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Section one

(Source: Williams, 2024)

Section two

Element one- the broken tree stump and fallen log

8 children (3 to 4 years old) are exploring the tree stump and log with 2 adults. The children have the opportunity to explore the inside of the tree stump along with the openings near the ground including the environment around the log. Children are able to explore the different ecosystems that may be living within the nooks and crannies of the log, developing their understanding of different insects along with the use of scientific and mathematical language, such as ‘this ant is climbing fast’ ‘which way is it going’ ‘is it big or small’ ‘where do you think it eats’ and so on. Discussions on what other wildlife might also be in the area and feed of insects can also further scientific discussions on environmental life cycles.

(Source: Hooft 2024)

The flora and fauna provides children with opportunities to discuss the different flora and fauna in the environment and use this discussion and exploration as a way to find out why they grow on and around trees and logs. Children are able to observe hazards of fauna and flora such as nettles, opening discussions on how to keep themselves safe from cuts/rashes and allergic reactions. The children can use different natural objects, themselves and the adults to measure the length of the log as well as seeing how tall the tree stump is against themselves and natural object further developing mathematical and scientific knowledge. Adults can support sustained shared thinking through verbalising open ended questions on how trees, flora and fauna grow, what they need, how they may get damaged and how we can help support them and the wildlife that use them. This will prompt weather discussions such as ‘what weather could have caused it to fall?’ ‘do you think it was

a gentle wind or a fast wind?', this could lead to conversations about that the current weather is like and if this weather would have made a difference. Additionally, discussion on how weather can help the environment and whether the seasons also make a difference to the outdoor environment. Furthermore, the children are also able to explore the number of crevices/holes and count them, explore what animals may use them, work out how deep or shallow they are. The tree and stump can also help explore children's holistic development as the slopes of the tree stump supply children with the opportunity to roll natural resources found in the area such as twigs to further stimulating scientific and mathematical understanding and language such as 'that rolled fast' 'let's see if we can race it'' let's see if we can bet the twig to the log'. Children are able to balance on the log or climb the tree stump and overcome a number of obstacles such as branches and uneven surfaces to challenge their spatial and balance awareness and also progress their scientific and mathematical awareness of speed, distance and times through working out which is quicker- running/walking along the top of log or moving alongside the log. Children are able to develop social and language skills by working together to make dens, problem solve and develop metacognitive skills about how things move including themselves and others within the natural world. Children are able to develop self-regulation skills and emotional awareness of themselves and others along with an appreciation and understanding for helping and looking after the environment. Extra resources such as appropriate clothing and food/drinks will enable children with the independent choice to adapt their clothing accordingly but also help with introceptive (internal sense) of when they have changes to their body temperature, when they are hungry and so on. Resources such as cameras, crayons and paper can help extend their learning through taking pictures, creating drawings/rubbings developing their holistic skills alongside their mathematical and scientific development. Children are able to reflect upon what they are learning and are able to compare and contrast with past and future changes.

Curriculum Links-

Area of Learning- Mathematics- Principles of progression (Curriculum for Wales, 2022a)

Concepts of height and length of the stump and log, comparing the size and shape of insects are explored along with the number of insects provides a base for conceptual understanding.

Understanding of fluency and accuracy are explored through using different methods of measuring distance and speed and size. For example, ‘is it faster to run on the log or next to it’ ‘does a pinecone roll further than an acorn’.

Logical reasoning is encouraged through open ended questions such as ‘is this bigger or smaller than me’ ‘which way is faster rolling or running?’. Problem solving and critical thinking skills are also developed.

Area of Learning- Science- Principles of progression (Curriculum for Wales, 2022b)

Exploration of flora, fauna and ecosystems surrounding the log and stump will encourage scientific discovery and discussions. Along with, everyday observations such as changes in the weather can promote scientific concepts. Furthermore, language such as fast, slow, big, small, quick provides children with a starting point for using scientific language and knowledge with develop and deepen as they continue to learn and flourish.

Element two- Trees and weather

The children able to explore the growing trees with adults stimulating further children’s language and conservational skills about the life cycle of trees, adults are further able to link this to the tree stump and the log. By exploring the ground children can be encouraged to look for pine cones/acorns/foliage/twigs to further support discussions on tree life cycles. These can also be used to help support children’s development of quantities and size, through grouping items together that are the same size. Children are also able to compare the different sizes and what the similarities and differences these resources have. Using pencils/crayons and paper children are able to taking rubbings or draw the items to develop other holistic skills such as fine motor skills, hand eye coordination skills and metacognitive thinking. The adults assist children to investigate were they think the trees get their water from

and what else may help trees to grow. Moreover, this will lead to discussions about the weather in addition to how it can make the trees move. For example, listening to natures sounds, motivating children to develop their listening skills and advance their mathematical and scientific language skills such as ‘I can hear the wind moving the branches’ ‘what can you hear’, words such as fast and slow, heavy and light can also be used to describe the leaves and branches and how the rain may affect the leaves. This can also be linked to the fallen log and broken tree stump, further fostering children’s curiosity about nature and life cycles. In addition to further conversations about the weather, if sunny or cloudy investigation to how the environment looks through the trees can be explored. For example, if sunny, examination of the different shadows can be made alongside explore how their shadows differ from the trees shadows. If cloudy, exploration of how the environment around the trees differs to maybe when it is sunny. Adults can foster further curiosity with open ended questions about what wildlife might live or use the trees such as ‘squirrels often climb trees. Why do you think they do that?’ ‘where do you think birds live?’ ‘where have these leaves come from?’. Exploring the trees and surrounding areas provides children to learn about distances, height, hazards and the risks associated with exploring an open space, enabling discussions about ways to reduce the risks that hazards pose and how to keep themselves safe when out in nature, for example open communication regarding safe distances to explore. Den making opportunities can also provide scientific and mathematical opportunities enabling metacognitive and sustained shared thinking of how to design the den, the sizes and quantities of what is needed and holistic skills of language, physical and social skills are encouraged.

Area of Learning- Mathematics- Principles of progression (Curriculum for Wales, 2022c).

Grouping and comparing of natural elements and den making supports the development of quantities and size enhancing concepts and mathematical language. critical thinking and problem solving are encouraged when designing and making dens. Holistic skills are also developed such as communication, motor skills and social skills are developed through exploration and den making.

Area of Learning- Science- Principles of progression (Curriculum for Wales, 2022d)

Observation, exploration, risk and safe assessment skills are developed through exploration of natural elements fostering children's scientific curiosity and overall awareness of themselves, others and the environment. Awareness of the environment will stimulate discussions about natural occurrences with the weather, wildlife and shadows will promote scientific language, how the natural world works and developing scientific knowledge such as cause and effect.

[Source: Eg, 2022].

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Section 3- RISK BENEFIT ASSESSMENT

Location/Activity:	Cefn onn park	**Date:**	September 2024
Assessor:	Ceri Williams	**Review date:**	November 2024

Experience exploring the outdoors in the picture	**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**
Tree stump and log exploration	Learning about the life cycle of plants and animals. Opportunities for dramatic, imaginative, language and social development. Mathematical concepts can be explored such as shapes, numbers, speed and so on.	Splinters from the rough edges of the wood causing small cuts. Falls from climbing leading to possible cuts and breaks. Possible bumps to head if individuals trip over.	Children and Adults	Encourage children to self-risk assess the area. Provide weather and area appropriate clothing and give the children the opportunity and choice to wear these accordingly.	L
Loose parts on the floor for example twigs/stones	Curiosity and investigation of where these items came from. Physical skills are developed from looking and investigating these items. Sensory development is encouraged through the sense of smell, sight and touch. Imagination is promoted as children are able to find various uses for these items	Splinters from the wood causing small cuts. Trip hazards causing children to fall and hurt themselves. Dog/fox faeces could cause illness if children digest it. Broken glass and used needles causing cuts and possible allergic reactions that may cause illness or anaphylactic shock	Children and adults	Adults to check the area before exploration for any faeces/glass/needles. Model in the moment risk assessing of area whilst exploring. Take bin bags, gloves and antibacterial gel to clear up any dog/fox faeces, glass, needles or rubbish. Be vigilant of dog walkers and ask them to pick up their dog's faeces, if this observed. Ensure that any bushes are also checked for broken glass or used needles and ensure that appropriate precautions are taken for example making sure glass is cleared away or area is out of bounds. If this is not possible ensure that items are clear and removed as safely as possible.	M

The nettles	Children are able to explore different natural textures and life cycles of different plants. Curiosity of the diversity of plants and wildlife within the park.	Children and adults could have nettle allergies, this could cause mild to severe allergic reactions from a rash to anaphylactic shock (in rare cases).	Children and adults	Ensure that allergy information is up to date and correct. Ensure that appropriate first aid equipment is on hand. Ensure that permission is given for first aid treatment to be given. Have epi-pens available (if children/adults have one) and staff are trained to use these. Ensure that emergency contacts are current and up to date and mobile is accessible, charged along with mobile coverage and credit (if pay as you go).	M
Surrounding area and safe boundaries	Children are able to benefit from working out safe distances to go within a given area. Children are also able to benefit from a sense of responsibility and trust with themselves and others when creating boundaries and safe spaces. Children will also become aware of the risks and hazards if they venture to far and are able to develop spatial awareness and observational skills of any hazards in the area.	Children may venture to far from adult supervision that may put them at risk if they hurt themselves or get lost. Adults may be at risk from unseen hazards if they are looking for children who have ventured to far	Children and adults	Work out a safe and pre-agreed boundary with identifiable makers (if possible) with children so that they are able to remain within adult supervision but also gain a sense of responsibility that they have helped create the boundaries they need to stay in	L
Branches/twigs/acorns falling from the trees	Children will benefit from scientific learning and mathematical language if they observe things falling from the tree. Metacognitive language can be used to help vocalise what they are observing.	Twigs/branches may fall and cause bumps if children or adults are under the trees.	Children and adults	Observe the weather and discuss this before going to the site, look at the season and weather may be a factor for items falling for example high winds or Autumn. Again prompt self-risk assessment and safe parameters with the children and ensure vigilance when exploring the wooded area.	M

Wet mud and grass	Children can explore different textures and depths and widths. Observational skills and self-assessment of the area by children to help develop risk awareness	Children may get stuck of if mud is to deep causing panic and worry. Children may slip and hurt themselves if to wet and treacherous.	Children and adults	Ensure that appropriate footwear and clothing is available for children and staff if they wish to weather it. Adult supervision and ensure that clean clothes are available.	L
Barbeques and fire pits	Children may smell people in the surrounding area having a barbeque or may engage in dramatic play that involve barbeques or fire pits. They can make associations from forest school learning to the real world, encouraging discussions about fire safety and if they are able to make fires or use fire pits in a public park.	In the unlikely event of there being real barbeques and fire pits the hazards would involve hot areas where these fires were, with the risk of burns if they have been recently put out. There is also a risk of sparks reigniting, causing the fire to restart risking children and adults getting stuck in the area and getting seriously hurt. There is also a risk of fire starting due to disregarded cigarette ends that haven't been appropriately discarding, this could potentially cause a fire and risking the quick spread within the area and harming the children and staff.	Children and adults	Ensure that area is clear of any cigarette ends and if found are put out and disposed of accordingly. In the event that a fire pit or barbeque is discovered ensure that it has been put out completely and if still warm/hot create safe boundaries with children to ensure safety. If coming across unsolicited fires/barbeques evacuate the area and contact necessary authorities.	L

Section 4-

The Shared Vision and Values for Outdoor Provision (2004 cited in White, 2014) states that adults who are well-informed and passionate about the outdoors are crucial to unlocking the outdoors. Furthermore, Richardson (2013) mentions that outdoor play promotes freedom, space, variety of perspectives and exploration of the natural environment promoting more of a larger and more boisterous play opportunity amongst a few of the many opportunities that outdoor play can bring. Moreover, Richardson (2013) mentions that the space provides opportunities for children to develop more relaxed relationships with adults and children as that are able to interact with activities on various different levels such as adults simply observing and listening to play, perceive play leads. This is further supported by Bilton (2010) mentions that adults can act as a facilitator, a resource and a sounding board for children, joining in play when prompted by play cues that will enhance the quality of children's play and learning and supporting those who may be uncertain. During outdoor play, adults are able to observe the level of children's learning and understanding in a realistic context (Robertson, 2017).

Adults have a responsibility to support children's rights as stated in the United Nations Convention of the Rights of the Child (UNCRC). This included Article 3- the best interests of the child, article 12- respecting the child's view and article 31- the right to relax and take part in various of cultural and artistic activities (Unicef, no date). This can be done through risk-benefit assessments of the outdoor area ensuring that the benefit outweighs the risk, upholding the UNCRC's Article 3, adults are able to support children's views (article 12 of the UNCRC) but observing and listening to children's play and taking a lead from the children's direction of play. Article 31 of the UNCRC can be provided through various open ended and cultural resources that have been provided by the enabling adult to ensure am effective environment (Care Inspectorate, 2022). Bilton and Crook (2016) states that to provide all year round outdoor provision at childcare settings require preparation and the knowledge of how to support children to appreciate the seasonal changes and adapt to these changes appropriately. They mention that confident adults who are calm and suitably dressed will provide a secure and comfortable environment that will help the children feel safe and relaxed when exploring the outdoors. This feeds back to supporting the children's best interest further enhancing children's ability to risk assess and explore safely whilst having their views listened to through curiosity and learning.

Tovey (2016) mentions that Frobel (1837) says that the garden is the centre of his kindergarten and is a place of harmony with nature endorsing children's growth and

development. Frobel (1837) saw the garden as a community where the children develop at their own pace with adults who support and understand children's individual capabilities and development. This is further supported by Grigg and Lewis (2016) who mention that Montessori (1870- 1952) and Steiner (1861-1925) both observed that the natural world is also closely linked to the children's spiritual development and that through learning about the life cycle of plants children are able to understand and observe that wonder of growth. However, Johnson and Watts (2018) says that Frobel (1887) remarks that the role of the adult is to support children to make independent discoveries and that their curiosity is an asset. They mention that it is highlighted in Frobel's (1887) philosophy that need and role of the adult is to offer an enriching environment of learning to encourage children to become involved in their learning at a deeper level. In essence, adults are to provide children with exciting environments whilst responding and stimulating the play that will peak the children's curiosity and provide reassurance, encouragement and praise. Montessori (1870-1952) placed importance on children's experiences with nature, stating that providing an immersive experience to help stimulate children's development. Providing outdoor provision offers children the opportunities to connect with nature along with an understanding and appreciation of the order, harmony and beauty of the natural world (Montessori Partnership, 2021). Montessori (1870-1952) also expresses that adults should be observers and support children's development. She was committed to a child-centred approach that accelerated all aspects of children's learning (Johnston and Nahmad-Williams, 2014). She advocated for children's choice facilitating their independence and creativity. Montessori (1870-1952) believed that the learning environment should be structured to assist children's free choice of their own learning activities with free access to the outdoor and indoor environments. This will offer beneficial activities that are planned and supported by adults that will help scaffold children's learning. Through this, children are able to develop freedom of choice and confidence in being active agents of their learning (Aubrey and Riley, 2019 and Isaac, 2018).

Mathematics and science in the outdoors can provide adults with a variety of cross-curricular opportunities such as literacy skills. These skills can involve the use of mathematical language, understanding, exploring and justifying mathematical processes such as reasoning, supporting scientific language and understanding the origins of these words whilst naturally using them with children from a young age will help create base to help develop important ideas and concepts. Numeracy is at the heart of mathematics, providing hands-on real life environments and chances to introduce them to various concepts enabling them to explore and consolidate mathematic concepts including

conceptual understanding, fluency, communication, using symbols. Science is able to support numeracy during these hands on experiences by supporting effective mathematical skills such as measuring, designing and communication. Digital opportunities could also hence children's mathematical and scientific understanding that may naturally occur during the learning process, this could be as simple as taking recording nature sounds or taking photographs, science could also support and extend the learning through thoughtful planning of when and where to use it. For example, using cameras during the outdoor experience, by expanding on this in the classroom on the whiteboard can build on prior hands on learning and further develop their mathematical and scientific skills as well as the holistic benefits of development such as social, language and cognitive skills. Mathematics and Science can foster children's curiosity and inquisitiveness about the world around them. This can be done by supporting their learning through questions and challenging their knowledge to further develop their individual understanding. Through the Curriculum for Wales, (2022), adults are able to facilitate opportunities for children to become more independent, supporting their ability to create their own ideas, develop problem-solving and critical thinking skills. Children's emotional development of self-regulation, perseverance and resilience is also promoted through learning scientific and mathematical learning in the outdoors. Similarly, Weidel-Lubinski (2020) remarks that rooted in the outdoor environment are science, technology, engineering and mathematics (STEM) opportunities for learning. STEM can provide children with chances for children to explore, observe, experiment and problem solve to name a few opportunities that will expand the children's mathematical and scientific understanding.

In contrast to the Curriculum for Wales (2022), the Norwegian Directorate for Education and Training (2017, cited in Skarstien and Skarstien 2020) places significance on the exploration of the exploration of the outdoors in their Norwegian Framework Plan for Kindergarten. Within this framework, adults are expected to use the outdoors as a means to promote opportunities of learning, play and reflection with children. By foster a relationship with the natural world children are able to explore, experience and learn about nature and its diversity. Through this a respect and awareness of the environment is developed through outdoor play. Norwegian kindergartens have a relaxed attitude towards risky play through allowing children to be physically active allowing to children to take risks during play. Through the promotion of risky play, there is an emphasis on exploration, play and meaningful experiences within a safe and challenging environment. This makes the outdoors the ideal place for risky play (Brown and Kaye, 2016 and Sandseter and Sando,

2016). Furthermore, Moser and Martinsen (2010) mentions that the outdoor space is essential to the Nordic kindergarten and provides social opportunities and learning, alongside challenges and stimulations that will lead to opportunities to explore and experience with others.

Loose parts theory was developed by Simon Nicholson (1971), he states 'In any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables in it." (England, 2017). She mentions that he describes loose parts as variables such as materials and shapes and held the belief that everyone had the capability to create and that the restrictions on children's play can reduces their creativity. Simply put, the more open-ended play resources that are available for children, means that adults are able to observe more creativity and curiosity during play. Loose parts are materials that are necessary for high quality play experiences that can be either manufactured or natural materials. These materials provide children with countless opportunities to move, carry, redesign and combine the materials with a flexibility, adaptability and novelty that will help extend the children's play experiences (McClintic and Petty, 2015 and Kable, 2010 cited in Sisson and Lash, 2017). Loose parts are an opportunity for adults to observe how they develop children's imagination and problem-solving skills with opportunities for independent choices, facilitating unlimited choices for children in contrast to a more structured indoor play setting (Simocini and Lasen (2021). The outdoor play space provides a fluctuating environment and loose parts can add affordance opportunities for children. The way in which children perceive loose parts can influence how they use and adapt these items to be used in multiple ways during play. Loose parts and affordance provides adults with insights on how these items in the outdoors can support children to create and partake in a variety of rich and diverse play experiences (Flannigan and Dietze 2017).

Sustained Shared Thinking (SST) will involve 2 or more individuals working together to communicate through problem solving, concept clarification or as a way to extend the narrative. SST must help to extend the learning and development of children and both individuals will need to contribute to this shared thinking. SST supports children's learning and holistic development. Adults are able to support SST through actively listening and engaging meaningfully in conversations and scaffold children's ability to create own solutions to problems (Brodie, 2014). However, the Teacher's Standards (2013, cited on Purdon 2016) defines SST as contributions to the children's learning outcomes and progress. Furthermore, Davies *et al.* (2014) mentions that the use of narrative can support

the use of scientific responses to children's questions. In addition to this, SST can also support effective and open-ended questions and prompts that can support children's mathematical play and language. Supporting these links through SST interactions help to initiate the methods of thinking that are relevant to science and technology. SST can be considered as co-construction of knowledge and that a sustained period of embankment through peer and adult interaction will help support a deeper level of learning (Gealy *et al* 2020).