

ECEY5005: Awe and Wonder: science, mathematics and the outdoors

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When setting up an area for children to play, learn and develop there are many factors that need to be considered and incorporated, working within the New Curriculum for Wales framework and guidance ensuring all four core purposes and being adhered to and all areas of learning are being met. Looking at the picture above is a section of a Forest School area within a Primary School setting aimed at the Early years children to enhance their learning and development. From a child's point of view they are unaware of the beneficial factors that are involved within the set up with adult input there is the hidden agenda that they will be 'learning through play' this will allow them to have the mindset that they can enjoy the environment without thinking they are participating in tasks or work, they will not feel any pressure to preform and think are they doing the task the right way. This will benefit their well-being leading to a healthy mindset. The New Curriculum for Wales was introduced in 2022. It was developed with four core purposes so that every child's well-being is paramount to the child's learning and development. The four core concepts were established to greatly impact how children are taught in schools throughout Wales. The target being that all children will leave school being accomplished in the four core purposes with that being paramount to their results from exams and assessments, giving them the best opportunities as they continue their journey through education. Looking at the picture above there are many different areas for the children to discover and explore. Although some activities are set up with adult led tendencies, the many initial teaching practice is to be considered with the scope that each individual child can use their own imagination and discovery to interpret the activity how they see it and want to play further, enhancing their own individual creativity and curiosity (Gov.UK 2022).

There is a mud kitchen area set out initially with pots, pans, spoons etc. Children can model behaviour they see at home with pretending to cook meals, wash up. Talking to the children about baking a cake and if they have ever done it before. You can discuss the method with them getting them into a discussion about cake and if they like to eat it, their favourite cake, when do they have cake, on their birthday. It opens a broad topic for conversation with their peers too. You can talk the children through the sequence to baking a cake and with older children differentiate the scenario by having a recipe and method already printed out for them to follow. They can collect different loose parts for ingredients that are found within the Forest School area such as leaves, mud stones. Use their imagination to look around and improvise what they can use. By placing a

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weighing scale in the area, the children can weigh out and measure what they have found. You can also use higher order thinking skills for the children to sort through their ingredients. How are they different. Talk about the odd one out, why they think it is the odd one out. This will also incorporate numeracy skills such as counting, addition and subtraction. Sharing out the ingredients between the children, getting them to work as a team and see if they have too much or too little of each ingredient. You must make sure you are asking questions that are age appropriate and within the areas of learning of the child's stage of development. If the questions are too hard, they will lose interest and be demoralised. Prepare your questions and differentiate if you can see that the child is above or below the level of the questions you are asking and working with, remembering every child has their own pace and stage. By continuing with the baking a cake scenario, discussing the method incorporates Science elements into the task. By getting the children to follow a recipe will allow you to ask more questions, open questions such as how, why and what. How can we add this? What will happen if we put too much water in? Why do we need to stir it? This provides a good opportunity to discuss the different states of matter. Introducing the correct terminology such as solid and liquid. Is this a solid? Can it become a liquid? What happens to water if it gets cold? Why is the mud hard? There are so many different scenarios and tasks you can set for the children so that their learning is continuous within this setting. Recipe cards can be laminated and put up, giving you the opportunity to change them often. You can also theme it so one week ask them to make Lavender Soup, adding food colouring to the water will give you lots of discussion. Even though you can position yourself to be included within the activity the children are participating in, it also provides a good opportunity to be able to just sit and watch them play. Observe their behaviour, how they problem solve and work alongside their peers. Listen to how they communicate with each other and see how their own individual personalities are displayed. By doing this you are allowing the children to complete the activity with as much or little input you feel is necessary. Enhancing children's learning and development whilst still letting them use their imagination and conduct themselves in child led play.



The Den area is set up for children to be able to explore their outdoor surroundings and understand about natural objects. Before the activity starts you can speak to the children and give them a problem-solving scenario such as we are in the woods, and it is going to rain, so we need to work together to build a shelter to keep us dry. Discuss with them how they can create a shelter and what materials are available to them. You could always show them some pictures of different shelters to help them get a better understanding of the concept you are trying to achieve. You can ask them to go and collect objects and materials independently and then talk about what would work and what wouldn't work and explain the reasons why. Is this too heavy? Will this blow away? It has holes in will it keep us dry? Numeracy can also be included in this task. Do we have enough material? Is this stick too short? Again, this is a great task to differentiate within the children's own abilities and help with their understanding, learning and

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development. When they start to build the Den there is scope to either help them start it off and guide them, maybe give them a diagram with how it should look or just let them do their own thing and work together with their peers. This allows them to talk to each other and problem solve as a team. It can help build confidence within the individual child and get them to voice their own opinion. Being on hand to help and support the children to make sure their voices are heard within the team. More often or not there are the more vocal children who just assume the role of leader and other children may not feel confident enough to speak up. By encouraging the children, explaining that their idea sounds good, but shall we listen to someone else's idea too and see if we can make it the best den ever can help each child feel included. Depending on how well the children work together and understand the concept and the time frame given for the activity, it might take a few sessions before the den is finished. You could get the children to identify any flaws in the den and get them to test it out. Can they see the sky when they are in the den? What will that mean? When they are happy with it, you can have further discussion in what they would do if they could build another one. How would they change it? Could it be bigger? How many children can fit it in? You could even carry on the concept by taking out clip boards with paper and pencils and get them to design their own den creating their own individual project and rich task.



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Risk Assessment

Location / Activity:	Forest School Area	Date:	20/09/24
Assessor:	Louisa Woodward	Review date:	20/03/24

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 in the mud kitchen	Children will have the opportunity to discover a range of activities set out by a practitioner. They will be able to interpret the activity how they feel they would like to play. Helping with their social and emotional development and giving them a sense of well-being. Mathematical tasks will be set up for children to engage in such as counting objects that they can go a find within the area. Recipes will be on display too for children to follow for them to be able	Weather dependent, if there has been a lot of rain the ground to the mud kitchen could be slippery and the children could slip on the uneven ground. As it is outside, although under the trees if it is a hot day children might be exposed to the sun for a long length of time. In high windy conditions there could be lots of leaves and debris blowing around. Utensils and	Children and adults	As the Forest School is an outside area, practitioners need to check that area is suitable depending on the weather conditions. The area should be swept prior to the activities taking part and deemed fit for purpose by a consenting adult. Discuss with the children how they can play safely and have rules in place that will help them have fun whilst still staying safe. Check all equipment conforms to legal requirements and discard any item that is a hazard. Children will need to wear weather appropriate clothing and have the correct footwear to try and prevent any accidents. Suncream and hats should be worn in hot weather and children should have access to drinking water. Hand cleaning stations should be put in place.	L

	to follow step by step instructions that will have numeracy elements, supporting the new curriculum. Science will also be supported here by practitioners discussing open ended questions with the children. Exploring and discovering their environment around them helping support their learning. Letting children use their imagination and interpret their own play.	equipment could corrode or weaken in the changeable weather that could potentially prove a hazard. As this is a physical hands-on activity, children will get muddy and dirty.			
Building a den	Children will have the opportunity to design and construct their own den to play in. Children will work together with their peers, helping them to learn essential team building skills. Communication between the children will help towards their social and emotional development. Allows practitioners to carry out observations on the children in a setting where they can give a true reflection of their personalities, enabling practitioners to see if any support is required. Gives the children the opportunity to problem-solve and reflect on their work and gives them an insight how to improve or adapt tasks.	Sticks and logs could have sharp or spikey edges. Ground could be uneven and muddy due to being waterlogged from the rain. Logs could fall on the children if not placed correctly on the den.	Children and adults	Practitioners to sweep the area before any children play in the area. Discuss with children the types of logs they need to use and show them good and bad examples. If they spot ones that are not suitable then they should tell the practitioner. Children need to be shown first how to place the logs and explained how to make sure they are secure. Children should not enter the den until a practitioner has checked it is safe.	L

	Science tasks and activities can be put into place for adult led sessions helping the children learn through play.				

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Reference to Theory and Research

As an Early Years Practitioner, you need to know how to and be able to create an environment that will support children's mathematical development. Ideas and concepts should be reflected in the activities allowing the children to explore both with adults and independently. By providing a supportive environment you are prompting children to think about and explore different mathematical concepts (Montague-Smith 2011). Early Years Practitioners should scaffold children's early mathematical development to build their confidence by listening to the children when they are talking to you and engaging in the conversation, responding to them with interest. Talk through all ideas with the children and reassure them, finding out about any specific interests so that you can help and support them to expand their knowledge and thinking. By presenting maths in a way that is meaningful to the children, you will give them a positive outlook on how their maths skills are developing (McGrath 2014). This will be helpful to them in the future as the children get older and learn about the abstract side of maths that can be more challenging. If you encourage them to talk to you about mathematics. Developing and extending their ideas and broadening their mathematical vocabulary and moving them on to the next stage or level whenever possible. It is a good idea to take advantage of different opportunities to enhance and reinforce the children's understanding of mathematical development (Montague-Smith 2011). You should be up to date with current frameworks from the New Curriculum for Wales (Gov.UK 2022).

The New Curriculum for Wales was set up in 2022 with guidance and aims for all schools in Wales to be able to develop its own curriculum. This is to allow all children to learn and develop with in the four core purposes of the curriculum and is the beginning of a child's education journey and setting out their own individual aspirations. The Curriculum for Wales Framework is a statutory guidance published under section 71 of the Curriculum and Assessment (Wales) Act 2021 (the Act) and as such the target audience. The curriculum requirements are for all children aged 3 to 16 and are set out in legislation form. It is designed that all settings and schools provide lessons based on the core learning scheme so that there is consistency for all learners across Wales. The aim of the new curriculum is that all learners will have had enough support for them to fulfil the four core purposes when they leave school. The Curriculum for Wales (2022) states that the four purposes are: - The children should be ambitious, capable learners,

ready to learn throughout their lives. Enterprising, creative contributors, ready to play a full part in life and work. Ethical, informed citizens of Wales and the world. Healthy, confident individuals, ready to lead fulfilling lives as valued members of society. There

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are integral skills that are linked with the four purposes that will also be developed throughout the children's learning and development (Waters-Davies 2022). These skills should be incorporated through a wide range of teaching and learning. The integral skills are: - creativity and innovation. Critical thinking and problem-solving. Personal effectiveness. Planning and organising. Pedagogy is what all teaching and learning is developed by and the different approaches that all Early Years Practitioners must adhere to in helping to support all children in achieving the four purposes of learning. Effective pedagogy will depend on how much understanding the child will develop. Practitioners should be mindful to consistently reflecting on own teaching practices and how it is impacting their learners. There are 12 pedagogical principles that the curriculum design must take into consideration and supporting the curriculum by helping learners to develop strong metacognitive skills, a strong disposition to learning, highly effective communication skills and critical, creative, problem-solving skills. Play and play based learning (learning through play) allows practitioners to achieve different learning techniques by allowing the children to develop their learning skills without them realising they are completing work-based activities through play (Tassoni 2014). Play is documented in the Curriculum for Wales (2022) as a fundamental right for all learners. As children have a natural ability to want to play, they can experience different ways to discover a range of emotions and explore the world around them. Learning through play gives the children a holistic approach to learning and development and practitioners should observe the learning patterns and enhance each individual child's learning. Learning outdoors will give the children a much more dynamic way to learn, enhancing the children's confidence and well-being. It will impact their engagement levels by being in an outdoor environment as there is scope for the to be able to explore and discover their setting. For practitioners to be able to use the outdoor area to its full potential they need to be able to understand the importance and value the outdoors has to offer (Waller 2017). Activities should be set up to enhance children's learning and development across all areas of learning within the new curriculum. Supporting physical, spiritual, social and emotional development initiating opportunities that are authentic to learners to develop by consolidating cross-curricular skills (Gov.UK 2022)

The 6 areas of learning and experience that are incorporated into the Curriculum for Wales are: - Expressive Arts. Health and Well-being. Humanities. Languages, Literacy

and Communication. Mathematics and Numeracy. Science and Technology. Expressive Arts has been included in the curriculum so that children can be motivated and engaged to develop their own individual creativity and artistic side, Health and Well-being is becoming increasingly important in today's world, and it provides the children with a

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holistic approach to learning and development. Humanities supports the children in their own imagination and will inspire them to broaden their knowledge and understanding. Languages, Literacy and Communication supports children throughout the curriculum allowing them to gain knowledge and understanding in both English and Welsh including literature. Mathematics and Numeracy is an aspect of everyone's daily lives, not just children it is used continuously through our adult life. It is vitally important that in the early years setting that play forms the development and learning of mathematics and numeracy. Although children will develop at their own pace it is important for them to enjoy maths and to embrace it within their play. Some children can identify mathematical concepts with ease whilst others might take a lot longer. Same with problem solving, the children need to identify their own way of working things out and not be discouraged if they fail. To progress in this area of learning there are 5 connected independent proficiencies that are crucial to the development and progression of all learners. Conceptual understanding, communication using symbols, fluency, logical reasoning and strategic competence. Science and Technology in our everyday modern world is continually changing and developing by underpinning innovation that will have an impact on every individual, economically, culturally and environmentally. This area of learning will provide children with knowledge and understanding for relevant increasing opportunities and life choices that they will make. The disciplines of biology, physics, chemistry, computer science, design and technology are all included within this area of learning. There is so much scope in this area to provide children with information for learning and development that can be differentiated and taught in many ways. The vast subject will allow practitioners to get the children to participate in tasks and activities that have endless scenarios and discussions. Children will be fascinated with how they learn, and it will allow them to be creative and use their imagination. To enhance these areas of learning further, practitioners can carry out their lessons in outdoor areas to allow children to learn and develop further and allow them to explore and discover at the same time (Gov.UK 2022).

Jean Piaget (1921) was born in the French region of Switzerland and is one of the many significant contributors in how we can understand how children learn and think. Piaget explained how children should be at the centre of their own learning and development, considering a pedagogy approach. Piaget stated that each individual child can make

sense of the world around them and that a self-directed action including problem solving will enhance their learning. He believed the understanding would be determined by the constructive knowledge that children will gain of the world they live in. Piaget's theory

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has four stages of cognitive development, and he challenged tradition methods of learning. His theory allowed children to be in control of their own learning. As they are presented with essential lifelong skills they need to acquire, their development will be enhanced with problem-solving, reasoning and thinking. This will significantly contribute to social and emotional development that is a necessity for human development. This will allow children to learn and adapt, making sense of the world around them (Halpenny 2014).

Lev Vygotsky (1978) is a constructivist, and his theory emphasises 'society in mind'. He talks about the importance of social talk and how using narration and storytelling in play will contribute to the children's learning and development. He talks about a psychological theory that has a similar approach to other theorists such as Piaget and Bruner, but Vygotsky focusses more on the state of mind and the ontogenetic development. His theory is based on the social and emotional development of a child and how the framework is abstract in the way it has multiple empirical studies of a child's engagement on cognitive tasks. Getting children to think outside the box and see things from a different perspective, engaging in metacognitive talk will give the child a vast range of questions at their disposal by asking open ended questions. The learning will be never ending and give the child an extensive variety of knowledge. The Frodle Trust encourages this theory by constantly asking open ended questions (Bradbury 2019).

Jerome Bruner (1966) states that what sets humans apart is the ability to stand up right. Whilst studying at Harvard he held 'the perception is not something that occurs immediately but is a way of processing information involving selection and interrogation'. He promotes how children all look at the world differently and make sense of it individually. Bruner's theory includes representational stages, enactive, iconic and symbolic that will be useful to practitioners when they turn their attention to how children represent their thoughts and ideas by using hand gestures and movements. It is when practitioners would notice how a child will interact and the skills they rely and depend on to communicate (Smidt 2011).

You can see how Piaget, Vygotsky and Bruner based all their theories around how a child interprets and contributes to their own learning and development. They all promote

active learning from real contexts. Although Piaget emphasised more on the environment and surrounding area, Vygotsky and Bruner's theories included an

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emphasis on social contexts and language as well. Practitioners can use these theories as a basis to construct framework to plan activities that will enhance the child's learning and development helping them reach their full potential. By allowing children to learn through play and have endless opportunities to explore and discover the world around them. They will have the opportunity to learn and develop their own skills and knowledge, learning lifelong lessons that will be carried forward into the future and their adult life.

I can confirm that I have not used AI in the research and creation of this assignment.

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