Full STEAM ahead at Bialik

BIALIK COLLEGE

Students with Rosie the Robot and Chief Scientist Dr Alan Finkel with year 9 student Jonathan Green and his hand-built drone.

When Jonathan, a year 9 student at Bialik College, began researching drones a couple of years ago, he had support from the staff from Bialik's Rosenkranz Centre for Excellence and Achievement.

They helped Jonathan in connecting with the right mentors, helped him to shop for parts and encouraged him when he hit road blocks.

Eventually, over many months, Jonathan built a fully functional, flying drone from scratch, sourcing and building each individual component – and all without an instruction booklet.

Dr Alan Finkel, Australia's Chief Scientist, commended Jonathan on his work when he addressed the community at this year's Bialik Foundation breakfast.

During his speech, Dr Finkel also mentioned the skills that studying a science can offer to students – skills like wrestling with data, thinking at the systems level, breaking problems into manageable parts, working in teams, marshalling resources and managing projects.

These are the skills that Bialik students are learning in programs like the very popular Robotics Club and our Makerspace program.

Children code robots, design on the 3D printer and deconstruct resources to understand. They craft their own projects, exchange learning at Makerfaires and become entrepreneurial.

Our Makerspace workshops allow students to learn new STEM skills and expand their worldview. Students can pursue their dreams and are expected to plan, document, communicate and have social responsibility for their inventions.

STEM, a popular buzzword in the education community, stands for science, technology, electronics and maths. It is the projects that reflect thinking from all these disciplines at once, which are defined as STEM.

At Bialik, we've added an 'A' for 'art', making the acronym STEAM because we believe that creativity is a critical aspect to such endeavours.

There have been some exciting wins for Bialik students using their innovative technological skills.

Primary students won first place in a robot dance competition, when they programmed the college's humanoid NAO robot, Rosie, to perform a 45-second routine, synchronised to music.

A team of year 8 girls received an all-expenses-paid trip to Sydney to showcase the app they developed in the Search for the Next Tech Girl Superhero competition and another group of students in year 7 won first place in the international 2016 Technion Jewish Day School Challenge, for which they built a Pesach-themed Rube Goldberg machine.

Most recently, a year 10 student won the 2016 ACMI Screen It competition in the Senior Videogame category for developing the game The Adventures of the Lost Treasure.

Middle school science teacher Alon Manker said: "Competitions don't only require the students to learn programming and robot building, they also help them become familiar with the engineering process. In doing so the students develop fantastic teamwork and problem-solving skills that are transferrable to all areas of their academic and personal lives."

Coding also takes place in the ELC, as well as collaborative learning with a range of media. In one instance, three year 1 students coded their Bee-Bot robot to twist and turn through a maze from start to finish.

The students only participated in one session of lunchtime coding and through peer learning, taught each other to write code under the guidance of their teacher. The students realised that they would have to create code in two parts and also discovered that they needed to consider the step length of the Bee-Bot more precisely by using a ruler to ensure complete accuracy.

By introducing STEAM into the formal and informal curriculum, the education experience is enriched and our students are propelled to embrace the skills that will prepare them for the jobs of the future.