

SECTION 1



(Source: NSRWA, 2021)

SECTION 2

Feature 1 – Water

The image shows a section of water to the right of the path. This water offers a range of potential educational activities which can develop children's mathematical and science skills.

Floating and sinking activity - The adult firstly asks the children to collect a range of natural items, sticks, stones, leaves, flowers, acorns and bark. With the adult providing a list of items it prompts the children to explore the area further. The children are invited to find any different items which are not on the list that they would like to test. Once the children have a collection of items they are then asked to predict if each item will sink or float in the water. These predictions can offer the adult a greater insight into the children's way of thinking and with the use of additional questioning they are asked to share their reasons behind their predictions. This supports progression step

one in mathematics to represent data- I can investigate, collect and record data. The children are then invited to test each item to find out if their predictions were correct. It offers opportunity for greater discussion about the results and developing progression step two, asking and answering questions in relevant situations. A further extension of this activity would be for the children to create small rafts from natural resources with the addition of string, scissors, cardboard and paper and to test the rafts on the water. Again, the children can predict if they think the rafts will sink or float and discuss how they move across the water. Once they have carried out the raft test, they can discuss the findings and what they think about the results (Welsh Government, 2020).

Living things- This is a different focus the water offers. Children can use buckets, bug collectors, sand sifters and magnifying glasses provided by the adult, to help find and collect plants and creatures. The use of related books prior the visit as well as during their time at the pond will help further the child's knowledge about the living things. It introduces new words and can help give the children aims of what to look for, therefore developing their curiosity linking to progression step one in science and technology – showing curiosity and exploring the environment to make observations (Welsh Government, 2020).

Capacity- The children are provided with a range of different sized containers they can use them with the pond water to explore capacity. Using the containers, the children can experiment to find out which containers hold more, what happens if you pour one into the other? Using reasoning and questioning to support their answers. They can order the filled containers from smallest to biggest and which one holds the most to the least, this supports the development on their mathematical language. The capacity activity enhances skills such as counting, identifying properties, size and measurement and noticing differences between containers. (University of Cambridge, 2021)

Reflections- focusing on the science aspect of light and reflection, children can examine the reflections in the water of themselves and the surroundings. It prompts discussion on what is a reflection? And how does it occur? This can be explored further with water refraction experiments by filling containers and placing an image or drawing behind the containers and discovering what happens to the image when the

container is filled. The adult would then explain that when light passes through the glass and into the water it refracts, causing the visual to change. The children can investigate further if the size and shape of the container would affect the result of the refraction.(What we do all day, 2021)

Water cycle- children are provided with a brief description about the water cycle and how water heats from the sun and turns into vapor into the air then when the air changes and get cold the vapor turns back into a liquid and becomes the clouds we see and then turns to precipitation when the water is condensed, and the air cannot hold anymore therefore turning into rain. Questioning what happens when it rains? Where does the rain go? Ponds, puddles, rivers etc, linking with the science progression step two around life cycles and habitats.(Welsh Government, 2020)

Feature 2- The wooden pathway

The wooden pathway shown in the photograph has a gradient slope and leads on further into the woodland area. It has multiple angles and different lengths of wooden planks. The path provides learning opportunities relating to:

Sloped path– using items such as balls or stones the children can place their items an the top of the slope and measure the distance they travel. The adult can further support this by supplying the children with measuring tapes, and chawks to mark the results. Open ended questioning can be used to find out if the different heights of the gradient and if it effects the results if they roll from a different section of the path or do different items get different results and questioning why. The addition of wooden loose parts that could be added to make different sized slopes. There can be discussions on the fairness of these types of tests and if they should use some force with the items or leave them roll naturally. Link to the science aspect of forces and is it more difficult to roll something up a slope opposed to down it, investigating different forms of energy. (Welsh Government, 2020).

Timing- With the adult providing stopwatches and timers the children can use these to time the items rolling down the path, they question which item rolled the quickest or if they children wished to use the path the race along and they can be timed to see who ran the distance in the fastest time. This therefore supports their mathematical skills

of reading the numbers on the stopwatch as well as their scientific skills of ensuring fair tests. The children can record their findings using clipboards and charts, taking note of the times and results which can later be used for data analysis linking to data analysis (Welsh Government, 2020).

Prints- Using their footwear, children can stomp in the water and or mud and make patterns on the wooden pathway with their footprints. This can be done to create repeating patterns with a mathematical focus or as a science experiment to see which footprints disappear and why, which ones remain and question do all the footprints look the same? What is different about each person's prints? Are the patterns or sizes different? Does this impact on how long it takes to disappear? The adult can provide the children with stampers, stencils and brushes as well as natural loose parts for the children to create a range of marks on the wooden path. Mixing the water with soil creating mud and using this for their designs promotes creative development, mathematical skills if they are measuring how much water and soil they are using as well as looking at it from a science aspect with how materials change when mixed together.

Feature 3- Trees

The area shown has a vast range of trees, branches and leaves to which the adult can use to facilitate learning.

Tree types- The children are asked to find out about the different types of trees in the areas, taking samples from each of the trees and comparing and describing the different leaf types. Questioning if they are able to identify the types and what do they know about the tree. The adult can further support this with supplying the children with the relevant books. With a range of books, either shown before the forest visit or during the visit, the children are shown the names of different trees, information about the tree and if it bears fruit or flowers. What can they notice about the leaves compared to the leaves from other trees. With a further science focus the children can find out the life cycle of a tree and what it starts from, how does it grow and what it needs to grow. The children can take photographs of the setting using cameras or ipads and

then revisit the area during a different season to take further photographs and compare the differences between the leaves and vegetation.

Bark and leaf rubbings- The children can use fallen leaves and sticks to create collages and label the items. The items collected or identified can be used to produce rubbings with paper, crayons and chinks which can later be used in art work or used as a focus point to discuss and examine further.

Patterns and data - The leaves collected can be sorted into a range of different criteria, even one selected by the child. The adult can model sorting the leaves into groups relating to colour or size and type with a mathematical focus. The leaves can be used to create 2 or 3 type repeating patterns based on the child's ability. Branches or sticks found near or from the tree can be ordered based on size and with the adult reinforcing the mathematical language such as tall, taller, short, smaller, bigger, longer etc.

Living things – The children can examine the trees, especially the root and trunk to find any habitats created by insects or creatures. This can be documented to see if certain creatures live on certain type trees or all trees, with the adult providing magnifying glasses and pots to collect things. This supports the scientific progressions steps of the New Curriculum for Wales 2020. (Welsh Government, 2020)

SECTION 3

RISK BENEFIT ASSESSMENT

Location / Activity:	Woodland	Date:	24 th September 2021
Assessor:	Michelle Oatley	Review date:	

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	Children becoming aware of how to balance their bodies when moving around or through obstacles. Identifying any areas that they need to be more cautious such as slopes, rocky path, the edge of the wooden walkway. Supporting their understanding of awareness of their surroundings	Adults and children may fall off the wooden walkway. May trip over loose items such as rocks or branches. Both can result in cuts, bruises, sprains, head injuries or broken bones. The weather having high winds or rain causing branches to fall, walkways to become slippery resulting in injuries which can be life changing. The weather being too hot resulting in children or adults becoming dehydrated and have	Children and adults	Arrange for the children to wear appropriate footwear and clothing such as wellies, boots with grips and long trousers prior the visit. Discuss with the children the possible risks such as the wooden walkway, muddy/rocky areas and the slope and water areas. Explain they may need to walk slower in certain areas until they have a good understanding of the surfaces. Display to the children how they can balance their bodies by stretching their arms out or using the surrounding branches or friends to support them. Check the weather with the met office online to check if weather is suitable- not too windy or too hot/cold. In warm weather ensure children have sunscreen, water, hat and appropriate clothing. In colder conditions ensure children are dressed warmly, gloves hats etc.	L

		lower awareness of their surroundings			
Children exploring the living creatures, leaves, trees, water and rocks	Children learn the names of different things they may not have seen before. Learning about habitats and what things live in them. Life cycles of insects, creatures, plants and trees. Mixing water with soil to create different textures of mud. Exploring the area, developing their curiosity and promoting questioning.	Falling Being scraped by branches, grass, the foliage in the area causing cuts, grazes injuries to limbs. Insect bites or stings. Poisonous plants. Allergies to insect bites or reaction to plants. Children going further than the set boundaries, getting lost. Falling into the water becoming soaked or injured	Children and adults	Pre-visit the location to check for any dangerous plants. Make children aware of any items which are unsafe to touch or collect. This can be done through showing them photographs of the items prior the visit. Check with the children with a 'thumbs up, thumbs down' game. Showing the children the photos of the items and ask them to give a thumbs up if it is safe or a thumbs down if not. Make children aware that they are not to put anything in their mouths. Even their hands which can be dirty from touching natural items and pond water. Explain they will need to stay within a set boundary and not to leave it. In the event of any members of the public visiting the area at the same time remind the children of stranger danger.	L

				Make children aware of the adults within the visit and that they can call for assistance at any time. Be aware of any children with allergies prior the visit and ensure correct medication is taken on visit.	
Floating and sinking activity	Children collect natural items from the area and learn if they can sink or float in the small pond to the side of the walkway. Experimenting with the different materials and supporting scientific language. Sink, float, splash, waterproof, materials etc. Exploring the properties of these materials. Children can use the clipboards to record data supporting mathematical development of data analysis.	Prementioned concerns of children collecting not safe items. Children and adults could slip and fall into water resulting in injury or wetting/soiling of clothing making the child uncomfortable.	Children and adults	Reinforce the discussion about the safe items to collect linking the discussion prior the visit. Make sure that children and adults are aware of where is safe to stand near the edge of the water. The water is shallow and doesn't pose any risk of anyone submerging.	L

	Creating their own rafts to test on the water, developing creativity, team-work and curiosity. Making predictions and finding results supports thinking skills and reasoning.				
Capacity	Learning new mathematical language such as full, empty, half full, pour, tip. Testing the containers develops curiosity on thinking skills, questioning if one can hold more than another. Using size and measurement when looking at the water filled containers	Slipping on wet area causing injuries Drinking the water becoming sick or unwell.	Children and adults	Ensure children have suitable footwear. Children are aware of their surroundings and to walk slowly on wet uneven areas. Remembering their balancing skills. Remind the children of the rules not to put anything in their mouths.	L
Reflections	Science aspect of developing children's awareness of light and how reflections occur giving them	Drinking the water, becoming ill or sick. Dropping and breaking a container	Children	Remind the children of the rules not to put anything in their mouths. Discuss with the children to be careful when handling the containers and that there should not	L

	gained knowledge. Open discussion raising questions and thoughts developing shared thinking. Experimenting with the containers and the images to see what happens when they containers are filled, discussing refractions.	resulting in injury or polluting the area.		be anything left in the woodland that they brought there. Talk about pollution and how it can affect the wildlife.	
Testing materials on the sloped wooden path	Children exploring forces and how the natural items move down the slope, talking about gravity and different emergencies. Developing thinking skills when creating predictions. Measuring the distances using non-standard measurements (hands, feet, twigs and stones etc) Reading standard	Slip or fall off the edge of the wooden path resulting in injury.	Children and adults	Remind children to be aware of surroundings and footings. Extra care when turning or moving faster on walkway.	L

	measurements using rulers, measuring tapes developing an understanding of number and distance. Recording the times using stopwatches for the travelling objects. Promoting awareness of time and number in mathematics.				
Natural printing on wooden pathway	Children will mix materials such as water, soil, footwear, brushes and stampers to create prints. Mixing the soil and water promotes scientific development when learning about how materials change when mixed together. Printing promotes creativity and the use of imagination to design different print pictures.	Slipping and falling on and off the wooden path. Eating the materials or putting in mouth can cause illness and the child to be sick.	Children and adults	Reminder of how to move on the wooden path and be cautious when stepping up from the water onto the path. Taking time and using balancing skills with their bodies. Discuss the import rule of not putting any items or liquids in their mouths.	L

	They can work together to create art promoting teamwork and social skills.				
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SECTION 4

The role of the adult is to support and encourage children to engage in science and mathematics in the outdoors. This role is complex and built up from lots of contributing factors.

The resources that the adults provide the children with will have an impact on the child's interactions and opportunities during these activities in the outdoors. The addition of materials in the environment can enhance learning but, these materials should have open-ended uses and opportunities rather than restricted uses.

With children having access to loose parts it will encourage creativity, curiosity and the development of thinking skills. Nicholson (1971) discusses the importance of loose parts and how the created environment should be adaptable by the children, by allowing them the resources to create an environment that suits them. Having the loose parts evokes children's creativity and enables them to explore these items in new ways. Questioning what can it be used for? Does it only have one purpose? can it be joined with another material to create something else? These extend the child's problem solving and thinking skills through partaking in their own science experiments testing the materials.

Kiewra and Veselack (2016) support the use of loose parts further stating that they preferred them over premade toys as natural loose parts can be repurposed into whatever the child imagines. For example, one day they could be using the item as a sword, the next it could be a ramp for stones to slide down, which encourages creativity in children. However, for the adult to provide these types of resources they need to have good understanding of loose part play and how to support it.

Gull *et al* (2019) research suggests that there are often many different meanings behind the use of the term 'loose part play' and with varied information available. This

can cause confusion for the adult if their research is limited resulting in them not providing enough opportunities for the children due to their lack of understanding. Invitationstoplay.org (2018) supports the importance of the role of the adult when discussing loose parts and the Reggio Emilia approach. It talks about how the role of the adult is to offer environments that are open to adaptation by the child, spacious and providing materials that can have multiple uses. The adult is the collaborator rather than the leader and provide hands on experiences. Tovey (No Year) discusses Froebel's kindergarten and how Froebel was against teacher-led education and supported child led learning through children's interests and curiosities. However, the adult is crucial in helping the children use their freedom of learning in a respectful manner, they must build this skill up over time and become more independent with practice. It further discusses the importance of nature and how it contributes to developing curiosity and children's investigative skills. Being able to experience different aspects of nature they understand their connections with it, from learning what things need to grow to life cycles and the importance of certain aspects. The new Curriculum for Wales 2022 gives descriptions of learning in science that support this Froebelian approach. Welsh Assembly Government (2020) describes children showing curiosity, exploring environments, using tools to construct and talk about that they are doing. It's a step away from the previous curriculum which had different more specific expected outcomes, the new curriculum offers a bigger scope for progression with it not being scripted to specific age and stage outcomes.

Children having more open-ended experiences allows for more learning opportunities. Community care college (2014) discusses Piaget's work and how children think differently to adults. With children offered the loose parts and the outdoor environment with affordances it links with Piaget's theory that children have their own thought processes and are 'active builders of knowledge-little scientists' who have their own ways of seeing things work. Fuson (2009) discusses how Piaget's research has influenced the way the adult develops children's mathematical skills. Origo Education (2021) supports this explaining that children need concrete objects to help gain a better understanding of the mathematical concepts and the use of experiential learning promotes this.

Waite (2011) discusses experiential learning further and how learning in the outdoors offers opportunities that cannot be had indoors. The exploration of new outdoors settings spark excitement in children, they are learning a variety of new skills such as physical development when learning to move certain ways on different grounds. Creating experiments when testing items on water, slopes, finding out about new habitats and life cycles when exploring the surroundings and developing their mathematical skills when measuring, counting and estimating during activities. With the use of the outdoor setting comes the addition of new risks.

Sandseter (2009) explores Gibson's theory of affordances for risky play when observing play in the outdoors of two settings. In their research it highlights the level of adult interaction when children are playing in risky situations, it stated that adults only intervened when a child was near a dangerous element such as cliff edge or threatened by another child. The children had developed skills on how to keep safe while doing risky activities and using the environment as they see it intended for, therefore detecting the affordances given to them. Early Years Educator (2018) supports the importance of understanding affordance and how it helps provide enhanced environments for play. Although the affordance is individual to the child the adult can sometimes predict the child's reaction to an item, however this isn't always the case and children can react in a different way. This reinforces the importance of the adult observing the child's play and thinking about how they can further the child's learning experiences but adding a different element in the future. It gives the adult an insight into the child's way of thinking and level of creativity, development and skills.

Through observation the adult should be reflective of their own role and their strengths and weaknesses. Questioning if they have provided the children with enough open-ended opportunities? This is supported by White (2010) as cited in Waters and Bilton (2016) where White argues that if the adult is unclear of the opportunities, they want to provide the children, the educational setting and children's learning suffers. Alexander (2010) supports this stating that the adult should review their practice and check it against the education intended to be delivered and ensure it is not going to be compromised.

White (2020) discusses how the adult has to adapt their own thinking skills when planning for opportunities in the outdoors. Supporting children's autonomy provides positive results for children's development, helping reduce potential anxieties and developing a good sense of self-worth. Ensuring that when working outside children are given some boundaries and a basic structure but with the allowance of a correct level of freedom of time and movement. With this explorative time children can have their own ideas of what to do in the given time. Will they explore, build or test the surroundings? Will they take risks? Harper (2017) discusses how the outdoor classroom helps children take calculated risks which promotes the development of confidence and risk management skills. With the child learning these skills at a young age it can help prevent harm later in life.

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