

Case study 10 - Old School House Day Nursery - Sorting activities

The Old School House Day Nursery engaged in the Maths Champions Project to develop and deepen practitioners' understanding of mathematics for young children.

Two-year-olds

Although the nursery previously engaged in sorting activities for children of all ages, the project has helped practitioners consider different ways of sorting and the language they might use when helping children. Initially an activity was set up with coloured dishes and small coloured animals. Four children aged two joined the practitioner and began to sort the animals by colour into the pots. Some were able to count the numbers in each pot and several counted to 10 by rote. Large plastic numbers were used to help children link numerals to the number they counted.



I have 8 purple ones.

Some children began to make 'families' of animals and the practitioner showed skill in helping children understand that sorting can take different forms. Soon the play developed into sorting animals by family - this is a mummy, daddy and baby duck – or by animal type or size – my horse is big, it's galloping to the other horses.

The activity ended with using the duck 'family' to sing '5 little ducks' using the ducks as visual aids to help the children understand one less.

The practitioner had made a previous note of language she wanted to introduce to the children including; in front, behind, next to, as well as checking the children's


understanding of colour and size. Prior to the project the practitioner thought the activity would have only covered colour and counting, the focus on maths had helped everyone consider how to extend mathematical language beyond counting.

Pre-school children

Increased practitioner skills were particularly evident in an adult-led activity for eight children of mixed ability aged three and four. This activity was based on the children's interest in animals and enabled children to use and build on their previous knowledge and understanding, including the sorting activities they had carried out in the younger rooms.

The practitioner had carefully prepared a quiet area with a range of zoo animals in different quantities, construction bricks of different sizes, a number line written on a white board, clipboards and pencils for recording and a letter of 'instructions' in the centre of the room.

Children sat in a circle knowing they had to make the circle bigger to allow everyone a place. They listened carefully to the letter from the zookeeper who had gone on holiday asking the children to look after the animals and keep them safe. The problem was all the animals had escaped. There followed a discussion about how to keep the animals safe and why some animals might be dangerous. The children were introduced to the word 'enclosure' and asked if they could remember what it meant. Words such as square, oblong and rectangle were used to explain some enclosure shapes. The zookeeper, Mrs Bumbleton, had also left a tally chart showing how many animals the zoo had, using animal pictures, numerals and tally marks.

Type of animal	Number of animals
	15
	3
	2
	6
	3
	9
	13
	2
	7

Some children understood immediately what the chart showed and started to collect the animal groups – I need to find 13 lions, I can only find 10 – whereas others needed more time and prompting – how many crocodiles do you think there are?



I have counted 13, that is right.

All children built enclosures of different sizes and shapes and were invited to think about how to fit animals in, how to join to enclosures together to minimise the number of bricks needed when numbers of bricks ran low.



I need to close the gate to stop the rhinos escaping.

Some of the animals were 'hiding' and so counting the numbers of animals was important to make sure the right number were in each enclosure. Children were then asked if they wanted to record their work for the zookeeper to show they had the right number of animals. Some children made marks, some copied the numerals and some more able children were able to make a tally mark for each animal in each enclosure.



I have drawn two crocodiles.



I put one mark too many for my lions, I need to take one away.

This activity covered many mathematical concepts including counting, sorting, number recognition, making sets and shapes of different sizes, simple addition and subtraction as well as mark making. Careful preparation meant that children could access the activity at their own level and followed their own interests within it. For example, the use of numbers between 2 and 15 allowed children with different levels of number understanding to enjoy the activity. Some enjoyed the 'search' for missing animals, others spent more time building enclosures that were square or rectangular, making sure the sides were straight and there were no gaps for animals to escape, others simply made sure the blocks fit around their chosen animals. Some had to be helped to consider how to fit all their animals in as they had built the enclosure first.



My elephants won't fit I haven't enough bricks.

Some enjoyed the mark making, concentrating hard on making meaningful marks by each animal. More able children counted and could write numbers beyond 10 with ease, they could understand how to tally in groups of five and what that meant. I have done 11111 and 1 to make six. Some children also thought about different ways to group animals – these can go in an enclosure together because they are friends – and others made bigger enclosures 'so the animals had room to run'.

The activity encouraged all the children to think mathematically and work out solutions. It engaged their interest for a sustained period of time as well as enabling the practitioner to check out children's prior learning and build on it as the activity progressed.