Student Number: 2011956 Module Number: ECEY5005/C Word Count: 3,951

Section One

Source: (Shutterstock, 2020)

Section 2

Feature one - Rocks

The photograph shows a number of rocks which come in many different shapes, sizes and colours. Children can learn so much from their varied appearances and textures. Towers can be built and pushed down again and soft materials such as cloth or tarpaulin can be added for children to use to wrap rocks and hide them under.

Rocks offer an endless array of discovery . Crevices hold water and when mixed with mud and leaves can create a host of potions to feed the imagination. Adults would be able to drill holes in rocks to create crevices for this to happen and children could add mud to the water filled hole to make a gloopy mixture, adding more mud to make it thicker or more water to make the mixture runny. During a rainy spell a crevice will provide a resource for dropping items into, watching them float or sink when during a dry spell it provides a bowl for mixing.

Source: Alamy (2020)

Source: iStock (2020)

When rocks are moved they can sometimes reveal a whole city of crawling insects and adults would be able to add their own items for children to discover. Adding baskets can enable children to collect these items and an adult could suggest they find other items such as sticks and weeds using different concepts such as asking them to find green leaves, or yellow flowers or sticks of certain lengths and stones encouraging them to find a smaller stone than the one they already have for example.

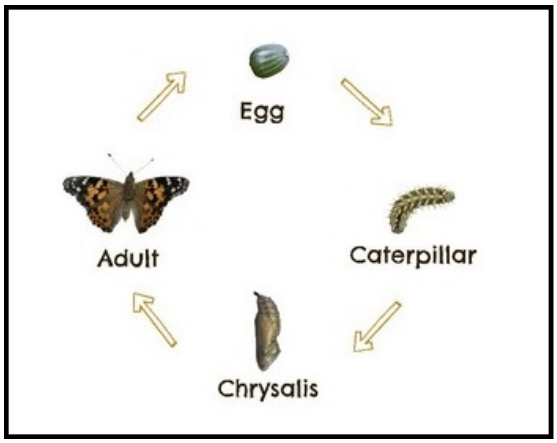
Containers give them the chance to discover concepts such as empty and full and for loose parts when transporting items. By exploring the texture, colour and shape and noticing the difference between rough and smooth edges affords children with endless sensory benefits. Larger rocks can be lifted, moved to other areas, climbed on and used for a number of games such as hide and seek, stepping stones and tic tac toe. Some children prefer to be away from other children and the rocks can provide some peace for a child who needs a rest and providing children with transportable resources such as logs of various lengths and blankets made from various fabrics to build dens and

hideouts can enable children to create their own secret spaces which can be dismantled when they are no longer the focus of their play. To support the development of mathematical and numeracy which is included in the six areas of learning set out within the New Curriculum (Hwb.Gov.Wales 2021) other objects can be introduced such as string or tape and children can line the rocks up and sort them along the tape. The direction could be varied to enable the children to sort them into straight lines, wavy lines, zig zags.

When lifting rocks children will be able to compare the dry stone at the top against the wet muddy stone at the bottom. They will see the darker wet area against the lighter dry area. An adult could add containers of water with paintbrushes for children to discover this for themselves or spray bottles can be introduced to support Science, technology and features of the world around us.

Feature two - Living things

Insects are so varied in their shape, colour, speed, agility and skill that they provide children with many opportunities to engage their imagination.



Source: Facts just for Kids (2021)

Insects hide under rocks, within hedges and within the crevices of the bark of a tree providing children with an adventure of discovery. Encouraging children to move the rocks to discover what is living under it is beneficial for scientific development and can help to differentiate about weights and measurement when a the realisation of a larger stone is heavier and will take more strength to move than a smaller stone and by encouraging children to put the rock back carefully after they have studied what is under there will help them to learn that these creatures are living there because they feel safe and it is their home, we should respect them and treat them with care, empathy and kindness things to help support children's health, wellbeing and humanity which is a valued area of learning which forms part of The Curriculum for Wales (2021)

The picture shows a variety of plants. The grass provides a resource to lie on, touch, feel, weave, pick, stroke, eat. Hessian can be added to the area to provide an opportunity for weaving the grass. Trees can support gross motor skills when climbed but a discovery into other things growing and living within the branches and bark can give further insight into nature and during discussion they can learn how the bark protects the tree and how the bark cracks with age. The trees can also provide models for playdoh or a stencil. When a piece of paper is placed onto the tree it can be rubbed with pencil to show the bark more clearly, comparisons can be made when rubbings are taken from other areas or items such as rocks or leaves.

There are ferns and weeds growing on the ground which not only provide a haven for insects but when explored, children are shown how some ferns curl up and how some plants produce flowers which, when visited during different times of the day or year they will see the flowers adapting to the sunlight or the change in weather.

Feature three - Uneven surfaces

The photograph shows that the ground has an incline and the area can provide children with opportunities to use their gross motor skills by running, rolling and tumbling to support their balance and co-ordination. They discover what happens when they roll down and learn what happens when they try to roll back up again. From walking on the uneven surface children will develop a tolerance for heights, they will need to look ahead, adjust their feet and learn how to balance without falling over. Younger children might need the support of an adult's hand initially, but as they gain confidence children will learn that the trunk of their body will need to lean to be able to balance over their feet and their step size will need to be adjusted. By adding a ball or hoop children can discover how the force of the downward slope helps the equipment to roll faster, yet it takes strength to push the item back up the slope. Loose parts can be added to the area where children will discover that they will need to adjust their movements in order to be able to balance when carrying weight. Tyres, Ropes and toys can be introduced for rolling, climbing and transporting. Features from the area can be transported to the sloped surface such as the rock which are versatile tools in children's play and learning, rocks provide activities such as counting, sorting into sizes. Baskets, wheelbarrows and pull trolleys could be added to the environment for collecting the rocks and when provided with aprons which have large enough pockets children can save their items to reflect on later in the day, reminding them of their experiences and prompting a conversation with peers or adults. Children might want to send the vehicle down the slope, the adult's role would be to remind children about safety and ensuring that other children were not in the vicinity. Bicycles and scooters could be added to the slope where children would experience speed of riding down the slope and the more strenuous effort they would need to push it back up again. Whilst the three chosen features focus on the maths and science links are an abundance of opportunities for cross curriculum learning.

RISK BENEFIT ASSESSMENT

Location / Activity:	Baglan Woods	**Date:**	26th September 2021
Assessor:	Mari Lee	**Review date:**	26th October 2021

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 lace to reduce the risk of injury	Overall risk RATING L/M/H

Walkng on uneven Ground	Learn to Balance body in response to level Develop Co-ordination due to direction change Build Core Strength through bending and stretching Giving children real experiences to make them aware of their limitations and confidence to face challenges Learning that the variation in ground level and weather can have an effect on their capabilities	Falls, low level branches, Sun exposure, cold weather exposure, bites and stings, children could put things in their mouth Slips and falls due to wet surfaces	Children and adults	Discuss with children how uneven ground can make us lose balance; suggest going slowly at first and holding arms out to help steady themselves. Make children aware of low level branches and remind them to step over them Ensure appropriate clothing is worn such as sun hats, long sleeves and trousers and good walking shoes. Watch younger children and remind older children that they should not put things in their mouths Check weather forecast and abandon activity if the weather conditions are unsuitable taking high winds, snow, poor lighting into consideration making the area dangerous.	L

Carrying objects on uneven ground	Giving children opportunities to test their limitations. To communicate how forces have an effect on themselves when moveing	Falls, objects falling onto children. Bumps, scrapes and bruising	Children and adults	Reminding children to keep a safe distance from each other, Ensure that fully stocked first aid kits are available Appropriate clothing should be worn Adopt clear rules and boundaries that children are made aware of to ensure the safety of themselves and other people around them	L

Exploring Rocks and stones	Allowing freedom to explore Physical developments – Pulling, climbing, rolling Sensory development – experiencing textures such as smooth, rough, sharp edges.	Falls, cuts and grazes	Children and adults	Ensure appropriate clothing is worn, long trousers and good walking shoes Ensure first aid kit is available and clean water for bathing Ensure hand washing takes place after the experience	L

Collecting Rocks and stones	Mathematical Development – counting, sorting Learn to Classify and identify Encourage curiosity and an awareness of different textures	Children could put small objects in their mouth, sun exposure,	Children and adults	Watch small children closely, ensure older children are reminded that they should not put items in their mouth. Appropriate clothing and shoes to be worn Ensure clean water is available Care should be taken when lifting stones and rocks Ensure children have sunscreen and product advice has been followed with regard to application	

Hunting for Caterpillars	Becoming aware of living things and life cycles Enabling children to experience things first hand	Bites and stings, Encounter with rubbish or animal faeces	Children and adults	Ensure appropriate clothing such as long sleeves and trousers. Discussion with children about stinging plants and what to avoid. Adult should ensure that they are aware of the insects and what stings or bites could be possible and ensure that appropriate first aid equipment is available Adult to inspect the area and remove any rubbish or items which could endanger the children	L

Children exploring the area and living things	Becoming aware of living things Discover the relationship between plants and insects Physical development and use of Gross and fine motor Skills Allowing children to experience curiosity and question how things work Giving children real experiences to help realise their limitations. Children will learn to follow rules.	Bites and stings Children could fall and injure themselves Children could become lost		Ensure that appropriate clothing is worn and discuss with children about stinging plants. First aid kits to be available. Children should be reminded to take care when lifting heavy stones and rocks Children should be reminded to take care to replace stones and rocks and leave things where they found them Adult to explore the area before hand to ensure there are no serious hazards such as cliffs or deep water where children could fall into or places where children can hide or become lost Suggest boundaries such as areas which are unsafe and ensure that measures are in place to prevent children falling Adult should be aware of any member of the group who has specific allergies and know how to deal with emergencies	L

Section Four

According to Montessori, (1946) when children are given enough opportunity to play and learn outdoors they will develop a greater understanding of nature. If adults can see the opportunities that the outdoor environment can offer, mathematical concepts will come far easier to children. Montessori believed that the mind has an instinctive tendency to order, sort and categorise patterns, shapes, colours, symmetry, and quantities. Her philosophy goes on to highlight that the natural environment provides the tools and resources to do this and by giving children the opportunity to develop their mathematical instinct, it will provide the foundations for future development and learning and the outdoors is full of opportunity for children to learn mathematics and science and a whole host of other areas of learning. Due to a wide range of resources that the outdoors provides, different types of scientific phenomena can be experienced first-hand and counting, measuring, exploring and developing mathematical ideas through imaginative play is possible as children learn about thickness, lengths and shapes according to Nellson and Ferholt, (2014)

The area seen in the photograph provides children with the possibility to encounter walking on a sloped surface and enables them to explore their physical capabilities and to test their affordances for movement Gibson, (1979). When walking on a sloped surface the chances of a child falling is increased and by adding loose parts LECS, (no date) such as rocks, logs and other materials, children will be able to practice balance and the alteration of the walking experience due to the weight. Another experiment that could be explored is adding loaded bags which can be carried on the back, front or higher, lower on the body which will encourage children to learn naturally how to balance, control and challenge their ability to modify their gait and position. Children will develop an understanding of their own ability when walking or running down a slope and experience not only the downward direction but the gravity pulling their whole body forward, therefore they will need to adjust their steps or modify their stance and control their grip on the slope to prevent the possibility of falling. When carrying loose parts up and down the slope, children are faced with further challenges due to the weight and balance, forcing to adjust the way that they are carrying items. Nicholson (1971)

According to Gibson (1979), and his theory of affordances, when introduced to a new surrounding each child perceives it in a different way. For example one child might view a large rock as an ideal place to climb and another child might see it as a place to hide behind. By offering large, interesting areas for children to explore, they can be masters of their own play and bring their own ideas and creativity into situations.

Through supporting children in this way they are learning in accordance with The New Curriculum (2021) focusing on all six areas of learning. By introducing loose parts to the environment they will be able to use the objects in whichever way they choose due to the unlimited possibilities of loose parts (Nicholson, 1971). The objects are open ended and adaptable and will allow children to be in control of the information that they are gathering. Loose Parts can be used by children of all abilities because there is no right or wrong way of using them and they can be adapted to support learning in all areas of the New Curriculum. Hwb, (2021)

The Curriculum for Wales and the Welsh Government (2021) firmly places a high advantage in the use of outdoors as a classroom stating that adults should provide young children with a rich, stimulating outdoor environment with contexts for play, exploration, language and real experiences. By being introduced to large open spaces such as the seen in the photograph, it will enable children to experience opportunities to develop their mathematical and scientific thinking and imagination. According to (Piaget, 2001) children, when experiencing situations first hand, increase their understanding and intelligence. This is supported by (White, 2013) who states that children will form schemas and patterns in their play which enables them to solve problems, organise and make sense of the world around them. The outdoors provides children with an ever changing environment where they can learn and engage with Maths and Science. Experiencing how the weather changes is another learning opportunity. Children will make discoveries with rainfall, snow, hail and sunshine . Children can learn about the water evaporating, how the warmth of the sun dries it up and when the area is visited after a rainy day children will notice that the holes are full of water again which is another way to experience concepts such as full and empty and how the weather has an impact on natural resources. To further support children's outdoor learning Froebel used 'gifts' . He suggested that children are able to build on their knowledge and skills by using familiar objects or 'gifts' to experiment further. Such as using a ball to roll down a slope. Froebel Trust (2021)

Young children need challenges and risk which allows long periods of time outdoors within a safe environment and it is up to the adult to provide the safe environment and to help children understand how to be safe and be aware of others. By allowing children to play outside in all weathers supports Curriculum for Wales, (2021) providing not only wellbeing but a wide range of experiences to enable children to explore activities from a wide range of viewpoints to promote the holistic development of the child. Little (2015)

The challenges that could be faced are that some adults fear that children will not enjoy being outdoors, especially when the weather is cold and damp and the winter is associated with colds and viruses, however, according to Public Health Wales, (2021)

the outdoors is safer than indoors due to the air constantly moving around and blowing virus particles away. For children to fully benefit from the outdoors, it is necessary for them to experience and play outside all year round for their development and learning of concepts such as life cycles, seasons, climate and weather. Montessori Academy, (2021) Adults should provide suitable clothing not only to protect them from the elements of the weather but also to allow them to play safely, comfortable and free from worry about messing up their own clothes and by demonstrating ideas to cope with adapting to an outdoor environment such as physical activity to keep warm children will help them to persevere (Warden, 2012). Other challenges faced by adults are due to a lack of knowledge or a fear of the subjects of science and mathematics due to negative experiences during their own education. By making the most of unexpected occurrences and exploring with the children, practitioners will learn to adapt their negativity around the subject and view mistakes in a positive way and by allowing children to take the lead they could follow through with questions to encourage mathematical and scientific language and metacognical thinking. When adults realise that it's acceptable not to know everything and cast aside their own perceptions of how they view science and mathematics they can explore alongside children and will feel more confident in providing learning opportunities for children. Tinney et al. (2020)

Language is an important tool in teaching mathematical concepts. According to (McLachlan, Fleer & Edwards, 2010) by including children in everyday activities and using shared sustained thinking, adults can engage children in mathematical concepts in their language such as edge, top, bottom, under, over to support their mathematical development. For example, by encouraging children to help with chores such as laying the table adults can ask them to spread the table cloth to the edge, put cutlery on top, place a table made under. Research by Siraj-Blatchford & Silva, (2004) shows that a balance of freely chosen activities and adult provided constructed play is more effective in supporting learning outcomes for children so by observing children, knowing what they enjoy and identifying areas of strengths and weaknesses can enable adults to plan for their next steps of achievement Welsh Government, (2021). This leads on to the importance of sustained shared thinking Siraj-Blatchford, (2009) where adults can provide children with their own knowledge to help them to develop their own understanding. By allowing children to explore and develop independently and to work things out for themselves but also providing children support and assistance to guide them through the learning process as suggested by Vygotsky (2004) who emphasised the importance of scaffolding and more knowledgeable others and the use of language to assist the child's thinking process. telling stories to support children's experiences, such as explaining how earthworms move the soil to make it easier for plants such as dandelions to grow and then elaborating further by discussing the butterflies and the pollination process can help them to understand life cycles Forest Research (2006)

Providing opportunities to visit the area at different times of the day and at different times of the year will allow children wider exploration, seeing the changes of the sunlight, weather and seasons. Visiting on a rainy day for example, will allow children to discover that the wet slope provides further risks of falling and therefore they will need to take more care, perhaps opting to sit and slide down the slope instead. Visiting a pond in the spring time will allow children to see tadpoles developing into frogs, giving confirmation to the stories which they have heard about the lifecycle of the frog . Visiting the meadow in the summer will help them to see the work of the bees and butterflies pollinating the flowers and this pedagogy has been supported by many theorists, particularly (Dewey, 1938)

By exploring insects and living things children will be introduced to life cycles, pollination, reproduction, composting, animal food chains. Insect feed children's curiosity and can be an interesting topic for discussion supporting their language and even children who are squeamish about bugs are still fascinated by them, helping to become confident learners. Children are introduced to pattern in spiderwebs, colours and swirls on the shell of a snail, numbers of spots on a ladybird, symmetrical wings of a butterfly. (Warden, 2017) The way a bug looks can tell a child a lot about them. For example, butterflies have wings so they must be able to fly. By studying the legs of a grasshopper children can see how they move to make a noise and when they jump, they generate more excitement to the already awestruck child especially when the child can mimic the actions of the creatures such as bending their legs and trying to jump as high as the grasshopper. Wrighter, (2010)

Finding caterpillars on leaves during the spring can be an occasion to introduce books such as The hungry caterpillar or illustrations which can be used when leading them into an adventure of discovery where they will be able to experience seeing the process first hand. Forest Schools (2019) . Adults can also introduce games to support comparing sizes and measuring and exploring symmetry to the activity to stimulate learning about life cycles and the language of mathematical concepts to further support learning withing The Curriculum for Wales (2021)