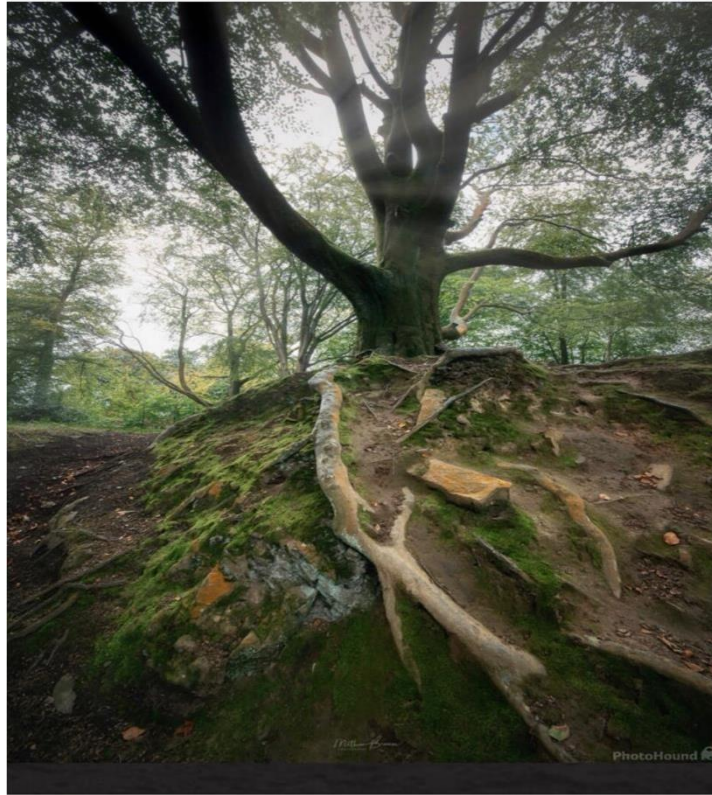


Section One



(Source: Browne, no date)

Section 2

Feature 1 – The Woodland

The woodland is the ideal environment for children to explore nature. While they are exploring they may come across fallen branches or logs; these can be sorted into sizes, for example asking children to find the longest branch or one that is as tall as them. This would then give the practitioner the opportunity to extend their learning by asking them to find a branch shorter than they are; and would that branch weigh less if it is shorter and weigh heavier if it is longer? By facilitating their curiosity this would inspire them to find more branches and feel the difference in weight and length.

Children's learning can be further extended by giving children baskets to collect any natural loose parts they can find; such as leaves, pine cones, twigs, rocks, conkers and acorns, these tend to be the best resources aesthetically, providing potential for cross-curricular and creative opportunities (Tucker, 2014). With the rocks the children could build 'toppling towers' to see who can build the most rocks before they topple over. Children could also use the branches to knock over each other's towers, this would enhance their fine motor skills trying to balance the rocks on top of each other. Similarly, children can use the sticks collected to create a pyramid of sticks, this would develop their concept of shapes and balance; while supporting their spatial perception skills (Yelland, Diezmann and Butler, 2014). While children are enjoying this game they are also learning about counting, size and balance and also the use of cause and effect. They are also developing negotiating and interacting skills, vital attributes to communicate with others in a positive way (Lund, 2018).



(Source: Google, no date)



(Source: Google, no date)

The woodland photograph above includes exposed roots from the tree on the ground which is also on a slope; children can practise their balancing skills by using their arms out stretched to give them balance while trying to walk along the longest exposed root; developing balance and co-ordination skills (Martin, 2018). They could also jump from one exposed root to the other, which could also be used as steps, as they are using their whole body this would develop their gross motor skills and also encourage spatial awareness, by taking note of what is around them while also developing their balance and co-ordination skills (White, 2016).

Links to the New Curriculum Wales progression steps (Welsh Government, 2021).

- Exploring and experiencing numbers in the outdoor environment.
- Grouping a variety of objects together and sorting into equal sizes.
- Make comparisons between objects such as 'heavier than' and 'shorter than.'
- Using investigative play to explore language and shapes.

Feature 2 – Trees

Trees can be used as a foundation to develop children's mathematical and scientific development. Using the baskets already provided the children can collect different sizes leaves and group them into smallest to biggest, using different words to describe the textures of the leaves such as soft, rough or waxy; this will extend their vocabulary and develop their language skills. This activity can be further extended by using a variety of loose parts such as string and a hole-punch to thread the leaves, this will develop children's fine motor skills (Nicholson, 1971). Practitioners could also provide paint, brushes and paper for children to do leaf printing, their learning could be extended by asking them to match the different colour paints to the leaves they have collected. To entice children's scientific curiosity the practitioner can explain how trees are important as air purifiers for the environment; a simple experiment for younger children is to submerge leaves in water and observe the bubbles of oxygen that form on the surface of the leaves (Project Learning Tree, 2019).

The practitioner can also discuss how trees provide shade and how the light coming through the trees changes through the day, for example as the sun moves. Also, discuss the temperature difference in the shaded areas to the unshaded areas, this could be done with the use of thermometers in both areas and measure the difference between the two. For younger children the practitioner could facilitate their thinking by asking questions such as 'Does it feel colder in the shade?' or 'Is it warmer in the sun?'

From the photograph it can be seen that the tree is on a slope which the children can slide down, also they can roll loose parts such as rocks, balls or hoops (Nicholson, 1971). The practitioner could ask children why it is easier for them to go down the slope, and for objects to travel down the slope easier than up the slope; this would teach them about forces and gravity. Ropes can be introduced to tie around the base of the tree for the children to pull themselves up the slope, this would develop their cognitive development while also developing their gross motor skills as they are using their whole bodies.

Links to the New Curriculum Wales progression steps (Welsh Government, 2021).

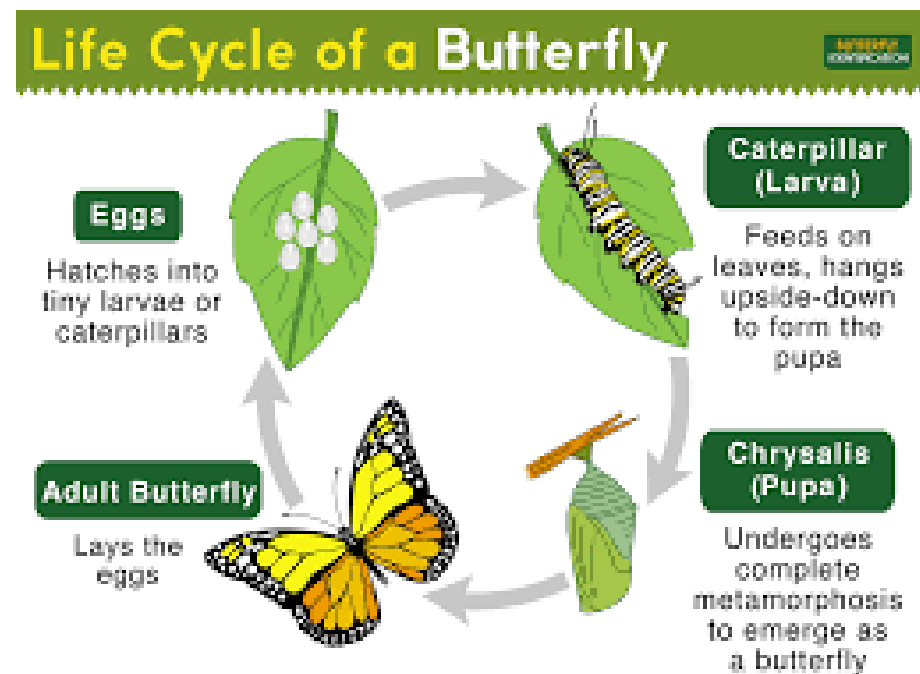
- Questioning how things work and show curiosity.
- Collect and investigate data in an outdoor environment.
- Group together different objects into quantities.
- Explore shape, patterns and number.

Feature 3 – The soil

Soil can be used in a variety of ways to heighten children's scientific and mathematical development. Practitioners can provide necessary resources such as water, various containers, and utensils to enable children to experiment with the soil and water. Ask the children to add different amounts of water; encourage them to make different consistencies for example, thick, watery or gloopy. Give children the opportunity to throw mud at the tree to see if it will stick; if not, ask them if it was a bit thicker would it stick? Or do they need to add more soil? (Miller, 2020). Their learning can also be extended by giving them moulds to make mud pies and placing them in the sun to see if they will set.

Children could also use the sticks they collected previously to dig for worms and various other creatures that live beneath the soil. Encourage the children to find the longest worm, practitioners could provide rulers to measure the worms, ensuring the children are careful not to hurt the worms as they do this. Ask questions such as 'Do you think you can find a worm longer than your hand?' this will give the concept of 'long' and 'short'. Children can also be encouraged to count how many worms they collect. Practitioners can also provide bug viewers and magnifying glasses for the children to observe the insects they discover more closely giving them the opportunity to count the legs each insect has, this will develop their numeracy skills.

Children's learning can be extended by searching for caterpillars, practitioners could then explain the life-cycle of how a caterpillars transform into butterflies; this could be further extended by adding the book 'The Hungry Caterpillar' and reading the story to the children under the tree. Mathematical concepts can be developed here by the use of props to count how much food the caterpillar ate on each day; therefore connecting and teaching maths in a purposeful way through story telling (McGrath, 2014).



(Source: Google, no date)

Links to the New Curriculum Wales progression steps (Welsh Government, 2021).

- Children can communicate and design what they make.
- Use equipment and tools for construction.
- Acknowledge that insects and bugs are living things and be respectful.
- Identify life-cycles, habitats and living things.

Encompassing these strategies underpins the objective of the Four Purposes of the Curriculum for Wales (2018) ensuring that children have opportunities to become ambitious capable, learners who are able to build a body of knowledge and have the ability to apply and link that knowledge in different situations.

Section Three

RISK BENEFIT ASSESSMENT

Location / Activity:	The Woodland	Date:	September 11 th 2021
Assessor:	Lesley Gardner	Review date:	April 11 th 2022

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.

ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Walking on uneven ground.	Supporting children's sense of balance. Children will become mindful of their spatial awareness. Children also become aware of exposed tree roots, large rocks and slopes.	Children may trip over resulting in cuts, bruises or other injuries such as strains and broken bones.	Children and adults.	Explain to the children that the area where we will be exploring will be uneven, so they need to walk slowly at first until they familiarise themselves with the surroundings. Demonstrate how to balance putting both arms outstretched. Ensure children are wearing clothing and footwear appropriate to the environment.	L

ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Children exploring the woodland environment, spotting things such as plants, trees, rocks and insects.	Children have the chance to discover and learn about different environments and how to respect them. Studying different insects will give children the opportunity to observe them in their natural habitats. Children will be using their gross and fine motor skills for example when they are digging, bending and searching for things.	Exposed roots may be a trip hazard, branches hanging down can cause injury to eyes. Insect stings and bites, some children may be allergic. Stinging nettles, brambles and other plants may be poisonous and an irritant. Children may wander off unintentionally and get lost.	Children and adults.	Have a discussion with the children beforehand about things they might find will be new and unexpected. Make children aware that some insects can bite and sting. Ensure children are aware that some plants are poisonous, so no putting things in their mouths. Wash hands immediately after touching things or if this procedure is unavailable hand sanitise. Set restrictions of where and how far the children can go without an adult. Discuss with children that there may be other adults in the area such as dog walkers, and under no circumstances are they to go with them. Explain stranger danger scenario with them.	L

ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Collecting resources such as rocks, leaves and sticks.	Children can use these items for counting, sorting and pattern formation. Gives children the opportunity to practice their number and measuring skills. Gives children the ability to experience mathematical concepts in the outdoors.	Children could accidentally pick up plants that are an irritant, rocks and sticks may have sharp edges. Dog walkers may have let their dogs foul in the areas where the children are exploring.	Children and adults.	Discuss with children that they need to be careful when collecting resources as some may have sharp edges. Some plants may sting them. Tell children to be mindful that dogs may have fouled in the areas where they are and to be careful not to touch or step in it.	L

ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
The outdoor environment – weather conditions.	Children can learn to identify the difference between hot and cold, dry and wet. Children can realise that the weather affects different environments in other ways and that their surroundings could potentially be harmful and dangerous. Children can be aware of how to take care of themselves and risk assess the environment.	Windy weather conditions could cause branches to be hazardous, they may blow into children or fall from trees causing head injuries. Different weather conditions can cause children distress – for example if it is too hot and sunny they could have sunstroke or sunburn. If they get too cold, in a worst case scenario it could cause hypothermia. If children become wet this can also cause distress as they will become uncomfortable.	Children and adults.	Monitor weather conditions via a reliable weather source before attempting any activity outdoors. Wear appropriate clothing – hats, gloves, waterproofs, waterproof shoes or wellington boots. Hats, loose clothing, sun protection cream factor 30 or above, ensure plenty of water is available.	L

ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Playing with soil and water.	Children will gain multi-sensory experience by digging the soil and feeling the texture of it. Children can observe the different ways in which the soil changes when water is added. Children's stress and anxiety levels are lowered when playing in a free unstructured environment which involves soil and water. Children's immune system can be stimulated as soil contains bacteria, this then increases the serotonin in their brains which calms and relaxes them.	Children could be digging in the soil and come across foreign objects such as glass. Children could try to put the soil in their mouths. Children may become wet or dirty.	Children and adults.	Discuss with children what they may find when digging and to tell an adult if they are unsure of anything. Tell children under no circumstances are they to put anything in their mouths. Ensure children wear appropriate clothing to suit the environment and activity.	L

ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Looking for insects.	Children can identify different species of insects. They can learn about each insect's life cycle and how to be kind and respectful with them in their environments. They can use the bug magnifiers to count how many legs each insect have. This will develop their numeracy skills.	Children could get bitten or stung. Allergic reaction.	Children and adults.	Discuss with children that some insects may bite or sting and that we are visitors in their home so need to be respectful of that. First Aid box to be available with EpiPen.	

Section Four

The chosen photograph in Section One is of a woodland area. This type of outdoor environment can provide children with a rich and varied learning experience to explore mathematical and science concepts. The natural environment encourages children to discover and explore through play their natural inquisitiveness inspired by incomparable experiences. It is the childcare practitioner's responsibility to facilitate and encourage children to take on new and exciting challenges in order for them to learn new skills; entice their curiosities and imagination. Through exploration children are using critical thinking and problem solving skills by repeatedly learning through experience, therefore it is important for adults to provide such environments in order for mathematical and scientific thinking to be incited (White, Cree and Solly, no date). Richardson (2014) supports this notion stating practitioners who recognise how beneficial the outdoor environment can be for children in providing a considerably different experience that can support and foster children's development in all areas of learning; it is important that early year's practitioners provide environments and resources to ensure this is achievable.

Brunton and Thornton (2010) and White (2013) resonates with this concept stating children need to have first-hand experience of the world they live in order for them to increase their knowledge and understanding. Gaining these new skills will enable them to realise their own influence on their surroundings and help to shape who they are and build their self-efficacy. Therefore it is vital for practitioners to have the necessary skills to introduce a variety of loose parts and ideas to provoke children's interest. According to Thornton and Brunton (2014), this underpins the work of Reggio Emilia stating that adults and children are co-constructors of their own knowledge and places environments as the third teacher; where children thrive best when environments are suited to children's particular interests and development stage. Within the Reggio Emilia approach surroundings are seen as friendly, visually appealing, embracing nature and filled with purposeful materials. Similarly, White (no date) suggests that the outdoor environment should play a daily part of children's routines, and not be an optional extra. Outdoor provision should be seen as an essential part of early years education, it should be well organised in order to maximise usability by children and adults while also ensuring children's interests and needs are paramount.

Grigg and Lewis (2016) suggest that theorists Pestalozzi and Rousseau can also resonate with this concept stating that children thrive best when engaging in outdoor environments and go on to say that active play is beneficial to all areas of children's learning and development. Their view was that practitioners should take the children's learning outside the classroom, and childhood was a time of innocence where children should grow up alongside nature.

However, Grigg and Lewis (2016) suggest that there has been a decline in outdoor play activities, whereas in previous years children would come home from school and then go straight out to play. This decline can be attributed to a number of causes; overprotection of children; lack of play space in communities; intolerance of ball games by neighbours and the temptation of screen time. Moreover, teachers are also to blame by seeing the health and safety consequences of taking pupils on school outings as an administrative burden. However, according to Spencer *et al.* (2019) it is vital that practitioners consider children partake in physical activity on a daily basis as movement in early life can maintain healthy physical activity patterns. This research has shown how important outdoor, child-led, open-ended play is for children as it underpins independence, builds self-esteem and enables children to become resilient. Incorporating loose parts or open-ended resources allow children to experiment through play and give opportunities for exciting play experiences. However, even though there is evidence to suggest the popularity of 'loose parts' play, the viewpoints of practitioners on the challenges and benefits of this type of play were somewhat overlooked (Nicholson, 1971). The benefits included: enabled children to take risks; encourage creativity and imagination; develop problem solving skills; promote independence and self-efficacy and develop social interaction. Furthermore, the challenges were sustainability; apprehension; loose parts as a novelty and the storage of them, highlighting that the benefits outweigh the challenges as loose parts play have a number of social and cognitive advantages for preschool children reaching their full potential holistically.

Play Scotland (no date) supports the benefit of playing with loose parts in a variety of ways dependent on the capability and development stage of each child. Playing with loose parts can help children develop mathematical concepts such as counting, sorting and grouping various materials; it also helps children to learn about the world by discovering the difference between natural man-made materials with

their varying textures, colours, shapes and physical properties. Playing in this way can give opportunities for sensory play; give children the freedom to explore and develop imagination and also develop fine motor skills. The woodland picture in Section one is the ideal environment in which children can achieve these skills, children can use their imagination with the abundance of loose parts they have found, for example the children found a variety of sticks and twigs, these can provide endless opportunities for children; one day a stick can be a sword or light sabre and then the following day it can be a fishing rod or walking stick. This can be described as affordances where children will find many uses for a variety of materials they may find and the possibilities are endless while also developing mathematical, science, problem-solving and creative development (Gibson, 1977).

However, according to Early Years Educator (2016) the affordance of loose parts such as twigs, sticks, cones, conkers and soil for children to touch is not adequate; children should have opportunities to manipulate, transport, construct and transform. By observing children's interactions with affordances within outdoor environments, this can enlighten practitioners on how to plan essential provision for children to participate in, therefore giving children better learning experiences and outcomes. Therefore, woodland areas such as in the photograph in section one can be adapted by providing children with loose parts such as planks, crates, ropes or tarpaulin; these can then be connected to what is already in the environment such as trees, for example to make dens or swings. Again the possibilities for children's imagination and discovery is endless.

As it can be seen from the photograph there is an abundance of opportunities for the use of loose parts play (Nicholson, 1972) to develop children's scientific and mathematical concepts. According to Rahardjo (2019), STEM (Science, Technology, Engineering, and Mathematics) has been reported to be highly beneficial for students although it also states that STEM is too challenging for young children, however it has been seen that STEM is actually an invaluable source for early childhood education. It has been documented that science and technology play a part in children's daily learning, loose parts such as twigs, rocks and leaves can be used to support STEM learning.

Similarly, Tinney *et al.* (2020) noted that although children are sometimes referred to as young scientists, practitioners have negative feelings about planning scientific activities for young children. Practitioner's perceptions were that science was seen as a 'singular' subject

rather than an everyday activity, and it was too complicated for younger children with practitioners lacking confidence to plan scientific activities. The aim of the programme was to inspire practitioners to offer science activities to support children's natural curiosities and explorations of everyday activities while encouraging open-ended questions, it is important that practitioners provide opportunities for young children to engage in science, problem-solving and critical thinking and it is their responsibility to provide environments in which this is achievable.

According to Dancer (2021), childcare practitioners need to reflect on how childhoods used to be, where outdoor play was primarily den building, climbing trees, collect bugs and make rose petal perfume. Therefore, it is vital that practitioners provide stimulating environments in the outdoors enriched with areas of provision, this means providing opportunities for children to develop mathematical skills and taking advantage of what the outdoor environment has to offer with regards to sorting and collecting natural objects, collecting insects, counting and just letting children enjoy the unique qualities the outdoor environment has to offer. According to Tovey (no date), early innovators such as Froebel highlighted the importance for children to experience nature in all characteristics of nature, for example animals and plants; also the way the universe works with regards to gradients, gravity, forces, motion, energy, light and sound. In Froebel's view through enabling outdoor play in the garden and the wider environment children are getting the best experiences of nature and what it involves.

However, it is vital to remember that a practitioners role is to extend the child's learning experience and to be there as a supervisory role, this can be achieved by use of vocabulary, open-ended questions and enabling statements to enhance all aspects of mathematics. This is supportive of the work of early innovators such as Vygotsky (1980, cited in Conkbayir and Pascal, 2014) where his concept of the adult observing on the periphery, this is called the Zone of Proximal Development (ZPD); taking note of what the child can achieve at the lower end of the ZPD; this can also be the child observing another child or adult as the more knowledgeable other. Vygotsky called this 'scaffolding' whereas adults observes the child and then offer support to enable them to reach the next level of development.

Bento and Dias (2017) recognises the importance of outdoor learning for children's healthy development. Natural and enthralling play activities promote all areas of development including, intellectual, physical, social and emotional well-being enabling children to succeed

and reach their full potential developmentally. Children's attention and interest are stimulated by what outdoor environments have to offer. Flowers, plants, sticks, rocks, soil, water offer an abundance of possibilities for play and to entice their curiosity and exploration. As White (2014) states, when children are in the outdoors, the natural elements are all open-ended for children to use their imagination and invention; in this process of reinventing which can also be called affordance of materials, a stick can be a gun, a pen or a magic wand, this could also be called divergent thinking, thinking out of the box so to speak.

Activities using soil and water can provide learning opportunities with concepts in relation to mathematics and science; emptying or filling containers can give children the concept of volume, weight and time.

It is vital for practitioners to realise that the most influential tool they can use to identify children's interests, stage of development and inform planning is the power of observation. A misunderstanding amongst practitioners is that observations obstruct genuine participation with children, however an experienced practitioner will understand that observations are essential for good practice and that the practitioner's role is to be on the periphery to observe and only offer support by acting on children's cues or invitation (White, 2011). This is supportive of an observation carried out of a thirteen month old child who was being observed by the mother, the child was exploring the outdoor environment being carefully observed by the mother, the play was not interrupted; only when the mother felt that the child needed some assistance or there was imminent risk to the child, this is a perfect example of the power of observation (Siren Films, 2016).

According to Magrath (2010), this is in contrast to research carried out by Siraj-Blachford and Sylva (2004) stating that it is the communications between children and adults involving sustained shared thinking that optimum learning takes place, engaging conversations between adults and children is central in order for children to reach their full potential and develop vital thinking skills (Magrath, 2010). Similarly, Brodie (2016) suggests that in order for successful sustained shared thinking there needs to be an episode where two or more individuals, this can be a mixture of adults and children, collaborate together in an intelligent way to discuss an activity, solve a problem or extend a narrative. This can be achieved by asking open-ended questions, for example; how many rocks will it take before the tower topples over? Which rock is the heaviest? With these strategies in place practitioners are able to encourage children's thought

processes, therefore developing metacognitive thinking and talking. Sustained shared thinking was demonstrated in section two where the practitioner was engaging with children asking open-ended questions. Likewise, Siraj-Blatchford (2009) suggests that when children experience more challenging sustained shared thinking through play with mainly adults, a child's development improves. This can be further supported and extended by providing sophisticated and abstract activities in order to scaffold their learning, therefore encouraging maximum learning outcomes.

References

- Bento, G. and Dias, G. (2017) *The importance of outdoor play for young children's healthy development*. Article in Press. Available at: <https://www.sciencedirect.com/science/article/pii/S2444866416301234> (Accessed: 15 September 2021).
- Brodie, K. (2016) *Your Guide to Sustained Shared Thinking*. Early Years Training and Coaching. Available at: <https://www.kathybrodie.com/articles/guide-sst/> (Accessed: 22 June 2021).
- Browne. (no date) *Gnoll Country Park*. Available at: <https://www.photohound.co/spot/gnoll-country-park-1002891> (Accessed: 29 August 2021).
- Brunton, P and Thorton, L. (2010) *Science in the Early Years*. 1st edn. London: Sage.
- Carle, E. (2001) *The Very Hungry Caterpillar*. 1st edn. London: Penguin.
- Conkbayir, M and Pascal, C. (2014) *Early Childhood Theories and Contemporary Issues*. 1st edn. London: Bloomsbury.
- Dancer, J. (2021) *Taking Maths Outdoors /Learning and Development /Teach Early Years*. Teach Early Years. Available at: <https://www.teachearlyyears.com/learning-and-development/view/taking-maths-outdoors> (Accessed: 15 September 2021).
- Early Years Educator (2016) *Possibilities on offer*. Available at: <https://www.earlyyearseducator.co.uk/features/article/possibilities-on-offer> (Accessed: 15 September 2021).

ECEY5005
2009621
Word Count: 4394

Google (no date) *Life cycle of a butterfly* - Google Search. Available at:

https://www.google.co.uk/search?q=life+cycle+of+a+butterfly&sxsrf=AOaemvLT8H1yVATFkASULhfBwYvtVwgmoA:1631986614439&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiCvbnzh4nzAhUgA2MBHYICALUQ_AUoAnoECAEQBA&biw=1366&bih=657&dpr=1

(Accessed: 18 September 2021).

Gibson, J. (1977) *The Theory of Affordances*. Available at: <https://www.scribd.com/document/489967366/Gibson-James-J-1977-1979-The-Theory-of-Affordances-pdf> (Accessed: 21 September 2021).

Google (no date) *Stick tower* - Google Search. Available at:

https://www.google.co.uk/search?q=stick+tower&sxsrf=AOaemvLk7h_Vodm3sAOwofQAN4W5GLryFg:1631540627337&source=lnms&tbm=isch&sa=X&ved=2ahUKEwjchp28ivzyAhXPUMAKHcQRCQkQ_AUoAXoECAEQAw&biw=1350&bih=647

(Accessed: 13 September 2021).

Google (no date) *Toppling rock tower in woodland* - Google Search. Available at:

https://www.google.co.uk/search?q=toppling+rock+tower+in+woodland&tbm=isch&ved=2ahUKEwiv8sbJhfryAhWNxeAKHYg0CmoQ2-cCegQIABAA&oq=toppling+rock+tower+in+woodland&gs_lcp=CgNpbWcQAziHCCMQ7wMQJ1DomQFY6JkBYOuxAmqAcAB4AIABOIqBOJIBATGYAQCgAQGqAQtnnd3Mtd2l6LWltZ8ABAQ&sclient=img&ei=AUQ-Ye_tJY2LgweI6ajQBg&bih=657&biw=1366

(Accessed: 13 September 2021).

Grigg, R. and Lewis, H. (2016) *A to Z of learning outside the classroom*. 1st edn. London: Bloomsbury.

Lund, D. (2018) *Top 5 benefits of children playing outside* - Sanford Health News. Sanford Health News. Available at:

<https://news.sanfordhealth.org/childrens/play-outside/> (Accessed: 14 September 2021).

Martin, C. (2018) *Enabling Environments: Outdoors* - In the balance. Available at:

<https://www.nurseryworld.co.uk/features/article/enabling-environments-outdoors-in-the-balance> (Accessed: 17 September 2021).

ECEY5005
2009621
Word Count: 4394

Magrath, C. (2010) *Supporting Early Mathematical Development Practical Approaches To Play-Based Learning*. 1st edn. Oxon: Routledge.

McGrath, C. (2014) *Teaching mathematics through story*. 1st edn. London: Routledge.

Miller, J. (2020) *Mud Masters*. Available at: <https://www.communityplaythings.co.uk/learning-library/articles/mud-masters> (Accessed: 10 September 2021).

Nicholson, S. (1971) *Simon Nicholson and The Theory of Loose Parts – 1 Million Thanks / Creative Star Learning / I'm a teacher, get me OUTSIDE here!* Available at: <https://creativestarlearning.co.uk/early-years-outdoors/simon-nicholson-and-the-theory-of-loose-parts-1-million-thanks/> (Accessed: 10 September 2021).

Play Scotland (no date) *Loose Parts*. Available at: <https://www.playscotland.org/wp-content/uploads/Play-Scotland-Loose-Parts-Leaflet.pdf> (Accessed: 15 September 2021).

Project Learning Tree (2019) *Hands-On Activities to Explore the Many Uses of Trees - Project Learning Tree*. Available at: <https://www.plt.org/educator-tips/activities-explore-uses-trees/> (Accessed: 11 September 2021).

Rahardjo, M. (2019) 'How to use Loose-Parts in STEAM? Childhood Educators Focus Group discussion in Indonesia', *Jurnal Pendidikan Usia Dini*, 13(2). DOI: <https://doi.org/10.21009/JPUUD.132.08> (Accessed: 14 September 2021).

Ryder Richardson, G. (2014) *Creating a Space to Grow*. 2nd edn. Oxon: Routledge.

Siraj-Blatchford, I. (2009) 'Conceptualising progression in the pedagogy of play and sustained shared thinking in early childhood education: A Vygotskian perspective,' *Educational and Child Psychology*, 26(2), pp.77-89. Available at: https://www.researchgate.net/publication/320194826_Conceptualising_progression_in_the_pedagogy_of_play_and_sustained_shared_thinking_in_early_childhood_education_A_Vygotskian_perspective (Accessed: 19 September 2021).

Siren Films (no date) *Toddlers Outdoors: Liam explores the garden*. [video] Available at:

<https://eur01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.sirenfilms.co.uk%2Flibrary%2Ftoddlers-outdoors-liam-explores-the-garden%2F&data=04%7C01%7C2009621%40student.uwtsd.ac.uk%7C69aaf660bc434526c44108d97f4569dd%7C4e0f11f9046e45059cb8db2152311e21%7C0%7C0%7C637680758360334982%7CUnknown%7CTWFpbGZsb3d8eyJWljojMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTil6lk1haWwiLCJXVCi6Mn0%3D%7C1000&sdata=3Rr5qP%2B9HyNISH0tF0i0MuMYRfydyTWY7EIFFF4CoeM%3D&reserved=0>

(Accessed: 18 September 2021).

Spencer, R., Joshi, N., Branje, K., McLissac, J., Cawley, J., Rehman, L., Kirk, S. and Stone, M. (2019) 'Educator perceptions on the benefits and challenges of loose parts play in the outdoor environments of childcare centres', *AIMS Public Health*, 6(4), pp. 461-476. Available at: <https://pubmed.ncbi.nlm.nih.gov/31909067/> (Accessed: 14 September 2021).

Thornton, L. and Brunton, P. (2014) *Bringing the Reggio approach to your early years practice*. 3rd edn. New York: Routledge.

Tinney, G., Gealy, A., MacDonald, N and Waters, J. (2020) "Too complicated for little ones...": Developing a professional learning programme to support early years practitioners' confidence in engaging science concepts in their practice. *Early Education Journal* No 90, p.10. Available at: https://www.early-education.org.uk/sites/default/files/EE_Journal_Spring_2020%20WEB.pdf (Accessed: 21 September 2021).

Tovey, H. (no date) *Froebel's principles and practice today*. London: Froebel's Trust. Available at: <https://www.froebel.org.uk/uploads/documents/FT-Froebels-principles-and-practice-today.pdf> (Accessed: 21 September 2021).

Tucker, K. (2014) *Mathematics through Play in the Early Years*. 3rd edn. London: Sage.

ECEY5005
2009621
Word Count: 4394

Welsh Government (2018) *The Four Purposes of the Curriculum for Wales*. Available at:
<https://gov.wales/sites/default/files/publications/2018-03/the-four-purposes-of-the-curriculum-for-wales.pdf> (Accessed: 23 September 2021).

Welsh Government (2020) *AREA OF LEARNING AND EXPERIENCE: Mathematics and Numeracy*. Available at:
<https://hwb.gov.wales/curriculum-for-wales/mathematics-andnumeracy/descriptions-of-learning> (Accessed: 2 September 2021).

White, J., Cree, J. and Solly, K. (no date) *Learning outdoors: Building a solid foundation through nature*. Community Playthings. Irresistible-learning.co.uk. Available at: <https://irresistible-learning.co.uk/wp-content/uploads/2020/02/learning-outdoors.pdf> (Accessed: 21 September 2021).

White, J. (no date) *Early Years Outdoors: Vision and Values for Outdoor play - Learning through Landscapes*. Available at:
<https://www.ltl.org.uk/resources/a-vision-and-values-early-years-outdoors/> (Accessed: 14 September 2021).

White, J. (2011) *Outdoor provision in the early years*. 1st edn. London: Sage.

White, J. (2013) *Playing and Learning Outdoors: Making provision for high quality experiences in the outdoor environment with 3-7 year olds*. 2nd edn. London: Routledge.

White, J. (2014) *Playing and Learning Outdoors*. 2nd edn. Oxon: Routledge.

White, J. (2016) *Every child a mover / Movement and physical development /Community Playthings*. Communityplaythings.co.uk. Available at: <https://www.communityplaythings.co.uk/learning-library/articles/every-child-a-mover> (Accessed: 14 September 2021).

Yelland, N., Butler, D. and Diezmann, C. (2014) *Early mathematical explorations*. 1st edn. New York: Cambridge University Press.