

Awe and Wonder; Science Maths and the Outdoors

The Environment

In the environment of the photo taken you can see there are many elements that can be used for play in the early years and that can build development and social skills for young children. Some of the specific scientific concepts that can be used or developed are, speaking to other children and asking questions, fine and gross motor skills, balance, sharing and leadership. Mud play is a positive way to encourage development within science skills as the children are able to add water from puddles to mud and discuss how this changes the texture or describe how the leaves feel different and have changed colour which will lead to conversations about weather and seasons throughout the year. Children can also use the white lines drawn on the grass as a guide to balance and walk along in different methods to learn how the legs and arms help in exercise or balance. Textures can also be an element of learning as the children can run their fingers or toes through the grass and feel how it is soft and swooshy, or they can rub their hands on the tree trunks and feel how rough and spikey it is. They could also hit the goal posts with sticks to hear the different noises depending on how hard the post is hit.

In addition, some of the specific mathematical concepts that can be used and developed within this environment, are, but not necessarily limited to, counting, there are trees, goal posts, benches, leaves, dogs, people, and other materials that can be counted and used in play. The children can also weigh things and decide what may be heavier for example a stick or a leaf.

In the environment there are plenty of natural loose parts that the children can interact with during play such as fallen leaves, long pieces of grass, sticks, and puddles of water. Loose parts are sometimes the most educational thing a child can play with as they tend to lead to questions such as why is this leaf on the floor?, or why does this stick fall faster than this stick? These questions should be answered carefully and not with too much information as the child will become bored and put down the loose part or stop playing. The questions could be answered with games or with experiments, allowing the child to stand on the bench and drop a stick with their peer dropping a different size or shaped stick to see which falls faster allowing them to come to a conclusion themselves.

In an environment such as the one pictured, children can also learn to work as part of a team or in groups. Playing games such as hide and seek or tag in the large grass area using peers for support and encouragement. It is important for a child to feel like part of a team and a sense of belonging and so the practitioner can help encourage this in play and gently guide the children to include everyone. Children are able to set up a racetrack and race one another from one goal post to another, or even use the goal posts as a den or a safe space. By supporting inquiry and discovery, making sense of unfamiliar sights, sounds, tastes, and textures accelerates brain growth and builds a foundation for learning. There are more opportunities for social interaction, connection building, and language development when instructors participate in outdoor learning experiences with and alongside children. This is also promoting a healthy and trusting relationship between the adult and child allowing for boundaries to be used and trust to be given to the child that they will respect those boundaries in the area they are visiting.

There is also possibility to learn about wildlife and how different animals need different homes and how they all sound different. Birds are a great way of noting different colours and habitats or sounds, Seagulls make a loud noise while robins make a quiet noise. Leading to questions such as "We have seen four blackbirds but only one magpie why is this?" Children are fascinated by the world around them and the best way for them to learn about it is to be a part of it and get involved, the adult could start to build a nest with materials they have found in the environment and see how children may contribute to this, allowing them to lead in the activity and make decisions based on what they can see around them. The same can be done with people walking dogs, we can look at the size of the dog, the different colours and count how many dogs chased the ball and how many stayed on their lead. Children will automatically start to count things that can see more than one of when they learn how to count, encouraging children to count things they can see can help them build their confidence with numbers and allow them to explore the area more.

The practitioner can also take cups and bowls to the area as loose parts for the children to measure and mix puddles with grass or mud to explore how this can change the environment and what they

can make such as mud pie or a mud bath for the creatures and animals. The children can also be encouraged to collect leaves and do leaf tracing when they get home or back to school which can support fine motor skills and pencil holding. Simple, commonplace objects can promote inclusiveness, foster creativity, and enhance social and problem-solving abilities. A 'loose parts' toy's usage is limitless; children can mix it with other loose parts through their imagination and inventiveness. The best place to find loose components is still in nature, which stimulates all the senses.

The pedagogical approach for loose parts is to enable children to undertake their own educational endeavours using common items rather than toys. Providing children with a loose-parts environment is good for their growth. In any environment, both the degree of inventiveness and creativity, and the possibility of discovery, are directly proportional to the number and kind of variables in it. Loose components are the things that satisfy one's curiosity and give us the pleasure that results from discovery and invention. Loose components provide variables that enable a specific style of exploratory play; this is advantageous because children learn most readily and easily in a laboratory type environment where they can experiment, enjoy and find out things for themselves.

All of the above areas of development mentioned are needed throughout the child's life, gross and fine motor skills, social skills, emotional range, and brain development. Without these skills the child may become withdrawn, socially awkward, delayed, or feel no sense of belonging which can be detrimental to a child's well-being. Promoting these developmental skills and allowing children to explore and take charge is important and encouraged within the early years. There are many advantages to offering open-ended, unstructured resources. You will be giving them a stimulating environment full of interesting things that encourage imagination and inventiveness. The flexibility to move, adjust, or shape games and materials to match individual needs ensures that children's interest is never lost, and resources may be adapted to various ages and stages of development. Similarly, there is no experience of failure for children because it is difficult to use a loose part in the wrong way.

Risk assessment

The most crucial time in a child's development is during the formative years. They learn the fundamental skills that will serve them throughout their school careers and into adulthood during this time. Because of this, the learning environment they are in should support them and give them a secure atmosphere in which to develop. As Early Years Foundation Stage (EYFS) childcare providers, it is our duty to make sure that each child in our care has access to that setting. Making sure the environment where we look after and educate children is as secure as possible is a big element of this. This fact is emphasised throughout the EYFS Statutory Framework, which is divided into two scenarios in which risks and hazards need to be evaluated. The EYFS Statutory Framework states that before going on any outing, EYFS childcare providers must do a thorough risk assessment. The statutory framework is fairly clear that an evaluation must be conducted for every type of excursion you will take, rather than just when you go on an adventure or vacation. For each of the following, such as a trip to the park, beach, or swimming pool, you would, for instance, do a thorough risk assessment. However, you are not required to conduct a thorough risk analysis before each outing. However, it is a good idea to carry out a thorough risk assessment for each age group travelling, taking into account variations for the time of day and weather when necessary. The ratio of children to adults that will make it safe to start should be included in your risk assessment, as well as the safety precautions you've implemented (Nursery Resources, 2022).

In the area photographed there are many risks to consider. The strangers that will be walking through the area with their dogs or families (stranger danger will have to be taught to the children before attending the complex). Secondly there are areas where the children may not be visible to the adults, and this could cause panic or confusion. Thirdly there are areas that can become difficult for smaller children to pass, such as the big puddle or come down the bank without falling.

Adults will have to ensure a positive and trusting relationship between themselves and the children to make sure the children feel safe and confident, making children feel protected and know their boundaries whilst also giving them freedom to explore and play without interruption.

Observations will have to take place in the chosen area and practitioners or adults will have to keep an eye on the children and ensure they are not in close contact with dogs, strangers, or harmful substances such as dog mess that hasn't been picked up or rubbish left on the floor. Children are naturally curious, and this can lead to them being put in harms way, so it is important that the responsible adults are on the ball and ensure that every necessary step is taken to keep the children safe.

Using a risk assessment like the one below can help practitioners pre evaluate the risks that are at the area and the hazards or harm that can affect the children's play. This can help adults put steps in place to stop the risk or lower it as much as possible, making the space a safe one for the children to explore. It can also determine what actions are required when an incident does take place, allowing the practitioner to plan ahead and take a first aid kit, towels, and dry socks. It may also be beneficial for the practitioner to speak to the council and gain some insight into when the park is at its busiest so they can avoid going at that time.



Loose Parts

Source: [Materials For Loose Parts Play - At Least 100 Ideas! - Early Impact Learning](#)

Leaf Tracing

Source: [Great Things to do with Sticks and Leaves - Nature Crafts](#)



RISK BENEFIT ASSESSMENT

Location / Activity:	Elba playing fields	Date:	21/09
Assessor:	Jade Davies	Review date:	2023

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
Playing with goal posts	They are able to use the goal posts to experience making different sounds, climbing, or using them as a den or safe space.	Falling, Tripping, getting tangled in the net, or injury caused if falling into goal post	The child	Children will be spoken to about the risk of running near the goal posts and how this can cause an injury so they should be careful	L
Learning different textures with the grass and trees	They will be able to use their senses and learn how to describe different textures such as smooth rough, bumpy, hard, and soft.	Allergic reactions or bugs and bites, splinters or high sensory children not enjoying the task	The child	An adult will explain when feeling the tree trunks to be careful of any rougher patches that may cause splinters, and the children will learn about habitats and how the bugs may not like them touching their home so to be cautious.	L
Racing	Peer races are a fun way of learning about fast and slow movements and how different children have different abilities.	Trips and falls	The child	Observations will be taken, and the adult will ensure the area is clear of any trip hazards such as sticks coats or toys.	L
Splashing in puddles and wet mud play	How things change when elements are added or taken away, how water can affect different elements	Sharp loose parts in mud or puddles not being seen, causing injury.	The child	Wellies will be worn, with coats. Children will be observed while playing in puddles and mud to ensure no sharp parts injure the children	M

Adults supporting science and mathematics outdoors.

According to a team of researchers from Swansea University, outdoor learning has also been shown to help students develop people skills including critical and creative thinking, enquiry, problem-solving, and communication with peers and adults. In comparison to their classroom colleagues, students who participated in outdoor learning initiatives have demonstrated stronger pro-environmental behaviours. (Smurthwaite, 2022). According to (gov.uk, department for Education, 2023), Children should be helped to control their emotions, form a positive self-concept, establish manageable goals for themselves, have faith in their own skills, persevere and wait for what they want, and direct attention as required. They will learn how to take proper care of their bodies, including appropriate food, and manage personal needs autonomously through adult modelling and coaching. Through encouraged play with other children, they develop their social skills and learn how to get along with others, cooperate, and settle disputes amicably. These qualities will offer a safe foundation from which children can succeed in school and later in life.

Following the curriculum for the statutory educational programme, practitioners can find information on how best to support the children with learning through play, physical development, and emotional development. Adults may help children improve their core strength, stability, balance, spatial awareness, co-ordination, and agility by making games and offering opportunities for play both inside and outside. The framework for the growth of physically healthy bodies as well as social and emotional wellbeing is provided by gross motor abilities. Precision and fine motor skills are important for hand-eye coordination, which is later related to early reading. Children can gain competence, control, and confidence through repeated and multiple chances to explore and play with small world toys, puzzles, arts and crafts, and the act of using small tools with adult feedback and support. (gov.uk, department for Education, 2023).

By giving children numerous and varied opportunities to acquire and apply this understanding, such as through the use of manipulatives like little pebbles and tens frames for arranging counting, children will create a solid foundation of knowledge and language that will serve as the foundation for their future mastery of mathematics. Additionally, it is crucial that the curriculum offer pupils ample opportunities to advance their spatial reasoning abilities across all branches of mathematics, such as shape, space, and measures. It's crucial that kids acquire a love of mathematics, look for patterns and links, identify connections, experience, communicate their observations to adults and their classmates, and don't be afraid to make mistakes. (gov.uk, department for Education, 2023). It is important that the practitioner allow the children to be adventurous when counting the stones or organising and allow the children to use their own methods, by interfering the practitioner could cause too much interference and turn play into education which will subsequently make the child stop taking part.

The significance of the setting is not a recent subject in studies on outdoor education, particularly on fieldwork. The importance of the setting as a factor affecting students' outdoor learning has been stressed in a number of more recent research. The idea that outdoor settings might present learning demands and emotional obstacles to pupils, the effects of which are sometimes underappreciated by teachers and outdoor educators, is one that keeps coming up (Dillon et al., 2006). Mud is untidy. It's messy, slimy, and dirty. However, it's also a fantastic instrument for learning and development through play. It turns out that mud has several advantages most of us are unaware of, from promoting cognitive growth to enhancing creative thinking and self-confidence. The encounter is sensory-rich. By allowing children to simultaneously investigate various textures, odours, and sounds, mud stimulates the senses. Playing with dirt and water is more enjoyable when you can feel the cool mud on your hands, hear it squish through your fingers, and smell how earthy it is. By using their senses in this way, children's sensory processing skills which are essential for taking in information from their environment are further developed. Also, having fun in the mud is fun. Children are given control over their playtime. Many adults find it difficult to relinquish control and allow children the freedom to play and experiment as they like. Mud, however, is distinct. Since most people dislike getting dirty, children have a rare opportunity to take charge of their own destiny. Children are in charge when using mud. Typically, parents do not correct their children or give them specific instructions. According to

research, allowing children to guide their own play is essential for helping them develop traits like resilience and self-assurance (Casper, 2023).

Outdoor learning can be beneficial for children as long as it is used as frequently as feasible. By being adaptable and flexible enough to consider the many interests and goals of individual children, it extends and enhances the entire curriculum. Consider the outdoors as a tapestry that you may embroider with the children's guidance. Nature is a terrific place to start. From counting seeds to plant, contrasting, and classifying the hues of autumn leaves, monitoring rainfall, combining mud to create various consistencies for daubing marks, modelling and creating patterns, etc. With the support of advantageous, basic tools like magnifying glasses and fiction and nonfiction books that relate to children's interests, parents and children can learn together in the great outdoors (Kennard, 2022).

If the children are displaying a strong interest in anything, such as, dinosaurs keep that interest alive at the forest school. Spend the entire session creating a dinosaur land replete with rivers, dams, and functional volcanoes with a few dinosaurs. Allow children to take on as much responsibility as they can; if something does not work the first time, they can try it again in a different way. In this way, children will relish the struggle of overcoming obstacles and the increased sense of accomplishment that success will bring (Pillay, 2023). Adults can promote science in outdoor play by utilising the weather. Using sunny days to create shadows and talk about the direction of the sun making long shadows or short ones. If it is a hot day the practitioner can explore evaporation and show the effects of water disappearing when it gets hot. In windy weather the practitioner can observe children making and flying their own kites and seeing who can make the biggest useable kite. If it is a rainy day the children can measure how much rain they catch in containers and the temperature of the rain. On a cloudy day children can lay in a circle on the grassy area and see what shapes they can make out of the clouds above (Pillay, 2023).

During the COVID-19 pandemic it was a lot harder to help children developmentally, and to encourage them to learn outdoors with some families not having the adequate space or equipment. The way this will have impacted children during the past two years of sporadic lockdowns with little chance for them to socialise and with data suggesting that underprivileged families were more negatively impacted by limited access to outside space, is alarming. Now trying to undo the detrimental affects that the pandemic had on these children in the early years is proving difficult, with their social skills and development not being on par with children who haven't suffered through this pandemic. Children talk differently than adults do; they use louder, more 'outside' voices, and they are eager to share and discuss the things they discover while playing outside. Spending time outside with children and their families after lockdowns is a legitimate, advantageous, and useful experience. For the long-term health of children, it is essential to retain this access (Tebbs, 2022).

It's important to know when to get detached from children's play. It's crucial to lower yourself to a child's level, engage in meaningful dialogue, acknowledge what you notice, and ask questions only when necessary. As a result, children develop a favourable disposition and attitude towards learning and are more eager to learn and participate in school activities. This also helps to develop confidence, self-esteem, and the ability to sustain the intrinsic motivation to learn. Then, during planning time, children start learning on their own. Planning gives children a chance to express their thoughts, opinions, and decisions while also strengthening their feeling of purpose. It encourages more intense play and learning. By encouraging positive reinforcement and building on each child's accomplishments, we help them develop a positive outlook and a willingness to learn. It becomes fundamental and no longer adult-led when children become safe and confident enough to push themselves. Children start to make their own plans, handle disagreement, and are self-assured to reflect on their play and learning when they feel appreciated (Ofsted, 2012).

To conclude, Practitioners need to acknowledge the value of outdoor play in terms of its effects on early development now more than ever. It not only plays a crucial role in a child's educational potential, but it also has a significant positive impact on the health and wellbeing of their minds and bodies. Children's mental health problems are fast increasing, so it's critical that we discover strategies to prevent this by putting mental wellbeing at the forefront of children's learning throughout their early years and beyond. It is critical that we promote outdoor activity from a young age because

it can benefit both physical and mental health at any age (Early years alliance 2023). As stated in (PACEY, 2016) practice guide, Piaget's thesis was founded on the idea that children construct their ideas and understanding of the world as a result of their experiences. He viewed learning as a continual process in which children built their knowledge using what he called schema. Schemas are frequently referred to as children's interests. There are numerous types. In certain cases, the activities may seem a bit unusual or even annoying to adults, but to the child, they represent an important stage in their development of self-awareness. Each child is unique; some might exhibit more than one schema while others do not. As an early year's practitioner, you may observe, recognise, and comprehend schemas, which will help you gain a deeper understanding of each child's present interests and methods of thinking (PACEY, 2023).

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