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Activity**Plan**

Activity Plan		
Activity: Shopkeepers and customers.		
Number of children: 6.	Age of children: 5-6.	Number of adults: 1.
Location: School field.	Preparation time: 15 minutes.	Activity time: 30 minutes.
Resources: • Large plastic container x 3. • Shopkeeper apron x 3. • Assorted currency of different value (up to 20p). • Mock till x 3. • Assortment of shells. • Assortment of wooden objects (sticks/branches). • Assortment of leaves. • Assortment of acorns, conkers and pinecones. • Portion of soft mud x 3. • Small cup for soft mud x 3.		
Aim/s of activity: To promote the children's mathematical development by staging a real-life experience of handling money through transactions. To confidently calculate remaining money before proceeding with a transaction. To promote the use of natural resources within children's play.		
Links to outcomes: Year 1: • Children are able to use different combinations of money to pay for items up to 20p. • Children are able to find totals and give change from 10p (Welsh Government, 2015).		

Differentiation:

To extend this activity, the children can use different combinations of money to pay for items up to 30p.

To simplify this activity, the children can use different combinations of money to pay for items up to 10p.

Health***and******safety:***

The adult will be responsible for ensuring all access points to the school field are locked to restrict public access.

It is also important that the adult has a first aid kit on their person. This is to provide adequate care in the event of an injury – such as small grazes/cuts from the shells, sticks and branches. The adult will also have with them a medical information sheet, which contains information pertaining to any specific child's potential allergies.

Role of adult/adults:

The adult will gather resources prior to the activity and will assume responsibility for setting up the activity in an appropriate part of the school field. The role of the adult during the activity will be to explain to the children what is expected of them from the activity and to be present for potential support of transactions. The adult will supervise and ensure the children stay safe while being adventurous.

The activity:

For the activity, the six children will be separated into two small groups of three. Three children will be shopkeepers and wear an apron. The other three children will be customers and will be given different combinations of money, totalling 20p. The shopkeepers will each be selling an assortment of natural resources at different price points and will have a float at their mock till in order to be able to give change. The shopkeepers will use an upturned large plastic container to simulate a counter. After fifteen minutes the children will swap roles, giving each of them the opportunity to assume both the shopkeeper role and the customer role. The customers must spend the entire 20p and must prioritise and calculate for the different items they want. After having spent the 20p in its entirety, the customers must take the items they have bought and attempt to create something with them for the remainder of their time in that role. Following the activity, the children are to be safely led back

inside by the teacher, and another six children will be brought out to complete the activity.

Evaluation

To achieve successful mathematical development, all play activities demand sufficient adult engagement (Tucker, 2005). The planned activity includes an adult working closely with a small group of children, allowing for more intimate adult support. Vygotsky (1978) believes this is a key element of learning, and that a skilful tutor can help facilitate a child's learning. Vygotsky calls this person the More Knowledgeable Other – it is someone who has a deeper understanding of a subject than the learner. The More Knowledgeable other is intimately associated with Vygotsky's Zone of Proximal Development, a concept that differentiates between what a child is able to accomplish when working alone and what a child is able to accomplish with guidance from a more skilled adult, friend or peer (Shabani, Khatib and Ebadi, 2010). This theory is reflected in the activity, where the adult is present and able to offer support to the children wherever necessary. The entire activity also utilises scaffolding as a core principle. Scaffolding is defined by Wood et al. (1976) as a process that allows a child or beginner to achieve completion of a task that would be beyond their unassisted efforts. Another strength of the activity is that consists of smaller groups of children, which allows each child to better benefit from peer learning. Pound (1999) and Fisher (2008) agree that it is important to give children the chance to communicate and talk with each other when completing an activity as learning is able to thrive in these situations. In this activity, children also have the benefit of being in nature, which Jean Piaget believes will help facilitate the learning of the outdoors (Mooney, 2000). This idea is in agreement with Friedrich Froebel, who believed that without direct involvement with nature, children would never grow to respect the natural world (Tovey, 2007). However, scaffolding as a theory is not universally supported. According to Rogoff (1990), scaffolding, being heavily dependent on verbal instruction, may not be uniformly useful across all cultures. When touching on the notion of scaffolding, the activity plan did not include any direction for the grouping together of children of varying abilities. If the children in an activity are of varying levels of ability, then the Zone of Proximal Development can be utilised by more knowledgeable children being able to help their lesser able peers. Were the activity to be carried out again, the activity plan should reflect the potential benefit of allowing children to scaffold one another. This is backed up by a study conducted by Freund (1990) in which she pitted

Jean Piaget's concept of discovery learning against Vygotsky's guided learning through the Zone of Proximal Development. The results of the study show that children that were assisted in a task performed better than the children who received no assistance. A benefit of this activity plan is that there has been consideration for differentiation. There is, in place, a simplification of the activity for any child with Additional Learning Needs (ALN). ALN refers to any individual learning, physical or sensory needs that make it more difficult to learn than the majority of their peers (Dewis Wales, 2018). Articles 23 and 28 of the United Nations Convention on the Rights of the Child detail all children's right to an education, and that any child with a disability should have special consideration when planning their learning (Unicef, 2015). These rights help to further protect children who are already protected by the *Equality Act 2010* which includes aims to ensure all children receive the same, adequate care and support.

A weakness of the activity is that the activity plan did not include any direction for the shopkeepers after the customers had spent all of their money. The customers went on to make creations with the natural resources they had bought while the shopkeepers did not have an additional activity. If the plan were to be carried out again, the activity plan should include an additional activity for the shopkeepers. This is important as it helps to keep the shopkeepers engaged in the activity. Research has shown that engaging pupils in the process of learning aids in the improvement of their attention and focus (Center for Teaching and Learning, 2012). When carrying out an activity outdoors, it is imperative that the teacher carries out a risk assessment beforehand. As seen in the activity plan, the risk assessment is absent. According to the Early Years Alliance (2008) state that the process of risk assessment should involve reviewing what can be done to prevent harm, ensuring appropriate actions are taken to minimise threats. In agreement with this, Oxfordshire County Council (2005) states that risk assessments require hazards to be listed and recorded along with a risk level to deem whether the risk is acceptable or unacceptable. Measures must always be taken to reduce risk. A potential threat to the activity taking place outside is that can be negatively affected by adverse weather conditions. However, the positives of using large upturned plastic containers is that they can be rinsed off if they get too muddy outside and can be brought inside to continue the activity indoors.

Discussion

In the activity plan included above, the children are to be outdoors participating in an activity where they are using natural resources found in varying biomes. Utilising the outdoors in children's learning, especially in play, allows children to have direct contact with the natural world and allows them to not only learn about nature but to learn in nature (Bruce, 2012). Expanding on this, architect Simon Nicholson coined the term 'loose parts' (Penn State University, 2014) which can be thought of as materials that will help to inspire creation in children, such as using their imagination to pretend a stick is a cricket bat, and pretending a small stone is a cricket ball. This is backed up by research conducted by Kiewra and Veselack (2016), who found that natural materials can help to develop a child's creativity by allowing them to choose whatever they want a material to be. Loose parts can be used in a variety of ways in children's learning and utilising loose parts in mathematical development is one of them. Concepts such as shape and size, as well as sorting, sequencing counting and measuring can be achieved through the utilisation of spare parts (Professional Association for Childcare and Early Years, 2019). Ofsted (2008) states that first-hand experiences of outdoor learning can help to make topics more interesting for children and heighten their understanding. According to Charles et al. (2008), what stimulates children's limitless imagination is natural spaces and materials. These serve children as the gateway to inventiveness and creativity. For children to achieve a heightened sense of creativity, it must almost always be cultivated in the outdoors, using natural materials. Tucker (2005) suggests that natural materials are among the best for children because of their multi-curricular potential. The ability to promote mathematical development and their channels to other fields of learning such as language and science make them superior to their plastic counterparts which have finite possibilities. Natural materials, such as wooden toys, are also better for the general health of children (Green Friday, 2019). Plastic toys often include mildly toxic materials which, while not often extremely harmful, are still not present in more natural toys made out of wood. Wooden toys are also better for the environment and offer a more sustainably sourced alternative (Make It Wood, 2018). Compared to mass-produced plastic toys, which create an incalculable amount of pollution, wooden toys are more environmentally friendly as well as being better for

a child's health.

Often found in early years settings are resources akin to Froebel's Gifts, which according to the Froebel Trust (2016), are a series of objects specifically designed to be given to children to explore and shape. These gifts were designed to be utilised in open-ended play activities and were intended to develop the child's early understanding of the properties of materials in relation to themselves and the surrounding world. Materials like these are still commonplace in Early Years settings today and, according to Froebel Web (2008), help children's mathematical prowess by developing their skills of perception, manipulation and combination. The small, plastic Base Ten materials can help children visualise larger numbers and can deepen their understanding of mathematics from a young age (Open University, 2015). The importance of mathematical development cannot be understated. In the eyes of the Welsh Government (2019), the development of mathematics has been a staple of the development of civilisation as a whole. It underpins many aspects of our daily lives and is crucial to the education of children. According to the Welsh Government (2019), mathematics and numeracy helps the learners become ethical and informed citizens, both of Wales and the world, by granting them the means to think critically, analyse data and develop informed views on issues of society, politics, the economy and the environment.

Mathematical development is vital to children's futures according to Donaldson (2015), who states that relative priority has been given to subjects such as mathematics to give children and young adults the best opportunities to transition smoothly into employment. In his suggested revision of the current curriculum, Graham Donaldson has placed great importance on the development of mathematical skills so that children may better understand how to interpret data and find and analyse information. The Foundation Phase clearly identifies what children should be given opportunities to do whilst in the Early Years settings (Education through Regional Working, 2014). Children should be able to experience a mathematically rich environment so that they may examine and develop different mathematical concepts. They should be given opportunities to develop practical mathematical skills, such as the currency-based activity laid out in the activity plan provided. It is vital that children are given opportunities to transfer mathematical skills learned in the classroom and outdoors and apply them to real-world scenarios.

Explanation

The Welsh Assembly Government (2008) speaks of the adult's role as being a facilitator of learning, ensuring to keep the child at the heart of it. Each practitioner in an early years setting should ensure that their specific teaching approach has been tailored to the needs of their children in every area of learning and development. It is vital that all practitioners in the Foundation Phase have a deep and thorough understanding of child development, especially mathematical development (Welsh Assembly Government, 2008). When developing children's mathematical skills in the Foundation Phase, practitioners will be required to plan and resource a multitude of learning activities that touch upon each area of learning and all manner of play. (Welsh Assembly Government, 2008). Planning should be rooted in the Foundation Phase Framework for Children's Learning for 3 to 7-year-olds. Practitioners should endeavour to ensure that each child develops a firm mathematical foundation in an engaging and age-appropriate way (National Centre for Excellence in the Teaching of Mathematics, 2018). During their time in the Foundation Phase, it is important that children's development is logged and recorded. There are several ways to achieve this, such as notebooks in the classroom: strategically placed so that all practitioners working with the children can access and record any particular child's significant achievements or incidents (Welsh Assembly Government, 2009). Another way to assess children's progress in the Foundation Phase is to utilise Record Sheets. These are pre-pared with specifically identified sections for recording varying information. When assessing children's mathematical development, it is essential that practitioners understand why these assessments take place. By closely observing children in order to note their progress, enjoyment and general engagement, practitioners should be comfortably able to plan a more appropriate syllabus that better supports children's development, tailoring it to each child's individual needs (Welsh Assembly Government, 2009). Practitioners should keep in mind that it is unnecessary to record everything that they observe, but it is crucial to use the pertinent information when it concerns children's development as well as their significant achievements when planning in the future. It is interesting to note the similarities in Wales' Foundation Phase and New Zealand's

Te Whariki. Mathematics in Te Whariki, much like the Foundation Phase, is a pillar of children's development in the early years. Te Whariki treats mathematics as an integral component of a child's holistic development, helping to promote children's communication skills, problem solving skills, comparison-making and logical and critical thinking (New Zealand Government, 2009). Te Whariki Online (2018) expand on this further, referring to mathematics as a form of expression for children. It is seen as a method of communication, a language that is embedded in its learning outcomes. It is the belief of Te Whariki that infants and toddlers, as well as other young children, have possess the potential to become powerful and competent learners in the language of mathematics (Te Whariki Online, 2018). Much like Wales' Foundation Phase, Te Whariki views mathematical development as a gradual process of shifting understandings; from concrete to abstract. To truly understand more abstract concepts, like number and measurement, it is crucial that children are given opportunities to manipulate objects to understand the relationships between them and the world around them, much like in the Foundation Phase.

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