

The Young Mathematician Exploration and Problem Solving



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Activity Plan

Activity Plan		
Activity: Using sticks and leaves, create mini-beasts with one or more lines of symmetry.		
Number of children: 5	Age of children: 4-5	Number of adults: 2
Location: school playground/ forestry	Preparation time: 10 minutes	Activity time: 30 minutes
Resources: • Sticks • Leaves • Coats • Wellies • Clipboards • Paper • Pencil		
Aim/s of activity: To use different materials that they find outdoors to create shapes and recognise lines of symmetry in the environment around them.		
Links to outcomes: Welsh Government (2014) says The Foundation Phase Framework target for the Movement topic for Reception is that “Children are able to: complete a simple symmetrical picture through a variety of media”.		
Health and safety: See completed risk assessment for further detail. One of the children does require an asthma pump and must be carried by a member of staff at all times.		
Role of adult/adults: The role of the adult will be to supervise the children while they search for leaves and sticks safety. They will then lead them to a space clear enough for them to make their mini beasts and then support them making them and ask them questions to support their learning.		
The activity: The children will go out into the school yard and look for leaves and sticks to make mini-beasts.		

They will then create their mini-beasts and the adults will ask them questions such as

- How many different mini-beasts can you make?
- What is symmetry?
- How many lines of symmetry can you see?
- Is there a mini-beast with no lines of symmetry?
- Which mini-beast can you make the most lines of symmetry with?

They will write their answers on the paper and the practitioner will ask them questions on what they have done.

Evaluation

Under the section role of the adult on the activity plan it mentions the practitioner supporting the child and according to Reid (2016) research highly suggests that early numeracy development can be supported by interactions between young children and their family members and early childhood educators. "In our tiny children the evidence of a mathematical bent shows itself in many striking and spontaneous ways (Montessori, 1988, p169)" cited in Montessori St Nicholas Charity (2015). They believe that it is important for practitioners to help develop a child's mathematical mind through experiences from an early age as all later learning will be built on that as they develop. Skinner, (2005, p.9) says that it is important for adults to provide a visually rich and exciting outdoor environment so that the children will engage the child's own curiosity and challenging their understanding.

The location section on the activity plan says the School playground/forestry. According to Skinner, (2005, p15) a powerful medium for learning is outdoor play as it enables children to try out different ideas and mathematical skills using their creativity and imagination but in different environment and larger scale.

The aim of the activity is to help children learn about lines of symmetry outdoors by creating mini-beasts out of natural resources. Skinner and Stevens (2012) believe that it is important that practitioners support children in learning to recognise and identify symmetrical aspects of leaves, flowers and fruit & vegetables. They say practitioners can do this through a variety of media to create symmetrical designs. The activity plan does show that this is being done however the plan could have included other resources such as the flowers or fruit and vegetables and not limit it to just sticks and leaves. The activity itself could have included time

to look at each other designs and discuss them with each other and identify other children lines of symmetry.

The activity section explains how the practitioner will ask the child questions to talk about what they have learnt about. Skinner, (2005, p.16-17) that practitioners should use mathematical language with the children and encourage them to use it too by making questioning statements and asking questions about what they have learnt to see if they have actually learnt something from the activity and understood it or if you need to go back over it. This also allows them to reflect on their learning and review what they have learnt. However the plan could include the questioning statements like 'i wonder which mini-beast has the most line of symmetry?' instead of being an actual question and encouraging them to respond on their own enthusiasm to answer and not because you have directly asked them. The activity is also a way of visually learning how to find lines of symmetry which uses a child's episodic memory according to Hattie and Yates (2014) one events are memorable and allows children to have the potential to recall them in words and images which is known as episodic memory. The activity is also a form of playing and Tucker (2014) states that playing promotes a child's self-esteem and through play they can repeat, rehearse and refine their own skills. They can use play to display what they know and what they are beginning to learn. However cited in Tucker (2014) Bruce (1991) disagrees with this and believes play is too broad of a term.

Resources

The resources section includes pencil, paper and a clipboard this is to allow them to write down the mini beasts they make and how many lines of symmetry they see this is known as mathematical recording. Skinner,(2005, p.17) says that children want to record their experiences counting and measuring which can be done in many different ways such as asking them questions and reviewing what they have learnt by discussing it with them. However physically recording it will assist the children as well as they will be able to look back on it to answer the questions and memorise it as they will be able to visualise it and record their findings immediately as by the children get back in the classroom to write it down they would have forgotten some of it as that it too much information for a child to remember at once and allows them to make a permanent record to discuss later.

Role of the adult

Mathematics is vital in everyday life and sometimes we don't even know we are doing it. Burns (2012) says that we shouldn't accept poor numeracy and literacy skills as "15% of Britons studied maths after the age of 16, compared with 50-100% in most developed nations" and research by KPMG auditors show that annual costs to the public come from a failure to master basic numeracy skills amounted to £2.4bn. Having low numeracy and literacy skills can impact employability, earnings and economics. However if we strive for everyone to have a good level of literacy and numeracy skills so individuals would have better life chances.

National Numeracy (2012) claim that the root of our numeracy crisis is the attitude towards mathematics not individuals ability and in order to fix this peoples attitudes have to change towards maths. They also say that the reasons for our negative attitudes to maths are mainly because people have had a bad experience of maths before and don't see the value in it. People also experience 'maths anxiety' where having to do maths makes people anxious and want to avoid situations where they have to use maths. There is also a lack of support for adults and feel its too late for them or where they would get support. However National Numeracy (2012) believe that if a more positive and confident culture is built around maths and numeracy they believe the UK would see a positive impact on skills and attainment.

Parents are children first educators as children spend the majority of time with their parents up until the age of 3 however children still learn off their parents even after they go to school. According to APPG Maths Numeracy (2014) parents find it difficult to help children with maths at home because of their own experiences and attitude towards maths and encourage their own children and pass onto their own children that it is ok to be 'not good at maths'. Sometimes parents require help when engaging their children in maths and how essential it is in their children's lives. Settings should support parents getting their children engaging in maths and practitioners should try and build a rapport with parents so that parents feel comfortable asking for help. APPG Maths Numeracy (2014) also claim that too many settings fail to give an adequate start to maths for young children and that its not just down to the curriculum but practitioners themselves saying that peoples confidence, understanding and attitudes towards math is a problem and that sometimes practitioners won't receive support for the parents when trying to encourage a child in maths. That is why it is important practitioners give off a positive attitude towards maths and provide an environment that encourages child to do maths and enables them to use it as well.

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