

Cover sheet

For this assignment I have submitted the following:

- Component 1 - Image
- Component 2- Mathematical and scientific concepts or ideas
- Component 3- Risk-benefit assessment
- Component 4- Role of the adult

I confirm that I have not used AI during this assignment.

I confirm that I have copies of my drafts, notes, and other resources I have used which I may be asked to provide as evidence.

Component 1- Image

(Carl, 2023)

Component 2- Mathematical and scientific concepts or ideas

The photograph shows a natural beach environment in South Wales including sand, rocks and water, which provides various opportunities for young children to explore and investigate through play. These elements provided the children with natural opportunities to develop their scientific and mathematical skills through comparing, measuring, experimenting, and questioning the environment around them. During this trip, a group of 26 children aged 4-5 years old, visited the beach with the appropriate number of qualified staff.

The first element that the children chose to explore was water, which they explored through the sea and the small rock pools across the beach. The children observed how the sea moved across the beach and measured the distance of the waves through their footprints as they came in and out, which encouraged them to become curious about the small rock pools that the sea had made. As the children were exploring the rock pools, they noticed that the water moved at a different speed depending on the surface of the sand it was travelling across. This allowed them to experiment with the moving water by creating pathways consisting of higher and lower areas to observe how the water flowed. This encouraged the children to recognise that changing the pathway could affect the movement of the water, allowing them to develop an early understanding through experimentation. The staff supported the children by observing their play and stepping in when appropriate rather than providing answers. This allowed the children to remain independent while the adults used open-ended questions to extend their thinking.

The exploration of water also supported the children's to mathematical development. They developed these skills by comparing the sizes of different rock pools and using words such as 'bigger' and 'smaller', which then sparked their idea to use containers to collect and move water between the rock pools to make sure they became even. They also used the containers to explore capacity by comparing which containers held more or less water. The children explored with different containers and counted how many scoops of water each container needed to travel the same distance across the sand by using their pouring and observation skills. These activities with water supported their understanding of measuring, comparing and capacity in an independent, natural environment. Throughout these activities, the adults provided the children with open-ended questions, such as "How far do you think the water will

travel?", "Which rock pool do you think is bigger?" and "What will you measure with?". This encouraged the children to develop an understanding of how forces can affect the movement of objects and observe the results.

The second element that the children explored was rocks, which were scattered across the beach, some buried in sand and some loose. The children began exploring the different rocks by picking them up, comparing their sizes and feeling the different textures. They also experimented with the rocks by rolling them across the sand and created a game amongst themselves by predicting which rocks they thought would travel the furthest and tested their ideas by rolling the rocks from different positions, which provided the children with opportunities to explore forces and how the shape and size of the object can affect its movement. This activity allowed the children to think and discuss with their friends why the rocks moved differently depending on their shape and size. The adults could encourage metacognitive thinking by asking the children questions such as, "What did you think would happen before you rolled the rock?" and "Was the result what you expected?" encouraging the children to reflect on their investigation, which enables them to recognise how their ideas can change through experimentation.

The rock investigation also supported the children's mathematical development, by sorting the rocks into different groups depending on their size, shape and colour, allowing them to compare and notice similarities and differences between them. After sorting the groups, they decided to count how many were in each group and arrange them from smallest to largest and heaviest to lightest, allowing them to develop an understanding of counting, sorting and comparing. The adults were then able to support this by asking questions such as, "Which group has the most rocks?" and "Which rock is the smallest/lightest?" This encouraged the children to develop an understanding of how forces can affect the movement of objects, make predictions and observe the results.

The last element the children chose to explore was sand, which was spread across the beach. The children investigated the different textures of the sand and explored the difference between wet and dry sand by using their hands and different equipment to dig and scoop, allowing them to observe how it changed when water was added. They noticed that the wet sand was easier to mould and hold together,

while the dry sand was much looser and more difficult to build with, providing the children with opportunities to develop their scientific understanding of materials changing when combined with water. During this activity, questions were asked such as, “Why do you think the dry sand does not stay together?” and “What do you think will happen if we add more water?”.

Exploring the sand also supported the children’s mathematical understanding. The children used equipment such as buckets, containers and scoops to collect the sand and compare which piece of equipment held more or less sand and counted how many scoops were needed to fill each container. They also used rocks to create their own patterns in the sand, encouraging them to recognise simple patterns whilst also comparing their own with their friends around them to notice what was different or similar. Whilst creating this activity, the adults supported mathematical development by asking questions such as, “Which container do you think will hold the most sand?” and “Can you make the pattern continue?” Through these questions, the children were encouraged to make predictions, count and compare, allowing them to gain mathematical skills such as shape, pattern, capacity and measurement.

The children’s learning could have been further extended by introducing additional open-ended resources and loose parts to build on the activities they were creating. As they explored how the water flowed through the sand using different pathways, tubes and funnels could have been introduced to allow them to experiment with creating different routes for the water and compare how it travelled with resources and without. Following the children’s game they created by rolling rocks, ramps of different heights could have been added, which could encourage them to investigate whether changing the height affected the distance or the speed the rock travelled at. The children’s exploration of creating patterns with sand could have been extended by not only adding rocks to their patterns but also adding other natural materials that they found on the beach such as leaves, sticks, and shells, allowing them to create more complex patterns. These additional resources could have built on the children’s interests while providing new opportunities to investigate scientific and mathematical concepts through their own play.

The experience that the children had during their beach visit also linked with the Curriculum for Wales in the Mathematics and Science areas (Welsh Government,

2024). Within Science and Technology, the children were able to explore their environment through observation and investigation. For example, investigating how far water travelled across different surfaces allowed them to develop ideas about movement and cause and effect, while experimenting with rocks encouraged them to observe how different object moved. These experiments allowed children's scientific ideas to develop through their own questions rather than from direct instruction from adults (Welsh Government, 2020b). Within Mathematics and Numeracy, the children explored the concepts of shape, pattern, comparing, measuring and capacity, allowing them to gain an understanding from a young age (Welsh Government, 2020a). This reflects the Curriculum for Wales which highlights the importance of developing mathematical skills environments real-life contexts and open-ended resources (Welsh Government, 2024). Therefore, the beach provided an authentic and natural environment where mathematical and scientific ideas could be created through play (Welsh Government, 2023).

Overall, the beach environment provided a rich environment where mathematical and scientific learning can come together naturally from children's interests. Through exploring water, rocks and sand, it encouraged the children to test their ideas within a meaningful outdoor environment and investigate through hands-on experiences. The role of the adult was important in extending learning through open-ended questions while allowing children to remain centre of their own investigation. The natural resources on the beach allowed for a positive learning experience, which therefore demonstrated how outdoor environments can provide authentic opportunities for children to develop their skills through play.

Risk-benefit assessment

The hazard/ activity.	The risk/ what could happen.	Who is at risk?	Benefits?	Risk rating before control measures	Control measures.	Risk rating after control measures
Children getting on/off transport	When getting on/off transport, the children could: • Fall off the vehicle • Trip on steps • Become trapped in the doors • Wander onto the road • Be struck by another vehicle.	Children.	Develops the children's: • Independence skills • Coordination skills • Awareness of road safety.	4	• Vehicles to be parked in a safe location, away from moving traffic. • Staff to supervise doors and steps. • Staff to supervise each child getting on/off the bus. • Children wait to be instructed before leaving their seats. • Staff stand between children and any traffic.	2
Child becoming lost	When playing, children may: • Wander away from the group • Approach the sea/roads • Become distressed and upset • Exposed to safeguarding risks.	Children.	Teach the children that independence can happen within safe boundaries.	5	• Complete headcounts at every transition. • Ensure that there is a defined area where the children can be. • Allocate staff to specific areas of the beach. • Keep children within sight and hearing distance. • Have a missing child procedure.	2

					- Carry emergency contacts and a charged phone. - Ensure that children are wearing high visibility vests.	
Drowning	Children could: - Enter the sea unexpectedly - Fall into deep water - Be knocked over by waves - Get stuck out at sea.	Children.	Allows children to learn about: - The sea - Water safety without entering the water - The different coloured flags, to know when it is safe to enter the sea.	5	- No entering the sea unless planned and risk assessed. - Ensure there is a substantial gap between the children and the sea. - Constant supervision. - Position staff between children and the sea. - Regular headcounts. - Ensure the children are aware of the dangers of water and the sea. - Check beach conditions and local weather warnings.	2
Incoming/ Outgoing tides	The tide could: - Change the amount of walking area available - Cut off walking routes - Allows less room for a safe exit.	Children/ staff.	Opportunities to teach children about: - Tides - Changing environments - Coastal geography.	4	- Check tide times before the visit. - Identify multiple safe exit routes. - Stay clear of areas that could become cut off. - Leave with enough time before any conditions change.	1
Slippery/wet rocks	Children could: Slip	Children.	Allows children to observe the formation of rocks and learn about	4	Ensure children are not climbing over wet rocks.	1

	• Fall • Cut themselves • Bruise themselves • Cause head injuries or fractures • A fall near the water creates a drowning risk.		the different shapes and colours of them.		• Children to wear suitable footwear with good grips. • Staff to supervise near rocks. • Avoid unstable surfaces.	
Sharp rocks, shells or stones	Children could: • Cut hands/feet • Put sharp objects in their mouth • Cut themselves.	Children.	Supports: • Sensory exploration • Observation • Learning about natural materials.	3	• Children to wear suitable footwear. • Discuss with the children before about not touching any unknown/sharp objects. • Adults to ensure there are no sharp objects there beforehand. • Supervise children closely.	1
Broken glass/rubbish	Broken glass/rubbish could cause cuts or infection. Children could also pick the rubbish up and put it in their mouths.	Children/staff.	Opportunities for children to learn about: • Pollution • The responsibility of caring for the environment • Ensuring shared spaces are kept clean • The importance of picking up their own rubbish.	4	• Staff to ensure the area is clean before children explore. • Staff to remove any dangerous rubbish. • Staff to wear gloves and ensure to clean their hands afterwards. • Children are aware not to pick up unknown objects.	2

Sand/ hot sand	• Sand could get into children or staff's eyes, ears or mouth. • Children may throw sand at others. • Sand could carry germs, diseases or contain small creatures that could harm children. • Sand can become very hot and cause discomfort or burns to feet.	Children/ staff.	Allows children to develop their: • Sensory skills • Fine-motor skills • Imaginative skills • Investigation skills through texture, movement and natural materials	3	• Ensure children are aware of the rules before playing and exploring. • No throwing sand. • Ensure staff are closely supervising children. • Encourage handwashing after play. • Check wind conditions before play. • Check temperature before allowing barefoot play. • Encourage suitable footwear. • Ensure there are shaded areas. • Avoid playing at the hottest part of the day. • Monitor children for any sign of discomfort.	1
Sun/ UV exposure/ heatstroke	Children can suffer from: • Sunburn • Dehydration • Heat exhaustion • Overheating • Dizziness • Weakness	Children/ staff.	Outdoor physical activity can support health, wellbeing, and confidence when the conditions are appropriate.	4	• Check the weather and UV exposure beforehand. • Ensure sunscreen has been put on beforehand. • Ensure everyone is wearing sun hats and appropriate clothing. • Encourage regular drink breaks. • Limit time in direct sunlight.	1

	• Serious illness Severe heatstroke and repeated UV exposure can be life threatening and cause long-term harm.				• Monitor the children closely. • Ensure staff are aware and know signs of heat-related illness and the emergency procedures that follow.	
Rain/ wind/ lightning	• Children can become cold, wet, uncomfortable and there is a chance they may develop hypothermia. • Wind can make temperatures feel significantly lower. • Rain can reduce visibility and cause slippery surfaces. • Lightning can result in injury. • Severe weather conditions can make the beach unsafe.	Children/ staff.	Allows the children to learn and experience different weather conditions and can support an understanding of the natural environment.	4	• Check the weather forecast beforehand. • Ensure suitable clothing are being worn. • Encourage each child to bring spare clothing. • Monitor children continuously. • Postpone the activity where necessary. • Take shelter where possible.	1
Dehydration	Children may become: • Thirsty • Tired • Dizzy • Develop headaches.	Children.	Encourage children to recognise when they feel thirsty which enables them to recognise their own physical needs.	3	• Ensure children have brought a sufficient amount of water. • Schedule regular drink breaks. • Staff to monitor children's hydration.	1

					Always keep water accessible.	
Insect bites	Bites/stings can cause: - Pain - Swelling - Distress - Or in some cases, a severe allergic reaction.	Children/staff.	Allows children to learn about the different insects and the wildlife. It also educates children on how to interact safely with animals.	3	- Avoid disturbing insects. - Ensure children are educated about not touching nests or unknown insects. - Staff to know relevant allergy/emergency procedures. - Monitor children regularly.	1
Dogs/animals	An unfamiliar dog could: - Bite - Scratch - Knock over a child - Frighten a child Children could also approach animals without understanding their behaviour.	Children.	Allows children to develop respect for animals and understand their boundaries.	4	- Staff to monitor children closely and ensure they are not approaching unfamiliar animals. - Ensure the group stay together. - Staff to step in if animals approach children.	2
Choking on food	A child could choke on their snack/lunch, which could result in serious injury.	Children.	Develops children's: - Independence skills - Social interaction skills - Appropriate eating behaviours.	4	- When children are eating, they are to always be seated. - Ensure food is cut into small bites to avoid the risk of choking. - Staff to supervise children's eating. - Staff to be fully trained in emergency response.	1

					Staff to follow food safety procedures.	
Uneven ground	Uneven ground can cause children or staff to: - Fall or trip - Hurt themselves - Cause fractures.	Children/staff.	It can develop: - Coordination skills - Balancing skills - Gross-motor skills.	3	- Ensure appropriate footwear is being worn. - Staff to identify uneven ground before children begin playing. - Keep children away from any uneven ground found.	1
Equipment/toys	Equipment/toys such as buckets, spades, balls, and bags can create trip hazards or be used inappropriately resulting in injury or conflict.	Children/staff.	Equipment/toys can encourage: - Imaginative play - Creativity - Cooperation - Sharing - Coordination - Fine-motor development.	2	- Ensure all equipment being used is age appropriate. - Keep equipment in one designated area. - Ensure toys are being tidied away if they are not being used to avoid falls. - Staff to supervise play and sharing.	1
Behaviour	An unfamiliar environment may overwhelm children causing them to: - Cry - Run away - Refuse instructions - Move towards unsafe areas.	Children.	It can build children's: - Resilience - Confidence - Independence - The ability to cope with new environments.	4	- Prepare children beforehand by showing pictures and explaining what will be happening throughout the day. - Ensure there are familiar staff around. - Consider individuals triggers and what they may need.	2

					• Provide additional support where needed.	
Crowded beach	Children could become separated if the beach is crowded and staff may have difficulty watching them. This can also cause children to collide with other people.	Children, staff.	Provides valuable experiences of sharing public spaces and allows for appropriate interaction with others.	4	• Staff to do a safety check before visiting the beach to check how busy it is. • Ensure the visit is at a quiet time or find a quiet area. • Ensure children are aware of the boundaries around other people. • Staff to increase supervision. • Move location if the area becomes overcrowded.	2
Mobile phone	An adult may become distracted by checking messages, making phone calls, or generally using the phone, meaning they may not notice when a child is involved in an unsafe situation. There is also a safeguarding risk if photographs are being taken of children without the appropriate permission. The phone may also contain children's personal information which can be accessed if the phone is left unattended.	Children, staff, the setting.	Having a phone provides an important communication method in an emergency and means staff can contact: • The setting • Parents/carers • Emergency services	4	• Mobile phones should only be used for essential communication or emergencies while supervising children. • The phone should be kept securely on the responsible adult and not leave it unattended. • Staff should not use the phone for personal purposes. • No photographs/videos to be taken of children unless consent has been permitted and it aligns with the settings policies.	1

Adult-to-child ratios	If there are not enough adults for the number of children, staff may be unable to maintain supervision of all children, especially around water, roads or during transport. This could increase the risk of a child becoming lost, injured or experiencing a safeguarding incident.	Children	• Appropriate staffing enables children to play safely. • It allows children to explore, develop independence and experiences the environment with appropriate supervision.	5	• Ensure the required adult-to-child ratio is always met. • Consider additional staff members. • Allocate staff to specific areas before the trip. • Ensure staff understand their roles and responsibilities. • Have arrangements in place if a staff member becomes unavailable. • Conduct regular headcounts and maintain continuous supervision.	2
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Component 4- Role of the adult

According to Bento and Dias (2017), outdoor environments provide children with valuable opportunities to develop their understanding of the world around them through meaningful, hands-on experiences and can create a natural space for children to develop their mathematical and scientific concepts. Supporting this, research by Speldewinde and Campbell (2022) found that nature-based play can provide many opportunities for children to develop their mathematical understanding when educators appropriately support and extend their learning. This makes the role of the adult particularly important because when creating an environment where children can explore independently practitioners can ask open-ended questions to encourage them to predict and evaluate their thinking (Vandermaas-Peeler *et al.*, 2018).

The adult's role during outdoor learning experiences can influence how children engage with the environment around them and create possibilities for their play to develop into deeper learning experiences (Hunter *et al.*, 2019). The Curriculum for Wales identifies enabling adults and effective environments as important elements of learning, as it emphasises that practitioners should observe and respond to children, to appropriately support them in making meaning and solving problems (Welsh Government, 2023). This suggests that the adult's role is not to organise activities, but to recognise learning opportunities within children's play and respond in ways that extend their thinking.

Observation is an important aspect of an adult's role, as practitioners can identify children's interests, knowledge and skills and use these observations to extend their learning (Fawcett and Watson, 2016). For example, when a child is comparing rocks, an adult could introduce mathematical vocabulary such as heavier, lighter, bigger and smaller, allowing the child to communicate the comparisons they are making. Rather than directing the child towards an activity, the adult can also provide open-ended resources, such as sticks, stones and leaves, allowing children to explore and use these materials in different ways within their activity. Questioning can further extend this learning, with questions such as "What do you think will happen?" or "How could we find out?" encouraging children to explain their ideas and develop problem-solving skills (Murray, 2022). This approach allows the adult to extend children's thinking without taking control of their activity.

During children's investigations, practitioners can join in without taking control, as research highlights the importance of following children's interests and providing resources that can deepen their investigations (Skalstad and Munkebye, 2021). This demonstrates the importance of finding a balance between supporting children's learning and allowing their independence, as too much adult interaction could restrict their opportunities to explore their own ideas, while too little interaction may result in scientific and mathematical concepts being missed. The adult therefore needs to use professional judgement to decide when their intervention will extend the children's learning and when it is time to take a step back. This reflects Vygotsky's theory of social constructivism, which describes the difference between what children can achieve independently and what they can achieve with the appropriate support from an adult (Wibowo, Wangid and Firdaus, 2025).

Outdoor environments provide children with meaningful contexts that can naturally support areas of mathematics, such as counting, measuring and recognising shapes and patterns. Rather than teaching these concepts through formal activities, adults can recognise these opportunities with children through free play and then use them to extend children's understanding (Mardia *et al.*, 2025). For example, the children may collect natural objects such as rocks, sticks or leaves and can then be encouraged to count, sort and compare, whilst adults are asking questions such as "How could we sort these?" This can support children to recognise similarities and differences, develop mathematical vocabulary and begin to explain what they notice, encouraging them to explain and compare their mathematical thinking through adults' involvement. This can then be further extended by adults encouraging children to explain how they reached their answers, to support reasoning rather than focusing on one correct answer (Wiseman, 2017).

Outdoor environments provide opportunities to develop children's measuring skills, as they can compare the length of sticks or plants and investigate how much water different containers hold. Adults can extend these experiences by encouraging children to compare their findings and explain how they reached their conclusions, helping them connect mathematical thinking and real-life situations (Miranda *et al.*, 2016). Problem-solving is another important aspect of outdoor mathematical learning. When children attempt to build a bridge, for instance, using natural materials, the adults could ask, "How can we make this stronger?" which will

encourage the children to consider the size and number of materials they use, testing and adapting their ideas, demonstrating how mathematical outdoor learning can develop through problem-solving (Speldewinde, 2026).

The natural environment provides opportunities for children to become real-life scientists and experience things such as insects moving, plants growing and materials changing, which adults can encourage children to investigate and develop their own explanations, introducing them to early scientific practices (Ramanathan, Carter and Wenner, 2021). Ramanathan, Carter and Wenner (2022), reviewed many studies relating to scientific development in preschool and found that children are more interested in engaging in scientific practices when teachers are supporting the learning by building on their interests and questions.

Through observation, children can begin to investigate the plants, shadows and other natural materials and begin to ask questions about what they see. Adults can support this by providing resources such as magnifying glasses and encourage children to dive into the environment around them (Rybska, 2026). They can also ask questions such as “What did you notice about it?” as this encourages children to communicate their observation and develop their curiosity about the surrounding environment (Rybska, 2026). Adults can also encourage children to make predictions during outdoor play through questioning as a starting point for further investigation, as they could investigate different materials and predict whether they will float or sink or predict which container will hold the most water. This allows children to test their ideas and consider whether their predictions were accurate, reflecting an inquiry-based approach to science where children are actively involved (Willemssen *et al.*, 2023).

The adults should also provide opportunities for children to compare their findings by grouping their research according to similarities and differences and communicating this with others. Throughout this, adults can then introduce scientific vocabulary while allowing children to describe their own ideas (Smedsrud *et al.*, 2023). During outdoor play, it can also support children’s understanding of cause and effect, for example, children may notice that puddles disappear when the sun comes out or investigate how water moves through different materials. This gives adults the opportunity to encourage children to consider why these changes happen and

suggest possible explanations based on what they have observed, while asking questions to develop their early scientific skills while connecting their learning to experiences (Fusaro and Smith, 2018). Research into nature-based learning suggests that teacher-child interactions are an important factor in the quality of children's play, through adults supporting children with a combination of child-led and teacher-guided interactions (Speldewinde and Campbell, 2024). This reinforces the argument that adults should use professional judgement to decide when their involvement can extend scientific thinking.

There are a range of educational theories that support children's mathematical and scientific learning during outdoor activities. Vygotsky's social constructivist theory is particularly relevant to the adult's role, as he views learning as something that develops through social interaction with others. A key concept within his theory is the Zone of Proximal Development, which refers to the difference between what a child can achieve independently and with support from an adult (Shah, 2022). This theory is especially relevant to the adult's role during outdoor play, as they can support children without taking full control of their learning by asking open-ended questions relating to mathematics and science. This provides a structure for children to encourage them to problem-solve independently, and they can also gain an understanding which is developed through interaction between the child, adult and the environment (Saleem, Kausar and Deeba, 2021).

Froebel's theory emphasises the importance of nature and play, he recognises children as active learners who develop an understanding through interacting with the environment around them rather than being taught direct information. Therefore, outdoor environments provide many opportunities for children to explore the natural materials and develop their understanding through play (Bruce, 2021). His theory can be applied to mathematical learning through activities such as collecting leaves and organising them according to size, shape or colour. Similarly, scientific learning can take place when children observe changes in the weather, plants or insects, whilst adults provide resources. This supports the idea that learning can happen naturally from children's experiences rather than requiring a predetermined activity from adults (Tovey, 2017).

Malaguzzi's Reggio Emilia approach also supports children's outdoor learning as he views children as capable and curious learners and recognises the environment as the "third teacher", reflecting the idea that the environment itself can encourage children's exploration, communication and learning (Rinaldi, 2021). This is especially relevant to outdoor learning because natural environments are constantly changing, which provides various opportunities for investigation and learning. This allows adults to respond to these investigations and interests by providing resources, asking questions and creating opportunities for children to investigate further (Moss, 2016).

Nicholson's theory of loose parts is also relevant to outdoor learning because it suggests that environments containing open-ended materials provide children with greater opportunities for creativity, experimentation and problem-solving (Efe *et al.*, 2017). In mathematics, loose parts can encourage children to count, compare and make patterns as they can arrange sticks from shortest to longest, or create a pattern using stone. This allows mathematical concepts to develop through children's own exploration. Loose parts can similarly support scientific learning because children can investigate ideas such as balance, movement and weight. For example, when building a bridge from these materials, children can test different materials together and test which structures are more stable. The adults' role is to therefore ensure these resources are accessible while allowing children to determine how they want to use them, while stepping in with questions when appropriate (Efe *et al.*, 2017).

Taken together, these findings suggest that effective practice involves adults being responsive to children's interests while making effective decisions about when their involvement may enhance learning. This requires practitioners to use their professional judgement rather than following a fixed approach to adult intervention. For the adults to influence the children's outdoor learning, they need to recognise when children's play has opportunities for deeper learning and decide on the best way to respond. This could involve asking questions, introducing new resources, providing vocabulary or it may involve taking a step back and allowing children time to develop their own ideas. However, children's independence does not mean that adults become passive observers, instead, adults pay attention and intervene when their support can extend children's thinking without taking their learning away from

them. Therefore, adults need to remain responsive to children's ideas and use their professional judgement to determine when to support, challenge or observe.

Overall, the evidence suggest that outdoor environments provide valuable opportunities for children to develop mathematical and scientific understanding through hands-on experiences. Research shows that the adult has an important role in creating an environment where a child can explore, investigate and develop their own ideas. It also supports learning through observation, questioning and the provision of open-ended resources, while allowing children to have the independence they need to lead their own learning. Therefore, adult involvement is effective when balancing child-led and adult guidance, suggesting that the adult should act as a co-learner and facilitator, supporting children's mathematical and scientific learning outdoors.

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