

Coding, Engineering and Technology at Funtington Primary School

STEM stands for Science, Technology, Engineering and Mathematics, and was identified in a report for the UK Treasury in 2002 as the key set of skills on which our future prosperity would depend. Science and Mathematics have been core subjects in the National Curriculum since the National Curriculum was introduced in English schools in 1988. This also included the subject then called ICT, for Information and Communications Technology, concerning the use and impact of computers. Technological advances mean that most jobs now require STEM skills. The country has a significant shortage of workers with these skills. As well as making a significant impact on the economy, we increasingly rely on technological advances for our well-being.

Against that background the school has been considering how best to integrate the development of STEM skills within its curriculum and ethos. It has been introduced to Adrian Oldknow, Emeritus Professor of STEM Education at the University of Chichester, who is now helping in the development of our strategy. Adrian is a member of the Sussex network of the Institution of Engineering and Technology IET. He is also a member of the local BetaPlus Computer Club which meets at Funtington Village Hall. At the beginning of the year we met with the Club which kindly agreed to buy the school a class set of BBC micro:bits and electronic accessories.



Our first move was to introduce a lunch-time Code Club to help develop a group of our learners as our own experts in coding and using the micro:bits. These learners are now helping the school by teaching the Year 5 and 6 pupils in Hawthorn Class to write programs for the BBC micro:bits using Microsoft's *MakeCode* editor. On the 3rd July our Code Club will be one of just a few schools nationally making a presentation of their work at the STEM Celebration Event at the Royal Academy of Engineering in London, where they also be awarded with Certificates of Achievement by the IET. Locally, they will be presenting their work to parents and members of the BetaPlus Club on 25th June, and running a stand at the school's Summer Fete on 28th June.

The school has joined the Sussex network of the Royal Academy of Engineering's 'Connecting STEM Teachers' programme, and was invited to send teams to the RAEng Inter-school Challenge Day held at Bourne Community College on June 4th. The children had a wonderful time, and two of them were awarded prizes.

As well as developing Coding activities, we have now introduced an initiative to inspire a group of Key Stage 2 learners from Rosehip and Hawthorn classes in Engineering and Technology through a series of weekly afternoon STEM Masterclasses run by Adrian on behalf of the IET. He is teaching the children to use powerful and free software tools to solve problems, design artefacts and to collect and analyse data. The software includes packages called *Algodoo*, *GeoGebra*, *Scratch*, *TinkerCAD* and *Tracker* which, along with *MakeCode*, can be used freely at home as well as at school. The IET will also award Certificates of Achievement to the participants.



These two initiatives, the Code Club and the Masterclass, together with our existing electric car Goblin Club, are providing valuable *enrichment opportunities* for some of our pupils. The whole class teaching of Coding to Hawthorn by the Code Club is a great example of a collaboration to embed STEM learning activities in the curriculum for all pupils.

We are now planning to introduce more uses of technology throughout the school, starting with data-logging in Science at all levels. We are also planning problem-solving activities to help our learners to develop their 'Engineering Habits of Mind' in a variety of contexts including health, sports and the arts.

