

Section 1

The Gnoll Country Park



(Source: Browne, no date)

Section 2

Chosen Features

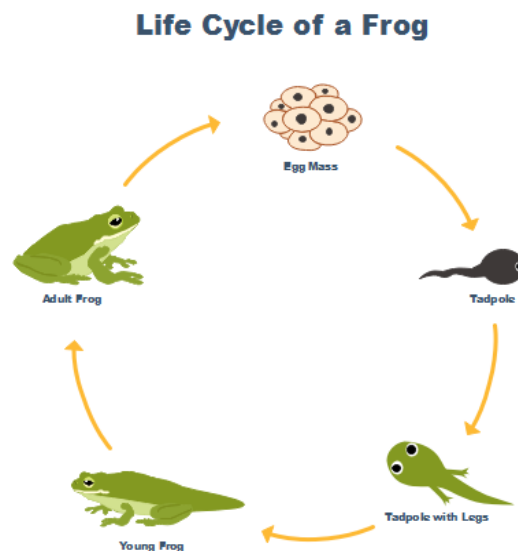
- **The Pond**
- **The Woodland**
- **The Clouds**

The Pond

The pond is the main feature of the above photograph, this is a place where wildlife can be discovered below the water's surface, where different creatures can be collected using nets and put in to trays ready to be explored further with resources such as magnifying glasses and microscopes. This will allow the children to discuss and identify the creatures by name and look at their colour, size, shape, and texture. Multiplication can also be used here to count and identify the number of specific groups of creatures collected and the data can be recorded in form of a simple tally chart. Differences such as big, small, long, and short can also be explored and discussions can take place on the volume of water collected by using words such as full, half full and empty. Questioning to increase the learning outcomes can take place such as - Will the creature's increase in size? What will happen when we put them back in the water? What do they like to eat?

Links to New Curriculum: -

- Collect and record data through investigation
 - Make sets of objects together and categorise
 - Recognise data through a variety of different methods
- (Welsh Government, 2021)



(Source: Shepard M, 2020)

The life cycle of a frog is an exciting and fun way for children to learn science. Where the children can look for frog spawn and estimate the number of tadpoles that may be born, there might be tadpoles in the water that the children can collect, count, and investigate and look for further signs of growth and development such as the formation of legs. The children can look at the changes in colour, shape and size whilst measuring and recording growth, and watch them develop into froglets, before being released back into the wild to become frogs. The song 5 little speckled frogs can be introduced whereby number has meaning.

Links to New Curriculum: -

- Explore living things, life cycles and habitats
 - Make observations and explore the outdoor environment
- (Welsh Government, 2021)

The Woodland

As you can see in the photograph under section one, there are tree's all around the pond, most of this area is made up of woodland. The woodland is a perfect area for children to explore loose parts play

where the children can gather an abundance of stones, pinecones, leaves, branches, twigs, logs, planks, plastic containers, tubes, and whatever other interesting objects they can find to count sort and order and build large structures like the one illustrated in the picture below, where certain sticks of a certain length and size can be found to balance and construct the den, allowing the children to take part in open ended discussions and come up with solutions. The children may need to think about the weather and what things they might need to make the den watertight such as large leaves, hay or moss and estimate the number of materials that is needed for the job. They may discuss gravity for instance when things fall and have to be picked back up or use questioning such as What will happen if we add one more? What will happen if we change this object for something different? How can you balance these sticks to ensure the structure is sturdy? the list of learning possibilities in the woodland is endless.

Links to New Curriculum: -

- Choose different materials to use
 - Select materials and tools for construction
 - Communicate what I am making
 - Understand differences such as equal and not equal
- (Welsh Government, 2021)



(Source: Blue Forest, 2016)

There are sometimes designated barbeque areas in the woodland, the council have provided funding for such areas at the Gnoll country park (BBC News, 2020) Where fires can be lit to toast marshmallows, this will allow the children to choose, count, and sequence the colour and number of marshmallows they want to place on sticks and to look at the changes in consistency and the melting process. Prompting discussion on what will happen? How will the texture change?

Links to New Curriculum: -

- Count objects and sequence that I can touch and cannot touch
 - Talk about different sets and how they change when added too or taken away
- (Welsh Government, 2021)



(Source: Graham D, no date)

Additionally, experiments can be completed such as making popcorn by using a tea light, tin, teaspoon of oil, popcorn kernels and a home-made tripod, like the one illustrated in the picture above. Where the children will learn how to construct a tripod by following directions of a diagram. The children will need to collect sticks of similar size and measurement where the children will learn how to lash and tie these together and use their senses to listen to the kernels popping and look at the science behind it. How did that happen? What did we do? What happened? How much have we made?

Links to New Curriculum: -

- Follow instructions and construct and control a device.
 - Question how things work and show curiosity.
- (Welsh Government, 2021)

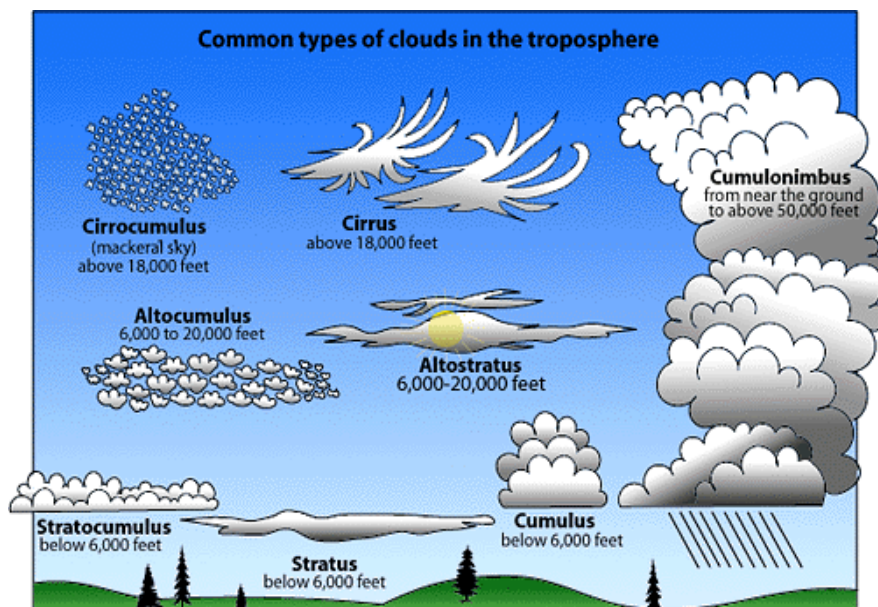
The clouds

The clouds are a prominent feature in the photograph and can be rather interesting for children learn about. This is where childcare practitioners can teach the children how the clouds are formed, which will allow them to learn about the water cycle, whereby water and ice travels up to the sky to form clouds, and when the clouds turn grey and heavy it rains, then the cycle starts all over again so water is constantly being recycled (Devereux, 2000). Following this the children can learn the names and shapes of the clouds as illustrated in the picture bellow, where they can identify the different groups of clouds and where they are placed in the atmosphere such as high, middle, or low. Shapes and pictures

can sometimes be identified in the clouds by laying down and looking up at them, the children could draw the different clouds by identifying and estimating the length, size, and type of clouds they observe. Clouds can also be constructed using cotton wool balls where art can be used to form pattern. Weather predictions can be made by the children allowing them to look at the climate change and decide if they think it will rain today. Rainwater could also be collected in containers and the children can measure the amount of rain fall collected over a few days, by using rulers or measuring jugs, and discussions can take place with regards to how light or heavy the container feels or if its full or empty and when the water is finished with, it can be used for pouring and tipping and to look at volume and weight. The clouds can also be observed in the pond this is an opportunity to enhance the concept and discuss reflections and what other reflections they can see in the water; Ice can also be explored as part of this topic.

Links to New Curriculum: -

- Use a variety of objects to measure
 - Look at objects and identify sequences and patterns
 - Choose materials for use
 - Can make estimations such as heavier and lighter
 - Talk about the influence forces have on objects and myself
- (Welsh Government, 2021)



(Source: UCAR centre for science and education, 2021)

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Section 3

RISK BENEFIT ASSESSMENT

Location / Activity:	The Gnoll Country Park	Date:	11/9/21
Assessor:	Claire Nash	Review date:	11/9/22

ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Pond dipping and exploring the life cycle of frog.	By; - Learning about living things and categorising them into groups. Exploring, colour, shape, size, and texture. Observing the creatures closely under a microscope. Collecting and recording data which will allow the children to analyse things later in life. Looking at the lifecycle of a frog, learning to care for tadpoles and observing growth and development	The children might fall into the water causing injury to themselves and others, such as cuts, grazes, and bruises. Drowning or hypothermia Insect bites Contamination of water Tadpoles turning into frogs.	Children and Adults.	Speak to children about boundaries and about not going too close to the water's edge. Explain that we need to be kind to living things, so allow them to stay in the water and only remove when you want to investigate further by using tiny nets or spoons. Make sure children wash their hands thoroughly with plenty of soap and water after the activity. Ensure the tadpoles are released back into water before developing into jumping frogs.	Low to medium

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ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Collecting and playing with loose parts	By; - Collecting interesting objects, to observe, count, sort, order. Looking at nature, exploring seasons and collecting leaves of different colours and assortments. Using their creativity and imaginary skills, fitting items together that don't connect or go together easily. Learning to make sets and patterns out of items and exploring symmetry. Learning to construct and balance items so they don't topple over and gathering a list of solutions.	Insect stings and bites Nettle stings / Sunburn Cuts and falls Lost Children	Children and Adults	Teach the children about insects, complete an activity where children need to sort insects into groups of ones that likely to bite or sting to others that are less likely. Discuss with children's boundaries and if they can't see an adult then they have probably gone too far. Read over lost children's policy before taking children out and ensure children are always supervised and accounted for. Do regular head counts. Ensure first aid kit is well stocked before venturing out or completing any of the activities listed on this risk form. Wear appropriate clothing for the weather, such as clothing with arms and legs to prevent nettle stings or cuts and ensure sun cream and sun hats are worn on hot days.	Low

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ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Building a den in the woodland	By:- Being able to sort and measure the objects needed to construct the den. Learning to estimate size, length and how to balance items such as sticks. Learning to reach solutions in how to keep the den waterproof and to keep the structure sturdy. Working in groups and teams to compare ideas. Using the den as a role play station. Learning about the history of such shelters. Learning survival skills that the children may need at some point within their lifetime.	Cuts, bruises form trips and falls. Nettle rashes Sun Burn Falling or loose branches Running into branches	Children and Adults	Risk assess area before play, remove any sharp objects such as glass etc Have a discussion with the children and lay out a set of ground rules, such as: - Teach children to be careful when playing with sticks and branches so that they don't hit one another or poke someone in the eye and to be careful not to run into branches mainly because of eyes. Be aware of biting and stinging insects Ensure first aid kit is well stocked before venturing out on any of the activities listed on the risk form. Wear appropriate clothing for the task such as clothing with arms and legs to prevent stings from nettles or cuts.	Low to Medium

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ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Exploring fire by toasting Marshmallows on a barbeque and making Popcorn with candles	By: - Looking at the element of fire. Learning how to light a fire (Survival skills) Being able to experiment and make estimations on what will happen. Learning to follow a set of instructions. Learning to take risks. Exploring consistency of marshmallows Looking at the changes in texture and size when the popcorn kernels are heated Developing mathematical and science language and asking questions such as: - What will happen next? What has happened? And how did we do it?	Allowing children to take risks such as being close to a fire. Burns or scalds	Children and Adults	Practitioners to run through a set of ground rules before the activity commences. Adults to always supervise children and fires, encouraging children to stand back. Barbecue fire to be kept low Adult to light and supervise fires when completing the activity with young children.	Medium to High

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ACTIVITY	How will young people BENEFIT from this activity?	Possible hazards	Who is at risk?	PRECAUTIONS in place to reduce the risk of injury	Overall risk RATING: L/M/H
Exploring the clouds.	By; - Learning then names and shapes of the clouds. Looking at the positions of the clouds in the atmosphere. Higher, Middle and Lower Developing their creativity through drawing and making the clouds. Measuring and exploring water and the rainfall and collecting evidence of this. Exploring the volume of rainwater, is it full, half full or empty. Looking at the differences in light and heavy. Estimating the weather and how they can make predictions on the weather by observing the clouds.	Sharp objects in the grass. Poking one another in an eye with pencils or gluing fingers together when making the clouds	Children and Adults	Risk assess area before use remove sharp objects. Remind children to look out for sharp objects. Use appropriate glue for children so can easily be washed off. Encourage children not to be silly with pencils	Low

Section Four

According to Rosenow and Wirth (2021) there were considerably more opportunities for children to explore their imaginations outdoors in the past, because most children lived close to some kind of woodland or forestry where they were allowed to go out and play, but sadly a lot of these areas no longer exist today because of new buildings such as houses or shopping centres, therefore it is vital that childcare practitioners allow children to explore the outdoor environment by using other ways. The Froebel approach cited by Tovey (2017) believes that teachers should regularly take their classes outdoors, he was a firm believer in the development of the garden area and showed this through his work on his own kinder gardens, where he felt outdoor play provokes exploration, curiosity, wonder, engagement with nature, freedom of space, and opportunities for creativity, risk, challenge, and adventure. He also believed in regular visits to places of interest for play and learning opportunities such as parks, mountains, rivers, streams, woodland and felt that taking children to shops to buy ingredients for cooking or to buy stamps at the post office were also important. Lov (2010) believed that by adults allowing children to play in more green natural environments where play was not interrupted, the children had greater sense of wonder and such areas allowed the children to foster their holistic development, through mathematics, language, cognitive, physical, personal, social, and emotional development (Brodie, 2018).

As you can see from the picture in section one there are many areas for learning in this photograph and the list of possibilities here are endless. Section two highlights this with some examples of maths and science concepts however there are also other concepts that can be used here. Richardson (2014) discusses some of these whereby story's, rhymes and musical instruments can be used outdoors to support mathematical development. Science can also be explored through plants, insects, and habitats. Where tools can be used for digging and pens, pencils and crayons can be used for mark making such as leaf and bark printing. Warden (2012) Points out that the outdoors is an important part in children's learning and childcare practitioners should not allow this just to be an optional extra. Outdoor learning should be included in the child's routine every day regardless of the weather. Each part of the outdoors creates a different learning experience for the child, childcare practitioners must plan for the outdoor experiences accordingly to enhance the children learning experience. Children that miss out on such areas to learn are significantly deprived of the learning environment. Children experience awe wonder and joy from being outdoors and get mixed up or lost in their experience. It is also a place for social interaction and forming friendships.

An article by Tinney *et al* (2020) points out that sometimes childcare practitioners can be reluctant to want to carry out science activities, because of their own experiences when they were children, whereby concerns were displayed over the practitioners simply not knowing that what they were teaching was correct or the fear about science being over complicated for little children. A study was carried where the adults were observed over two days, on day one the childcare practitioners linked science to people wearing white coats, a series of tables and Bunsen burners which they found complicated and dated,

however by day two they had a totally different outlook, because after linking it to the curriculum they realised science was something much more than what they perceived it to be and was carried out every day within a person's normal routine such as cooking, planting, discussing the weather and outdoor learning. Grigg and Lewis (2016) state that adults also have negative perceptions regarding mathematics, as some believe they are not good at it and express their dislike in the subject, such negative views are shaped by lack of positive role models. Adults can pass such attitudes onto their children therefore children need to be able to observe maths as being relevant and necessary to enjoy learning about it. Children can often be put off maths because of boring pedagogy methods and because lessons are dominated by a series of mathematical worksheets, but by creating opportunities for children to enjoy maths through play can change their perceptions.

The national curriculum for wales (2021) states subjects such as mathematics and science are essential in children's learning and should be made fun and challenging, for children to enjoy studying such subjects. Maths and science are a crucial part in everyday lives and play can become an important part of it, enabling learners to solve problems, explore ideas, establish how things work and connect. It is important that childcare providers provide opportunities for children to explore outdoor play spaces and supply any resources that is needed to enhance their experience of learning. Bilton (2010) believes that children should be given adequate time to play by adults with no interruptions. If children know they have plenty of time to play, they are more likely to engage in tasks. This was argued by McAuley and Jackson cited in Bilton (2010) as they felt by interrupting children engrossed in play will contribute to their culture in being subversive, as it will allow behaviour to become normal, however a study was carried that displayed the behaviours of children within the classroom and found, when children's time to play increased and was spread out over a longer period of time the boys in particular chose activities that were more work orientated rather than the ones that were playful. Therefore, this exposed that if children are given enough time to play and given specific time for activities, they were content to move on to more work-based activities.

Loose parts play cited in Play Scotland (no date) was invented by man named Simon Nicolson in 1971 and is a practical example of outdoor maths and science concepts, whereby the practitioner can provide the children with space to play which is full of natural recourses for the children to collect, sort and order use their imagination. The positive thing about providing the children with such parts is that they have no direction or instructions and don't fit together easily like other toys which allows children to develop their cognitive skills and make their own decision on how they would like to use them and therefore teaches them to explore their creativity, reach solutions, think outside the box and use affordances. Affordances are defined as objects that have several possible uses and was developed by Gibson in 1979, Early years educator (2016) states that the children will often look out for what play affordances the environment has to offer for instance one day a piece of wood could be a den the next day it could be a rocket ship. Or one day mud could be a sculpture the next in could be a potion. This shows how essential it is that such resources are made available by practitioners both in the indoor and outdoor environment for children to explore and play with.

An article in the nursery world cited by Siraj-Blatchford and Manni (2004) stated that questioning plays a part in pedagogues supporting children in science and maths, talking amongst adults and children allows children to concentrate and keep their interest on the subject and reflect upon what they are doing. Sustained shared thinking is used when two individuals work together to look at idea, solve a problem, and evaluate what improvements need to be done. How do you think this can be done? What if it's done this way? How many pieces of wood is needed? How will it balance?

Bruner cited in Conkbayir and Pascal (2014) believed that adults should allow activities to be revisited several times, for children to get the full benefit out of the activity and any given subject needed to be taught in line with what the child already knows. Bruner felt by revisiting activities allowed children to turn back to their ideas and choose a new subject to learn, which builds on the child's knowledge and their ability to think outside the box to fully understand the concepts they are taught.

It is important that childcare practitioners are up to date with their knowledge to teach children effectively and be able to answer questions from their children. The Reggio approach cited in Thornton and Brunton (2014) expresses that the role of the teacher is not only to teach but also to learn and staff need to be constructors of their own learning to continually improve their knowledge and understanding on subjects to effectively teach their students. An article by Skarstein and Skarstein (2020) agree with this through findings in their study where an assessment was carried out on teaching students to see if they could identify certain plants, birds, and marine animals. At the start of assessment, the students could only identify an average 28.2% of the species, however after 5 months of training the students could identify 74.4% of the species. Therefore, this suggests that it is fundamental that teachers keep up with their training to be confident and knowledgeable in their teaching methods and to be able to offer a wider learning experience.

White (2021) states that often babies and children don't always go outside because practitioners have concerns over the weather or temperature. However, in Scandinavia the children go outside in all kinds of weather, if they waited for the sun to come out then they would wait a long time which would result in the children having limited time to learn outdoors. If children are wearing the correct clothing for the season, then there is no reason for adults to keep the children indoors. Taking babies and children outdoors allows them to explore their senses through sound, smell and touch and interact with nature. Brodie (2018) expresses that it is important in allowing children out in all weathers, but it is equally important to allow children to participate in risk, as it helps the child to become independent and do things for themselves. The beneficial factors of outdoor play and learning often outweighs the risks, which is evident in section 3 of this paper. Some adults may class climbing a tree in the woodland as risky, however the benefits of children being able to use their gross motor skills to practice balance and co-ordination and learn about the environment and the tree have greater advantage. Activities such as learning to swim are equally as risky, however adults seem more accepting of this as it has lifesaving benefits. Hawkins (2013) suggests that sometimes practitioners can feel under pressure when it comes

to risk as sometimes judgements can be placed on them for allowing the children to take part in such activities. However, this should not prevent the practitioner in doing such activities, the (HSE, 2021) agree with this and state that the role of the health and safety executive is not to eliminate risk but to look at the risk and benefits as they understand that accidents do happen in play.

Forest school cited in Waite (2017) offers opportunities for children to take part in such risks which is supported by adults and run by qualified practitioners who keep up to date with their learning to provide the best outdoor learning experiences for the children, Forest School is described as a place that allows children to develop their self-confidence through learning experiences outdoors, usually in the woodland or where there are trees and promotes holistic development allowing children to be confident, independent, resilient and creative learners. This corresponds with the four core purposes of the curriculum Wales cited by (Welsh Government, 2021) where children are to become healthy and confident learners who are building on their mental and emotional wellbeing to overcome challenge, manage risk and form lasting relationships.

A longitudinal study by McCree, Cutting, Sherwin (2018) took place where by 11 disadvantaged 5–7-year-old children took part in a weekly forest school training for the duration of 3 years. The study investigated the impact on children's wellbeing, their links to nature and academic attainment. The findings showed a significant improvement in the children's attendance and academic skills in contrast to other children at the same school. Such information highlights the importance of social relationships and free play outdoors when supported by skilled adults to place influence upon a child's self-regulation and emotional well-being. Therefore, questions the need for extra intervention for disadvantaged children.

Vygotsky cited in Mooney (2013) believed in scaffolding as a means of helping the child to achieve potential. Vygotsky believed that practitioners needed to effectively observe the children they care for, to scaffold the children's learning accurately. He also suggested this could not only be done by adults but also by children who have the same skills and believed that teachers needed to look at the information in their observations to see where the children were, in their stage of learning to help them further reach their potential, he felt it was the way forward to assess what is inside the child ZPD to effectively plan the child's curriculum. Froebel cited in Tovey (2017) also believed in observation like Vygotsky as a means of supporting the child in future development and planning.

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