

Curriculum and pedagogy in the outdoors



ECE resources

The importance of the outdoors as a context for children's learning and development is recognised in early years curriculum and pedagogy in many countries¹. The outdoors provides an authentic context for children to learn about themselves, the world and their place within it.

The outdoors as a context for learning

[Outdoor environments](#) provide diverse opportunities for rich play-based learning experiences across all areas of learning and development. Outdoor learning environments have the potential for promoting children's cognitive and physical development^{2,3}, communication, social and emotional development^{3,4}, and their socio-cultural identity⁵. In addition, children are more likely to initiate interactions with peers and adults and engage in shared thinking and questioning⁴. Natural outdoor environments allow children to make sense of their immediate and wider worlds through open-ended interactions, exploration, discovery, and close connection with nature⁶.

Movement play

Perhaps one of the first learning opportunities that comes to mind when considering the outdoors is its potential for physically active play and motor development. Depending on the location and design of the outdoor environment, children potentially have more space and freedom for large movement play. Movement play supports children's physical development – their agility, stamina, co-ordination, strength and balance – all of which help them to gain control of their bodies and master fundamental movement skills⁷. In particular, natural outdoor environments characterised by diverse vegetation and topography (slopes and uneven terrain) provide more varied and stimulating play environments that enhance children's balance and coordination abilities⁸.

The outdoors also potentially provides greater opportunities for children to engage in moderate to vigorous physical activity, with children who spend more time playing outside being more likely to be physically active than those who mainly play indoors⁹. However, there is a growing body of research evidence¹⁰ that children in early childhood settings do not meet the daily recommend levels of physical activity (180 minutes daily, spread throughout the day, and including at least 60 minutes of energetic play such as running, jumping, throwing, and so on)¹¹. It is important, then, that teachers provide opportunities for both unstructured play as well as adult-led activities. Teacher involvement in planning structured activities, modelling and providing feedback to children about their physical development is important for children's development of fundamental movement skills¹².

Language and literacy

The outdoor environment facilitates active and social play where children practice speaking and listening to others and act out roles that involve reading and writing. Children develop an understanding of their world by using language to label things that they see and experience – the outdoors expands this experience enabling them to take in new information, extend their knowledge and form new ideas. They do this by processing information from the environment, describing and explaining its meaning, and analysing, questioning, reasoning and evaluating information^{13,14}.

Outdoor learning environments are an ideal context for language acquisition and development. Sensory exploration of the natural world requires children to tune in and listen, promoting auditory discrimination. Children's experiences outdoors enhance their vocabulary development as they make connections between the physical world and the language used to describe it. Word-learning opportunities are abundant outdoors as children expand their vocabulary using a variety of nouns and adjectives to name, describe, classify and categorise plants, animals or physical phenomenon (such as weather, clouds and temperature); and nouns, verbs and adverbs to describe actions, position and sequence in their physical play. Children are supported in their language development when teachers model rich language and ask open-ended questions which spark children's thinking^{13,14}.

STEM

Outdoor learning environments provide a context not only for concept and knowledge acquisition but also the development of scientific inquiry skills, attitudes, dispositions and [working theories](#)¹⁵, 16.

Outdoor experiences can support the processes of inquiry, values, attitudes and dispositions including:

Observation: children sharpen their observation skills in nature. Careful noticing skills are important for gaining scientific insights¹³.

Exploration: through outdoor play, children develop working theories for making sense of the natural, social, physical and material worlds¹⁵. Outdoor environments are constantly changing in response to the weather, seasons, and time of day, and consequently they provide endless opportunities for children's discovery and exploration of scientific phenomena.

Gathering information: children's discoveries in the outdoor environment present opportunities for questioning, hypothesising, predicting, investigating, reflecting and evaluating, and presenting their ideas, theories and findings.

From a content perspective, children gain scientific understandings and concepts^{17,18,19} across a wide range of science disciplines including:

Biological science or life and living

- Animal structure, type, growth and habitat
- Plant structure, types, growth and environment
- Human body structure and growth

Earth and space science

- Weather and climate (for example, the water cycle)
- Earth forms or soil and rock characteristics
- Features of the sky – sun, moon, stars, and planets

Physical science or energy and change

- Push and pull forces; how toys move – for example, how high to build a ramp so that their toy car goes faster or travels a certain distance
- Simple machine principles, such as cogs, levers, screws and ramps
- Magnetism, electricity, light and sound

Technology and engineering

- Problem solving: the availability of loose parts (both natural and re-purposed man-made materials) provides opportunities for problem solving, physics, engineering and so on

- Design and construction: children explore size, shape and space while building on a large scale and tackling the physical challenges involved

Aside from the naturally occurring physical phenomena inherent in the outdoors, loose parts offer endless opportunities for children's STEM learning¹⁹. Children can construct bridges, roads, rivers and in fact whole cities, developing and integrating understanding across a range of STEM disciplines.

Numeracy

Children make [mathematical sense](#) by trying things out and playing with ideas. The outdoors provides a context for this exploration that would be impractical or impossible indoors. When outdoors, children develop a sense of number, patterns and classification by talking together, collecting natural objects, and comparing, sorting and classifying, and measuring. For example, they learn about capacity by digging holes in sand pits and filling buckets with water in water play or looking after plants, and they develop numeracy skills as they count **how many spades they need so everyone can help dig a large hole or keep score during games**¹⁹.

Sustainability and environmental awareness

Outdoor environments in ECE settings, particularly those that include natural elements, provide endless opportunities to learn about the world and the interaction between humans, the non-human world and the physical environment in a meaningful way. There is a growing body of research to demonstrate that children's positive early experiences in natural environments support them in developing knowledge of nature, scientific thinking, and dispositions (respect and an ethic of care) that are the foundation of environmental literacy skills, and shape their motivation to become agents for environmental change²⁰.

Children's hands-on activities in the outdoors throughout the year provides opportunities for them to explore and learn about nature through their observations and asking questions. Through these opportunities, children experience first-hand the cyclic changes in the physical world and the interconnections/ interdependence between the human, non-human and physical world²¹. Cooperative, imaginative free play in nature environments where children have freedom of choice, access to a variety of objects for discovery, and loose parts that they can use creatively, supports their awareness that they can have a visible impact on the environment²⁰.

The role of the teacher

The teacher's role is critical in prompting, guiding and supporting children's thinking. Meaningful learning doesn't just happen. Children's understanding of mathematical and scientific concepts and natural processes requires adult support and involvement. For example, a teacher with a 'sciencing attitude'¹⁷ is more likely to maximise the potential of the outdoors for scientific learning opportunities, as these teachers are more likely to think consciously about the science that is already possible in the preschool environment. Teachers with a sciencing (or mathematical) attitude take learning beyond an everyday level and think consciously about how to draw out the science (or maths or engineering) possibilities afforded by the environment¹⁷. When teachers role-model, mentor and embed sustainable practice in everyday experiences and decision-making, they contribute to children's environmental awareness and action²². Similarly, whilst children may be physically active outdoors, fundamental motor skills acquisition requires adult support (modelling, feedback, direct instruction) guided by teachers' observations and assessments, as well as children's own assessments of their progress in physical development¹².

Teachers need to find a balance between child-initiated and led free play, guided play, and direct instruction to fully realise the potential of the affordances offered by the outdoor environment. Drawing

on their observation skills, teachers utilise a range of strategies for supporting children's play and learning from resourcing, facilitating, scaffolding, co-constructing, sustained shared thinking, and direct instruction to fine tune the learning opportunities²³.

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