



## Volume I, Issue 2

STEM...the latest buzzword in Education

STEM-focus is specifically targeting students to consider the merits of pursuing higher level secondary school courses, tertiary studies and careers in Science, Technology, Engineering and Mathematics. These fields are exhibiting the greatest job growth and their potential for innovation and industry will drive the Australian economy of the future.

Demographers predict a 40% shortfall in Australian STEM-graduates forcing a radical and unnecessary outsourcing for overseas labour to fill our job vacancies. We have the solution and the greatest potential sitting in our classrooms now!

The problem is multi-faceted. Many students, particularly girls, perceive these choices as beyond them. They aren't. It has been well documented that "boy's brain, girl's brain" is a myth. Girls, in particular, within society and in our homes are not exposed to positive conversations about their STEM capability and potential. In addition, in pursuit of a prestigious high ATAR, many students elect to do a less rigorous option particularly in Mathematics or no Sciences or Maths at all!

Yes, these courses are more challenging but non-selection and non-interest limits tertiary choice and represents a huge loss of potential of minds that are ripe for training in the logic, critical and creative skills needed for computational thinking and innovative process. That is STEM. Bridging courses are a poor solution. Failure rates, for ill-prepared first year students in tertiary STEM courses, are high.

The role of educators and parents is to inspire students to willingly select STEM subjects and embrace the challenge, acknowledge and value STEM endeavour and not let them fall for the soft option; to train for the rigour and to engage them in as many STEM-related experiences like inquiry-based learning and Uni open days, industry excursions and expert talks, and finally to inspire and support them to have a true vision as the successful, employed and worthwhile innovators of our future.

Tracey Warzecha HT Curriculum [Relieving]

*"STEM subjects, especially engineering, give such wide career choices from bridgebuilding to humanitarian projects" and that "STEM subjects aren't just about doing Science & Maths problems, it's more about advancing the human race and making our lives easier and better"*  
 Year 10 Riverside Student

*..... inspiring our students to engage with Science, Technology, Engineering & Mathematics in High School, at University & beyond in future STEM-related careers.*



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### Riverside Students at the Engineers Australia: Discovering Engineering Forum

Here, fourteen of our Year 10 and 11 students attended the Discover Engineering forum for 'engineers of the future' in June. This initiative, run by *Engineers Australia*, involved guest speakers from the engineering profession along with university students from the universities: Sydney, Macquarie, UTS and NSW.

Our students discovered the value of collaborative, productive teamwork and engaged in hands-on team challenges including constructing prosthetic limbs, electronic circuit design and a paper tower competition. This school initiative was facilitated by our Careers and Physics teachers.

Even after this one-day experience, a survey of these students revealed:

- The 12% of girls who once thought Engineering was just for males, had changed their minds.
  - 88% believed gender made no difference to your problem solving ability, although initially at 50%.
  - There was a 25% increase in the number of girls now considering a STEM-related tertiary course and a 12% increase in considering a STEM-related career.
- They identified the need for greater "STEM publicity" and "problem solving ability and to think outside the box, if you want to be a successful engineer".  
[Riverside Discovering Engineering Student Survey, June 2015].



### Riverside Teachers engaging in STEM Professional Learning

Riverside's School Plan 2015-17 incorporates STEM principles within its Strategic Direction 1: Empowering Learners for Success. Its ongoing partnership with the University of Sydney's STEM Academy strongly endorses this commitment.

Our most recent Staff Development Day delivered a half-day workshop to engage all faculties with STEM principles. Staff were given a design challenge (the 7 piece Lego® duck, pictured) that highlighted differentiation, collaboration, problem solving and explored the possibilities of developing creative and innovative uses for new resources.

Staff connected as inter-disciplinary pairs to develop a creative cross-curricular idea. These collaborative pairs then engaged as multi-disciplinary groups to develop cross-curricular units of learning. Everyone became a STEM teacher!

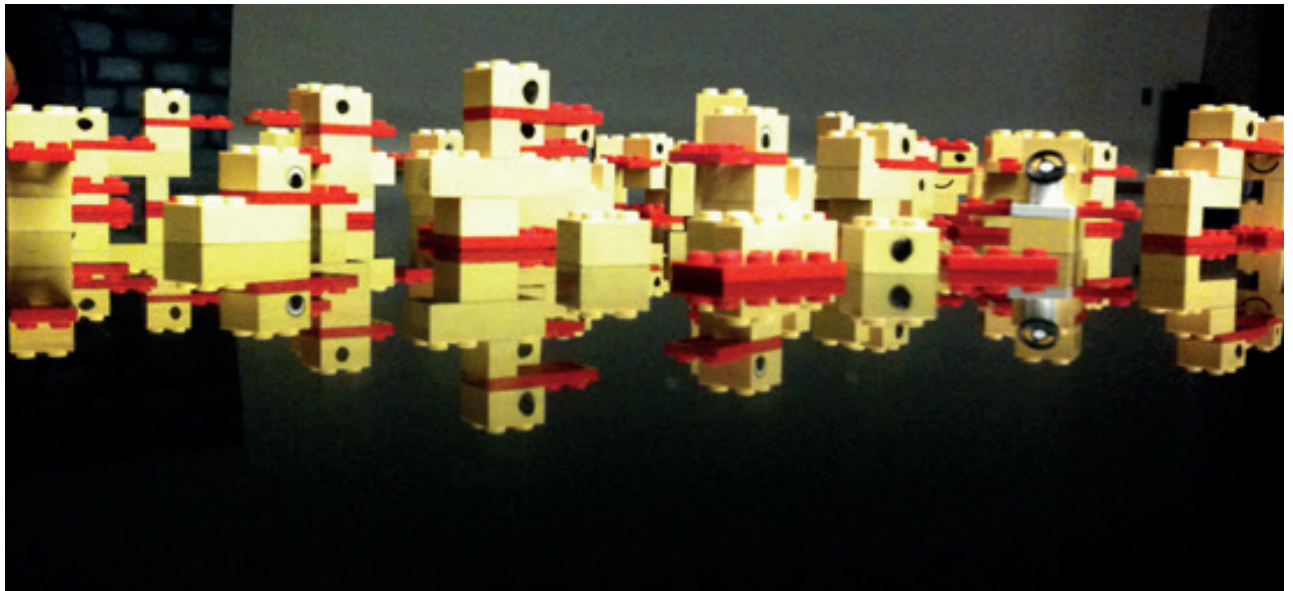


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The high levels of creative energy and noisy enthusiasm generated when our teachers get together and 'talk shop' to deliver great ideas for enhanced student learning, is unique and was truly inspiring.

Within a week, several early career teachers had initiated and connected with some innovative ideas to engage and extend student learning in a new Year 10 English-Visual Design Collaborative project aligning Macbeth with Abstract Impressionism.



Join Tracey Warzecha (HT Curriculum [Relieving]/USyd STEM Academic Advisory Board) and Katarina Nikoletich (Deputy Principal) for an interesting morning on August 7 from 9.00 am to 10.00 am outlining what is happening with STEM at Riverside right now and in the immediate future. Exciting!

RSVP Wednesday 5th August