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Outdoor Trajectory Schema (Own image, 2024)

According to Piaget (1932) children go through stages of development and growth, also known as schemas. There are a number of schemas, including positioning – in which children line objects, stack them and sort them, rotating – in which children enjoy anything that spins and turns, and the trajectory schema – which is one of the first schemas in a child's development, in which the child enjoys watching things move and the act of throwing and rolling objects to see how far they will travel.

In this area of our outdoors, we have set up activities helping children in our setting who have expressed elements of the Trajectory schema. They began with throwing objects and emptying all the surfaces inside the setting. We have a ball machine in our sensory area, which seemed to engage them for some time. Listening to the wooden balls as they rolled down the wooden ramps and falling with a bang at the bottom, only to be collected and rolled again. The only problem with this ball machine is that when the children get too excited and put the balls in too quickly, they soon get jammed and will not keep rolling without opening the machine to remove the pile up of balls and start them on their way again.

Observing the children and their interests, and in order to encourage the children, we created this pallet setup, enabling them to roll vehicles up and down the ramps. The wood helps with the sound and the boxes amplify the sounds, much to the children's enjoyment.

While playing with the children we can ask simple questions, such as, "What happens when we roll the car over the side of the pallet? Will it keep rolling or will it stop?". We can also begin learning of forces and gravity, "If we build the ramps higher, does the vehicle move faster or slower?" and mathematics, "Which vehicle is the slowest? Why do you think that is?". The children enjoy the rolling and building and are sometimes happy to answer questions, however, they are always learning, even when they are not interrupted with our questioning.

Some children enjoy the movement of their own bodies instead of the moving objects. This is the reason the climbing cube is in this area. Children can climb up the ladder or use the foot holes in the wall of the cube to reach the summit of the cube. From here the children choose to walk or run down the tube or with the help of an adult, they stop at the edge and jump off into the arms of the adult. The children enjoy the feeling of climbing up and the freedom and rush of adrenaline as they jump from a height.

Encouraging the children to stop at the edge, enables the adult to be prepared to catch the child. We can also encourage the children to wait their turn and use "Ready, steady, go" before they jump.

The climbing cube also encourages the learning of gravity and forces as well as counting the steps as they climb and possibly counting before, they jump or run.

The sandpit area enables the children to measure, pour and transport the sand as well as building sandcastles and structures. The use of multiple size and shaped vessels encourages the children to find which vessel is bigger and smaller than the others and also helps with naming and identifying different three dimensional shapes.

We have observed that Medi displays behaviour of a trajectory schema. While playing in the playroom she throws objects up in the air and watches and listens to them land. While in the playroom, we have encouraged Medi to play with the wooden ball machine, collecting and depositing the wooden balls into the top of the machine and watching them roll down the ramps and falling into the bottom

collection tray. Medi enjoys the sounds made by the machine and so we have asked her if she would like to play outside with the wooden cars, "Do you think the wooden cars will make the same noise Medi?". On seeing the car setup outside Medi instantly went and rolled the largest car off the side of the pallet. Medi then collected the train car and pushed it up the ramp and onto the pallet, this did not make a pleasant noise and so Medi abandoned the train car and used the larger wooden car and rolled it down the ramp, watching as it continued to roll across the floor and into the wall. Medi laughed as the car crashed into the wall and I asked her "how did it keep rolling?", Medi looked puzzled and on walking to retrieve the vehicle, she noticed the floor sloped slightly towards the wall. She picked the car up and placed it down onto the floor and watched again as it rolled and crashed into the wall. Medi then asked "Ramp?" as she placed the car again and watched it roll. Medi then moved the ramp to the other side of the pallet and watched as the car rolled down the ramp and stopped at the bottom of the ramp, while looking around Medi decided to build the ramp steeper by adding blocks, she then watched as the car rolled faster down the ramp but came to an abrupt stop as it got to the floor. Disappointed that the higher ramp did not have the effect she was looking for, Medi then moved the new ramp to the original side of the pallet and placed all of the cars onto it and watched them all race and eventually crash into the wall. This pleased Medi and she continued altering the ramp and noticing the speed and directions change with every new block. During this activity Medi has learned the cause and effect of gravity and other forces.

Whilst observing Medi and the vehicles, Ivan has called me to watch him climb the wall. I have hastily made it to the climbing cube in time to monitor him climbing up the ladder and onto the top of the cube. Ivan is unsure what he wants to do at the top of the cube but is feeling accomplished at climbing the ladder. "Feel my heartbeat, Ner" he says as he holds his hand on his chest. I exclaim that his heart is beating fast and ask, "are you scared Ivan?", he tells me no, that he "just climbed all the way up yuh" and pointed from the ladder to the top of the cube. I told him he must have used all his muscle strength to get there, and he showed me the muscles in his arms. Ivan is aware of his heartbeat changing as he is exercising, and also that his muscles get stronger as he uses them. Ivan then decided he wanted to walk down the tube and jump off the end. I reminded him to balance while on the tube as it can wobble slightly, he then asked for my help as he walked down. Ivan enjoyed the feeling of jumping off the end of the tube and decided he would climb back onto the cube to do it again. I asked him "is the cube higher or lower than the tube?" he replied "lower", I emphasised that the cube was in fact higher than the tube and asked if he would be brave enough to jump off the cube, he insisted he was and after stopping at the edge, we both counted "one, two, three" and Ivan shouted "Jump!" as he jumped two footed off the cube and into my arms. He squealed with delight and decided the cube was "definitely bigger" and continued climbing and jumping until he was "out of breath".

Mia and Carrie were playing in the sandpit at this time. Mia had a large star shaped vessel which she was filling with a spoon and Carrie was using a wooden spoon to fill her measuring jug. Mia decided her star shaped structure would be "bigger" than Carries and so they started filling their vessels as quickly as they could. When they had finally filled both vessels, they turned them upside down and exposed the structures underneath. Mia was very disappointed that her structure was not as tall as

Carries. I reminded Mia that although her star was not as tall as Carries jug, hers was wider, as it had a larger surface area than the narrow jug. Mia then challenged Carrie to try and fit all her sand into the star shape and that she would try and fit all her sand into the jug, she wanted to see “who got the most sand?”.

Using these observations, we can make enhancements to the set ups provided in order to encourage the childrens learning and enhance the outcomes they receive from the activities provided.

RISK BENEFIT ASSESSMENT

Location / Activity:	Outdoors – pallet, climbing cube and sandpit area	Date:	17/07/24
Assessor:	Nerys Thomas	Review date:	19/07/24

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
Climbing cube	- Children will improve gross motor skills by climbing the ladder and using the climbing holes. - Children will benefit from risky play - Health benefits from playing and exercising outdoors	- Falling from a height - Head injury - Broken limbs - Splinters	Children Adults	- Ensure an adult is present around the cube at all times - Remind the children to take their time whilst climbing up and standing on top of the cube - Encouraging a “ready, steady, go” prompt before jumping - Ensure regular sanding and maintenance of the wooden cube	Medium

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
Sandpit	- Children will improve fine and gross motor skills grabbing and collecting the sand - Measuring possibilities, using many different sized vessels - Building and demolishing of sand structures, learning of gravity and cause and effect	- Sand in the eyes - Consuming sand - Injury from tools used, for example spade, spoon, rake	Children Adults	- Remind the children not to throw sand in the direction of people - Demonstrate the use of the tools and monitor correct usage - Encourage children not to eat the sand	Low
The weather	- Fresh air - Exercise - Exploration of the outdoors	- Sunburn - Heat exhaustion - Sun stroke - Dehydration	Children Adults	- Ensure fresh drinking water is available for everyone - Ensure hats are worn - Ensure sun cream is applied regularly - Encourage children to seek shade routinely	Medium
Small world pallet	- Children will develop and improve fine motor skills - Cause and effect of forces	- Splinters - Jamming of fingers between apparatus - Falling through pallet	Children Adults	- Remind children to play gently with the vehicles - Ensure regular sanding and maintenance checks on the pallet - Encourage children to walk on the wooden beams of the pallet and not in the gaps	Low

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
Outdoor area	- Fresh air - Exercise - Exploration of the outdoors - Freedom to run, jump and play - Using bikes and scooters	- Trip or fall whilst running - Bumping into the walls - Bumping into obstacles - Skidding on sand - Being hit by a bike or scooter	Children Adults	- Remind children to be observant whilst on bikes and scooters - Encourage children to be careful whilst running - Ensure sand is brushed regularly and removed from high traffic areas - Be very observant while children are using bikes and scooters, remembering to look both ways before crossing	Medium

Froebel (1967, cited Tovey, no date) emphasises that children learn best when they are outdoors and in nature. As a result of this, many preschool nurseries have adopted the outdoor learning environment in an attempt to encourage childrens natural learning abilities. Using the natural environment has many benefits for the learning experiences of the children.

Maynard, Waters and Clement (2013) discovered that children who may be underachieving in the classroom environment changed significantly when they followed the child-initiated outdoor learning of the foundation phase. Strengthening Froebels (1967, cited Tovey, no date) theory and encouraging 'A curriculum for funded non-maintained nursery settings' (Welsh government, 2022) to be created.

Following these guidelines, practitioners are able to create invitations to play, areas which captivate the childrens attention and encouraging play and learning. Research conducted by Campbell and Speldewinde (2020) discovered that the subjects of mathematics and science have vastly improved due to the 'Bush kinder' sessions being implemented in Australia. These learning environments are rich with nature and children are able to test and experiment a hypothesis they may encounter. For example, children may notice the changing of the season and being able to feel the change in temperature and watch as the leaves fall from trees or buds appear on the trees would be more beneficial than hearing about these changes in a book. A child can learn holistically from being surrounded by nature, using all of their senses to embrace the learning environment they are in (The early years network team, 2023). Being outdoors brings a plethora of opportunities and resources to the practitioner, also the children can always see something new and different whenever they venture out.

Learning in the outdoors also enables children to improve their mental and physical wellbeing.

Children are motivated to move and explore, climb and run, learning about their own bodies and how and why they move. Feeling their heartbeat race as they climb a hill or run around and wonder "why does it do that?". The natural curiosity of the child propelling their learning in directions only they control (Duglan, 2015).

In nature mathematical resources can be found in numerous places. Patterns surround children daily, the bark on the trees, a butterflys wings, the symmetry of leaves and uniqueness of snowflakes.

These are inimitable in a classroom. Searching for patterns in nature can become a fun game for the children, who may surprise the practitioners with where patterns can be found (Gifford, 2017).

Practitioners may believe that children having an interest in science and mathematics would be a difficult task, possibly as their personal experiences with the subjects while they attended educational settings has tarnished their view. They may have found the lessons to be boring and would not want to bore the children with such subjects. However, being in a natural environment, rich with resources and opportunities, children today would benefit from enthusiastic practitioners, willing to see the wonders of nature through the eyes of a child (Ritchie, 2021).

Reference list

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