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STEM Clubs CASE STUDY 05

Busy lunchtimes

Sir Thomas Picton School

Haverfordwest

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Introduction

Sir Thomas Picton School is one of two secondary schools in Haverfordwest. It was established in 1978 and has around 1,200 students on role, including about 180 in the sixth form. The school caters for pupils from all over Pembrokeshire – many of whom travel by school bus – as well as from Haverfordwest itself. The school is spread over a large campus, and a new suite of classrooms and laboratories was opened a few years ago as part of ongoing refurbishment. The school is also known for its sports facilities. Pupils come from a range of backgrounds and abilities and the school's motto "Include, inspire, improve", points to the emphasis placed on every individual taking a full part in the broad education offered, to achieve success. The wide catchment area of the school means that lunchtimes are the favoured time for STEM Clubs to meet, but there are several options for pupils to join.

Brief summary

Several clubs are running at the school, including Science Club for Year 7 students, a Robotics Club for Year 8 pupils and CREST Club for Year 9. All clubs have helped to encourage the pupils to take what they learn in class and apply it in real situations.

Links to Curriculum

- Solve science and technology based problems
- Work independently of adults, in small groups or teams
- Take part in practical activities
- Think and talk about science and technology
- Research and explore the subject

Quick facts for teachers

What is a STEM Club?

Although they complement the curriculum, they are not designed to be about writing, tests, or exams. Activities may involve practical experiments, investigation, discussion and reflection. Most of all, they should be fun.

They can motivate and build confidence in young people who struggle with STEM subjects, and provide an extra outlet for children who already show aptitude and are interested in furthering their learning.

The aims of STEM Clubs are to:

- enrich, enhance and extend the secondary school curriculum
- improve attainment in, interactions with, and experiences of, the STEM subjects among pupils
- improve collaboration between schools and also between schools and industry
- encourage pupils to continue their education in STEM beyond GCSE and Diploma (or equivalent qualification) level.

"Among the questions they considered were how to make enough hydrogen to fuel millions of cars, and how much the production process might damage the environment."

What are STEM Ambassadors?
STEM Ambassadors are volunteers of all ages and from all backgrounds working in STEM related roles from apprentices to geologists and nuclear physicists to zoologists.

Have they received any training to work in schools?
All STEM Ambassadors are registered and have been checked by the CRB, and have each received an induction into working in the classroom.

What do they do?
STEM Ambassadors provide a wide variety of services such as careers talks, mentoring, helping with school events or clubs and facilitating workplace visits. Past activities have included: building rockets, farm walks, mock job interviews, rat dissection and speed dating!

How much does STEMNET charge?
Absolutely nothing.

Sounds great – how can I book my STEM Ambassador?
Simply log on to www.stemnet.org.uk to find your local contact.

Inspire young people in science, technology, engineering and maths (STEM)

Become a STEM Ambassador
For further information visit:
www.stemnet.org.uk

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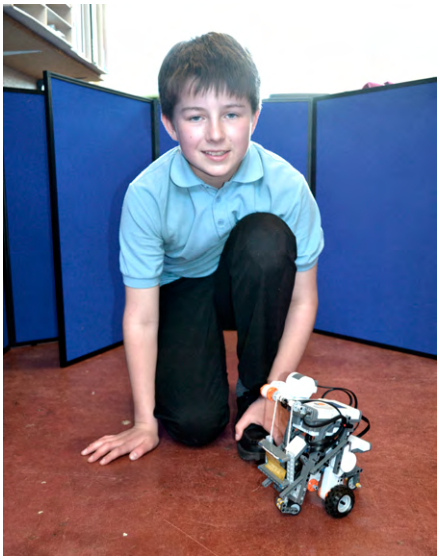
Details of activities

Pupils in Year 7 have been taking part in a weekly lunchtime Science Club. Teachers Kate Papadovassilakis and Howell Himsworth made use of free resources in the Royal Academy of Engineering's 'Engineering in a Box' to encourage activities such as exploring the properties of materials, and designing such things as pylons and railways. The teachers hope that through offering additional activities the students will appreciate their in-class science studies more.



Head of ICT Vicki Price says the idea of a Robotics Club grew out of a Computer Club which she started for Year 8 pupils. She says that for a group of students, simply using computers wasn't enough – they wanted to be more creative. The school worked with the Technocamps programme to acquire the resources and skills needed to design and programme robots. Three separate teams of students worked on their own design of robots to perform specific tasks, and entered them in the Big Bang Wales event in July. The group were also invited to take part in the prestigious TeenTech event held in Swansea in May. TeenTech is the award-winning, industry-led initiative to help students understand the potential and opportunities of careers in STEM. Vicki Price is hoping to build on the success of the Robotics Club in the years ahead.

Year 9 scientists have been meeting weekly during the spring and summer terms to investigate the green credentials of hydrogen as a fuel for cars. Led by teacher Howell Himsworth, the students were working towards the British Science Association's CREST Silver Award by comparing exhaust emissions of various fuels, and considering the advantages and disadvantages of hydrogen as a fuel. The students worked individually on research before pulling their findings together in a number of teams to put together a presentation on whether or not hydrogen could be a viable fuel. Among the questions they considered were how to make enough hydrogen to fuel millions of cars, and how much the production process might damage the environment.

The CREST Club had a visit from STEM Ambassador Emmanuel Osineme, an engineer from the energy sector in Pembrokeshire at the start of their project.

Benefits and impact

Teachers say the club activities have brought confidence to the students taking part. The pupils have been able to develop their team-working skills, while working at their own pace. Their interest in STEM subjects had also increased.