

Year 6 teacher, Martin Britton, describes a science week in his school and the excitement around a day of science challenge

Planning and building the tallest spaghetti and marshmallow tower provoked lots of discussion

A spaghetti challenge raises the profile of science

As a recently qualified teacher, and even more recently appointed science coordinator, I realised that the profile of science in my school needed to be raised. As part of my action plan, I decided to organise a whole-school focus for one week in the early part of the school year. The activities would involve all year groups in the school. They would focus on the children's current science topics, as well as linking to maths and literacy, through working scientifically and planning several investigations. It was an opportunity to impart as much of the science curriculum as possible within one week, including areas that are often

overlooked or scarcely covered. In addition to the children focusing heavily on science-related content in class, I wanted the children to get out of the classroom and meet people who specialised in particular areas of science.

For the Tuesday of our science week, I organised a 'science challenge' day. In planning the activities I began by making a list of the resources and contacts I had that I could draw upon to engage the children. This was the first time that I had been involved in such an event, let alone responsible for organising it, so I decided to contact my former science tutor, Leigh Hoath, from my undergraduate

degree time, initially for advice and guidance. I asked Leigh if she would be interested in leading a challenge day, thus bringing a scientist into school and meeting my initial objective of generating enthusiasm.

When Leigh and I began planning the challenge, we discussed how we could link the science topics that the children were learning about and then make further cross-curricular links. The knowledge and experience Leigh brought allowed me to ensure my intentions and outcomes for the week would be achieved. This boosted my confidence and I was able to apply skills that I had gained during teacher training. I was now making curriculum links easily and producing ideas while having the ability to ask questions and discuss with someone who had worked successfully on similar events several times.

The challenge

I wanted to get the children out of their classrooms, working in groups and asking questions while somehow linking an activity to their current learning in science. The children were given the challenge of making a structure that resembled



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an electricity pylon using uncooked spaghetti and marshmallows. I wanted all children to complete a similar activity throughout the day so the differentiation came in the form of support and guidance and the planning time given. Children in upper key stage 2 (ages 9–11) began by asking and answering questions from prompts that we had planned, whereas children in lower key stage 2 (ages 7–9) and key stage 1 (ages 5–7) were given more structured success criteria. The idea was to allow the children time to share, explain and justify their ideas to one another. The challenge was to build a pylon with a secure base. It had to stand up unsupported and be as tall as possible so that we could connect them all using string to replicate a circuit.

What happened

The large-scale activity undertaken gave the children the opportunity to share their ideas, ask questions and hypothesise, before testing their ideas and explaining to others in their groups why they had chosen to construct their design the way they had. As the children had to work in groups, discussion was key as they challenged each other's ideas and justified their own. All children were quickly engaged and wanted to begin building and testing their ideas immediately. For some, this came at the cost of poor structures, but this in turn encouraged further discussions and improved designs. The challenge generated a great deal of enthusiasm;

most children were eager to build the tallest tower while some were more concerned with getting the base right.

As with most lessons, time constraints impacted on the session, but listening into several conversations and holding discussions gave me a chance to exploit some of the children's thinking and ideas. One child who had decided to create his group's base using four separate square-based pyramid shapes explained how he knew this would be the strongest because of the amount of contact the feet had with the ground and the lack of flexibility a triangular shape would allow.

Throughout the day, I was increasingly impressed by the discourse across the range of age groups – something that was continued throughout the week as the children engaged with the follow-on activities. They were discussing and explaining ideas and suggesting ways in which they could improve their designs, while being encouraged to challenge one another on their decisions.

The wrap-around planning

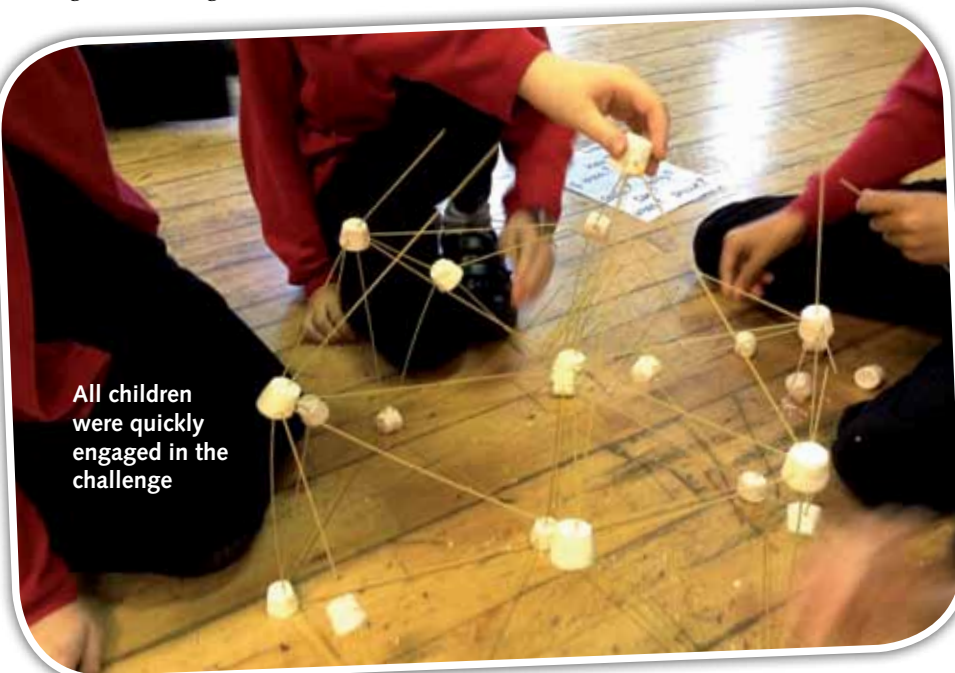
One of the key factors for ensuring the challenge day was a success was the opportunity to share and develop the planning with the supporting visitor. We sat together discussing and designing a structure for the day that would involve all the children in the school. We thought about how

the activity could be linked with the science content that had been covered to that point and also what could be taken away to support other subjects. Once we had decided the content and focus, we were able to develop ideas to make links to other subjects including maths, English and philosophy. One follow-up activity that was particularly successful was when I posed the suggestion that a pylon would be built in the field next to the children's gardens. This led to an interesting debate about the importance of access to electricity, but at the cost of having something unpleasant so close to their home. The children made links to the dangers of playing near pylons and how this might affect their outdoor play.

Next steps

Providing the children with a science focus week raised the profile of science within the school through teachers making more cross-curricular links than usual to science. Children were given more opportunities to discuss their learning and ideas and to ask further questions. Running the challenge day has enabled me to identify further areas of development for the whole school, including promoting children's use of scientific language, developing the children's ability to link their ideas to conceptual knowledge and their questioning skills. Recognising these factors was important for planning next year's science focus week activities. I think it would be better to hold such an event during the spring/summer term this time, in order to have better weather so the children can work outside. Furthermore, I aim to provide the children with more open-ended tasks that they can complete based around their ability to raise questions that they can investigate. I believe this will play a vital part in continuing to raise the profile of science in school and allow children to see investigations are not solely dependent on carrying out a fair test.

All children were quickly engaged in the challenge



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