

Part 2

The children who would play in this outdoor provision are reception aged children.

Curiosity

According to the Welsh Government (2020a), children should be inquisitive and question how things work. There are numerous options for curiosity in the first image. First, children might bake mud pies in the mud kitchen by adding water to the mud to see whether the consistency changes. Children can explore with this and learn, that too much water will make the mud too watery. A challenge such as, "Who can make the best mud pie!?" could be made by the enabling adult to the children to promote exploration. The children will need to look around and gather various objects with various textures to decorate their mud pies. For instance, acorns have ridges while flowers are soft.

The mud kitchen can also assist children in achieving Welsh curriculum progression step 1, which specifies that children should use the language of money in play while understanding that money is used to buy things in real life (Welsh Government, 2020b). The adult might ask the child "can you make me a mud cake please?". In this case, children are using their role-playing skills. Once the mud cake is complete the child might respond to the adult "£10 please".



(Murphy, 2023)

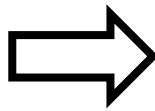
Children who have access to the outdoors may also be interested in what floats and what sinks. The children will notice that the plastic bottles in the water tray float. This is in line with the Welsh Governments (2020a) statement that children can investigate the properties of various materials. However, I will add to the provision by incorporating objects that would sink, allowing children to wonder why plastic floats and why a stone might sink for example. The enabling adult could then explain that

because plastic is lighter than stone and stone is heavier than water, stone sinks in water.

Additionally, the adult could spark curiosity about floating and sinking by posing questions like, “what will happen if we put a stone on the leaf?”, or shall we drop one in the water and see which one makes the biggest splash?”.



(Murphy, 2023)



(My bored toddler, 2022)

Properties of materials and number formation

Children can practise painting their numbers on the ground in water by adding paintbrushes to a water tray. By the end of the day, children could start to wonder how the water numbers they have been practising all morning have dried. They are curious about the water cycle here.

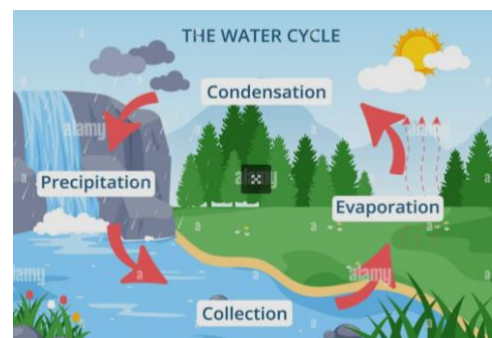
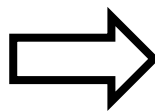
Children will also discover that soil does not write numbers in the same way as water does since it does not flow as easily. This will assist the children in investigating the properties of materials and selecting appropriate materials for different uses (Welsh Government, 2020b).

Children should also be able to notice, recognise, and write numbers in a variety of media using a multisensory approach, according to Welsh Government (2020b).

Children are given a multisensory approach to number practise through this outdoor play activity.



(Playful Invitations, 2020)



(Alamy, no date)

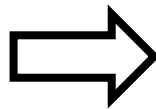
Living things

According to the Welsh Government (2022a), children should be able to recognise that plants and animals are living things that grow. This planter from part 1 can be used to do this. Children can examine the plants and learn that various plants have different textures and smells. The children planted the flowers themselves, and the enabling adult sparked their interest in plants by adding magnifying glasses for the children to examine the plants further. The enabling adult could speak to the children about how plants need certain things for growth, like sunlight and water, and emphasise how the plants must be watered every day. Children become curious about the plants and will begin to wonder how long it will take for the plants to start growing.

In addition, children could find worms and other mini beasts whilst exploring in the soil. Adding shovels and magnifying glasses can help the children explore them. The enabling adult could ask the child “Where did you find that worm? Shall we see if there is more that we can find?” which encourages curiosity about why worms live in soil.



(Murphy, 2023)



(Yanadjana, 2023)

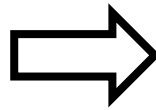
Children's ethics and empathy for all living things should be reinforced in them through the adult's role in the natural outdoor environment. Adults can accomplish this by having a discussion on how to treat animals both big and small with the same respect shown to humans. Adults should promote that even though not everyone likes mini beasts; they exist outdoors and are living things that should not be harmed. Children must be taught to care for everything in the environment both living

and non-living according to the Welsh Government (2022, p.28). For example, through these conversations in the outside spiders will no longer be considered scary but instead something that makes spider webs to catch flies.

Children could use this tuff tray from part 1 and find loose parts such as leaves, stones, sticks and flowers to build houses for any mini beasts that they find in the environment. This encourages exploration as well as developing their scientific learning on habitats.



(Murphy, 2023)



(Creative star learning Ltd, 2022)

We have class pet guinea pigs in the outdoor area of my setting. The Welsh Governments' Curriculum (2020a) want children to realise that plants and animals are living thing that grow. Children are being taught in this instance that water and food are necessities for all living creatures. The question "why does a guinea pig eat straw and grass?" may come from a child who is intrigued. If the children have not already had experience with guinea Pigs, they can start to wonder why they require hay and saw dust in their environment.

Children will be able to talk about the weight of the guinea Pigs when they hold them. "Were they heavier than you thought?" would be a question an adult might ask.



(First cry, 2023)

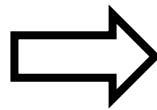
Loose parts- construct and deconstruct.

Children can safely use tools, materials, and equipment to assemble and disassemble, according to the Welsh Government (2020a). Children can use crates to build dens, shops, and other structures in the outdoor space. Through these children will develop skills such as, exploration, trial and error, and imagination.

Children can stack the boxes and jump off them, which teaches them about heights, balance, and co-ordination. Although I could add beams of wood to the outdoor area for the children to learn about balancing. The enabling adult could support the children by encouraging children to hold their arms out to the side to help them balance. Through the concentration that it would take to balance children are gaining an awareness of their body.



(Murphy, 2023)



(Carleton Green Community Primary, 2023)

Part 3**RISK BENEFIT ASSESSMENT**

Location / Activity:	Townhill Community School outdoor provision	Date:	13 September 2023
Assessor:	Ashley Murphy	Review date:	13 April 2023

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Possible hazards and risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Over all risk a RATI NG: L/M/H
Playing in the water tray.	Children will have the opportunity to learn about floating and sinking. Children will have the opportunity to learn about the properties of water. For instance, that it glides smoothly whereas mud does not. Children's fine motor skills and hand eye co-ordination can be developed. Children develop curiosity.	Children could drown in any amount of water. Children could become ill if they play in the water in the winter months. The water could make the ground slippery. This can lead to children or adults slipping and hurting themselves.	Children and Adults	To reduce the risk of injury the adult will supervise the children in the water tray closely. The adult will encourage children to not run up to or near the water tray. This will reduce the risk of them slipping on any water that may have spilled from the tray. Adults would advise parents to pack extra clothing for their child in case their current ones get wet. This is to reduce the risk of illness. Children will be told not to put their face in the water.	L

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Possible hazards and risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk a RATING: L/M/H
Walking or running on an uneven surface	Children develop an understanding of the world around them. Uneven surfaces improve balance and co-ordination. Children become aware of slopes and different gradients.	Children and adults could trip and cause, cuts, bruises, or sprains.	Children and adults	The adult would warn the children before going outside that there are uneven places where they could trip and fall if they do not look where they are going. To make sure the children are aware of the uneven surfaces, the adult would point them out. Ensuring children have appropriate clothing. Such as, trainers and long trousers.	L
Children holding the guinea pigs.	Children will have the opportunity to learn about different weight terminology such as "light" and "heavy". Children will have the opportunity to learn about living things and their habitat. Children will learn to be ethical citizens and show empathy to all living things.	Children or adults could be allergic to the guinea pigs. The guinea pigs could bite a child or adult. The children could fear the guinea pigs. Children could get their fingers stuck in the guinea pig's hutch.	Children Adults	The adult can ask the parents if there are any allergies in the class. The adult can point out the risks on a consent form and send it to parents, asking them if they want their child to experience the guinea pigs. An adult would also only allow a small group of children to experience the guinea pigs at a time to supervise effectively	M

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Possible hazards and risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk a RATING: L/M/H
Children using authentic pots and pans in the mud kitchen.	Children develop curiosity and experimental skills. Children will have the opportunity to learn about light and heavy. For example, metal weighs more than plastic. Children develop an understanding of cause and effect. For instance, if you hit something on metal it makes a loud noise. Real life objects can help children develop their role-playing and imaginative skills. To get the ideal consistency for their mud pies, children will have the chance to mix mud and water.	Due to their weight, metal pots and pans can hurt children if they were dropped on them.	Children	The adult would encourage children to be aware of their surroundings, so nobody gets hurt. Prior to playing, the adult would alert the children that the pots and pans might be heavy. Injury can be decreased by demonstrating how to properly use pots and pans. To ensure that all children are safe, adults should only allow a maximum of 4 children at a time in the mud kitchen.	L

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Possible hazards and risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk a RATING: L/M/H
Fences surrounding the outdoor environment	Secure fences give children a sense of security, which allows them to play freely. Encourages exploration in a safe contained environment.	If children, try to climb the fence it could collapse. Children could get their hand or foot jammed in the fence causing injury and upset. Wooden fences could also give children splinters. If there is a gap in the fence children could get onto the main road.	Children	Before children go outside to play, adults will risk-assess the area to make sure it is secure, and all gates are locked. Adults would remind the children to stay away from the fence to keep them safe. Adults would not allow children to climb the fences.	L
Children building dens with the crates.	Children will have the opportunity to develop gross and fine motor skills. Children can develop their imagination and creativity. Children develop an understanding about different shapes. Children will also develop an understanding about size. This is because they will learn that if the den is too small only 1 person can fit in for example. Children will develop their problem solving and teamwork skills.	The plastic crates could turn sharp if they are damaged. Children's fingers could become stuck in the crates' openings. Children could suffer injury such as bruising if the crates collapse on them.	Children	Before children go outside to play, adults will risk-assess the area to make sure it is secure. Any crates that appear to be broken will be thrown away. There will be a rule put in place where children should only carry one crate at a time. Or if they are unable to do so alone, ask a friend to assist them.	L

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Possible hazards and risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk a RATING: L/M/H
Children exploring for worms in the plant pots.	Children will have to opportunity to develop hand eye co-ordination and fine motor skills. Children will develop gross motor skills by stretching over the plant pot for example. Children develop understanding of living things and their habitat. Children develop empathy for living things. Children will have the opportunity to explore the textures. Children develop curiosity.	The planter's sharp corners could be at the children's eye level. Children are susceptible to bee stings when playing near flowers. Children could injure themselves with the shovels due to them being pointy on the end.	Children	Children will be taught by adults the rule that nothing should be put in their mouth. Children will be given explanations by adults regarding the types of mini beasts they may encounter. Adults will encourage the children to show empathy for the mini beasts. Since shovels are sharp children should not run with them in their hand to reduce the risk of injury.	L

Part 4

UNCRC Article 31 (UNICEF, no date), state that children have the right to play. However, White (2011, p.36) implies that the experiences in the outdoors would not be possible without the support and involvement of adults. This section will explore how adults support science and maths development in the outdoors and any barriers that may prevent them.

One way adults support children's maths and science development in the outdoors is by being the facilitator for exploration. Skinner and Stevens (2012, p.131) state that one-way adults do this is by creating a rich stimulating environment. Children who can interact and connect with nature means they can develop empathy for the environment and become more conscious of the world around them (Welsh Government, 2022, p.16).

However, Ernst (2014, p.738) suggests that teachers' pre-conceived beliefs about the benefits of the outdoors impacts the opportunities they provide for children. Some adults believe that the outdoor environment just allows for social and physical development states Ernst (2014, p.738)

Nevertheless, there are many possibilities for mathematical and scientific development in the natural world and open-ended resources provide infinite possibilities for curiosity. All children like interacting with many things, including magnetism, gravity, and cookery, as well as shapes, animals, and plants. Nicholson (1971 ,p.30) states that all these items share the characteristic of being loose parts. Practitioners who are aware of their responsibility in encouraging and observing open ended play have a sufficient role in the learning children receive says Casey and Robertson (2016, p.28); Rahardjo, M. M., (2019, P.313). The role of the adult in the Reggio Emilia approach is to provide opportunities for children to discover and explore independently, using loose parts says Smith-Gilman (2018, p.93).

Adults may limit the amount of time children spend in the outdoor area because of lack of funding states Bilton (2020, p.19). Nonetheless according to White (2014, p.37) some of the best resources adults can provide for children in the outdoors are

natural materials such as sticks, leaves, sand, and water. They are easily accessible, collectable, or inexpensive to purchase. Natural materials develop children's scientific and mathematical skills says White (2014, p.39). For example, through observing detail, sorting, ordering, pattern making, size and shape.

The Welsh Government (2022, p.22) says that to encourage children's continuous exploration of mathematical and scientific concepts in daily life, they should have regular opportunities for outdoor play. However, Bilton (2020, p.19) states that some practitioners feel that they have not got enough adults to manage the outdoor environment.

Jean Piaget says that the role of the adult is to set tasks that challenge children's thinking including open-ended investigations (Grigg and Lewis, 2016, P.33). This will encourage children's curiosity. Grigg and Lewis (2016, p.41) says that the role of the adult is to promote numeracy skills in real life contexts. Such as writing down phone numbers or asking for money for cakes in the mud kitchen. Through these adults promote that mathematics is enjoyable and in everyday life to young children. According to McGrath (2010) a practitioner's understanding of mathematical content can affect how effective their teaching is.

Grigg and Lewis (2016, p. 49) claim that many adults lack confidence in maths and see it as little more than doing sums. In agreement, Waite-Stupiansky and Cohen (2020, p. 64); Rahardjo, M., M., (2019, P. 311) suggest that practitioners may neglect science and maths in the early years due to the perception that it is too difficult for young children. However, Rahardjo, M. M., (2019, P. 312) asserts that when adults give children loose parts, it encourages critical thinking, problem-solving, and meaningful dialogues between the adult and child.

For children to be able to experience playing outside, interacting with the environment in all weather conditions can develop an appreciation for the natural world, it is essential that adults have the right attitude, role and behaviour says White, (2011, p.35). Although, the way that adults view the weather is a barrier to the children's ability to learn outside. To allow children to explore and appreciate the seasonal changes in the weather and how to deal with them, Crook and Bilton (2016,

p.10) say that adults need to be prepared to go outside in all weather conditions. However, Bilton (2020, p.18) says that the weather is not always the problem but instead is the adults not being dressed appropriately to go outside. In addition, when the adult requires children to remain dry and clean is another obstacle to children's scientific development in the outdoors. According to Crook and Bilton (2016, p.10) children will not enjoy being outdoors as much if the adult does not appear to be enjoying as the children will notice the anxiousness.

In addition, adults should also model curiosity and wonder to children. According to Blake and Howitt (2012, p.282); Crook and Bilton (2016, p.15) children often require adult support to process difficult thoughts and understand why things are the way they are and how they function. Practitioners or parents who are socially and culturally conscious of the child's background and prior knowledge should be the ones to carry out this scientific learning says Blake and Howitt (2012, p.282).

Also, another role of the adult is to observe the children in the enabling environment says Wilson (2018, p.48). According to Crook and Bilton (2016, p.15) adults should only step in when something has taken a child's interest and they do not know what it is for instance, the name of a flower or mini beast. This is so that the adult can include new learning experiences in the environment that can extend their knowledge (Welsh Government, 2022, p.37).

Like how Vygotsky (1978) thought that a child's zone of proximal development exists, through social engagement. Through this, children can learn language, counting, problem solving techniques and improve their attention span from the more experienced other (Doolittle, 1995, p.2). Likewise, Froebel believed that to develop children's natural curiosity, adults should ask open-ended questions. According to Tovey (2013, p.116), through well timed questions adults can advance learning while also demonstrating to the children they care about their interests.

Another role of the adult is to document the learning that happens in the outdoors. This can be achieved through, observations, journals, images, and diaries that seek insight into the accomplishments, attainment and progression of the children says Davies, *et al.* (2014, p.68). Documentation improves children's science and maths

development as it involves the adult reflecting and thinking to fully understand what the children know and understand (Davies, et al. 2014, p.71).

In the Reggio Emilia approach, the documentation of learning is the process of “making learning visible”. It helps the adult understand and support children’s learning processes as well as their attainment and knowledge (Davies, et al., 2014, p.69).

Conclusion

To promote children’s development of science and maths, the role of the adult in the outdoor environment is significant suggests White (2011, p.36). Adults create an environment of exploration, curiosity, and discovery by integrating maths and science concepts in the outdoors (Welsh Government, 2022, p.32). However, adults have pre-conceived biases regarding science and maths, the weather and health and safety concerns which limit how often some children get to experience the outdoors. Although, the role of the adult has an impact that promotes lifelong learning and an appreciation for the natural world says Welsh Government (2022, p.16).

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