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ECEY5005



RISK BENEFIT ASSESSMENT

Location / Activity:	University garden	Date:	18/3/25
Assessor:	Lois Duffy	Review date:	On the day

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.

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Uneven/ slippery surface	Exploring uneven or slippery surfaces benefits children by enhancing their balance, coordination, and muscle strength as they learn to navigate different terrains. Walking on varied textures, such as grass, sand, or wet tiles, stimulates their sensory processing and body awareness, helping them understand how their movements interact with the environment.	Trips, slips or falls, sharp objects or grass.	everyone	Before taking children onto uneven or slippery surface, several precautions should be taken to ensure their safety. Assess the area beforehand to identify potential hazards such as loose rocks, wet leaves, or steep slopes, and choose a safe route. Ensure children wear appropriate footwear with good grip to prevent slipping. Dress them in weather- appropriate clothing, including layers if it's cold or sun protection if it's hot. Discuss with the children about safe movement, teaching them to take slow, careful steps and use their hands for balance when needed. Encourage teamwork and assistance, so they can help each other navigate tricky areas. Supervise closely, staying within reach to provide support if needed. Bring essential safety gear, such as a first aid kit for minor injuries. Finally check weather forecast to avoid taking children out in conditions that could make surfaces even more hazardous, like heavy rain or ice.	M

Experience exploring outdoor space in photograph	How will young people BENEFIT from this activity?	Hazards and associated risks	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk after precautions RATING: L/M/H
Children exploring the outdoor environment, such as rocks, ponds, grass, trees.	Being in nature encourages curiosity and problem-solving as they interact with their surroundings, discover new things, and develop a sense of adventure. Emotionally spending time in outdoors reduces stress, boosts mood, and fosters a connection with nature, promoting overall well-being. Exploring the outdoor environment such as rocks, trees, and grass, provides young people with numerous physical, cognitive, and emotional benefits.	Uneven terrain, such as rocks, tree roots, and slopes, can lead to trips, slips and falls. Slippery surfaces, especially after rain, increase the risk of losing balance. Sharp objects like thorns, broken branches, or litter can cause cuts or scrapes. Wildlife, including insects or aggressive animals may pose threats if disturbed. Exposure to harsh weather conditions such as extreme heat, cold, or strong winds can lead to dehydration or sunburn if the proper precautions aren't taken. Additionally, bodies of water, such as ponds present a drowning risk.	Everyone	To ensure children's safety while exploring the outdoors, several precautions should be taken. Proper supervision is essential, with adults keeping a close eye on children, especially in areas with water or steep terrain. Dressing appropriately for the environment, including sturdy shoes, weather appropriate clothing, and sun protection, can help prevent injuries and discomfort. Teaching children about hazards such as avoiding unknown plants, watching for slippery or unstable surfaces, and respecting wildlife. Carrying essential supplies like first-aid kit, water, and insect repellent ensures preparedness for minor injuries or emergencies. Setting boundaries and designating safe play areas can prevent children from wandering into dangerous zones. Lastly, checking weather beforehand and planning accordingly reduces the risk of exposure to extreme conditions. By taking these precautions, children can safely enjoy and benefit from outdoor exploration.	H

Playing/ exploring mud, water and different outdoor materials.	Playing in mud and water offers numerous benefits for children, promoting physical, emotional, and cognitive development. It enhances sensory skills as children engage with different textures, sounds, and sights, while also encouraging creativity and imagination through activities like building mud castles or experimenting with water. These types of play improve both fine and gross motor skills, as children scoop, pour, jump, or climb, all of which help with strength, coordination, and balance. In group settings, mud and water play fosters social skills like communication, cooperation, and empathy. It also provides a great outlet for stress relief and relaxation, helping children unwind and maintain mental well-being. Additionally, it allows children to connect with nature, sparking curiosity and a deeper appreciation for the environment. Through the messiness of mud and water, children learn resilience, problem-solving, and adaptability, making it an enjoyable and valuable experience for their overall growth.	there are potential hazards to be aware of. Drowning is a risk, especially near deep or fast-moving water, making close supervision essential. Waterborne illnesses, such as infections or skin rashes, can also occur from exposure to bacteria or parasites in muddy or stagnant water, so children should wash thoroughly afterward.	Children	To ensure safety during mud and water play, several precautions should be taken. First, always supervise children closely, especially near water, to prevent accidents like drowning. Choose clean, safe areas for play, avoiding spots with strong currents, deep water, or pollutants. Dress children in old clothes and waterproof boots to protect them from dirt, water, and sharp objects, and inspect the area for hazards like broken glass or dangerous materials before allowing play. Encourage children to wash their hands and bodies thoroughly afterward to remove dirt, bacteria, or contaminants, and clean their clothes promptly to avoid stains or skin irritation. Be mindful of weather conditions, ensuring children are not exposed to extreme heat or cold for too long, and keep them hydrated and dressed appropriately. If playing in stagnant water, ensure children avoid ingesting water or touching their face, and cover any cuts with waterproof bandages. Check for potential allergens like plants or insects and be prepared with allergy medications if needed. Finally, set clear boundaries for play and explain the importance of staying within those limits to ensure safe, enjoyable play.	H
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Plants/ stingy nettles	Being around different plants outside, including potentially dangerous ones, can offer children a range of benefits, provided there is proper supervision and education about safety. Exposure to a variety of plants helps children develop a deeper connection to nature and enhances their understanding of the environment. By learning about different plants, children can improve their cognitive skills, such as observation, classification, and critical thinking, as they begin to identify various species and understand how they grow, adapt, and interact with their surroundings. Additionally, this experience fosters curiosity and exploration, which promotes problem-solving and creative thinking. Overall, being around different plants, both safe and dangerous, allows children to engage with the natural world, encouraging both learning and mindfulness, provided they are guided in how to interact with their environment safely.	While being around different plants offers educational benefits, there are potential hazards, especially with dangerous plants. Thorns and spines from plants can lead to cuts or puncture wounds, which may become infected if not treated properly. Certain plants may also trigger allergic reactions, causing sneezing, itching, or respiratory issues, while toxic pollen or dust from plants can irritate the eyes, throat, or lungs. Plants can attract stinging insects like bees or wasps, increasing the risk of painful stings or allergic reactions.	Everyone	To ensure safety while children are around plants, several precautions can be taken. First, educate children about the different types of plants in the area, including which ones are safe and which ones are dangerous, such as poison ivy, poison oak, or toxic berries. Teach them to avoid touching or ingesting any plants unless they are certain they are safe. Supervision is essential always keep a close eye on children when they are playing near plants, especially in unfamiliar or wild environments. Wearing protective clothing, such as gloves, long sleeves, and sturdy footwear, can help prevent direct contact with potentially harmful plants or thorns. Regularly check the play area for any hazardous plants and remove or avoid areas with toxic plants. If you're unsure about specific plants, consider consulting a local botanist or gardening expert to identify potentially dangerous species. Make sure children wash their hands thoroughly after playing outside, especially if they've touched plants or soil. Finally, teach children the importance of not eating berries or fruits from plants unless an adult has confirmed they are safe to consume. By following these precautions, children can enjoy exploring nature while minimizing the risks associated with plants.	H
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Portfolio

Along with three other fully qualified nursery practitioners, we went to the campus garden with a group of twelve preschoolers, ages three to four. Before going to the garden the children had been learning about the different heights and weights of certain loose parts in the nursery setting, during this theme of the week the children had been measuring their own height compared to large objects and buildings such as different materials in the nursery, and also using a weighing scale to measure loose parts. When arriving at the garden one of the children said “waw look at that big tree I bet that’s five of me” we encouraged the child and said “yes you should go and stand next to it to see how big it is next to you” speaking about the width of the tree also and seeing if we can wrap our arms around the tree, by doing this we were encouraging the child to play but also she was learning about the different elements of height and weight. The (*Curriculum for Wales Nursery education for 3 and 4 year olds: A guide for parents and carers Nursery education for 3 and 4 year olds: A guide for parents and carers*, no date) states that children will benefit from learning through play because it supports their overall development in a natural, engaging, and enjoyable way. Play enhances cognitive skills by encouraging problem-solving, creativity, and critical thinking as children explore, experiment and make sense of the world around them.

Once the children had all had ago of measuring their arms and height against the tree another child was running up and down the slight ramp in the garden and said to a practitioner “look how fast I go when I’m running down I can’t go that fast when I’m running over there” and pointed to an area which had a flat surface, to which the practitioner replied “why do you think that is, shall we test it out and see if you can run that fast on the flat surface” this then gave the child a sense of challenge and excitement. The child then continued to run down the hill and over to the area that was flat once he had completed both areas he spoke to the practitioner and said “I get more out of breathe when I’m running on the flat surface” to which the practitioner replied “do you know why that happens” to which he replied “no do you” the practitioner then had an opportunity to teach an aspect on gravity to the child. (Gamble, 2024) states that the role of the adult is to create an environment which supports both child initiated and adult led activities. By doing this you create an environment where child-initiated activities allow children to explore their interests, make choices, and develop independence, fostering creativity, problem-solving, and confidence as they engage in self-directed learning. However the adult must be available to scaffold the child’s interests and foster engagement.

During their supervised free play in the university garden the children took an interest in the pond, and asked If it would be okay if they could chuck some pebbles in to see who could make the biggest splash, as the practitioner I seen this as a great way to get the children to see how a bigger pebble can make a bigger splash. Each of the children picked up a pebble and one at a time they tossed the pebble into the pond once everyone had done it everyone agreed that one child’s pebble made the biggest splash, by doing this I had got all the children engaged in one activity. (*Curriculum for funded non-maintained nursery settings - Hwb*, no date) agrees that early childhood activities should be practical, engaging, and purposeful for the child. They need to support children’s freedom and provide them with chances, challenges, and risk.

A lot of the children decided to go and play near the tree’s and climbing and seeing the area from a higher level, The (*Curriculum for Wales Nursery education for 3 and 4 year olds: A guide for parents and carers* Nursery education for 3 and 4 year olds: A guide for parents and carers, no date) agrees that early years education naturally supports maths and science through hands on experiential learning. In maths, children develop spatial awareness by judging distances, estimating hights, and planning their movements to reach their destination safely. And this is what the child were

doing they were, exploring the concepts like size, shape, and measurements as they compare tree branches and assess which ones can support their weight. counting steps, branches, or leaves also strengthening their numeracy skills, while problem solving comes into play as they figure out the safest way to climb. In science, tree climbing fosters an understanding of forces, gravity, and balance as children experience how their weight shifts and how to distribute it to stay stable. They explore the properties of trees and nature, learning about bark textures, leaf types, and seasonal changes. Observing insects and wildlife in trees also introduces basic biology and ecosystems. Through tree climbing children develop practical problem-solving, critical thinking, and an early appreciation for maths and science in a fun, engaging way.

A lot of the children took interests into the loose parts around the garden too such as rocks, pinecones, branches, and different elements of nature. The children were using the loose parts in different ways, one was a magic wand, one was creating a fairy house out of rocks and pine cones and many different imaginative creations were made. (*Curriculum for funded non-maintained nursery settings - Hwb*, no date) states that the outdoors is a natural environment that allows children to express themselves, these open ended materials encourage imaginative play, allowing children to experiment, build and create without a fixed outcome. This promotes cognitive development, as they explore concepts like cause and effect, spatial awareness and classification. Loose parts also support early maths and science skills, as children count, sort, measure, and explore balance, gravity and weight. physically handling different materials strengths fine and gross motor skills, improving hand eye coordination. Socially and emotionally, loose parts play encourages collaboration and communication, as children work together to build structures or role-play scenarios. It also boosts confidence and independence, as they make decisions and solve problems on their own. By providing endless possibilities for exploration, loose parts play supports holistic development and nurtures a child's natural curiosity and creativity.

Towards the end of our visit to the garden, it became clear to me that science and maths is all around us, the children had all come out of their experiences to the garden with some kind of knowledge about science and maths which also embeds into the curriculum.

(Piaget, 1971) theory of cognitive development emphasizes that children learn best through hands-on experiences and active exploration, making outdoor science and math activity highly relevant to his ideas. His theory divided into four stages sensorimotor, preoperational, concrete operational, and formal operational. Piaget believed that birth to 2 children contrast knowledge through direct experiences. outdoor environments provide real world, sensory rich opportunities for children to explore scientific and mathematical concepts, such as feeling the texture of leaves, experimenting with water flow, or building structures with natural materials. Piaget emphasized that children at concrete operation stage need real life, tangible experiences to understand abstract concepts. Outdoor activities such as counting petals on a flower. Outdoor play supports Piaget's idea of discovery learning, where children engage in open ended exploration and solve problems independently.

(Bruner, 1996) theory also supports active, hands on learning, making the outdoor environment an ideal setting for children to explore and develop their cognitive skills. His key concepts enactive learning, discovery learning, scaffolding, and spiral curriculum all align naturally with outdoor education. Bruner believed that children first learn through physical experiences. outdoor activities like climbing, digging, balancing, and exploring

different textures help children grasp fundamental concepts, he called this enactive learning. The outdoors encourages curiosity and problem solving. Children can investigate how insects move, how leaves change colour, or how water flows learning scientific concepts through direct experiences, he called this discovery learning. Outdoor learning allows children to revisit and deepen their understanding of natural concepts over time. For example, they might start by simply observing trees, later classify different tree types, and eventually learn about photosynthesis, this he called spiral curriculum. Bruner believed adults or peers can guide children in exploring, such as helping them measure tree heights, count objects, or build shelters, gradually allowing them to work independently, this is what he called scaffolding.

Although Piaget and Bruner had similar theories, in comparison they were quite different Bruner's view on learning was learning is an active process that can be supported through guidance and revisiting concepts. Whereas Piaget's view on learning was learning happens in stages, and children must reach a certain cognitive level before understanding complex ideas. Bruner believed that adults provide scaffolding to support learning, guiding children until they can explore independently. Whereas Piaget believed that learning is self-directed, and children develop knowledge through independent exploration. Bruner believed that application in outdoor learning encourages structured guidance. Although Piaget encourages free exploration. Upon comparing the two the one thing they do have in common is actively promoting hands-on, exploratory learning, although Piaget emphasizes that children must reach the right stage before grasping abstract ideas.

(Curriculum for funded non-maintained nursery settings - Hwb, no date) states that an enabling adult is a supportive and responsible practitioner who helps create an environment where children feel safe, confident, and motivated to explore, learn, and develop. Instead of simply instructing or directing, an enabling adult observes, listens, and provides the right level of guidance to support a child's interest and learning journey. The key roles of an enabling adult creating a stimulating environment, providing open ended materials, outdoor spaces, and resources that encourage curiosity and exploration. Observing and responding, watching how children engage with their surroundings and stepping in when necessary to extend learning or offer support. Scaffolding learning, offering just enough help to challenge a child while allowing them to think critically and solve

problems independently. Encouraging independence, allowing children to make choices, take risks and build confidence in their abilities. Supporting social and emotional development, encouraging positive interactions, communication, and resilience by guiding children conflicts and challenges.

The role of the adult is very important in early years practice and can be used to its ability to help children make the right decisions to set them up for their future. Moving forward the (*Curriculum for funded non-maintained nursery settings - Hwb*, no date) states that being outdoors is particularly important for children as it supports their development physical, cognitive, social and emotional well-being. Outdoor play encourages movement such as running, climbing, and balancing, which strengthens muscles, improves coordination, and enhances overall fitness, while exposure to natural light supports vitamin D production. It also fosters cognitive development by providing opportunities for exploration and problem solving, such as building dens or observing wildlife, which enhance scientific thinking and mathematical reasoning. Being in nature helps children feel calmer, reduces stress and anxiety while building confidence and resilience as they take risks and overcome challenges. Outdoor play also supports social development, encouraging team work, cooperation, and communication through group activities and imaginative play. Additionally, spending time in nature helps children develop an appreciation for the environment, fostering a sense of responsibility for the world around them. By providing the space and freedom to move, explore, and learn, outdoor play is vital for a holistic development.

Kimberley (2015) highlights that adults working with early years children have a pivotal role in supporting and fostering engagement with mathematical and scientific concepts, especially in an outdoor environment, by creating opportunities for hands-on, exploratory learning experiences. In outdoor settings, children can engage with a rich array of natural elements, and adults can design activities that encourage active participation and discovery. To promote mathematical thinking, for instance, adults can guide children in counting and sorting natural objects such as leaves, stones, or petals, helping them understand numbers and quantities in a meaningful context. Exploring shapes and patterns in nature further deepens their mathematical understanding, as they learn to recognize and describe geometric forms in the world around them. Additionally, adults can introduce measurement and comparison activities, such as estimating the height of trees, weighing various objects, or timing how fast children can run a certain distance, providing valuable opportunities to develop concepts of measurement, estimation, and comparison in real-world

scenarios. Beyond basic math, adults can also encourage problem-solving skills through construction play, such as building structures with sticks or balancing rocks. These types of activities allow children to experiment with spatial relationships, understand symmetry, and explore balance and stability. In this way, the outdoor environment serves as a dynamic space for children to engage with both mathematical and scientific concepts, fostering a deeper understanding of the world while supporting critical thinking, creativity, and problem-solving abilities. By providing these engaging and meaningful experiences, adults help children connect abstract ideas to the tangible world, making learning more relevant and enjoyable.

Brightley-Hodges (2025) emphasizes that almost every activity we engage in as human beings is rooted in STEM (Science, Technology, Engineering, and Mathematics) concepts, and the foundation for understanding these disciplines begins in the early years. This early exposure to STEM is essential for cultivating a child's natural curiosity and problem-solving abilities. In the context of scientific exploration, adults play a crucial role in guiding children to observe, investigate, and interact with the natural world. By encouraging children to observe insects, identify different types of leaves, or explore the growth processes of plants, adults help them develop a keen sense of wonder and an appreciation for the complexity of nature. Simple yet impactful experiments, such as testing which objects float or sink in water, exploring the formation of shadows, or tracking weather changes, are excellent tools for introducing scientific inquiry in a hands-on manner. These activities not only support early scientific thinking but also provide opportunities for children to engage in critical thinking and problem-solving. By encouraging children to ask questions, make predictions, and discuss their findings, adults nurture their innate curiosity and promote higher-order thinking. Additionally, when adults act as facilitators in this learning process posing open-ended questions and providing guidance they help create an environment where exploration is valued, and learning occurs organically. In this way, outdoor play becomes an avenue for integrating both math and science into everyday experiences. Through these interactions, children naturally develop essential STEM skills in an engaging and stimulating way, laying a strong foundation for more formal learning in the future.

Brodie (2024) describes forest school as a child-centred, outdoor learning approach that encourages exploration, hands-on experiences, and a profound connection with the natural world. Drawing inspiration from Scandinavian educational practices, forest school focuses on fostering holistic

development by allowing children to learn through play, discovery, and taking risks in outdoor settings. This method of learning is not confined to traditional classrooms; instead, sessions are held in woodlands, parks, and other natural environments, providing children with the freedom to engage in activities such as climbing trees, building dens, and interacting with natural materials. These activities not only promote physical fitness but also nurture important life skills such as independence, resilience, and problem-solving abilities. A key feature of forest school is its long-term approach, allowing children to revisit the same environments over time, deepening their connection with nature and expanding their understanding of the natural world. This ongoing engagement helps to develop a sense of continuity and growth as children become more familiar with their surroundings and their own capabilities. The learning process is child-led, with qualified forest school leaders offering support and guidance without taking over the children's experiences. By empowering children to take ownership of their learning, the approach fosters a sense of autonomy and self-confidence. Forest school supports all areas of development, including physical, cognitive, social, and emotional growth. It enhances creativity, encourages teamwork, and strengthens environmental awareness by immersing children in real-world, hands-on experiences. Through these activities, children develop a greater sense of curiosity and an enduring love for the outdoors, which has long-lasting benefits for their overall well-being. Forest school, therefore, offers an enriching educational experience that not only cultivates a deeper understanding of nature but also prepares children with valuable life skills for the future.

Kimberley (2015) emphasizes the importance of providing children with opportunities to explore, actively engage in learning, and develop critical thinking skills during the early stages of their mathematical development. However, it is often the case that parents and early childhood educators have their own negative experiences with mathematics, which can lead to a certain stigma surrounding the subject. These feelings of discomfort or anxiety can be easily picked up by young children, who might then either mirror this aversion or become disengaged if the activities seem too challenging. This underscores the critical need to integrate mathematics into early childhood programming, especially in outdoor settings. When math is presented in a playful, low-pressure way, children may not even realize they are acquiring new mathematical knowledge and skills. This

approach fosters a more natural and enjoyable learning environment. After completing these activities, it is valuable to reflect with the children on what they have learned, reinforcing their understanding in a positive, supportive manner. Prior to engaging children in outdoor mathematical activities, it's beneficial to observe their existing skills and understanding. These observations will help inform the creation of targeted next steps that are appropriately challenging yet achievable for each child. For example, integrating math into free outdoor play—such as during the collection of leaves, sticks, or rocks—can provide rich opportunities to discuss mathematical concepts such as size, shape, colour, and number. Through these spontaneous interactions, children are subtly introduced to mathematical thinking in a context that feels fun and relevant to their everyday experiences.

In conclusion, adults working with early years children play a vital role in supporting and encouraging engagement with maths and science outdoors by creating stimulating, hands on learning environment. Through intentional planning, open-ended exploration, and a guided discovery, practitioners help children develop essential skills such as problem-solving, critical thinking, and curiosity. By incorporating counting, measuring, sorting, and building activities, adults make mathematical concepts tangible and meaningful. Similarly, engaging children in nature investigations, experiments, and observations fosters scientific inquiry and a deeper understanding of the world around them. Through scaffolding, open-ending questioning, and encouragement, practitioners empower children to explore, experiment, and learn through real life experiences. by making outdoor learning a regular part of early years education, adults help children develop a strong foundation in maths and science while nurturing a lifelong love for discovery and nature.

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