

Makerspace Spotlight:

MATER CHRISTI COLLEGE

Margaret Lawson

STEAM Coordinator

Margaret Lawson drew upon her 20 years experience as an Information Technology teacher to explore an innovative and creative space that challenge students. Mater Christi College is a Catholic Secondary College in Belgrave, Melbourne with a population of 700 students. Margaret works both as a Teacher Librarian and STEM Educator.

Our makerspace is located as part of our Learning Commons. Both the space and equipment are available to staff and students from 7.45am – 5pm. For our makerspace we have a dedicated area that runs down one side of our main learning area and bookcases under a standing desk that store equipment that can be pulled out and set up when needed.

We also try to Instagram as many of the activities as possible as a way of keeping a record of what we do. Using a tool called Prinkl we can then make posters or paper cubes which showcase the activities that we have instigated across the year. This is an easy and effective way of showing people what we can do in the space.

Our makerspace resources are available at any time to use, however every Thursday we run a formal structured taster activity. We set up desks, mats, equipment and instructions and encourage students will sit down and play with the equipment. If students like what they taste, they are encouraged to then access the equipment outside this structured time. Most of the equipment can be accessed without permission, however the 3D Printers need to be booked, especially when there is a class needing to use them.

Five ways to get your Makerspace Buzzing

Over the last three years we have run many different activities in our makerspace, here are some of the strategies that we use to make them BUZZ.

1. Make sure the activity is hands on, mess is good!

Some of our best activities have involved lots of mess and lots of noise.

During the Christmas break we got one of our long desks raised and turned into a standing desk for our 3D Printers and Raspberry Pi computers. But underneath it looked naked. We purchased four Ikea KALLAX 2x2 bookcases and turned the construction of these bookcases into a lunchtime activity with teams of students.



Standing bench in the Learning Commons

Source: <https://www.instagram.com/p/BaFpDxwhlNa/?taken-by=konstantkaos>

We advertised the “The Flatpack Challenge” and over a number of weeks and momentum grew as our STEM leaders took control over the promotion and the organisation of the activity. Learning Commons staff prepared the space and organised prizes.

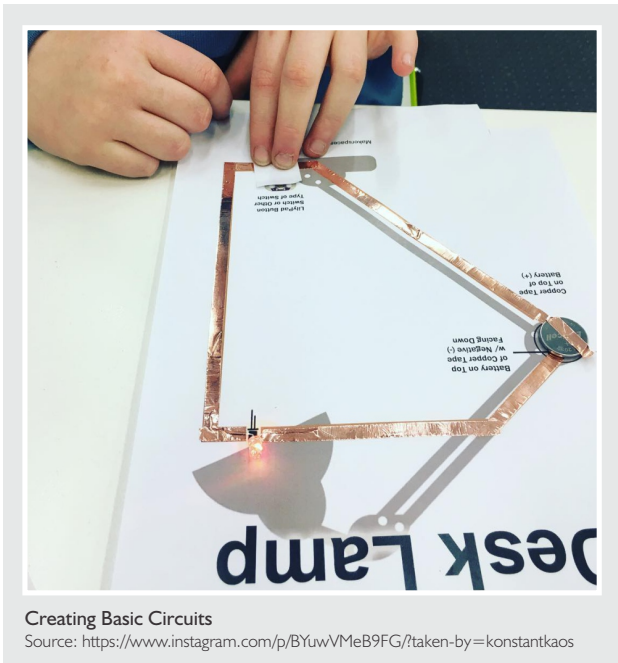
Four teams competed for the prizes and had to fully construct the bookcases without any left-over parts. There was much

laughter, collaboration and communication. The quickest team took 13 minutes to construct one bookcase and by the end of lunch all four were constructed. They are all still standing and full of our makerspace equipment!

Other events that have proven successful has been, making slime, bookbinding and medieval leatherwork.

2. Make sure that the taster activity is short enough to be repeated a number of times.

Throughout our lunchtimes, we have groups of students who wander in and will sit down at the table we have set up and just play with the equipment. The structured activity has to be short enough to finish during lunch and complete with instructions, so that several groups of students can have a go at tinkering.



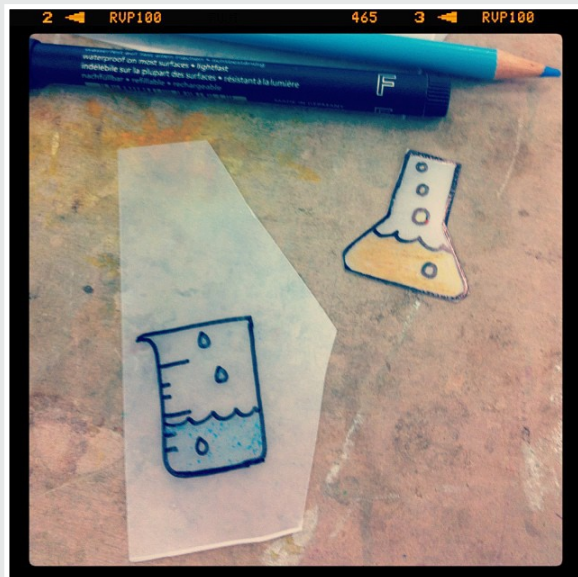
Creating Basic Circuits
Source: <https://www.instagram.com/p/BYuwVMeB9FG/>?taken-by=konstantkaos

Tasks that are completed over a number of lunchtimes or in after-school sessions are a bit more complex, but the students involved are already invested in the learning and are motivated to work through the problem solving process themselves.

3. If students can walk away with a product, then they can show their friends (and promote your makerspace).

Makerspace activities where students take something away with them, works in a similar way to marketing promotional materials. Some students return to the makerspace asking “can I make one of those” and the ideas spread!

As part of science week, we ran an activity where students could design earrings, brooches or keyrings from Shrinky Dink plastic. Many students chose beakers, element symbols and scientific logos.



Creating Shrinkable Plastic Keyrings and Jewellery
Source: <https://www.instagram.com/p/6rrP8ILTQS/>?taken-by=konstantkaos

Students used permanent markers and pencils to colour their shapes and then we used the staffroom oven to shrink them. Our instructions for this activity included showing the students how much the shrinkable plastic shrank by creating a ruler to scale and then shrinking it down. Students then had to work out the size that their pre-shrunk plastic needed to be to get the desired effect. A great activity in Mathematics!

We have also made hand bound notebooks from recycled materials and lanterns with LED lights. These are all short sharp activities that can be easily replicated many times throughout one lunchtime.

4. Provide instructions that students can use after the activity has finished.

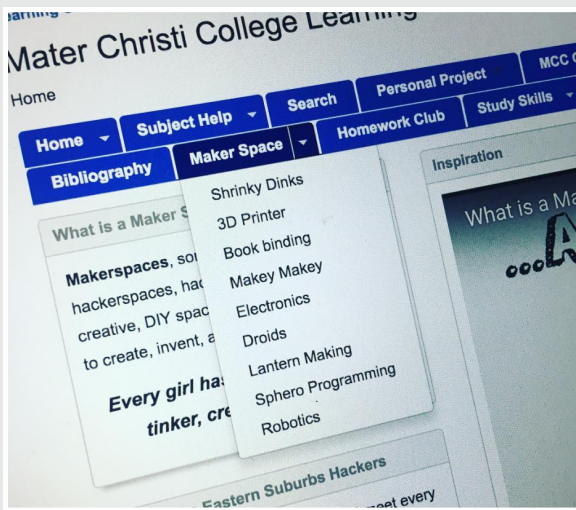
We use our Libguides as a way of documenting the activities that we do ensuring that there is an electronic footprint of the work that we are doing.

Instructions are generated for learners that need a bit more scaffolding and lots of links and video's inspire students to involve themselves in the maker-movement. The Libguide grows and develops according to student (and teacher) interest.

When lunchtime workshops are conducted, we try and include take home instructions encouraging further exploration of the activity.

Often students will return asking to make something that another student has created, and we direct them towards the equipment and the instructions and encourage them to tackle the task by themselves.

5. Get your student leaders involved in promotion and running of the activities.



Our Makerspace Libguide is accessible to anyone who has access to the internet.

Source: <https://www.instagram.com/p/BaF0CRJhx0x/?taken-by=konstantkaos>

In addition to the Ikea challenge, another of our more popular workshops was Origami with Anri. Anri, a Year 10 student had done her MYP Personal Project on the Peace Cranes of Hiroshima. We had her work displayed in the Learning Commons and we ran a number of lunchtime workshops where students learnt how to fold their own cranes.

Up and coming planned makerspace workshops, include Rube Goldberg machines with our Spaghetti Machine Engineers that came third at the competition at University of Melbourne earlier in the year. Giving students the opportunity to teach others and hopefully infect them with their interest in STEM based activities.

Students that are involved in shaping the space can speak at assemblies and write newspaper or newsletter articles, adding an authentic voice to the activity.

Where to from here?

Our makerspace events are driven by opportunity, availability and budget. We try and link into events that are happening around the college and places like Daiso [bargain Japanese shop], Reject shop and Kmart provide us with low cost materials that students can tinker with.

With the sourcing of soldering irons, "learn to solder" kits and some adafruit arduino boards at the end of 2017, we are hoping to ramp up our makerspace offerings to include more technical and electronic activities.

There is also the opportunity to extend the guided makerspace activities into an "afterschool" time slot where students can tinker or program for longer than 40 minutes. Of course these activities are guided by student interest in the space and effective advertising.

RESOURCES

Mater Christi Makerspace Homepage

<http://materchristi.libguides.com/learningcommons/makerspace>

Invent to Learn by Sylvia Libow Martinez and Gary Stager

<https://inventtolearn.com/>

Meaningful Making: FabLearn

<http://fablearn.org/resources/>

