

The photograph below is an example to demonstrate the features of outdoor play that encourage curiosity and allow children the opportunity to explore and develop scientific and mathematical ideas and knowledge.



Source: Pinterest, 2016

Omidvar, et al. (2019) states that the Reggio Emilia approach (directed by Malaguzzi) which highlights the significance of interacting with nature, promoting the development of young children through learning by playing outdoors. This approach is accordant with Piaget's (1973) theory, which promotes active learning and describes a child's role as the experimenter. Piaget describes children as “little scientists”. Children

are treated like researchers, creating their own questions, hypothesizing alternatives, and exploring the results. Phetlhu, (2014), argues that Piaget's theory and Vygotsky's criticism and input on to the theory has played a part in establishing play as dominating the developmental stage of preschool children everywhere. However, it is argued that the validity of Vygotsky's and Piaget's theory is not able to be tested due to background differences.

The outdoor environment possesses innumerable features that support the scientific and mathematical learning that children require. An example of this would be sloping or uneven surfaces, as seen below.



Source: Pinterest, 2016

A slope is helpful towards learning as it can teach a child things like energy and forces. It promotes intellectual development within mathematics and science. Sliding down a slope can help a child understand what forces are, such as how gravity is what keeps humans on the ground and why things fall. Sliding down a slope teaches children what friction is. Friction acts upon the object moving opposite. For example, the child sliding down the slope. Children also learn as they slide down a slope is that friction cancels out part of the force that is creating the motion. As a result,

it has an impact on the speed at which the child is sliding down the slope. This will teach the child that the amount of friction present, influences acceleration. Sliding down a slope can also teach a child that the gradient of a slope also alters the speed at which they slide down. For example, a steeper slope would mean sliding at a quicker speed. Children may desire to build a ramp on the slope. This encourages, sustained shared thinking and developing communication skills with adults and peers. Building a ramp on the slope would support physical development and knowledge of how bodies work. By building ramps, the children would exert their muscles and therefore build strength and develop gross motor skills. They are also exercising causing their hearts to pump faster and more blood to their bodies. They will feel their hearts pumping and their bodies getting warmer. Outdoor activities such as building ramps also encourage emotional development in children as it supports engagement, enjoyment, sense of achievement and is beneficial to wellbeing. Building ramps also encourages children to work together. For example, carrying and counting branches together.

In the picture shown below there are multiple trees.



Source: Pinterest, 2016

Trees are also a very beneficial feature to a child's development. There are many ways in which children can use trees to support their holistic development. By looking at the trees, children can identify that there are trees of all different sizes. This can support their understanding of heights and measurements. Climbing trees can also encourage a child's physical development and knowledge of how bodies work. By climbing,

the children would exert their muscles and therefore build strength and develop both fine gross motor skills, as children decide where to place their hand or foot and whether to move up or down. These skills that they learn outside can also be transferred to the classroom as they require them to hold a pen or pencil when writing. They are also unknowingly exercising causing their hearts to pump faster and more blood to their bodies. They will feel their hearts pumping and their bodies getting warmer. Climbing trees also promotes knowledge on forces as the children would have to work against gravity to climb up the tree. They will learn this by realising it is easier to climb up a tree than to climb down a tree. Children can also use string or rope to tie to the trees to make a swing. This helps to develop motor skills. As the children work the rope according to visual directions, they are exercising their eye-hand coordination. They strengthen their arms, shoulders, and little muscles in their hands by tugging and pulling on the ropes.

The picture below shows where children may find different organisms such as bug life and different plants or leaves.



Source: Pinterest, 2016

Exploring living organisms such as different plants and different kind of bugs and how they live encourages curiosity about living organisms. It shows bugs in a positive perspective rather than creating fear for the children. Children can use a magnifying glass to take a close look at the different bug life. For example, they can look at how many legs or eyes the bugs have. The children can try and identify what type of bug is it by considering the characteristics of the bug and what they already know. It can also help the children stimulate sustained shared thinking and language development by talking about where the bugs live or what weather would the different types of bugs survive in. This can help develop a child's attention to detail. Children can look at the different colour leaves and gain a wider understanding that there can be different shades of the same colour. By using a magnifying glass, children can identify different shapes and patterns of the leaves. Children can also paint the leaves and print them on paper in order to make different shapes and to see the different patterns clearly.

RISK BENEFIT ASSESSMENT

Location / Activity:	Park	Date:	11/01/2022
Assessor:	Sarah Jobey	Review date:	11/03/2022

ACTIVITY	How will young people BENEFIT from this activity?	Hazards and risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
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Collecting sticks and branches for building activity.	Mathematical development such as counting, height and measuring Sizes.	Low level branches on trees. Risk of scratching children in the eye if they are at eye level and lead to injury. Fallen branches could lead to children tripping and therefore, possible injury.	Early years practitioners and children.	Check the activity site regularly for fallen or dangerous branches. Warn the children to be wary. First aid kit should be available at all times. Staff should be first aid trained in case of injuries.	M
Collecting sticks and branches for building activity and exploring living organisms.	Mathematical development such as counting, height and measuring Sizes. Scientific development. Encourages curiosity about	Strangers and people in the public. Risk of danger, such as kidnapping.	Early years practitioners and children.	Children are instructed and encouraged to repeat school rules and boundaries. Counting heads on a regular basis. There is no access outside of the school grounds. Wear High visibility vests.	L

	living organisms.				
Collecting sticks and branches for building activity.	Mathematical development such as counting, height and measuring sizes.	If gates are left open or the legal requirement of adult to children ratio is not maintained, it can lead to consequences such as children going missing. During the activity, a child may walk off or become missing.	Early years practitioners and children.	Children are instructed and encouraged to repeat school rules and boundaries. Counting heads on a regular basis. Adults should be outside with children at all times interacting and keeping them engaged in the activity. Adults should communicate if additional support is required. There is no access outside of the school grounds. Wear High visibility vests.	L

Exploring living organisms such as different kind of bugs and how they live.	Scientific development. Encourages curiosity about living organisms. Shows bugs in a positive perspective rather than creating fear.	Wasp or bee stings/bites. Can cause an allergic reaction or injury.	Early year practitioners and children.	Warn the children about the dangers of bees and wasps. Full length trousers and closed-toed shoes are required to be worn.	L
Exploring living organisms like mushrooms and fungi.	Allows the development of knowledge and independence in identifying and avoiding living organisms such as mushrooms	Eating wild mushrooms/fungi can be poisonous and lead to serious illness or death.	Children.	Make sure that the children do not ingest anything they come across, and that they keep their hands away from their mouths and properly wash them after the activity. Also get rid of any mushrooms in sight.	L

	and fungi. Identify the differences to foods bought and eaten.				
Using string/ rope for building activity.	Learning how to tie knots and developing knowledge on friction, grip and weight while doing so.	There is a risk of children tying the rope or string around each other's necks or their own. This can lead to injury or death.	Children.	Instruct children on how to tie string or rope safely. Supervise the children closely to ensure safety.	L
Exploring living organisms such as different plants and	Scientific development. Encourages curiosity about living organisms.	There is the risk that children with allergies or conditions may ingest living organisms.	Early years practitioners and children.	Make sure that the children do not ingest anything they come across, and that they keep their hands away from their mouths and properly wash them after the activity. Ensure that all staff is aware of any allergies or conditions and that there are provisions	L

different kind of bugs and how they live.	Shows bugs in a positive perspective rather than creating fear.			put in place such as staff training to administer an EpiPen.	
All outdoor activities such as exploring the living organisms such as plant or bug life. Collecting loose parts for building activities.	Mathematical development such as counting, height and measuring Sizes. Scientifical development. Encourages curiosity about living organisms.	Being outdoor in cold and wet weather for a long period of time can cause illness such as common colds/ infections, hypothermia and frostbite. Wet or icy floor can cause individuals to fall or slip.	Early years practitioners and children.	Staff should check the weather forecast and instruct children to wear appropriate clothing such as layered clothes, waterproof coats and trousers, and wellies. First aid kit should be available at all times. Staff should be first aid trained in case of injuries.	L

All outdoor activities such as exploring the living organisms such as plant or bug life. Collecting loose parts for building activities.	Mathematical development such as counting, height and measuring Sizes. Scientifical development. Encourages curiosity about living organisms.	Being outdoor in hot and sunny weather for a long period of time can cause heat stroke dehydration or sunburn.	Early years practitioners and children.	Staff should check the weather forecast and instruct children to wear appropriate clothing such as a sun hat, sunglasses, short sleeve tops, and shorts. Children should also be instructed to bring a drink to keep hydrated and sunscreen for protection against sunburn.	L
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All outdoor activities such as exploring the living organisms such as plant or bug life. Collecting loose parts for building activities.	Mathematical development such as counting, height and measuring Sizes. Scientifical development. Encourages curiosity about living organisms.	Walking or running on uneven ground can cause individuals to trip and therefore cause injury.	Early years practitioners and children.	Supervise the children closely. Warn the children to be wary. First aid kit should be available at all times. Staff should be first aid trained in case of injuries.	L
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Sliding down a slope.	Scientific development. Children will gain knowledge on gravity, friction and speed.	Sliding down a hill at a quick velocity face first may cause injury.	Children.	Supervise the children closely. Warn the children to be wary. First aid kit should be available at all times. Staff should be first aid trained in case of injuries.	L
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According to Omidvar, *et al.* (2019) time spent in nature is undeniably beneficial to a child's growth. Spending time in natural settings has a significantly positive impact on children's self-esteem, self-concept, and overall well-being. Access to a natural outdoor environment benefits a child's physical and mental health, as well as encouraging creativity, imaginative play, independence, and problem-solving skills, as well as instilling greater respect for nature, empathy, and positive attitudes about the environment. Natural areas have an impact on a child's ability to transfer knowledge and pay close attention. As an adult, it is their role to support children's development and ensure that their specific needs are adhered to and doing so by putting the child's best interest as a top priority in all decisions that involve them, as stated by The UN Convention on the Rights of the Child (1991), under Article 3. "*The best interests of the child must be a top priority in all decisions and actions that affect children*".

Welsh Parliament (2021) states that The Curriculum and Assessment Wales (2021) was put in place by the Welsh government in order to establish an up-to-date legislative framework to better the support for the holistic development of young children through outdoor play. This allows children more time to learn through the outdoors. It is the role of the adult to ensure that children are progressing in their development through play. The Foundation Phase Framework (2015) supports that children learn through hands-on experiences, with 'play' serving as the

medium. Children practice and reinforce their learning, experiment with ideas, take risks, solve issues, and make choices individually, in small and large groups, through play. Children learn about themselves and the world around them through first-hand experiences. At the core of it all is the development of a child's self-image, as well as feelings of value and self-esteem. The Foundation Phase environment should encourage exploration and independence, as well as a stronger focus on using the outdoors as a learning tool for children. Practitioners should comprehend how children develop and develop a curriculum that takes into account the developmental requirements of children as well as the skills they will need to become successful learners. Barriers to experiencing play, learning, and involvement caused by physical, sensory, communication, or learning challenges must also be considered. Early childhood education should be holistic, with the child at the center of any planned curriculum. It is about teachers recognising, encouraging, and challenging children's learning potential. Involvement of practitioners in children's learning is important, specifically when interactions include questioning and sustained shared thinking.

A way that the practitioner can ensure a child's progression is by observing. McInnes, *et al.* (2013) argues that observing children while they play is essential because it allows practitioners to confirm that each child's development is progressing at the expected rate. It also helps the practitioner to determine whether the setting in which they are placed and the resources they are given, such as toys or the outdoors, are stimulating their growth. Pellegrini (2001) supports that another reason why practitioners should study children as they play is so that they can anticipate any future support the child will require in order to learn new skills, interests, or knowledge. Childhood development is divided into phases, with each stage requiring children to meet particular milestones in order to guarantee that they are developing at the optimal rate for their age.

In order to support children in their development, as an adult, it is possible to encourage sustained shared thinking. This is also a way of keeping the children engaged in their activity. Purdon (2016) believes that the ability to engage in sustained shared thinking (SST) with young children is said to be important for effective Early Years pedagogy. SST is defined as an event in which two or more people 'operate together' to resolve an issue, clarify an idea, analyse activities, extend a narrative, and so on. Both sides must participate in the thinking, and the knowledge must be developed and expanded. Purdon (2016) also argues that it is important to define what thinking skills are and how they might be developed in

children. There are numerous opposing beliefs regarding how to educate and develop thinking skills. Vygotsky highlighted the importance of the role the adult plays in a child's learning and development, whereas Piaget emphasised self-initiated discovery. Based on Vygotsky's ideas, Fisher (2005) proposes that thinking is the basic process of human life because there is no functioning without thinking. This approach emphasises the importance of providing early support to children in order to help them think and make meaning of the world.

As an adult, supporting a child's development also means encouraging the child to be curious. Engel (2013) argues that curiosity requires more than just freedom and stimulation. Role models, the opportunity to practise, and supervision are all necessary for children to develop and meet their urge of curiosity. Engel (2013) also believes that when young children have a strong desire to learn something, they are more likely to do so. Babies play for long periods of time and explore more with toys in which they have previously demonstrated an interest; their curiosity permits them to absorb more than they would otherwise. When older children are captivated by surprising or fascinating details in their reading, they are more likely to retain and comprehend what they read later. Adults can encourage curiosity in children by asking them questions. Questioning encourages conversation and it can pique an individual's interest. Improvements in young children's understanding and language skills is essential for literacy development, according to Beck and Mckeown (2001). For example, when the child is playing on the slope outdoors, that adult can ask the child questions such as "is it easier to go up on down the slope?". This encourages the child to think about why it would be easier to go down a slope or why it would be more difficult to go up a slope. However, teachers are less likely to promote questions, tweaking, or modifications from the script when they are under pressure to meet deadlines that may not allow for inquiries, tweaking, or variations from the script.

From an adult perception, for a child to grow and learn it is important to allow them to take risks. Some may argue that taking risks is not worth the danger of undesirable consequences. As parents with human impulses, it is their responsibility to keep their child safe from harm, which means not taking any chances so that the child is not harmed. Little and Wyver (2008) support that although this appears to be the right thing to do for a child, it also hinders them from learning from their mistakes by protecting them from feeling any form of failure or hurt. Allowing children to take chances can be beneficial since it boosts their self-confidence by allowing them to make their own judgments. It is essential to evaluate the risk in

order to strike a balance between exposing children to danger while still allowing them to learn. Allowing children to take risks does not imply that they should be left alone. It's more about taking a step back and letting the child explore, as well as allowing them to put themselves to the test to see what they are capable of accomplishing.

On the other hand, there are limitations involving the role of the adult in outdoor play. All staff is required to be trained. It is mandatory that any individual that works or volunteers with children or young people has the understanding and skills necessary to help keep them safe. According to the NSPCC (2022), Child protection standards for anyone working or volunteering with children in the UK are outlined in statutory guidance. These requirements vary depending on a person's position and whether or not they work closely with children or have a special safeguarding duty. Separate guidance is also provided for those working in education, healthcare, early childhood, childcare, and social work. When dealing with groups of children, there must be sufficient adults to offer adequate supervision. Staffing and supervisory ratios might be difficult to assess at times. It is essential to ensure there is enough staff and volunteers to keep the children safe, and that these individuals can perform various tasks as necessary. NSPCC (2019) states that Conducting a risk assessment of the activities planned takes concerns into account. This will assist in determining how many people will be required and what abilities and experience they should possess. Except for the Early Years and Foundation Stage, schools are instructed to complete their own risk assessments at the start of each academic year to identify suitable levels of supervision for each class. When dealing with or monitoring children and young people, it is advised having at least two adults present. To keep children safe, it is recommended the following adult-to-child ratios as a minimum:

- 0 - 2 years - one adult to three children
- 2 - 3 years - one adult to four children
- 4 - 8 years - one adult to six children
- 9 - 12 years - one adult to eight children

Other limitations in outdoor play may be adults fearing the outdoor or bugs. This can interfere with a child's learning as it can influence their perception. Nielsen and Tomaselli (2010) believe that young children have a tremendous proclivity for learning how to do things by imitating other people's behaviour. Young children copy the explicit gestures of an adult demonstration in what has become known as over imitation, even when a more effective process of achieving the stated outcome is attainable and even when replicating the adult's actions results in failure to achieve the displayed outcome. For instance, children aged 3 to 5 were taught to recognise the causally irrelevant aspects of novel action sequences executed by an adult on common household objects, such as extracting a toy out of a plastic jar after first touching the container with a feather. The children next watched while the adult displayed movements in which the causal nature of the acts were clearly seen. Despite the teaching, the children continued to replicate causally irrelevant acts, even when the adult explicitly ordered them to duplicate only required actions. Therefore, it is possible that when adults show that they are fearful, children will respond by showing fear also. This prevents children from developing curiosity and as a result, impacts their progression negatively.

Bad weather can also limit the amount of outdoor play that the children experience. Some adults may decide that it is not appropriate to go out if it is wet or raining. However, some may argue that bad weather is not a good enough reason to limit outdoor play as all it takes is for children to be able to play outside is to be dressed appropriately for the weather. For example, wearing layers, raincoats, wellies, long tops and trousers should protect children from getting wet and it should also keep them warmer. Adults should learn to overcome weather limitations as it is in the best interest of the child's education and development. All children possess the right to an education as stated by the UNCRC (1991) under article 28. *“Every child has the right to an education. Primary education must be free and different forms of secondary education must be available to every child. Discipline in schools must respect children's dignity and their rights. Richer countries must help poorer countries achieve this”*.

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