

Stella Clark describes how science was raised up the agenda within her school



Figure 1 What children thought science was all about

Raising the profile of science throughout your school

One of the aims of primary education, as suggested by the Cambridge Primary Review (Alexander, 2010), should be, 'Exploring, knowing, understanding and making sense'. It should give the children 'the opportunity to encounter, explore and engage with the wealth of human experience and the different ways through which humans make sense of the world and act upon it'. Over the past two years, we have been raising the profile of science at Banstead Prep School in Surrey. This article explains what we did and how we have moved science up the teaching agenda to provide our children with that greater 'wealth of human experience'.

I am lucky enough to work at a school where science is valued by parents, children and colleagues as an important part of the curriculum, with two hours a week devoted to science. We have an established curriculum along with children who enjoy lessons and are engaged. However, over the past three years our focus has evolved and shifted. Individual lessons provide

only one part of a comprehensive school science vision. According to the Wellcome Trust, true science leaders 'are able to develop a whole-school vision for science when school leadership teams value science as a core subject that builds skills across the curriculum and include it fully in strategic planning' (Wellcome Trust, 2013: 8). The following are some of the actions we took at Banstead Prep School as we sought to continue to grow our vision. Some of the actions occurred prior to taking part in the Primary Science Quality Mark (www.psqm.org.uk), while others were integral to this accreditation.

What do you think? Involving the whole school

Our school is relatively new, formed from the merger of three schools and located on the site of a former 3–18 school. Widely spread buildings, combined with a secondary-style timetable, can give a sense of isolation and cross-curricular links are not embedded. Involving all the school community was vital; with a colleague

I created a questionnaire for parents, colleagues and children, asking them why they thought science was important and what they expected from science at our school.

What a change within the space of two weeks: suddenly science was being discussed everywhere! An assembly gave us the opportunity to present children's ideas (Figure 1). The result was several key actions to raise the profile of science as well as a tool for reflection as our vision develops.

Developing curiosity – the Curiosity Table

Children had highlighted new learning, exploring and team-working as characteristics they particularly enjoyed in science, which led us to consider ways to encourage science outside lessons and develop science capital (see *Weblinks*). We set up a Curiosity Table, which consisted of a perplexing question, curious object or a magnified picture (from Wellcome Trust's *Explorify* – see *Weblinks*), along with slips of scrap paper, pencils and an answer box (Figure 2). Children were encouraged to submit as many

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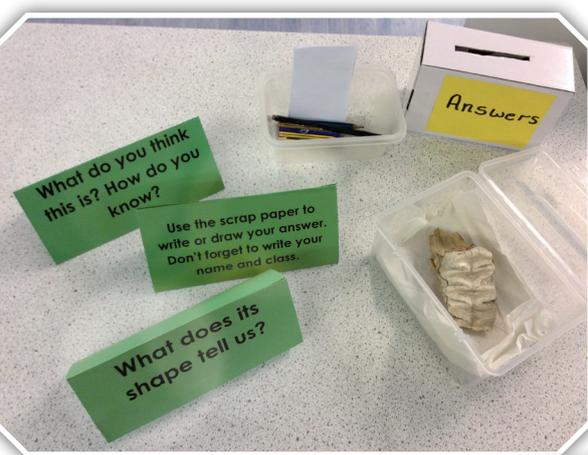


Figure 2 The Curiosity Table set up with a mystery object and questions

children put forward the evidence for their point of view and fought their corner. Older children helped key stage 1 children (ages 5–7) to read the questions and write their answers. Class times were used to look again at the *Explorify* images. The teachers were also engaged in the learning process as class teachers were not given the answers. The teachers were encouraged to use prompt questions to get the children thinking about what they were seeing and why they were thinking what they were.

I was especially surprised by a group

Science Showcase

Discussions during parents' evenings, revealed that parents' understanding of the science curriculum and what their children experienced, and gained, during science lessons could be sketchy. A Science Showcase was created where parents carried out some investigations with their children during an afternoon in school. This provided the opportunity to allow the parents to experience the curriculum in school as well as raising the profile of science. In addition, colleagues and the senior leadership team were encouraged to attend and so this provided an informal way to deepen their understanding of science and created a vehicle for cross-curricular links.

Having gained the support of the senior leadership team, I explained the concept to the children, stressing that they would be the 'experts' and would need to help visitors with the investigations. Together we brainstormed activities that they would like to carry out with their families. They described previous enquiries they had enjoyed and were confident undertaking.

I am not suggesting this did not involve considerable work, but it has without doubt raised the profile of science. Children were proud to show their families their work, where they studied and that they knew how to use apparatus (Figure 4). It provided a relaxed and intimate way to engage with families, as well as colleagues and the senior leadership team who supported the event. Comments from parents included 'I hadn't realised they did so much work in science' or 'We never did any of this until secondary school'. Children could see that their families valued what they were achieving.

A knock-on effect came in the work produced for display. The children were keen to exhibit their science learning to others and to spend their break and lunch times ensuring that their work was not only aesthetically pleasing but also that it showed off how much science they had done. Modelling-clay hearts, burglar-alarm circuits, panpipes and parachutes took pride of place and really put science at the centre of the school (Figure 5).

As a teacher of science to years 4–6 (ages 8–11), I was also pleased by the number of families with younger



Figure 3 Children enthusiastically carrying out science investigations at home

answers as they wanted over a week-long period to questions such as:

If the Sun is the size of a football, how big would the Earth be?

What do you think this object is? Why?

Situated in a high-traffic area adjacent to the dining hall, the Curiosity Table became a focal point. Children could regularly be found poring over the conundrum, individually submitting answers or putting forward a group effort. It is difficult to overstate how this simple activity developed reasoning and discussion skills as

of primary-weary year 6 boys (ages 10–11), who could on occasion be dismissive of school activities, regularly asking when the next curiosity would appear. This became a personal incentive to keep the Curiosity Table process going.

Curiosity at home

The impact of the activity was embedded further by encouraging children to be curious at home. Using the Dorling Kindersley *findout!* website (see *Webinks*), children were tasked with investigating, and sharing with family, something that interested them.

They could record their efforts in photographs or emails sent to form tutors (Figure 3). It has been delightful to see children's enthusiasm for science at home as well as the involvement of parents, making discoveries along with their children.

Figure 4 A year 5 (age 9/10) child sharing her liquid viscosity investigation with family and friends



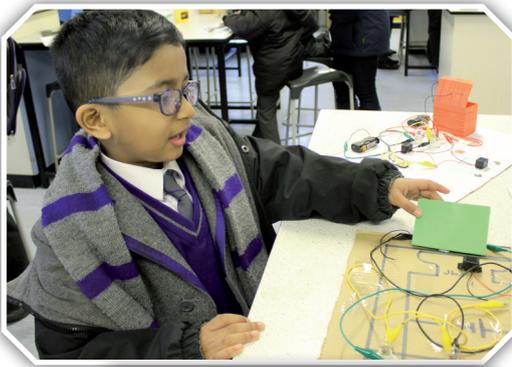


Figure 5 An older child explains his burglar-alarm circuit to a young fellow pupil

Whole-school science and using visitors

In the school we believe that children need to experience science in a wide variety of ways to support them in recognising that science occurs in many aspects of their lives. To raise the profile of science, visitors have become an important part of science at our school, showing its relevance within the real world. We are aiming to have an annual workshop that involves the whole school (subject to COVID-19 restrictions). We have already had a visit from Zoe from ZooLab (see *Weblinks*), who not only excited the children with real-life animal encounters



Figure 6 Children overcome fears to hold a corn snake



Figure 7 Year 4 children (ages 8–9) learn underwater signals and try on scuba equipment with STEM Ambassador Angus Clark (Imperial College London)



Figure 8 Visiting dentist Dr Ahmin brings the real world into the classroom

surveying coral reefs (Figure 7). Grouping and classifying coral reef organisms became meaningful rather than an academic exercise.

With the children in the early years (ages 4–5), a ‘People Who Help Us’ topic involved real people rather than simply photographs on a display board. The children showed such positive engagement and interest with Dr Ahmin, a dentist, with questions concerning X-rays, her uniform and gloves, as well as looking after teeth (Figure 8).

Summary

All these activities have been enabled by a supportive senior leadership team, who in turn have gained an increased appreciation for the contribution science can make, not only towards a broad curriculum but holistically towards children’s development. Skills have encompassed questioning, discussion and reasoning. Children have presented to different audiences and coped with unfamiliar visitors and situations. So, while knowledge and working scientifically skills remain integral to primary science, the agenda for science in our school is now so much more.

References

Alexander, R. ed. (2010) *Children, their world, their education: final report and recommendations of the Cambridge Primary Review*. London: Routledge.
Wellcome Trust (2013) *Great science leadership at primary school*. London: Wellcome Trust.

children who attended the afternoon, wanting to see the progression in science.

Efforts with science being recognised through awarding certificates during assemblies and promoting children’s work more publicly via the school’s *Twitter* account, maintained both the profile of science and the children’s interest.

showed year 4 children (ages 8–9) that scientists are not just men in white coats working in laboratories. The excitement of the children was palpable as they learnt signs to communicate under water and considered the problem of breathing and writing underwater while

Weblinks

- Explorify activities: <https://explorify.wellcome.ac.uk>
- Findout!: www.dkfindout.com
- Science Capital: www.youtube.com/watch?v=A0t70bwPD6Y
- STEM Ambassadors: www.stem.org.uk/stem-ambassadors
- ZooLaB: www.zoolabuk.com

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