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Learning Journal
Awe and Wonder at Bute Park



Date of Observation: Autumn Term

Name: Child A, Child B and Child C Reception Class Ages 4-5 years.

Curriculum Framework: Curriculum for Wales - Progression Step 1.

Areas of Learning and Experience (AoLEs): Mathematics and Numeracy; Science and Technology.

Pedagogical focus: Child-led learning, open-ended questioning, strategic pacing and natural loose parts.

Upon arriving at the park, the sheer scale of the golden surroundings captured the children's attention, and their excitement was palpable as they stepped off the bus. As we entered the treeline, Child A stopped abruptly and noticed the diverse shifting hues of the fallen leaves. Child A called out to the group, saying "Look Miss, the leaves are all different colours!". Intrigued by this exclamation, Child B ran over, looked closely at the scattered fallen leaves on the ground and added enthusiastically "WOW they are so pretty!".

This spontaneous child-initiated dialogue was precisely where our journey of Awe and Wonder began. The natural environment served as a rich sensory canvas and my role as a practitioner was to facilitate and scaffold their ideas rather than impose a predetermined direction of their learning.

To support and enrich their independent exploration without imposing rigid structures, I subtly introduced magnifying glasses and sorting baskets into the environment. The park's natural surroundings comprising fallen leaves, twigs and acorns became our organic loose parts. This provided the children with autonomy over how they manipulate, explore, and conceptualise the objects around them.

The resources were deliberately kept open-ended so that they could be used in different ways depending on the children's interests. The magnifying glasses encouraged the children to look more closely at features that they may not have noticed with the naked eye, while the sorting baskets could be used for a range of mathematical possibilities rather than having one fixed purpose. The natural materials were particularly valuable because they were already part of the environment and could be collected, moved, compared and organised by the children themselves.

The children immediately took ownership of the tools provided. Holding a magnifying glass against his eye, Child A crouched down low to the leaves to look at an individual leaf that had caught their attention. This child demonstrated the Progression Step 1 milestone of using their senses to explore the world around them (Welsh Government, 2020b). After several moments of silent, intense concentration, Child A held the leaf up toward me, pointing directly at its intricate physical texture and exclaimed, “Look, it has lines like my hand!”.

Recognising this as an authentic opportunity for scientific enquiry, I avoided providing a direct explanation and instead, I utilised an open-ended question to encourage Child A to explain their thinking and develop their own ideas in response to the natural environment by asking “I wonder why the leaf has those lines?”

Child A paused, looking intently through the magnifying glass once more, they thought carefully for quite some time and finally replied “They look like little roads for the bugs to drive on!”.

By allowing Child A the time to think about the question I had posed, they were responding to an idea generated through their experience, linking to the Progression Step 1 enquiry milestone (Welsh Government, 2022). Child A drew upon an existing schema developed through previous experiences of roads and small insects to explain the unfamiliar natural feature.

While Child A was occupied with micro-observations, a collaborative, child-led mathematical play began to emerge nearby. I recognised that the children were deeply engaged, so I did not interrupt and instead observed Child B and Child C working together with the open-ended sorting baskets. At this juncture, it was important to maintain a pedagogical distance, stepping in too early could have disrupted their emerging cooperative play and cut short their independent problem-solving.

The two children had placed the baskets on the ground and were gathering leaves from the base of a large tree. A natural child to child discussion regarding sorting rules began unfolding completely unprompted by an adult. Child B placed a bright yellow leaf in the first basket, stating that “This basket is only for the yellow ones”. Child C watching carefully reached down to pick a bright red leaf dropped it into the second basket and replied, “And this one is for the red ones look!”.

For an uninterrupted period, Child B and Child C worked in harmony navigating their own self-constructed sorting parameters. They roamed across the immediate area, hunting for leaves that matched their designated colour leaf. During this phase, they were completely driving their own learning, exercising autonomy and displaying sustained shared thinking with a peer.

As I observed, I was conscious of the balance between being available to support the children and allowing them enough uninterrupted time to develop their own ideas. By allowing them to lead their own play for quite some time, the children were given the space to independently collect, negotiate and sort a large volume of leaves by colour, this process allowed them to solidify their conceptual understanding of classification (Welsh Government, 2020a). The children had actively constructed their own mathematical logic based on the visual properties of their own natural loose parts.

Once the children had thoroughly explored this colour-sorting concept and their child-led play naturally began to wind down, I recognised the pedagogical moment to step in and extend their learning further. This highlighted to me that effective adult involvement is not always about being actively involved in the play; sometimes careful observations enables the practitioner to identify the right moment to intervene.

To challenge their mathematical thinking and shift their focus towards a new concept, I posed an open-ended question: “I wonder if you can put the leaves in order?” This question acted as a gentle scaffold, encouraging Child B and Child C to look at their collection from an entirely new perspective.

Both children responded with “Yes we can”. This then encouraged them to re-examine their collections of leaves, Child C piped excitedly “We can put the small one first, then the big one”. This showed that the children had interpreted “in order” as arranging leaves according to size, shifting their mathematical thinking from classification by colour to comparison and ordering (Welsh Government, 2020a). They then emptied their baskets onto the grass and began comparing pairs of leaves side by side. Child B picked up a small leaf and placed it next to a big leaf, thus transitioning their exploration.

Meanwhile Child A had found some acorns and twigs and began exploring them. They compared the natural objects, noticing differences in the size, shape and texture. As it was nearing time to leave, I began thinking about how this learning could continue back in the outdoor learning environment within the setting. I could provide the children with the natural materials collected from the park so they can revisit their ideas, investigate and compare the objects further. This would give them opportunities to repeat and consolidate their learning through continued exploration.

Reflecting on the visit, I was struck by how much learning emerged from something as simple as a collection of autumn leaves. What began with the children noticing the different colours developed into sorting, comparing and ordering. While Child A’s curiosity about leaf led to close observation and their own explanation. The experience reminded me that Awe and Wonder can begin with

the simplest moments when children are given the time and space to notice, question and explore the world around them (Waller, 2025).

As a practitioner, this has made me more aware of the importance of patience and knowing when to step back. Rather than feeling that I need to constantly direct the children's learning, I can allow their curiosity to guide what happens next and respond when support or extension is needed. Ultimately, the children showed me that some of the richest learning can come from simply giving them the time and space to explore their own ideas, ending our visit with a real sense of Awe and Wonder.

Risk Benefit Assessment: Outdoor Learning Trip to Bute Park

Location/ Activity:	Exploring Bute Park, Awe and Wonder Maths and Science
Staffing:	2 school staff members plus one volunteer. The volunteer has an enhanced DBS check and is an additional safety precaution. The two-school staff remain responsible for supervision, care and learning, both staff members are first aid trained. The volunteer will not have sole responsibility for any child.
Group Size: 6 Children (ages 4-5) Reception Class	6 children (ages 4-5, Reception Class)
Date and Time:	18/09/2026 Morning excursion, returning to school for lunch.
Review Date:	17/09/2026
Reason for review:	Re-check the area and confirm that the identified risks and control measures remain appropriate before the trip.
Assessor:	Riftana Amin
Weather forecast:	Dry and clear
Emergency arrangements:	School staff will carry fully charged mobile phones throughout the visit, with emergency contact numbers for parents/carers, relevant emergency contacts readily available.

Volunteer briefing:	The volunteer will be briefed on safeguarding expectations, emergency procedures, boundaries of responsibility and the requirement to remain with the group.
Medical supplies:	Ensure a fully equipped first-aid kit, disposable gloves and sick bags are available and easily accessible. Any required medication or individual medical needs should be identified and appropriate arrangements made before the visit.
Food and drink:	Ensure sufficient water and snacks are available for the duration of the visit.
Waste and litter:	Provide rubbish bags for waste disposal and a litter picker where required.
Spare Clothing:	Spare clothing will be available for children in case their clothes become wet or soiled during the outdoor experience.
Transportation:	Transport arrangements will be planned and checked before the visit. Children will be supervised during travel, with appropriate procedures followed for safe travel and departure.
Clothing:	Weather-appropriate clothing, suitable footwear and high-visibility outerwear.

Benefits of the trip: The outdoor experience provides opportunity for children to develop curiosity about the natural world through direct observation and exploration. Children can develop communication and descriptive vocabulary by discussing what they see, hear and feel. Walking on different surfaces supports physical development, coordination, balance and confidence. Working alongside peers supports cooperation, turn-taking and social interaction. The trip also provides the opportunities to develop children's mathematical and scientific understanding. Children can explore size, shape, quantity and patterns, while observing and discussing natural materials and changes in the environment. The experience can also promote independence, self-regulation and wellbeing while helping children develop respect for plants, wildlife and the wider environment.

Hazard	Associated risks	Who is at risk?	Precautions	Overall risk
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Changing weather conditions	Slips, discomfort, exposure to sudden strong sun or cold wind can lead to Hyperthermia/Hypothermia.	Children and Adults	Check weather forecast, appropriate clothing/ footwear, monitor conditions and adapt activity if necessary	L
Cyclists	Child or adult could be struck on a shared path.	Children and Adults	Close supervision, practitioners monitor shared paths.	L
Members of the public	Unwanted interaction, safeguarding concerns,	Children	Staff supervise interaction with members of public. Children are aware of stranger danger. Immediate concerns are reported to school staff. Mobile phones and emergency contacts available.	L
Dogs	Bites, knocks or distress.	Children and adults	Keep distance from dogs, children do not approach or touch them.	L
Getting lost or separated from the group	A child may panic, feel frightened.	Children	Regular headcounts, close supervision, high visibility outerwear to be worn by all children and practitioners positioned appropriately around the children.	L
Fatigue or prolonged walking	Reduced concentration, trips and exhaustion	Children	Provide regular rest and toilet breaks, access to drinking water and snacks and monitor children for signs of tiredness or discomfort.	L

Exploring Autumn woodland environment Bute Park	How will the 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
Exploring fallen leaves	- Classifying leaves according to colour, shape, size and type helps develop mathematical thinking, observation, vocabulary and the ability to identify similarities and differences. - It supports scientific observation of plant features and seasonal change. - Develop their fine motor skills through picking up, holding, turning and sorting leaves, hand-eye coordination, sensory exploration through different textures, - Gross motor development through walking, bending and reaching.	- Uneven ground, exposed tree roots, stones, mud and wet leaves may cause children to trip or slip resulting in grazes, bruising, sprains, strains or fractures. - Twigs, branches or sharp natural materials may cause cuts, scratches or splinters. - Unknown plants, berries or fungi may cause skin irritation, poisoning or an allergic reaction if touched or eaten, Insects such as bees or wasps may cause	Children and adults	- Area will be checked beforehand and any potential hazards removed. - Clear boundaries established. - Children given clear safety expectations. - Medical kit close by. - Mobile phones with emergency contact numbers. - Hand hygiene will be maintained throughout the trip. - Appropriate footwear will be worn.	L

	• Develop an awareness of how weather and seasonal changes affect the natural environment. • Outdoor environment supports mental and physical wellbeing. • Helps children develop knowledge of nature and respect for living things.	pain, swelling allergic reaction or a severe allergic reaction (anaphylaxis). • Small natural objects present a choking risk if placed in the mouth.		• Spare clothes will be provided.	
Child-led exploration	• Develops fine motor skills through picking up and moving leaves. • Develops colour recognition and classification. • Encourages mathematical thinking through grouping and categorising. • Develops communication and language as children explain their ideas and negotiate how to sort the leaves. • Supports problem solving and decision-making.	• Broken glass, litter, animal faeces, sharp objects, unknown substances may be concealed beneath the leaves. • Insect bites • Children wander further away whilst engaged in activity. • Low-hanging branches can cause cuts, scratches, bruising or more serious		• Adult will check leaves beforehand to remove any foreign objects. • The area will be checked beforehand for low-hanging or damaged branches • Adults will remain nearby and observe the children, intervening if a branch presents an immediate	L

	• Encourages collaboration and listening to other's ideas. • Promotes scientific observation by noticing differences in natural materials. • Builds confidence in expressing children's own ideas and choices. • Gross-motor skills developed through walking, bending and squatting. • Develops natural curiosity and independent learning.	injury to face, head or eyes. • Children may duck or move suddenly to avoid branches and could lose their balance or trip on uneven ground.		risk or they wander off. • Children will be encouraged to move carefully around trees and made aware of low-hanging branches.	
Exploring patterns in leaves	• Develops fine motor skills through holding, turning and positioning the leaf. • Develops visual observation by noticing patterns and lines. • Encourages children to compare similarities and differences between the leaf and their hands.	• Uneven or slippery ground • Fallen leaves may cause a child to slip • Prickly or thorny leaves may cause scratches, puncture or irritation to the hands and skin. • Leaves, twigs or other natural	Children	• The area will be checked beforehand for obvious hazards, including prickly or thorny vegetation. • Natural materials will not be placed in the mouth.	L

	• Supports scientific thinking through observation and investigation of natural materials. • Develops mathematical language, such as similar, different, shorter, longer, lines and patterns. • Supports child-led curiosity. • Promotes emotional wellbeing.	materials may be placed in mouth, creating a choking risk or causing irritation. • Insects among leaves may cause bites or stings, which could result in pain, swelling or an allergic reaction,		• Appropriate footwear will be worn to reduce the risk of slipping or tripping.	
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Evaluation

Outdoor play is an important context for young children's learning and development, providing opportunities for physical, cognitive, social and emotional development (Waite, 2011; White, 2011). Rather than being viewed simply as an opportunity for physical activity or recreation, the outdoor environment can provide children with opportunities to investigate, experiment, problem-solve, communicate and develop relationships (Sisson and Lash, 2017; Tovey, 2017). Furthermore, a scoping review by Trina *et al.*, (2024) suggests that outdoor learning environments can support preschool children's engagement with STEAM (science, technology, engineering, arts and mathematics) through meaningful interactions with nature. Such environments may also promote cognitive development by encouraging children to develop curiosity, creativity and problem solving.

According to the Curriculum for Wales (2022) effective learning environments should enable young children to become ambitious and capable individuals who explore the physical world through authentic, hands-on experiences. Moreover, Trina *et al.*, (2024) further suggest that nature-based learning environments can support children's STEAM concept formation through experiences such as observation, investigation, measuring, designing and recognising patterns. This aligns with the Curriculum for Wales guidance for mathematics and science, which emphasises questioning, investigation, design and problem-solving (Welsh Government, 2020a,

2020b). However, the effectiveness of the learning environment is largely dependent on practitioners' intentionality and their ability to purposefully facilitate children's learning experiences (Whalley, 2025; White, 2011).

Therefore, Ryder Richardson (2013) argues that the curation of an enabling environment rich in open-ended *Loose Parts* and supported by responsive social scaffolding can enable practitioners to bridge the gap between children's sensory exploration and curriculum outcomes. Nicholson's (1971) Theory of *Loose Parts* proposes that environments containing a variety of movable and adaptable materials provide children with greater opportunities to experiment, create and determine their own uses for resources. This concept has subsequently been explored within early childhood outdoor classrooms, with Gull *et al.*, (2019) identifying *Loose Parts* as materials that can be used in multiple and open-ended ways rather than having a predetermined purpose. These may include natural and manufactured materials such as stones, crates, planks and ropes. For example, crates may be used to construct a house, shop, bridge or obstacle course, allowing children to explore possibilities and develop their own ideas (Daly and Beloglovsky, 2016).

The potential cognitive benefits of *Loose Parts* need to be considered cautiously Gibson *et al.*, (2017), in a systematic review of *Loose Parts* play (LLP) interventions, found insufficient high-quality quantitative evidence to determine whether (LLP) had an impact on children's cognitive, social or emotional development. Notably, studies reviewed did not include measures of cognitive or academic outcomes, highlighting limitations in the evidence base. More recently Cankaya *et al.*, (2025) examined research concerning young children's indoor *Loose Parts*-like play materials and cognitive development, identifying relationships between such materials and areas including problem-solving, creativity, convergent and divergent thinking, and some academic skills. However, due to Cankaya *et al.*, (2025) identifying limitations in the benefits of the theory within existing evidence, it would be inappropriate to claim LLP automatically causes improved cognitive development. Instead, the research suggests that open-ended play materials may provide conditions that support children's cognitive engagement.

Therefore, the role of the practitioner is important in considering how children engage with these open-ended materials. Vygotsky's concept of the Zone of Proximal Development (ZPD) refers to the difference between what a learner is currently able to achieve independently and what they can accomplish with appropriate support from a more knowledgeable adult or peer. This development can be facilitated through social interaction and the use of environmental and symbolic tools. Vygotsky emphasised that learning is strengthened through collaborative experiences, whereby interaction with more knowledgeable others enables learners to acquire and internalise new concepts, skills and ways of thinking (Shabani *et al.*, 2010). For example, during a ramp investigation, a practitioner might ask, "What do you think will happen if we make the ramp higher?" or "What could we change to make the object

travel faster?” Such open-ended questions encourage children to predict, test and evaluate their ideas, while allowing the practitioner to respond to and extend their existing understanding Learning Through Landscapes (2020). Similarly, when children construct with crates or planks, questions such as “What could you do to make the bridge stronger?” can encourage children to consider balance, stability and structure. Responsive interactions such as these enable practitioners to recognise children’s ideas and interests and adapt their communication accordingly (Fuentes *et al.*, 2024).

Moreover, Piaget’s constructivist perspective emphasises children’s active role in developing knowledge through exploration and interaction with their environment (Piaget, 1952). Similarly, the Reggio Emilia approach, associated with Loris Malaguzzi, places importance on the relationship between children and educators, recognising children as active participants in their learning while educators observe, listen and respond to their ideas (Hewett, 2001). However, children’s active participation does not mean the practitioner’s role is passive; rather, practitioners need to recognise opportunities to extend children’s thinking through responsive interactions. This links closely with Sustained Shared Thinking (SST), where adults and children work collaboratively to develop ideas, solve problems and deepen understanding (Siraj-Blatchford *et al.*, 2002). SST therefore highlights the importance of practitioners actively listening and responding to children’s ideas in order to extend their learning.

For example, while exploring the outdoor environment, children may become interested in collecting and comparing stones of different sizes, shapes and weights. Rather than directing the activity, the practitioner can respond to the children’s curiosity by asking questions such as, “Which stone do you think is the heaviest?” or “How could we find out?” Children can then make predictions, compare and order the stones and test their ideas using simple mathematical and scientific processes. The practitioner can extend this exploration by introducing mathematical language such as heavier, lighter, larger and smaller, while encouraging children to explain their reasoning. In the same way practitioner can ask about length of twigs such as longer shorter and then making comparisons and using them to measure other natural objects as a base. In this way, the practitioner responds to children’s interests while extending their thinking through SST (Brodie, 2016). Brodie (2012) emphasises that SST is reciprocal process with both the child and the practitioner contributing ideas and learning from the interaction.

Therefore, effective practitioner involvement requires careful judgement, as intentional teaching does not require adults to direct children’s learning. Instead, practitioner can use their knowledge of children’s interests and emerging understanding to recognise opportunities for meaningful interaction and extend their thinking through responsive questioning and discussion (Hargraves, 2020). This balance allows children to maintain ownership of their exploration while the practitioner provides the intentional supports.

According to Kiviranta *et al.*, (2024) outdoor learning can contribute to children's health and wellbeing, as opportunities to explore the outdoor environment, engage in risk-taking and interact with nature can support their mental and physical wellbeing and contribute to holistic development. Therefore, practitioners can provide environments where children can experience appropriate levels of risk and challenges while maintaining their safety. Little and Eager (2010) found that children had a strong preference for challenge and excitement; however, the playground equipment available to them often provided limited opportunities for meaningful risk-taking and for developing their existing skills and capabilities. This highlights the importance of practitioner providing outdoor environments that offer meaningful opportunities for challenge. However, Kiviranta *et al.*, (2024) also identify challenges for practitioners, particularly in relation to the knowledge and understanding required to organise and implement meaningful outdoor learning. Therefore, outdoor provision needs to offer children appropriate opportunities to test their abilities and encounter manageable challenges, while practitioners remain attentive to safety and the individual needs of the child.

In this context, the design of the outdoor space becomes important because the environment can either limit or expand possibilities available to children. Welsh Government guidance emphasises the importance of environments that enable children to explore, investigate and apply their learning in meaningful contexts, including mathematics and science (Welsh Government, 2020a; 2020b; 2020c). Similarly, Bilton (2010) highlights the importance of carefully considered outdoor provision, where the organisation of spaces and resources can encourage different forms of exploration and play. Furthermore, Beloglovsky (2024) describes affordances as the possibility for action offered by the environment. *Loose Parts* are particularly significant because their inherent variability means that children can determine how materials will be used, rather than being restricted to a predetermined function, supporting children's independence, decision-making and problem-solving as they alter, combine and redesign materials in response to their own ideas (Beloglovsky, 2024). Such flexibility can also allow mathematical and scientific thinking arise naturally within children's play; for example, children may alter the height of a structure, compare lengths, investigate balance or observe how materials respond to movement.

Moreover, the outdoor environment can also provide experiences that provoke awe and wonder, creating a reason to ask questions and investigate what they encounter. The Froebel Trust highlights how children's repeated patterns of actions, or schemas, can be observed through outdoor play as children explore and revisit particular ways of interacting with their environment. A child observing water freezing, discovering an unfamiliar insect or noticing changes in the weather may therefore return to similar experiences, gradually developing and refining their ideas. The practitioners can recognise these moments as opportunities for enquiry, allowing

children to test ideas and develop explanations. Therefore, revisiting experiences in this way can support the development and consolidation of knowledge over time (Ireland and Mouthaan, 2020).

However, Patchen *et al.*, (2022) explored practitioners and headteachers' experience of incorporating outdoor time into the school day and identified multiple barriers, including time pressures, curriculum requirements, staffing, safety policies and access to appropriate spaces. The study found that these barriers could overlap, making it difficult for practitioners to provide regular outdoor experiences even when they were motivated to do so. The findings also highlighted that some barriers were beyond the control of practitioners, demonstrating that effective outdoor is influenced not only by practitioner knowledge but also by the wider educational context (Patchen *et al.*, 2022)

Therefore, the practitioner's role needs to be understood within the context in which they work, while remaining the golden thread throughout the learning process, not by controlling what children discover, but by noticing possibilities within the environment and responding to them. Their role shifts according to the needs of the moment; observing what children are trying to understand, facilitating access to resources, collaborating in investigations, guiding thinking through carefully considered questions and researching children's developing knowledge (Hewitt, 2001).

References Awe and Wonder

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