

ECEY5005

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Cover sheet

For this assignment I have submitted the following

Part 1 – photograph

Part 2 - journal

Part 3 – risk assessment

Part 4 – evaluation

Statement on the use of AI:

I have asked specific questions to AI to help summarise articles and find relevant sources

Part 1



Wikipedia Contributors (2024)

Part 2

This photograph shows different surfaces and features such as the walking path, grass and there is a small stream as well. There is also different types of trees and other vegetation evident with one tree that has different coloured leaves and leaves on the ground as well where conversations such as the life cycle of a tree, seasonal changes and wildlife can be discussed.

I took some children to the park to let them explore the environment; the children were immediately interested in the large tree with orange/ brown leaves. One child picked up an orange leaf and said, 'all the leaves on the ground are orange and brown!', I asked the child 'why do you think that is?', the child responded by saying 'maybe it's a different type of tree' and another child joined in and disagreed and said 'no, it's because it's now cold so the leaves turn orange'. To encourage the children to explain their thoughts I told them to look around at the different trees and have a look at the leaves on the trees which made them realise the other trees had green leaves while there were some that had leaves that were changing colour. I then introduced them to how trees and plants can change over different season and it also depends on the type of tree as well, I said 'as it gets colder, the green in the leaves fade away which reveals the hidden orange and brown colours, during autumn time the tree slowly stops making food so the leaves drop down on the ground to rest'. A child then pointed to a evergreen tree and asked, 'but why does that tree still have green leaves?' in which I replied 'that's an evergreen tree, there are some trees that keep their green needles all year around so during colder months the green needles don't turn orange and drop down'.

I found it valuable to ask the children questions as well as letting them ask questions and not dismissing any question. As the children were observing the trees, a child asked, 'how do trees grow?', I replied by saying 'that's a really good question, a tree starts off as a seed which is then planted into the ground to grow'. I asked all the children if they could think of things that could help the seed grow into a tree and they all chimed in with different things such as, soil, water and sunlight. This gave me an idea to create an activity for the children when we go back to plant some seeds by using milk cartons, soil and flower seeds, and then observe the growth of the plant and take care of the plants over the next few weeks so the children could fully understand how a plant grows.

Through the kids' investigation of the natural elements in their environment, the experience may help promote numeracy and mathematics. As the kids gathered fallen leaves, I told them to group the leaves by colour, shape, or size and give an explanation as to why and how they've done that. Then, using mathematical terms like bigger, smaller, longer, shorter, broader, more, and less, they could compare the leaves. I asked the children 'Which leaf is the longest?' and 'Can you find a leaf that is smaller than this one?' in which each child found their own leaves and presented which they thought was the longest or smaller.

To help the kids measure some of the leaves and compare their results, I gave them measuring tapes and rulers. I asked the kids to guess which leaf they believed would be the longest before taking any measurements. We spoke about whether their forecasts had come true once they had measured them. Additionally, the kids may tally the number of leaves they had gathered by sorting them from

shortest to longest. Because the kids were learning through something they had discovered and were truly interested in, I thought this was a helpful method of establishing early mathematical ideas. In addition to enabling the kids to explore the natural world around them, the outdoor setting provided a significant setting for the development of comparing, sorting, counting, ordering, and measurement skills.

Additionally, I wanted to inspire the kids to investigate the many natural materials found in their surroundings. I gave the kids the chance to gather safe natural loose pieces, such as sticks, leaves, and stones, and I encouraged them to utilise these resources to make something of their own. I told the children 'I think the woodland creatures need a little house, can you all build a house to keep them warm and sheltered from the rain' the children started feeling empathetic and excitedly said that they will.

The children started gathering various items from the park, from around trees and near bushes. I saw that some kids went with large sticks, while others went with smaller sticks, stones, and leaves. They soon found that some materials were simpler to utilise than others when they started building their houses. While bigger sticks were stronger and could hold additional materials, some of the sticks were too thin and easily bent.

Using terms like heavy, light, long, short, strong, and weak, the kids were able to compare the various materials. I would ask them questions such as 'which is the strongest stick that could keep the house stable', 'what items will you use for the roof' or 'why you chose this' etc. these questions could encourage the children to consider which materials were better to use and why they were better. As they experimented with how to arrange the sticks and stones so that their creations wouldn't collapse, they also started to gain a concept of stability and balance.

A child's house collapsed after they built it and they became upset; I told them it's okay and they can rebuild it again with better materials to help keep it up. Instead of reconstructing a child's construction after it collapsed, I invited them to consider what had happened. I asked the child 'What do you think caused it to collapse?' One of the sticks, according to the child, was 'too weak and small' I asked them if they could look for a different stick that could be stronger to hold the house together, I asked the other children if they could help that child to look for one to support their peer. This enabled them to test their hypothesis and solve the problem on their own.

Through play, this project gave kids a meaningful method to investigate material qualities, size, weight, balance, and problem-solving techniques. Additionally, it inspired them to collaborate, share their thoughts, and bargain over the construction of their wooded

houses. The exercise showed how natural resources found in the outdoors might be transformed into useful educational tools without the need for costly materials or objects.

The children's attention was instantly drawn to the tiny stream that flowed through the region as I explored the surroundings with them. The kids were fascinated by the water's movement and how it avoided the stones and other natural objects in its path. I made the decision to exploit their interest to investigate the dynamics and flow of water. I urged the kids to stand securely next to the stream and see which way the water was flowing. I asked them, 'Where do you think the water is headed?' A child from the group said, pointing farther down the stream, 'That's how it's going' and motioned in that direction. Then I asked the children 'What do you think is causing the water to flow that way?' The kids started to observe that the stream wasn't entirely straight. The water flowed around rocks and conformed to the shape of the land. I asked the kids what they thought would occur if a small leaf was gently placed on the surface of the water. Before we tried it, I urged them to make a guess, 'Do you believe the leaf will remain where we put it, or do you think the water will carry it away?' The children watched as the leaf floated down the stream. We talked about how the water was transporting the leaf along with it. I encouraged the children to notice what happened when the leaf reached a rock. They observed that the water flowed around the rock, causing the leaf to change its path.

The children could explore how the stream's shape influenced the water's movement. For instance, they might observe that the water flows differently in narrower sections or around stones in its path. This would help them start to grasp the concept that forces can cause objects to move, halt, or change their direction. I believed that the stream offered a particularly valuable chance because the children could witness the natural effects of movement rather than relying on an adult's demonstration. The practitioner could nurture their curiosity by encouraging careful observation, making predictions, and discussing their observations.

The activity could also enhance Mathematics and Numeracy skills. The children might assess the distances covered by various objects, tally how many items reached a specific point, or use terms like faster, slower, further, nearer, longer, and shorter. They could also utilize sticks or stones to indicate different locations along the stream and discuss which objects travelled the farthest. Most importantly, I would make sure the children examined the stream from a safe position next to it and that an adult stayed nearby. The children would not need to wade into the water to explore its movement. This would enable them to investigate the scientific concept while ensuring appropriate safety in the outdoor setting.

Part 3

Risk benefit assessment of the outdoor activities

Activity	How will young people benefit from this activity?	Hazards and risks	Who is at risk?	Precautions in place to reduce the risk of injury	Overall risk rating
Stream of water	The children can understand and be educated on the movement of water and forces. Educating them on scientific concepts. It can also help stimulate the 5 senses encouraging brain development with the new environments	A child could possibly trip and fall into the stream which could lead to drowning if the water is deep or if the stream is shallow the child could get wet and cold which leads to an illness, the adult could also get harmed if they try saving the child.	Children and adults	The children should remain on the walking path and not enter or go near by the water. The practitioner should keep a close eye on the children and stay near them. The site should be checked thoroughly before the activities, and the children should be wearing appropriate footwear to ensure they don't slip.	High
Trees and sticks	The children can observe the life cycle of a tree and understand how a tree adapts and grows. The children can use the sticks to create things to increase their creativity and thinking skills.	A child may trip over branches and sticks. A child may try to climb a tree and end up falling or hurting themselves from climbing. A branch might fall on one of the kids.	Children	The area should be checked beforehand to see if there are any broken trees or if the branches are stable enough. The children should be told beforehand and reminded that they should not climb the trees. The practitioners should keep a close eye on the children to ensure they aren't climbing and if they do trip over the practitioner can attend first aid to them.	Medium
Plants and insects	The children can understand how to interact safely with plants and insects and activate their	The children might get stung by an insect or have an allergic reaction to a plant they touch.	Children and adults	The area should be checked for any harmful plants, and it should be checked if there are any animals or insects that could hurt the children as well.	Low

	five senses if the plants and insects are safe to go nearby.	There are also harmful plants such as stinging nettles and plants with thorns which could lead to a child getting cut then bleeding.		The children should be taught not to touch or any unknown plants. The children should be always supervised closely and if any thing was to happen a first aid kit should be ready for use.	
Cold or rainy weather	The children are able to experience weather changing and understand seasonal changes. The weather can help with their immune system. The cold weather can help with their 5 senses if it rains.	The children have a risk of developing a cold in this weather if they are out for a long period of time. The children are at risk of slipping as the ground would be wet if it is raining	Children	The children should wear appropriate clothing such as coats, hats and gloves to ensure they are kept warm. The activities shouldn't be too long so the amount of time the children are outside are kept to a minimum. The children should be supervised at all times so if they do slip and fall then the practitioners can attend first aid to them	Low
Children getting lost	As children will explore themselves a little bit when looking for materials it helps develop their independence and confidence. It can also help them understand and follow rules and learn how to stay safe in outdoor environments and utilise nature.	The children have a chance of becoming lost if they are left behind or wander off somewhere. This could lead them to going into an unsafe area or encountering a stranger.	Children	Any adult supervising should keep a close eye on the children at all times to ensure they don't wander off anywhere and none get left behind. A register should be done or head count a few times during the activities, before and after. Boundaries should be set with children on where they are allowed to go and on the meeting points and that they should not leave with any strangers.	High
Stones and sticks	The children can develop their mathematical and creativity skills, as children sort sticks and stones	The children could throw the sticks and stones at each other or the practitioners or at	Children and adults	The children should be reminded not to throw anything or put any objects in their mouths.	Medium

	through size and weight. Children are able to explore different materials and use them to create thing such as woodland houses or makeshift boats.	strangers which can lead to people getting seriously injured. There is a possible choking hazard as well as a child might put a small stone or stick in their mouths leading them to choke.		The children should be supervised at all times when they are doing the activities like collecting nature materials. First aid kit should be ready in case anyone is hurt.	
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Part 4

Adults are able to support children when working with early years by supporting them and encouraging their mathematical and scientific thinking by providing children with the knowledge and asking open ended questions to encourage children to speak more, as well as pushing them to think about things further to develop their understanding of science and maths (Michaela Machan, 2016). Friedrich Froebel understood that for children to holistically develop the outdoor environment is important for growth, his theory indicated freedom with guidance, so adults are not directly involved however they still offer a vital role by supporting children whilst they explore (Ryan, 2025).

As outdoor settings offer naturally occurring chances for exploration, mobility, and problem-solving, they can give kids experiences that are hard to duplicate indoors. The Curriculum for Wales highlights the value of authentic contexts for understanding development and acknowledges that children should encounter mathematical concepts in both indoor and outdoor settings (Ellis et al., 2024). A garden, for instance, can offer chances to measure rainfall, count flowers, compare stick lengths, recognise shapes, watch insects, and study plant growth. Therefore, rather than only being a location for physical play, the outside setting can be seen as a learning resource. Through engaging exercises, kids may learn mathematical concepts including number, shape, size, position, pattern, measurement, and spatial awareness. In a similar vein, studying living things, materials, weather, forces, and change may lead to the development of science (Craig et al., 2024).

According to Siregar (2025), Piaget's thesis states that children are active learners who gain knowledge by engaging with and investigating their surroundings. Children create their own knowledge through experiences rather than merely absorbing information from adults. Because children can immediately study real items and events through touching, moving, comparing, and observing, this is especially pertinent to an outdoor setting (McLeod, 2025). Piaget distinguished between various phases of cognitive growth. Young children in early childhood settings are likely to be in the pre-operational period, which typically lasts from two to seven years. Children gain language and symbolic thinking throughout this period, although they are still learning how to reason logically in some circumstances (Gregory, 2023). As a result, hands-on learning can be especially beneficial since it allows kids to investigate ideas with actual items instead of depending solely on theoretical explanations. Therefore, the function of the adult is crucial, but according to Piaget's method, adults shouldn't perform all the thinking for kids. A kid may have less opportunities to research concepts on their own if a practitioner informs them right away why water travels, why leaves change colour, or which object is heavier. Alternatively, the

practitioner can take on the role of a facilitator, offering suitable resources, setting up chances for inquiry, and posing thought-provoking questions (Hammond, 2014). This can entail offering magnifying glasses, measuring tapes, containers, clipboards, and naturally occurring loose bits in the picture. After that, the practitioner might see how kids utilise these tools and expand their education according to their interests. For instance, the practitioner may give kids rulers and invite them to measure and compare the various leaf sizes if they started to show interest in them. The practitioner may urge kids to guess which natural objects would travel with the water if they started to show interest in the stream. This illustrates how adults can react to children's current interests instead of forcing them to participate in an irrelevant activity. But Piaget's hypothesis can also be critically assessed, even though self-directed inquiry is beneficial, children don't always learn difficult ideas through it alone. To increase their comprehension, some kids might require carefully planned adult assistance, modelling, or explanations. This is especially crucial when researching scientific ideas because kids' first explanations might not be correct (Shabnam, Lone and Sidiq, 2025).

The Reggio Emilia method can be used to assess how adults help young children learn science and maths in an outdoor setting. According to Reggio Emilia, adults should encourage children to explore and formulate their own ideas rather than merely imparting knowledge because they are capable, inquisitive, and active learners (Ryan, 2025b). The outdoors might be thought of as a third teacher, giving kids organic chances to investigate scientific and mathematical ideas. By introducing scientific terms like faster, slower, and direction, an adult can assist children in developing their comprehension through practical experiences. There are chances to learn mathematics in the same setting (Little, 2020). Children could be encouraged by adults to gather and sort leaves based on their size, shape, count, and compare which are longer or shorter. Observation and documentation are key components of the Reggio Emilia method. Practitioners can document children's comments, take pictures, and watch how they investigate issues (Learning and Teaching Scotland, 2006). If a child consistently experimented with various objects in the stream, for instance, the practitioner could identify this curiosity and offer additional chances to investigate floating, sinking, and water movement. This implies that opposed than being solely dependent on a prearranged activity, adult involvement is responsive to the child.

When it comes to helping young children interact with scientific and mathematical ideas in an outdoor setting, adults may face a number of obstacles. The confidence and expertise of practitioners is one issue. Some adults can be less comfortable describing scientific ideas like forces, floating and sinking, or material transformations. This could imply that they either give brief explanations or refrain from answering children's inquiries. In order to respond correctly to children's curiosity, practitioners must have a solid

understanding of both the subjects being investigated and child development (Tickell, 2011). Children's varying skills, passions, and developmental stages can present additional difficulties. While some kids might naturally be interested in measuring, counting, or learning about how things operate, others might require further support. In order to make activities accessible without making the experience too challenging or too easy, practitioners must modify their questions and materials (Gualtieri and Finn, 2022). Risks and safety might sometimes present difficulties. Children exploring the stream, for instance, run the risk of sliding or falling into the water. Adults must carefully control these dangers so that children can have fulfilling experiences. Instead of figuring out how to make an activity safer, practitioners might limit children's exploration in an environment deemed too dangerous. Outdoor learning can also be impacted by weather and environmental factors. Children and adults may find it challenging to spend enough time outside due to heavy rain, extremely cold weather, or strong winds. However, various weather conditions such as rain, water movement, temperature, and material changes can also offer helpful opportunities to investigate scientific concepts (Prins et al., 2022).

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