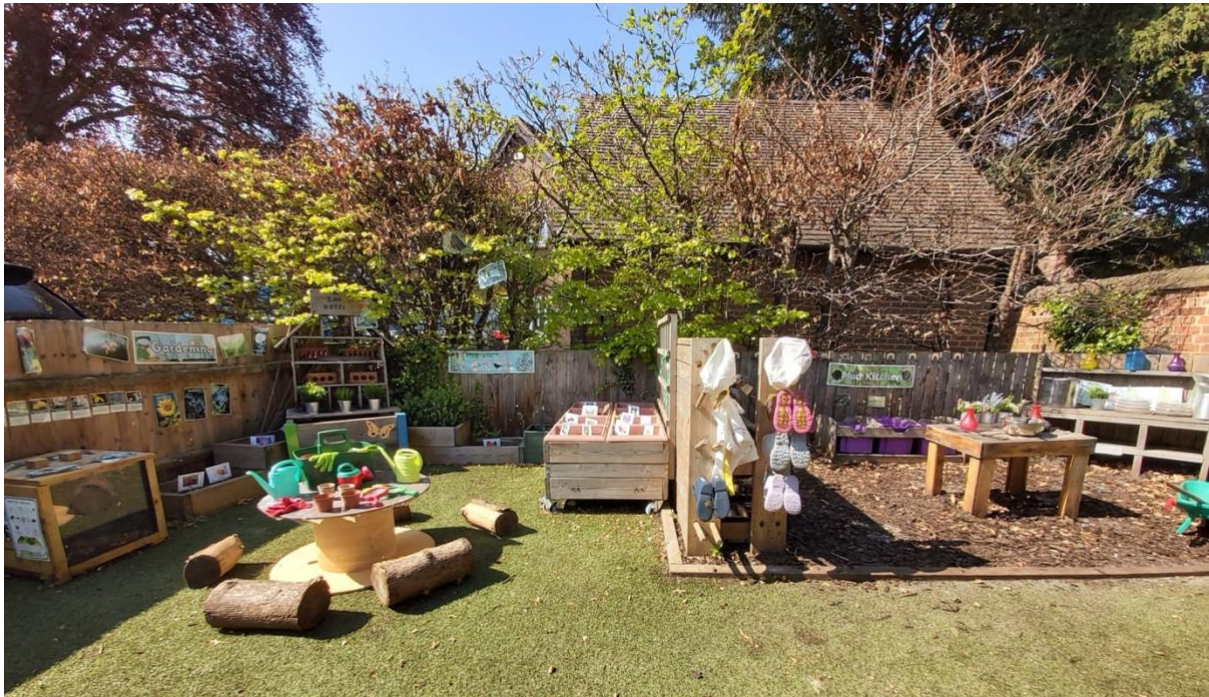


ECEY5005/C
Awe and Wonder- Science, Maths and the Outdoors

Task 1: Photograph



(Source: Puddleducksbaldock.com)

Task 2: Learning Story

The photograph above is an early year's outdoor environment that is enriched with play and learning opportunities. Where both maths and science development can be promoted. I have chosen this image as it opens doors to conversations regarding the science of growing plants and vegetables as well as understanding concepts of living things including bugs and birds and how and what we feed them. I plan on adding water, mud and soil to the areas as well as equipment for growing and pots and pans to enhance the mud kitchen, all in order to enhance play in the outdoors.

All the children arrive at the setting at 9am. I have been assigned to take a group of 5-year-olds mixed boys and girls outdoors to learn all about life cycles of wildlife and how we grow and look after our plants. Before taking the children outside I discuss with them at circle time what exciting things we are going to be learning and doing today.

'Good Morning boys and girls. We have some exciting things planned for our day but first What is the weather like today? Can we all look out the windows and see what we can see?'

'I can see the sun!!! does this mean we are going outside!!' one of the children said enthusiastically.

'But there are some clouds in the sky as well Miss' says another.

'Well done, that's right! What do you think we need to wear when we go outside in the sunshine?'

'A sun hat!!' says one of the children.

'I've got my pink sun hat in my bag' says one of the 5 year old girls.

'Fabulous, we can go collect our sun hats from our bags before we head outside. But first we need to make sure we have suitable clothing and footwear.....shall we all pop on a pair of wellies?' I asked.

'But miss why do we have to wear wellies if it isn't raining?' says one of the 5 year old boys inquisitively.

'Well because we are going to be doing lots of digging and exploring in the garden today learning all about wildlife and growing fruit and veg so we are going to need protective footwear to make sure we keep our feet safe and gloves for planting to keep our fingers safe too.'



(Source: gettyimages.co.uk)

'Before we head outside boys and girls we need to all make sure we have our listening ears on and are aware of some of the dangers we may discover when we are outside exploring is that okay?... we are going to be planting our own fruit and vegetables today and looking at the wildlife that lives in our garden and what we can and cannot feed them. it is important that we do not eat the food we are going to be putting out for the wildlife as it can make us very poorly. Bird food is different to human food.' I instructed.

'Will we see any birds today? I love the sound that birds make tweet tweet' said one of the girls excitedly.

'We could well do!! But we have to make sure that we are quiet when we see them so we do not scare them off. Let's put some special food out for them and keep an eye out throughout the day if they come to collect the food' I said.



One of the little boys asked 'Can we eat the vegetables today miss?'

'The fruit and vegetables that we plant today will need time to grow as we will plant them as tiny seeds but we can check every day that we are in nursery to see whether they are growing and keep an eye out to see when they are ready and safe for us to eat. Then when they our nursery chef can make us something yummy to eat out of what we have grown. Does that sound good??'

(Source: prekprintablefun.com)

'Right let's head outside shall we!!' I guided the children in a line out into the garden whilst undertaking a head count to ensure that everyone was accounted for. The children seemed so excited to explore, a group of children headed over to the mud kitchen and began roll playing. Another few took a seat on one of the logs by the table and began exploring with their fine and gross motor skills what they could see on the wooden table in front of them. whilst 2 of the little girls headed over to the trees and pointed up at the picture of the bird and began questioning and communicating with each other about where the birds might be hiding.

'Miss what is this?' said one of the little girls whilst holding up a magnified glass. Another little girl said alongside 'it's to see in'. I began to explain all about what objects were on the table and why we needed them for planting. A few of the other children began to make their way over to the table to listen to. The children seemed very eager to talk about all the different objects and what they are used for.

'what Lilly is holding is a magnified glass. When you look in the middle of it, it makes things look bigger! This will help us when planting our tiny seeds, we can learn about big and small and we are going to be using soil and water!!' I said as I pointed to the watering cans and bucket on the table.



(Source: prekprintablefun.com)

With a group of 4 children we began to start the planting process.

'First shall we all pick a pair of gloves to put on so we can explore the soil?' I asked enthusiastically.

Each child reached out and grabbed a colourful pair of gloves. 'mine are pink, that's my favourite colour'. Shouted one of the little girls. 'Is there water in the blue jug?' questioned one of the boys as he stood up to have a look inside.

'No not yet but would you like to be my little helper and go fill it up with water from the outside tap?' I asked. 'Yes please' he replied and off he went. I heard from across the garden him shout 'the water jug was empty but looooooook its now full but its very heavy'. One of the other children ran across the garden to help him carry it back over. 'Great teamwork!!!' I said.

'Shall we all take a look at the full and empty water jugs and see which one is heavier?' the children started to explore and pour the water in and out of each jug. One of the little girls said 'I have water in my pink jug but it isn't as very heavy'. 'that's because the more you add in the heavier it becomes, lets do it together'.



(Source: 123rf.com)

Once all 4 children had their gloves on we all sat around the table and started to each plant seeds that were laid out on the table. I firstly demonstrated each step of planting seeds and stood back and watched as the children independently worked it out themselves. One of the children said 'I can not see my seed now the soil is on top of it, its hiding'. I then began to explain how that if we water it every day soon we will be able to see our seed peep through the top of the soil but it will not look like a seed anymore!

Do we have to water it every day?' asked one of the children.

'When it is a sunny day we can come out with our water jugs and water our seeds and keep an eye on how they are growing. But seeds need a mix of sun and rain to be able to grow. So when it is raining outside the seeds will grow even faster! Plants are living things just like us and need food and water to live. It's called science'.

I began to tell the children about the process of the weather in helping plants grow.

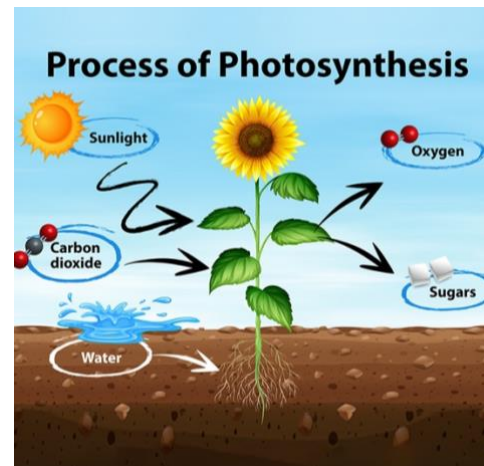
'Wow, I can't wait to see mine grow' said one of the little girls excitedly.

There's a special word that is used to describe how the environment helps our plants grow and it's called Photosynthesis'. I told the children.

'That's a biggggg word' said one of the little boys as he was scooping the soil with a spade into his pot for planting.

'Shall we all say it together?' all the children looked at me and we began to say it together. The children giggled to one another whilst trying to say it.

'I'm going to go home and tell my mummy and daddy what I've learned today' laughed one of the children.



(Source: momjunction.com)

Task 3: Risk Benefit Assessment

Location / Activity:	Natural Outdoor Environment	Date:	September 2023
Assessor:		Review date:	

Activity	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 rating:L /M/H
Uneven ground	- Develops balance and coordination. - Encourages children's gross motor skills and awareness of their outdoor environment.	-Trips and Falls -causing injuries	Children & Adults	-Explain to the children prior to going outside the risks of the uneven surfaces. -Ensure all children are wearing appropriate footwear. -First Aid kit at hand with a designated first aider on site at all times.	Low
Planting seeds	-Develops understanding of growing things and the outdoors. -Science development regarding photosynthesis.	-Allergies and reactions to different types of seeds. -risk of ingesting them.	Children	-Clear explanation has been made about not eating the seeds. -Ensure that checks for allergies have been done prior by adults and if they are child safe to grow.	Medium
Soil and Mud	-Develops sensory awareness and exploration in the outdoors. -Develops healthy immune systems due to exposure to germs etc.	-If soil isn't checked by adults there could be a risk of illness from faeces etc. -Risk of the soil being consumed.	Children & Adults	-Adult to check soil and mud areas as part of risk assessment prior to children going outside and is safe for play. -Educate children on safety with regards to eating the soil, making sure they are aware that it isn't good to eat. -Appropriate clothes to be worn and protective gloves when planting using soil. Change of clothes available if needed.	Medium

Activity	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 rating:L /M/H
Utensils for planting & digging	-Children will learn new skills including confidence and promotes independence with shovels, spades etc. -Exploring new materials. -Mathematic development through making patterns.	-Injuries may be caused if utensils aren't used properly and safely. -Children may cause injury to each other if not educated or supervised.	Children	-Adults to be vigilant when children are using gardening utensils. -Ensure the utensils used are child and age appropriate. -Removal of utensils if they aren't being used safely by children. -Child to Adult ratio appropriate to enhance supervision.	High
Water play and Water jugs	-Develop understanding of weight of water, light and heavy. -Enhances hand eye coordination. -Gross motor skills developed through carrying and decanting the water into other things.	-Hygiene of water, children attempting to drink it. -Slips, trips and Falls due to surfaces becoming slippery. -Heavy water jugs causing injury.	Children & Adults	-Adults to check that water is safe for children's play. -Adults to make sure that spillages are cleaned asap and that children are aware of the risks of slipping. -First Aid kit on site incase of slips and falls. - Educate children on how much water they can carry at a time to avoid risk of spilling and injury.	High
Wooden Log Seats	-Develops children's balance. -New way of sitting other than a stereotypical chair so skills of concentration and co ordination can be built.	-Risk of falling off logs if children do not sit on them properly. -Splinters from the wood.	Children	-Ensure children carefully sit on the logs and use their arms for balancing. -Adults to supervise and show the children how to sit on them prior, promoting safety.	Low

Activity	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 rating:L /M/H
Outdoor Areas being secure	-Children are able to actively develop maths and science skills practically. -Key skills are learnt about wildlife and knowledge and understanding of the world.	-Open gates and unsecure fencing may lead to children escaping and being presented with serious harm or injury. -Faulty fences may lead to injuries.	Children	-Garden checks should be done by adults prior to children entering the garden to ensure that all areas are appropriate. -Gates should be locked and checked regularly. -Any maintaince concerns to be reported to manager to be sorted as soon as possible.	High
Stranger Danger	-Children will be able to understand the importance of keeping themselves safe.	-Strangers entering the area without permission leading to serious direct dangers.	Children & Adults	-Staff to be vigilant at all times and be aware of their surroundings. -Educate children on the importance of keeping themselves safe and why it is vital not to talk or approach strangers. -Helping children understand how to ask for help, promoting safeguarding.	High
Weather	-Children will be able to experience different weathers and learn about the changing seasons. -Learning about what different clothing we need to wear in the different weather conditions. -Stimulates children's immune systems experiencing different weather. Developing their 5 senses.	-If children do not have the correct footwear or clothing they may risk getting wet or cold leading potentially to illness. -Children may fall over if they do not have the right footwear and flooring is wet and uneven.	Children	-Staff must ensure that children have access to the appropriate clothing for the weather conditions to be able to explore the outdoors fully. -Educate children on what we wear in different weather and why, developing their understanding. -Sheltered areas to be accessible for children if needed.	Low

Task 4: Academic Evaluation

Science and mathematical learning is of significant importance to children's development within the early years and the outdoor spaces that children have access to are just as vital in supporting this key development. There is clear scientific evidence that children playing outdoors promotes curiosity, creativity and critical thinking as well as improving overall health. The more time children spend in nature the more likely they are to grow up to be good stewards of our planets. Glassy and Tandon (2023). Being outdoors can positively develop physical and mental health including encouraging children to use both gross motor and fine motor skills in a more complex environment leading to physical development as well as being mentally healthier where stress and depression are lower for those who spend time in nature.

According to Richardson (2014) the outdoor environment has specific features and benefits that indoor environments cannot offer on the same scale therefore placing children having access to nature at the forefront of early years provisions. Early years practitioners recognising the special nature of the outdoors is vital in understanding its ability to nurture children's wellbeing and supporting their learning. Furthermore Richardson (2014) suggests that across the UK curriculum guidance includes the experiences that children should have access to within their early years. Gov.Wales promotes the importance of the outdoor environment for children's development and how practitioners can build and plan provisions to positively promote this. The forest school approach to children's development and learning complements the Foundation Phase pedagogy. Forest schools can lead to the development of confidence and self esteem alongside a growing appreciation of the natural environment around them, drawing on children's individual interests and imaginations.

Richardson (2014) states that adult and child interaction is important and adults who take time to communicate and get involved helps to build children's confidence when playing and developing skills can clearly promote exploration. Leading on from this early years practitioners such as Froebel and Vygotsky clearly promote the importance of the outdoor learning environment and according to Vygotsky (1978) children learn through key interactions within their environment as well as through social interactions with those around them. Stating that practitioners can enhance learning as well as children working together within nature enhances these important interactions alongside the zone of proximity. Believing that children are able to learn science and mathematical skills with the assistance of both adult and child interactions.

Crim, Desjean-Perrotta and Moseley (2008) argue that early years practitioners who have lacked or were limited in their own childhood exploration within the outdoors may in result lack the fundamental experiences necessary to be able to see the affordances in natural outdoor settings therefore building practitioners skills is key in enhancing provisions. For those who recognise the key importance of nature

experiences can still be faced with barriers where beliefs may not translate into practice. Having a key set of values and a balance between adult led and child led experiences alongside the use of high affordance areas will in result positively promote children's learning and development.

Fruin (2020) argues that children are spending increased time in confine spaces with little to no access to nature which can be a result of schooling, technology and some parental influences meaning the outdoors will become a rarer experience for them. high quality provisions can be built through an assortment of space, materials and resources. Muela et al (2019). Having these provisions in an outdoor environment can enhance scientific and mathematical learning. Natural resources outdoors allow children to experience nature in its natural habitat. Allison (date). Materials such as sand, water and mud are used to develop senses, curiosity and connects with natures properties. Alcock (2018).

Although different materials can be added to an outdoor environment to enhance such as bikes, balls and building blocks. It is important for early years practitioners to understand the play and development opportunities the natural environment offers. Reggio Emilia states that the outdoor environment is classed as the third teacher and nurtures holistic development leading to the development of key maths and science skills. As well as fostering an atmosphere of curiosity and discovery leading to lifelong learning.

According to Piaget (1962) play is developed through intelligence in children and argues that as a child matures their environment should encourage these changes including further cognitive and language development. According to Walter and Clement (2013) Similarly to Reggio Emilia the outdoors should support children's learning through lifecycles, the weather and wildlife and children should be looked at as little scientists and have good access to outdoor areas that allow them to express these ideas alongside the support of early years practitioners.

Stated by Hamid (2018) research suggests that children who have access to rural areas and spend a lot of time engaging in outdoor play have the best overall general health. Being outdoors enables children to have access to fresh air where infectious agents are able to spread out and be dissipated in order to better the health of all. The outdoor environment can also clearly benefit children's mental and emotional health improving levels of anxiety and depression as well as reducing levels of hormone cortisol in the brain and a study conducted in the UK founded that just five minutes of exercise in a natural outdoor environment can rapidly improve self-esteem and mental wellbeing, Homan (2023). Outdoor experiences and the curriculum work hand in hand to overall better equip children for their futures.

Wordle (2012) suggests that there is something fundamentally healthy about children being outdoors, developing disposition for their outdoor environment, overcoming fears and seeking vital exercise is all part of developing the child holistically. The outdoor environment alone fulfils children's basic needs for adventure, experimentation, risk taking and freedom, Greenman (1993). Children need to explore the unknown, the unpredictability and adventure of the world around them in order to develop scientifically and mathematically. Issacs (2018)

According to Montessori this is best learn through hands on experiences with real life recourses. Where children are able to promote their abilities and independence through hands on learning and natural curiosity. Dr Maria Montessori stated 'there must be provisions for the child to have contact with nature to understand and appreciate the order, harmony and the beauty in nature'. Early years practitioners have a key role in ensuring that all children have access to such outdoor areas. However barriers can be faced when undertaking such provisions including the difficulty of finding time to incorporate outdoor time each day in early years settings. Unpredictable weather is a barrier therefore it is important that children are equip with the correct clothing to be able to experience the outdoors whatever the weather. Safety concerns can be another barrier where risk assessments will need to be put into place to lower risks of harm. Children should still be able to take risks when learning outdoors. Tovey (2010) states that children should be given opportunities for risky play in order to extend their limits and learn life skills motivating them to be independent and confident.

Furthermore staff should be open, curious and engaging as well as motivated about the potentials that the outdoor environment has in order to develop successful provisions. When practitioners lack motivation and confidence it has a clear negative impact on the children leading to them to becoming more reluctant when exploring, YPO (2023).

Wilson (2018) argues the role of the adult in facilitating creative learning in an outdoor environment is to be a companion rather than an instructor. Early years educators can help assist children to construct their own understandings about the world around them by positively encouraging self initiated explorations and experiments. Therefore these adults should have the correct skills in order for this learning to be successful expanding their knowledge to help children do the same with theirs.

According to Bilton (2020) adults values hold a key part of the success or failure of experiences in the outdoor environment. Those who have had a good experience of outdoor play themselves in their early years may go on to provide good experiences for the children they work with which holds many benefits. Stated in the Foundation Phase Framework it is important to have risk management when outdoor learning is going ahead. Provisions and management means enabling children to take appropriate risks and this exposure is fundamental to outdoor learning. Having a risk assessment in place can help to balance risks as well as helping children to develop their independence.

Children having time outdoors allows them to develop important relationships with nature, teachers and one another, Sisson and Lash (2017). Overcoming the culture of fear that has evidentially limited children's time in the outdoors and in nature happens when practitioners view the outdoors as a key learning space and are able to recognise and identify potential harm and are aware of how to deal with it appropriately so that children can flourish in their environment, White (2004).

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