

Sally Hardman and Sue Luke develop opportunities for channelling children's curiosity

HOW CAN YOU MAKE THE MOST OF THOSE 'WOW MOMENTS'?

Children are naturally curious about the world around them and are often intrigued by everyday objects and experiences. Primary school teachers frequently make use of 'WOW moments' to generate children's interest in science (Feasey, 2005). These moments capitalise on the children's fascination with objects and experiences in their everyday environment, prompting exclamations of surprise and pleasure.

Indeed Oliver (2006: 28) suggests that *'science cannot be taught well or received well without feeling some magic in everyday occurrences in nature and the natural world'*. However, capturing and channelling children's curiosity in order to develop their learning in science can be challenging.

To address this issue a project was undertaken to explore ways in which children's learning could be developed beyond a particular moment. The plan

was to generate WOW activities in the classroom, gather the children's responses using observation and drawings and then reflect on the findings. The project aimed to find out how a WOW stimulus could encourage children to work scientifically. Putting children's interest at the centre of scientific enquiry gives their learning purpose, ownership and meaning.

The project involved two experienced primary school teachers from a local

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school, who had a particular interest in science, working in collaboration with two tutors from the University of Winchester primary science team. Undergraduate primary education students working on the Winchester Research Apprenticeship Programme also contributed. The collaborative nature of the work enabled different perspectives and ideas to be discussed and shared.

Wowing the children

Working together with the teachers, WOW moments were designed for the children in their year 2 and 3 (ages 6–8) classes in line with their science topics. Year 2 were exploring plants while the year 3 children were beginning a topic on habitats. Instantaneous WOW moments are often more easily generated through the physical and chemical aspects of science, so these topics initially provided a challenge. A very engaging stimulus that immediately captured the children's fascination was required.

The children in year 2 had already explored conditions for plant growth and the teacher was keen to further develop this by looking more closely at seeds. Using the Great Plant Hunt

Box 1 Creating the WOW moment with Darwin's seeds

1 Show the children a £10 note and look at the figure on the back. Invite the children to discuss who they think he is and why he is famous. Look at the ship in the distance, Why is it there?

2 Read the extract about Charles Darwin from the Great Plant Hunt activities book.

3 Produce the chest full of seeds. Explain to the children that these are the kind of samples Darwin would have sent back home from his voyage.

4 Let the children freely explore the seeds using a range of equipment.



Figure 1 A chest full of seeds linked to Darwin's voyages can make a WOW moment

'treasure chests' (see *Website*), the theme of Darwin was chosen (Box 1). The session began with the story of Darwin's five-year voyage on HMS *Beagle*, during which he collected and sent home many specimens. Following the story the children were presented with a chest brimming with seeds (Figure 1). The WOW moment was created when the chest was revealed; as the lid was opened there was a collective gasp of excitement and anticipation. Many of the children simultaneously suggested ideas about what was inside and leant forward to get a closer look. When asked if they wanted to sort through and investigate the seeds there were cheers from several children. Having captured their interest the children were given time to freely explore the seeds. A range of equipment, including magnifying glasses and handheld



Figure 2 Not just one snail, but a tankful – a WOW moment is made!

Box 2 Creating the WOW moment with snails

1 Invite the children to share ideas about their basic needs and the needs of different animals.

2 Reveal a large tank of snails to the children.

3 Give each child a snail to observe using a range of equipment.

4 Encourage the children to share their observations and talk about a snail's particular needs in the light of their features. Discuss suitable habitats for snails.

digital microscopes (TTS Easi-scopes), was provided.

To encourage exploration of habitats in their local environment with the year 3 children, snails were selected as a central theme (Box 2). The session began by exploring the children's own needs for life and developed into a discussion about the needs of different animals. The WOW moment, in this case, was initiated when a large tank of snails was brought into the classroom (Figure 2). The children were thrilled to see the number of snails and even more excited when they were given a snail to individually handle and observe.

Children's responses

The children were very keen to investigate the seeds and snails in more depth and embraced the freedom to explore. While some children were happy to make their own observations, most of the children very quickly began to share their ideas with each other. The children were bubbling with excitement as they handled the snails and seeds and the classroom became a hive of activity with lots of movement and talk. All the children were very engaged, taking time to select items to look at that particularly interested them or caught their attention.

The children chose equipment to look more carefully and to focus their observations. They were amazed by the amount of detail revealed by using the microscopes and the cameras on the laptops. They made comparisons and drew on prior knowledge to explain



Figure 3 Children's recording of their observations of seeds and snails

Table 1 Examples of children using scientific enquiry skills

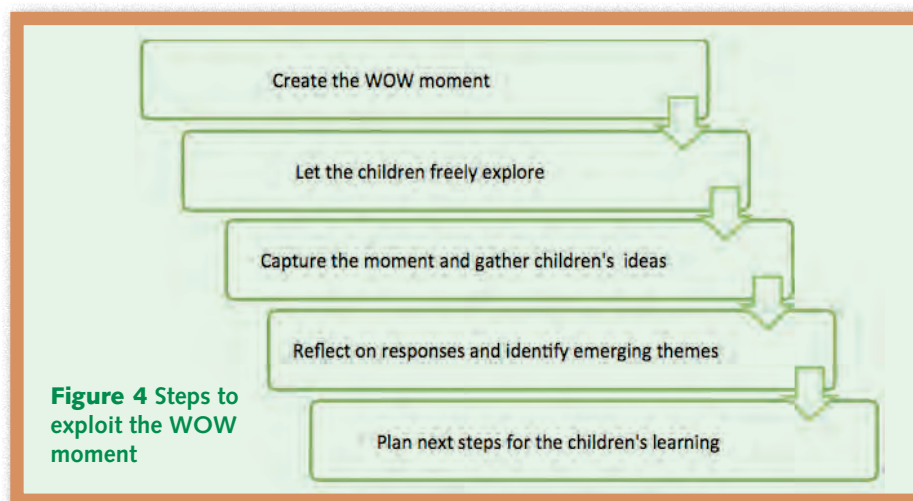
Scientific enquiry skills (Harlen and Qualter, 2014: 98)	Examples	
	Seeds	Snails
Raising questions	'Why does the seed have wings?' 'Is that because it comes off a tree like that?' 'Will runner beans grow in wool?'	'Is there a difference between male and female snail shells?' 'What is the slime for?'
Developing hypotheses	'A tiny seed would grow into a medium flower.'	'Snails with the same shells live together.'
Gathering evidence: Observation	'This seed has white bits on the sides.' 'It looks lumpy and bumpy.' 'Wow, smell this. It smells amazing!'	'In their head things their eyes go in and out.' 'When you could see underneath their body ripples.'
Gathering evidence: Comparison	'I can see the core – like the middle of the Earth. This is a sticky one.' 'It smells like liquorice.'	'I thought that the little snails would be faster but the big snails we had were faster.'
Analysing, interpreting and explaining	'The pea is wrinkled because it is old.'	'When I used a magnifying glass inside the shell there was yellow stuff to stop them slipping out.'

their observations. The year 2 children were keen to refer to their recent investigations exploring different conditions for seed germination. The year 3 children shared experiences of snails they had seen in their gardens and raised questions based on the observed characteristics of the snails. Some children recorded their observations using drawings and annotations (Figure 3).

Through handling the seeds and snails, the children demonstrated many of the processes associated with working scientifically. They assumed the role of scientists exploring and developing their own enquiries and interests, and engaged in many different process skills, including careful observation, raising questions and generating hypotheses (Table 1).

Teachers' responses

Both teachers were pleased by the children's engagement and curiosity stimulated by the seeds and snails. They acknowledged that the free exploration following the WOW moments gave the children a valuable opportunity to work scientifically: *One of the WOW things is they have the freedom of not knowing what they're going to find out at the end of it – that is*



working scientifically – with the freedom actually comes the skills for being a scientist, asking those questions, making comparisons.

Discussion about the children's responses enabled the teachers to identify children's areas of interest and emerging themes that could be used to support further science learning (Box 3).

On reflection, the teachers agreed that the time following the WOW moment was very valuable in enabling them to stand back and let the children take the lead:

So for me, that was almost a surprise really. It was how engaged they were with each other rather than me. I was kind of an observer really.

Having the time to observe the children provided the ideal opportunity to find out about the children's interests. Because the children were so curious and took ownership of their learning following the WOW moment the teachers were able to take a less active role. By eavesdropping, observing and making notes the teachers could gather information about the children's ideas and understanding:

You can step back and listen to what they're saying because that gives you a brilliant opportunity as the teacher for assessment purposes. You can also pick up on what they are all talking about and what they are not talking about.

What makes a WOW moment?

Reflection immediately following the activities in the classroom centred on what had made the 'WOW' moment. Both teachers played active parts in creating the WOW moments and their role was crucial. In particular, they were very successful at making the context meaningful and believable by using an interesting story, artefacts and open questions. Suspense was generated by the teachers varying the tone of their voices, use of body language and pace. Tension was created initially by one teacher peeping into the box and whispering to the children: 'Do you want to look too?'

It seemed that the quantity of objects, the role of the teacher in dramatising the experience, the suspense, the freedom and time to explore, and the use of their senses and ICT added to the children's experience. This list corresponds with McCrory's (2011: 98) practical toolkit, where he presents examples

of emotional engagement techniques that he suggests teachers could use to promote children's interest in science.

What do you do with a WOW moment?

To address the issue of how teachers can exploit children's curiosity following the WOW moment and develop their science learning a series of steps was developed based on our observations and discussions (Figure 4).

Conclusion

The moment after the WOW should not be lost; this is the time when teachers can capture children's interests and ideas to support meaningful and purposeful learning. The importance of teachers standing back and taking the time to listen to children cannot be overestimated. The project demonstrated that, through their curiosity, the children naturally engaged in many scientific skills and processes. Allowing children to take the lead can be a little daunting but, as the teachers found in this project, it can reveal a great deal about children's knowledge and understanding and can significantly inform next steps for learning.

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Website

The Great Plant Hunt:
www.greatplanthunt.org

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Box 3 Themes that emerged from the WOW moments

Seeds:

- Germination
- Edible seeds
- Colours and patterns
- Seed dispersal
- Seed and plant size
- Seeds in the environment

Snails:

- Adaptation
- Habitats and food
- Family grouping
- Camouflage
- Slime
- Characteristics of snail shells