



*Awe and wonder –
science and mathematics
and
the outdoors.*



(Natural Start, 2013)



(Source: Morgan, 2021)

Feature 1

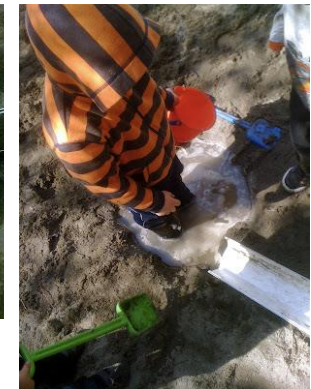
A natural sloping surface: This can be used to develop the scientific concept of forces and energy. Children should be able to explore independently and be provided with drainpipes, water and loose parts, this will give children the opportunity for play and discussion and will promote language. While investigating they can higher or lower the ramps using blocks or ropes from trees, they are able to see what height slope runs the fastest or slowest. Children will spend many hours experimenting with loose parts and considerably benefit from open-ended play. They will learn if a boat floats down the pipe, will it float back up the pipe? They will learn how to connect things for the water to flow further. Sand could be added so children can make natural gullies, pouring in the water and changing its direction. Introduce mud so that children can make dams, they will be able to experience the change of state of the water and the effect on the flow.



(Pinterest, 2021)



(TeacherTom, 2012)



Providing water play will also give opportunities to explore floating and sinking, using a variety of materials they will also be able to explore different textures. Proving balls or cars that roll or other loose parts that don't will enable children to explore shape, they will begin to understand that objects with curves roll, and flat sides don't. Energy and changes will be observed when they roll and stop a ball seeing the forces in action. They can roll down the gradient in the environment, this will provide a sensory experience of touch to the natural elements and experience the feeling of rolling. Providing activities in the outdoor environment gives children the space to run, bend and stretch promoting physical development.

Feature 2

Trees: The trees can be used to identify different leaves by matching pictures that have been printed out, using paint colour cards for children find the shades of colours within the garden that will identify with their chosen cards. Providing paper and crayons children can experience the different textures by collecting rubbings of the bark and leaves. Providing paint and paper will enable children to print with the leaves allowing them to compare sizes and shape. The children can take pictures and videos using the I-pads at different times throughout the year, enabling them to look at and compare the colours and the differences in the seasons. Children will be able to feel the difference in temperature when they stand in the shade and direct sunlight. They will be able to look at the shadows provided by the trees and how this moves throughout the day.



(Woodland Trust, 2019)



(Kindling and play training, 2021)

Providing loose parts such as palettes, logs, boxes you will be supporting a child's physical development by enabling them to make dens and to climb the trees as climbing is necessary for development. This is supported by the new Curriculum for Wales 2021, Health and Wellbeing states that "Developing Physical health and well-being has lifelong benefits". (WG,2021) By providing baskets of various sizes that the children can fill and empty with the leaves and transport to different areas will support the schematic play. Adding measuring tapes will encourage children to measure the width, height of the tree and be more inquisitive to move on and measure other things in the environment. Being outdoors and being able to smell and touch the natural environment is beneficial to children and adults and will support Mental health & Wellbeing.

Feature 3

Minibeast habitat garden and vegetable patch: Placing logs, boxes, branches as a continuous provision for minibeasts to home in. Enhancing this area with pictures of the life cycles of the minibeasts will encourage investigation and curiosity. Providing magnifying glasses and pots so that children can look closely and the differences in each minibeast. Children will learn about the changes that occur during the growth and the importance of protecting the environment. Learning about the minibeasts, their larvae/eggs, and how they change as they grow is an important progression step in the new Curriculum for Wales (2021), it states that looking at the different habitats and how living things relate to and impact on the environment, will support children's knowledge of 'our' impact on the living and natural world.



(Woodland Trust,2019)



(Backwoods Mama, 2018)



Creating a vegetable patch where children can plant, and watch things grow. They will learn the importance of the sun and the water and the effect on living things and what will happen if something is deprived of either. They will learn about the effects of the change of weather like frost and too much rain. They will be exposed to different textures and smells. Providing loose parts where children can cover the plants and see the effect on the growing. Children will learn about the food chain, the variety of colours of the vegetables and plants. They can look at the different shapes. They will be able to feel, look at the seeds and witness germination. As gardening is strenuous work they will be again developing physically. Children will need to label what they have planted, and this will encourage writing. It will promote healthy eating and the benefit of food to plate. Children will develop resilience and patience. Children will participate in counting and measuring the crop and discussing the differences with peers, encouraged to talk about why this may have happened.

Ensuring that children have access to these resources always, will support the four purposes set out by Welsh Government in the Curriculum for Wales (Welsh Government, 2021) Children will learn through a holistic approach and become creative, capable learners who enjoy the challenges and problem solving. When children can re-visit areas that are continuously set up with the same resources/loose parts, they are able to build on prior knowledge. Learning outdoors will enable to learn about biodiversity, and that everything that occurs naturally in the outdoors will have an impact on something else.

RISK BENEFIT ASSESSMENT

Location Activity:	/ Garden	Date:	13 th September 2021
Assessor:	Claire Morgan	Review date:	13 th March 2021 – or as necessary as required

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
Water Play	Children will benefit by lifting, pouring, running, carrying, bending, or squatting. This will develop their gross motor skills and even strengthen hand muscles supporting their fine motor skills. They will experience sensory play and promote problem solving and scientific thinking.	Slips, trip and falls. Ingestion of dirty water.	Children and adults	Surfaces will be always monitored by practitioners, excess water to be swept away regularly. Children told prior and during session that running around the water area is not safe. Children will be explained to that the water is not clean and directed to the drink station if drink required. Washing hands after the activity	L

Bark rubbings and tree climbing/den building	Children will be come in close contact with nature, they will explore texture and encourage language. Children will look at different colours and variety of trees. Encourage social engagement and discussion. Climbing will strengthen children's muscles, balance and co-ordination. Support hand eye co-ordination. Build confidence and self-esteem. Learning about teamwork, problem solving. Looking at climate and how to protect ourselves from the weather and how we can use the environment to sustain living. Experience schemas, be self directed. Explore loose parts and discover a use for different resourcdces.	Falling or low level branches. Slips, trips and falls Uneven surfaces with exposed roots, potholes. Splinters. Mouthing unclean objects Risk of infection	Children and adults	No activities will take place in the garden if the winds are high due to falling branches. Prior to the activity a discussion with children about the uneven surfaces. Practitioners will observe children who have difficulty with balance and mobility. Practitioners will discuss with children prior to the activity how important it is not to put anything in the mouth, this will be observed throughout the session. Children will be supported to climb in line with their ability, staff will always support and supervise this throughout the session. Large splinters to be removed and children's hands checked after washing. Washing hands after activity	L
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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
Minibeast home building	To look closely at the differences in minibeasts with a magnifying glass, counting spots and legs, learning life cycles. The environments each insect prefers to live in and the climate. Exploring body parts. Promotes curiosity and benefitting from the natural environment. Learning about the weather and how to protect the minibeasts, what materials would be better to use to protect them. Counting sticks and looking at the different sizes suitable for each home.	Slips, trips and falls Bites or stings. Ingestion of insects. Injuries from branches and sticks. Allergies from insects.	Children and adults	Surfaces checked prior to activity taking place. Bites and stings be dealt with accordingly and parents informed. Any allergies will made known prior to activity taking place. Children reminded the correct way to carry sticks and branches. Discussion to remind children that nothing from the garden should be put in their mouths. Washing hands after the activity	L

Planting & growing	Children will develop sensory experiences. They can feel the soil, petal, smell the flowers. They can experience the tastes and textures of raw and cooked food. They will get a sense of achievement from successfully growing food. Labelling the plants will support the development of writing. They can discuss colour and the different shades. Encourages healthy eating. Being outdoors in the fresh air will benefit Health & wellbeing. Digging, carrying, pulling, pushing, will support physical development. They will learn about the germination, photosynthesis, the importance of the right amount of each weather condition for things to grow.	dog, cat faeces in the soil. Nettles and brambles Berries etc that look edible Injury of carrying heavy loads	Adults and children	Areas to be checked and soil surface raked prior to activity. Children advise that there are new things to explore and that some may hurt if we touch. Children to ask an adult if they find something new. Children to containers provided for transporting soil Washing hands after the activity	L
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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
Being outdoors	Experiencing different weather conditions, warm, cold, dry, wet, windy etc. Children will be able to look for areas that provide shade to cool down and look at the shows made by the sun. they are able to look at the change of state of water if the temperature is extremely cold. Look at footprints in the frost and why they are melting.	Fallen branches if high winds. Sunburn or heatstroke if very hot. Slips, trips and falls on the ice.	Adults and children	Water always provided for drinking. Sunscreen applied Appropriate clothing for the weather. Advise to walk slowly in icy patches. Not to use garden if winds are high.	L

4 - With reference to theory and research consider how the adult working with children can support and encourage children to have an opportunity to engage with mathematical and scientific concepts in an outdoor space such as the one in your photograph.