all times • Risks explained to children about ensuring they take it in turns • One child at a time in same area • Access ground and if too hard or slippery activity not to take place • Ensuring turn taking • Ensuring loose parts are not pushed down bank into a child	L
Use of loose parts,open-ended resources, sticks, cones, leaves, stones, berries, gravel and other materials	Opportunities to prompt curiosity and exploration	Children putting parts in their eyes or mouth and choking.		• Staff to be vigilent at all times • Children to be explained to about using loose parts safely and not putting in their mouth or eyes • Children explained to about the safety of sharp sticks and sticks that maybe at eye level to them.	

Sand activities	Enhance motor skills, creativity, speech and language, social skills, developing concepts of science and mathematics	Children – sand in eyes or mouth. Possible slip hazard, hygiene.	Children	• Child-safe commercially purchased play sand only to be used • Sand table at safe height for children using it • Sand will be promptly rinsed out of eyes or mouths • Children are instructed before starting of the dangers involved and the proper behaviour expected particularly in relation to throwing sand at other children • Space on registration form for parents/carers to advise us of any allergies • The sand is regularly disposed of and replaced. • Equipment is cleaned regularly • The floor is swept after activity time and during the session if needed • Dustpans and brushes are easily accessible to the children and they are encouraged to sweep up themselves • Sand swept up is disposed of and not reused	

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
Water play		Children – slip hazard. Risk of skin irritation from additives to water such as bubbles, glitter, colouring, foam etc, Risk of child falling in, Children drinking the water	Children	• Supervision of the children at all times and correct staff:child ratios • Puddles and large spills cleaned up • Water changed regularly • Water table at safe height for children using it • Children are warned of the dangers of tipping the water outside of the tray and slipping and falling on water spills • Children are not allowed to climb on the sides of the tray or get into the tray • Children will wear protective aprons during the activity • Space on registration form for parents/carers to advise us of any allergies • Children in limited numbers at any one time to participate with the water activities at any one time • Any activity containing water is directly supervised • Children are instructed before starting the activity of the dangers involved and proper behaviour expected particularly in relation to drinking or putting their face into the water	L

4.

According to Boaler (2016) building confidence in maths concepts through outdoor play is a key benefit to children before they realise that their play is mathematical and this in turn helps reduce or even stop the negativities of the subject developing.

Furthermore Boaler (2016) emphasises the need for practitioners to actually show an interest in mathematics and display enthusiasm also. It makes a significant difference to the children seeing the practitioners having fun with maths together with modelling the activities for maths.

Patet (2015) suggests that practitioners can enhance the outdoor provision with maths play in many ways which includes embedding maths into the daily activities. Making the most of the fact that children are actually the overwhelming evidence of their own achievements and learning in maths and extending this further rather than work sheets will develop the children's learning. Practitioners need to watch and listen to what the children are actually doing through play and listen to their interests and what they enjoy doing when they are outside and the through the use of different resources, single prompts and investigations they can extend the children's learning and support the independent mathematical play of the children.

Patet (2015) also states that it is crucial to encourage children to try an experiment with maths without the fear of making mistakes. They need to try and have a go and using teachable moments at the correct time practitioners should offer ideas and challenges to articulate the thinking of the children. This includes encouraging the children to ask questions and talk about any mathematical problems that arise.

Soto-Johnson (2016) suggests that by the practitioner asking probing questions and repeating words and gestures, they are actually helping the children to articulate their thinking. Furthermore, White (2015) agrees with this by stating that that children need to be able to use the whole of their bodies to use maths. This can be encouraged by ensuring the children have experiences through movement and action to give them bodily felt understandings about concepts that can later be drawn upon more intellectually for example thinking about weight and size.

The EYFS (DfE, 2020) emphasises how beneficial the outdoors is for the children's learning and development and states that the outdoor learning should happen each day. It is the role of the practitioner to ensure that opportunities for the children are provided with the use of open-ended resources and loose parts such as pinecones, conkers, leaves and twigs to enhance the children's learning of mathematics and science in the outdoors. The areas have to be risk assessed first to make sure that the environment is safe. Checking the weather is important and ensuring the practitioners and the children all have suitable clothing so that the weather does not stop the children from playing outdoors. The practitioner needs to ensure that materials are easily accessible for the children to get themselves to enable them to promote independence and the child's initiative and the areas restocked, maintained and enhanced appropriately.

According to Bottrill (2022) the practitioner needs to ensure that the outdoor educational experience for the children is not restricted and limited. It needs to be open-ended and the learning experiences waiting to happen. It needs to be an enabling and nurturing environment that the children feel comfortable in and then in turn they will learn and their mathematical and scientific skills, to name just two will develop and be enhanced. Bottrill encourages the opportunities for children to risk take, collaborate, explore and interpret which are all mathematical skills. Children should be involved in the risk benefit assessment and discussing with the practitioner will enable the children to learn to understand the different concepts.

According to Welsh Government (2020), the role of the adult includes modelling a positive approach to learning, whilst encouraging and supporting children's natural curiosity. Also taking each teaching moment and making the best of those times whilst observing and engaging in play. It is during these times that the moments can be grasped and the learning journey developed. Creating an effective environment is important, offering opportunities for children to participate in them experiencing a sense of awe and wonder, whilst developing their creativity and critical thinking, encouraging them to solve problems such as mathematical tasks, inspiring motivation for exploring and giving opportunities for curiosity about the world around them.

Welsh Government (2020) states that the practitioner needs to ensure that the environment is well-planned and organised and that outdoor provision to enhance the holistic development of children needs to scaffold the children's understanding of mathematical concepts such as numbers, shapes, sorting whilst outdoors as well as indoors. In an outdoor environment children can enhance and develop their skills. The outdoors offers opportunities to inspire awe and wonder and through this encourages children to be children. In other words they can be themselves and investigate, engage and connect with the natural world and take all the learning opportunities offered to them. The role of the practitioner is to stand back and wait and then to encourage and offer help and support in moving the child forward as and when is necessary. When outdoors the children can explore and this can help them in developing their abilities to assess and also to develop resilience and confidence. Authentic and purposeful learning is paramount to the children's development as it allows them to learn in a real-life situation and then the skills learned can be applied in other areas such as mathematical learning. Children are curious and need to be given the chance to investigate mathematical concepts in each session within the natural world outside and supported by the practitioner with all the open-ended opportunities and loose parts for mathematical exploration.

With the help and support of the practitioner and using the appropriate mathematical language and skills, the children will learn that mathematics is everywhere and by them using the necessary skills that their mathematical understanding will help them develop their strategic competence. Encouragement for problem-solving is important also giving the children time to explore, investigate, observe and experiment.

According to Bottrill (2022) and Ephgrave (2018) and Ephgrave (2020) the outside are should not be a mirror of the indoor area, just outside. It should give children the chance to do risk-taking, collaboration and to be curious and explore and interpret in their own way rather than the practitioner just telling them. It needs to be a child-led experience with the practitioner seeing a teaching moment and grasping it.

Robertson (2020)describes how Froebel advocated play and how children should have free play which is child let and a hands on experience. He believed in children learning through play through the curiosity approach and doing for themselves rather than watching. This was the start of pedagogy. The curriculum for funded non-maintained nursery settings uses the ideas of Froebel. Children learn from the natural world with adults facilitating the children and enabling them to learn from nature and the curriculum for non-maintained nursery settings. Froebel's way of thinking was to encourage children to learn through partaking in outdoor open-ended experiences and exploration or mathematics at the same time whilst considering that mathematics connects the inner self of the child with the outdoors. Furthermore the development of the child is a result of the child's physical, emotional and intellectual needs. According to Joyce (2012) the outdoors is described by Froebel as being 'a garden of, and for, growing children'. It is a blank canvas for children to go outdoor and experience texture, awe and wonder, concentration of observing and feeling, textures and open-ended exploration enabling the child and the world to be inter-connected through these learning experiences. However it is important to remember a key fact that Froebel believed in and that is the importance of children being able to learn at their own speed and they should not be rushed or have a specific time frame. (Clark, 2023) Children should be able to draw on their own knowledge and experiences and extend on those according to Froebel (Bruce, 2020) whereas Jarvis (2020) puts demands on the children with targets that are age related from when they are young and advocates assessments.

Children become teachers themselves and gain parenting skills and patience as they teach each other. According to Howard (2017) Vygotsky emphasised the importance of children learning through play and their understanding of the world is constructed with the adult being a key to support and scaffold. Like the adult children can act as a facilitator to learning and development.

Reeker and McCree (2022) discuss the importance of the adult in the holistic development of the child and in supporting the children's play. It is a case of stepping back from what the children are doing and then observing, assessing, planning and reflecting. Adults need to join in at the right time by supporting, extending, modelling, validating, initiating and intervening. Getting the balance right in the setting and knowing when to intervene can prove problematic according to Fisher (2016) and freely chosen play can be influenced by affordance, adult involvement or no adult involvement and may not be as freely chosen as maybe liked. (King and Howard, 2016 and Wood (2013). From the above it can be understood that the role of the adult is important to children in play but it has to be done correctly allowing children to learn for themselves but being there to support and extend.

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