

More^{than} just a game

Simple toys are perfect for introducing children to the way the world works, says **Jennifer Smyth...**

"My car will beat your lorry."

Liam looked at Ross and replied: "Mine will go further. It's bigger."

Jackie, the nursery officer, was listening to this exchange and suggested that the two boys should try out their vehicles.

"Where shall we test them?" she asked.

"Along the path," said Ross decisively.

They walked over the astro-turf to the path by the side of the play area. Ross put his car down and gave it a push. It rolled about a metre along the tarmac. Liam put his lorry in the same place and pushed it so hard that he fell over. The lorry sped past the car and crashed into the gate. "There," he said, as he got up. "Mine won."

"But that wasn't fair..." replied Liam.



Every day I hear conversations like this in the nurseries I visit. But what always impresses me is the skill of people like Jackie, who build on incidents like this to take children down scientific pathways. In this case Jackie led the two boys, and a little group of by-standers, in a discussion into whether the test was fair or not. Once agreement had been established that it wasn't a fair test, she asked the children if they could suggest how they could test the car and the lorry fairly. One of the group suggested making a ramp for the vehicles to roll down, and they improvised this using the cover from the sandpit, propped up on the edge of the sandpit itself. Then they rolled their vehicles down the ramp and marked how far they ran. This provoked another argument, about whether it was fair to let some vehicles go down one side, and some down the other.

By the time the testing procedure

was agreed, quite a large group of children had gathered, and they all wanted to test various toys that the nursery possessed. Jackie carefully placed them in order of the distance they rolled and photographed the final parade. Then the children themselves wanted to be photographed with the vehicles they had chosen, lined up in the order of 'length of roll'.

This is a lovely example of the less structured approach to problem-solving favoured by early years practitioners. But it is also a good example of the scientific process in action.

Talking toys

Taking this as a starting point, I want to examine the pivotal role toys have in the development of a child's understanding of the world around them. Nearly all toys have some significance for further understanding of the world; indeed, the process of using toys to understand the world continues through school and adult life (although we may term toys for adults 'models' or 'simulators').

A number of **toys**, ideal for making and using in the **nursery** setting, can be **constructed** using cheap, **easily-sourced** materials

Most early years children will have access to an amazing number of toys of every description – some good, some bad, many of them very expensive. However, some toys, ideal for making and using in the nursery setting, can be constructed using cheap, easily-sourced materials.

Dolls and toy animals help to provoke an interest in living things, helping children to identify similarities and differences between humans and animals, and forming ideas about development and growth. However, I will deal with issues of biology more fully in a subsequent article. This time we'll focus on how we can ensure that our Foundation Stage children are acquiring the skills they will need to explore in increasing depth 'the way the world works'.

Marvellous magnets

The opening paragraph of this article is all about 'Pushes and pulls', and this is an excellent way to build up an initial understanding of this area of scientific understanding. All children will experience playing at pushing and pulling toys, and providing lots of different toy cars, buses, lorries and different surfaces to run them

down is a logical beginning. Although the idea of a fair test is not necessarily part of the learning process at this stage, I have found that all children understand the need for something to be fair.

But what about other forces – Magnetism, for instance? Magnets and magnetising are always a popular area with children of all ages, having that magic quality – something we can't see! Start off with bringing in lots of toys that include magnets, household objects, such as fridge magnets that the children may be familiar with and then let them explore using magnets themselves – which things in the nursery have that 'magic' quality of 'sticking'?

You can extend this learning by creating a magnetic fishing toy. Each child can either be given a fish shape made out of thick card or Correx (plastic-based recycled sheets), or helped to cut out their own fish shapes. By attaching a small magnet onto a length of string and then attaching this to a short length of wood (an old pencil will do) a fishing rod is

TIP Mechanical toys with a wind-up mechanism are another means of looking at how things move; many toys contain clockwork motors and can be investigated by the children (small clockwork toys are easily purchased and cost very little). After looking at manufactured clockwork motors, opportunities for making up children's own 'motors' using cotton reels and elastic bands can provide another way of introducing the ideas of movement.

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ready for use – placing a paper clip onto the mouth end of the fish shape provides the basis for a very enjoyable fishing game.

I have found this is particularly effective if the water tray is used: children can try out their fish, as well as other objects to test for magnetism. By putting names or numbers on the fish, the children can be encouraged to fish out their own names or a requested number, or count up the number of 'points' they have gained for the fish they have landed.

Fun with the wind

In another group that I observed, the children were exploring wind power. Each child was given a sheet of sugar paper and asked to run around in the outside area holding the paper out in front of them. The force of the wind was identified as that invisible thing that sometimes makes things blow about. Back in the indoor area simple windmills were then made by the children (using a square of paper, with diagonal cuts and folding the ends into the middle secured by a paper fastener, then pinning onto a stiff straw).

An extension to this activity was to make simple helicopters (see tinyurl.com/3v7wodn for an example of these). These work like horizontal windmills and were tested by counting the time it took for them to fall to the floor. In autumn it is possible to gather some sycamore 'keys' which are a natural form of this simple toy.

Huge paper kites made by the children are another way of looking at the action of wind on objects. These can be made very simply

by using large pieces of tissue paper cut into diamond shapes, with straws stuck onto the back in a cross structure to help to strengthen the kite. A long piece of string can then be attached to the bottom with small pieces of paper made into bows attached at intervals for decoration. They can then be taken out to the outside play area and tested – wonderful fun and, again, a perfect platform for discussion. (If you want to help the children with a slightly more complicated – and robust – kite, you can find free instructions at tinyurl.com/4yp7wlb)

Sinking feeling

Floating and sinking is another favourite topic, and the learning taking place during such an activity can be extended in many ways. Providing lots of objects to put in the water is an obvious starting point. Getting the children to guess which ones they think will float and which will sink is always a source of amazement for many young children: why does a very small object such as a marble sink immediately whilst a large piece of wood continues to float? These discoveries could be further extended by making paper boats (of various shapes) with the children and then asking them to load their boats with marbles – one at a time. The object is to see how long the boat takes to sink under its load, and you can then discuss why the children think a particular boat sank quickly – lots of excellent discussion and lots of scientific thinking!

These are just a few of the tried and tested activities I have carried out with nursery children. There is a great age for acquiring a love of science that will provide a basis for their future learning – it's fun, it's stimulating, and I am continually amazed by the little scientists with whom I have had the pleasure of working.

TIP I recently observed a student in a children's centre working with a group of four-year-olds. They'd been talking about lights and thinking about how we manage to get a bulb to light up, and wanted to give a toy house that they'd built a real light. Without too much difficulty they were able to make a light bulb work by constructing a circuit (a series circuit, but there was no need for them to know this name). The context of a toy house enabled them to carry out a complex task that often defeats much older children.

