

Science and Technology Leaders by Luke Bucklow

The science and technology leaders aim to encourage younger students in primary schools to develop their skills in science and technology. So far, two groups have been to two different schools to help year six pupils learn about structures with the aid of Harry Marsh, Professor of Engineering St. John's College, University of Cambridge. The day started with an introduction by the Professor on different structures, for example bridges. He then set the task of making our own structures using OHP sheets, nuts, screws, hole-punch and the science and technology leaders! The year sixes made pyramid structures and gradually built up the layers into a diamond structure. In the afternoon, the whole year group teamed up together to make one big dome structure.

The day overall proved to be a success, however, there were difficulties which had to be overcome. The main thing that as leaders we had to look out for was to make sure that every student was in some way involved. To make sure this happened, we had to encourage the pupils to work as a team and involve everyone. We promoted teamwork by explaining to the keen students that they must let the shyer students do some of the construction. This also showed leadership as we had to lead the pupils to work together as a team; one person rolling the sheets, another hole-punching and somebody else screwing the bolts onto the screws.

The other difficulty was that when explaining tasks and helping the students, you do not take over or give them an answer. For example, rather than telling the student straight away how to use nuts and screws, ask them questions such as "What do you think you should do?" and "Why do you think you should use this method?" When students were unable to do some of the work, it was important not to take over completely. This is because they can become bored, disinterested and unfocused, which is not the aim of the science and technology leaders.

At part of the stage in the construction, there are many plastic sheets which have to be screwed together. The students found this hard because the plastic springs out of place and the pressure needed to keep the screw in place is too much for their fingers. Rather than just doing all the work, I held down the plastic sheets while another held the screw and another screwed the nut on. There were other times when minor difficulties occurred and you have to be aware of how much you are doing – you have to remember that the younger pupils should be doing more of the practical work. As I mentioned earlier, the day was a success. The pupils had fully understood what had been taught to them and they found the practical activities fun. This made it successful because we were able to teach them about structures in an easy to understand way which was fun for them and they themselves felt they had succeeded in building their own structure.

My advice to students who are doing a similar project is to encourage younger pupils as much as possible. If they feel that their work is excellent and that they are achieving, then they will feel inspired to work more. I would also advise them to make sure that they are not telling the students the answers to questions but to give them ideas and hints so that they try to work out the answer for themselves. Similarly, don't do all the practical work for them; they always find their experience a lot more interesting if they do something other than writing.

Overall, the project has been a steep learning curve for us. When we went to our local primary school, we had no real idea of what it was to be like or how to engage with the students. However, by midday, the students had successfully built a structure and learnt a lot of new knowledge about them. We learnt many key skills as we went along; particularly leadership and teamwork which are also key skills in later life. As the day went on, we became more and more confident in leading the teams and helping them in a positive way (i.e. not just giving them the answers and telling them what to do but getting them to think).

Soon, we are having more opportunities to go to other local schools to do more work with younger pupils. We already have some pupils who are going to build fully-operational hovercrafts, which we are looking forward to.

Doing a scheme such as the science and technology leaders gives many people great opportunities to develop key skills and to show how good they actually are at the subject. Not only does it give these opportunities, but it is also something which looks excellent on a CV for sixth form or university because it shows people that you can work well with others and that you have good leadership skills. I would fully recommend anybody to take part in a similar scheme if the opportunity is offered.