

# Celebrating science success

Two teachers tell us about the impact success in science has had on their school and students.

## Jennifer Dixon teaches science and maths in St David's CBS, Artane, Dublin:

There has always been an enthusiasm for science in St David's, but participating in SciFest, and having the confidence to go outside the school and take part in competitions, has added a new and exciting dimension to this enthusiasm. In just three years, participation in SciFest has grown from just one team of three students in 2009 to 15 teams and 40 students in 2011.

Three years ago, three energetic third-year students bounced into my lab saying that they had an idea and would like to enter SciFest. The idea involved presenting the SciFest judges with ducks, a maze and their project, which supported ducks possessing a memory. They received a highly commended certificate for their work.

Their success encouraged the boys to return the following year, this time determined to compete at a higher level. Having been exposed to the best of the best at the previous event, they knew what was required and delivered an outstanding project. They had become confident and articulate in communicating in the language of science, presenting findings to judges, and reflecting upon their tasks and performances. It was terrific to see this growth in such a short space of time.

The hard work paid off and they were awarded INTEL Project of the Year 2011 at the DIT Kevin Street exhibition for their research extension into correlating brain size to memory function in rodents and linking it with treatments for Alzheimer's disease. They also placed first in the senior biology category. It was an amazing day.

Having been given the opportunity to taste success, and now believing even more in their ideas, their research and their abilities, they were delighted to be put forward to go to INTEL HQ in Leixlip to compete against the other Intel Best Project Award winners from each SciFest exhibition. They were one stage away from representing Ireland and SciFest at the World Finals in the US at the International Science and Engineering Fair.

They didn't win this award, but they did win the pride of parents, grandparents, the school principal and their teachers. I was beyond proud of the journey I had the pleasure of witnessing; they now show incredible potential for the future.

Shane Boylan, Carl Burke and Cathal Fagan are just three examples of what participating in SciFest has meant for St David's. Other teams have also risen to the challenge and been highly commended, disproving the cliché of science being for the few as opposed to the many. All of the students involved became more confident in their abilities and appreciated every second of the process. The increase in confidence has also led to students from St David's becoming regular competitors at the BT Young Scientist and Technology Exhibition.

Enthusiasm for science in St David's has grown and grown. At this time each year another group of eager junior students will team up and explode into my lab with amazing levels of enthusiasm for scientific research. It's fantastic to see. With a few carefully chosen questions, their ideas and interests can be moulded into a hypothesis fit to test. They have now begun their individual and team journey to being



articulate in the field of science and scientific thinking. SciFest is a truly inclusive competition that encourages all students across a diverse range of backgrounds and interests. SciFest also puts heavy emphasis on positive encouragement and it is a really lovely accessible day out, a great resource that should be supported. I would like to take this opportunity to thank Sheila Porter, a former science teacher who originally set SciFest up, from all of the SciFest St David's students who have participated over the past three years. It has been a tremendous journey to date.

**Kate Walsh teaches science in Syngue Street CBS, the only school to have won the BT Young Scientist competition three times:**

Syngue Street CBS has had fantastic success in the BT Young Scientist Competition in the past – since 2003 the school has won 24 awards, including winning the overall award an unprecedented three times. I haven't taught in the school for very long but Jim Cooke, who is now retired, did a lot of work with students on projects over the years. I met with Jim to find out what was involved when the boys, Eric Doyle and Mark Kelly, approached me to ask me about supervising their project at this year's competition. I have to say the project was all their own work – I just answered any questions they had about maths or physics, proofread their results, and things like that. They worked so hard all year round, even over the summer holidays. Their project was based on the 250-year-old Euler Two Fixed Centre problem, recently solved by Irish mathematician Diarmuid Ó Mathúna. They boys

wanted to expand on his work to improve on the accuracy of mathematical models that predict where a satellite is at any moment. They programmed Ó Mathúna's formulas and then ran simulations on existing algorithms, blocks of software for determining a satellite's location in space. In layman's terms, they produced a means of accurately assessing where a probe sent into space will end up. Allowing for this higher degree of accuracy helps to reduce the need to burn fuel to reposition the satellite. Their algorithm is also smaller and faster than existing ones, and so would run more efficiently on board a satellite. To have produced something like that aged 17 is very impressive. Both students are in sixth year at the moment and hope to study science in university; Mark plans to do theoretical physics and Eric wants to do chemistry. Science subjects are very popular in the school; all students study science for Junior Cert and there is a high proportion of uptake at senior cycle. Everyone in the school – students and staff – are proud of the boys' and the school's achievements in the BT Young Scientist Exhibition.

SciFest was the brainchild of ASTI member Sheila Porter, who currently works as project manager of the competition. The competition involves a number of science fairs held in universities and institutes of technology around the country. It was launched nationwide in 2008 with the support of Intel Ireland and Discover Science and Engineering as project partners.