



E-VIEW

The Journal of The British Columbia Technology Education Association

May 2015

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Conference 2015 October 23rd & 24th



Gladstone Secondary School

4105 Gladstone St.

Vancouver, BC V5N 4Z2

www.go.vsb.bc.ca/schools/gladstone

Conference Chair: Todd Ablett (tablet@vsb.bc.ca)

Cost: \$100

This year the conference will again be held at Gladstone Secondary. A google survey was put out to members on the structure of the conference and what the membership would like to see in the way of workshops. The results are being used to plan the conference and more information will be made available in the next E-VIEW issue in June.

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Editor's Note:

by: Steve Claassen

The e-VIEW newsletter gladly accepts articles, book reviews, tool/equipment or resource reviews, project plans & ideas and other information related to Technology Education. Share your ideas, opinions and more. This publication needs your input and support in order to make it relevant and current for ALL BCTEA members.



All correspondence may be sent to info@bctea.org
I would also like members to provide input regarding the BCTEA website: www.bctea.org Again you may submit project ideas, procedure/work sheets that can be shared with your colleagues. Information relating to retirements and class groups are also welcome!



President's Message



Hello, please let me introduce myself and explain why I wish to take on the role of president. I have been teaching for 23 of my 55 years. I went into this career because I enjoyed shop class when in high school, have always found my creative side in the

form of shaping wood into functional objects such as surfboards and boats, and I really enjoy working with kids. For the past 6 years I have not been teaching in a regular classroom, but have been running the careers program for SD#71. What this has enabled me to do is get a big picture view of what is occurring in shop classes now, what government and industry want, and look at where we can go. I feel that at present Technology Education is at a low point as far as being recognized and valued. I do not intend on taking us back to the good old days, but take what is good now, add what is needed to proceed into the future and win back the support of the ministry of education, the ITA, industry, the community and the youth that sign up for our classes. This is not going to be an easy task, but I have the energy and will to give it my best shot. We have a great executive team that will keep you well informed and up to date on our activities. We will periodically ask for your input and direction, so please get involved to the level you wish to help out.

Here are our first initiatives:

- Build the BCTEA web site into a more robust resource that every Technology Education teacher can contribute and access materials to improve your programs and shops. (remember – to build this resource we need your help).
- Create a data base of every Technology Education teacher in the province. We have been doing this all winter/spring and have approximately 600 teachers province wide.
- Try to give direction to the ITA around the youth programs review. We can play a much larger role in preparing students for the trades.
- Build an inventory of project pictures, and teaching resources – again, we need your help.

- Offer budgets for Tech Ed programs.
- Work on class size for effective education in a shop.
- Provide guidance on new school shop construction.

Presidents update

Over the last 2 months the executive has been working on organizing the conference by finding out through a survey what you would like. We will incorporate this information into the planning.

As president, I have attended several meetings to help build relationships that will assist Technology Education teachers and programs.

In February I attended the BC Building Trades convention, which I learned has an incredible lobby initiative with the government. They were very receptive around the idea of working with us around training at our conference and giving guidance as to what industry values in future workers.

I have also been working with the BC Construction Association on “Project Shop Class”, and funding towards equipment upgrades. EThis organization is also setting up a steering committee to look at and create a “Learning Profile for Construction Jobs”. The objective of this project will be to develop a learning profile for secondary school students that will most effectively prepare them for their first job in the construction sector and set them on the right track towards sponsorship into a trade apprenticeship. Very exciting actually because we have a voice along with the Ministry of Education, Advanced Education, the ITA and Industry. What would be great is if Technology Education courses could start to get recognition for helping get and keep youth turned on to the trades, and maybe some funding towards equipment replacements, material budgets increased, and of course a look at the numbers of students in a shop.

The Skills Exploratory course is a very good example where Technology Education teachers can be a close partner to the trades sector. If possible it would be nice for each district to offer this course next year.

The ITA is close to releasing their youth review, and hopefully there will be some recognition of Technology Education courses. The Skills Exploratory is one initiative that the ITA and Ministry both worked on very closely to create. We have added some good input into the review over the last few years, along with district career

departments. There seems to be the identified need to provide the “applied skills” to more students.

If you wish to provide input to your executive, please send me an email (randy.grey@sd71.bc.ca) on what you would like to see, or help out with.

BCTEA Listserve

The BCTEA Listserve is the preferred way of quickly and effectively communicating with its membership. This past winter many hours were spent developing a database of all the schools and Tech Ed teachers around the province including those future Tech Ed teachers at BCIT and UBC. This database is a living document and will be updated regularly.

To help keep the database and BCTEA Listserve the most current it can be so we can reach the entire membership, we encourage you to contact the BCTEA at info@bctea.org to update your status (School District, School, subjects being taught, email) whenever there is a change.

Click [here](#) to be directed to the BCTF PSA Mailing List. On the left side of the page enter your email address and select the list psa-bctea.

BCTEA Membership Online

You will now be able to easily and quickly join, renew, and purchase your BCTEA membership on the BCTF website. The BCTEA membership helps offset the costs of running and maintaining the BCTEA. When you attend the conference you are automatically charged the membership so there is no need to go online and join.

Click [here](#) to access the BCTF online membership registration page

E-VIEW NEWSLETTER

The E-VIEW newsletter will now be replacing the VIEW Magazine. The executive discussed the costs of publishing the VIEW Magazine, the effectiveness of distribution to the members and the frequency of distribution. The intent now is to distribute the E-VIEW newsletter once a month in a much shorter version (3 – 5 pages). The E-VIEW will reach approximately 600 Tech Ed teachers around the province through email.

The E-VIEW will have many different purposes including;

- Conference updates
- Resource sharing
- Showcasing Programs/Projects
- Buy/Sell/Trade
- Current Trends in Tech Ed
- Executive reporting
- Etc

The success of the newsletter will require input and support from the field for it to be successful.

NorKam Trades and Technology Centre

NorKam is an older secondary school located on the North side of the Thompson River in Kamloops. It has made the news lately because of the 7 million dollar addition for the implementation of Trades sampler courses to better prepare high school students for ACE IT Trades Programs, or to prepare students to get a job. As we can see there is money for Trades-related programs. The issues facing districts that want to make trades programs available for their students are funding for the courses, staffing, and the facility. There are two sampler programs presently being offered at NorKam. The construction sampler consists of 120 hours of training in each of the following trades; Carpentry, Plumbing, Electrical and Construction Craft Worker. The mechanical sampler consists of 120 hours of training in each of the following trades; Automotive Service Technician, Motorcycle Technician, Heavy Duty Equipment Technician and Welding. There are four main shop areas are supplemented by two classrooms. Space is the key word and this is



what differentiates these facilities from traditional Tech Ed shops.



These shops are designed to allow construction of large projects, or to bring in equipment on which to work, compared to having lots of equipment for individual project making in a Tech Ed course.

I was very fortunate to be given a tour by Ron Collins, a BC Technology Education teacher who is presently in an administrative role for Kamloops and responsible for the implementation and operation of the Trades Centre. Ron grew up in Kamloops and then returned as a Technology Education teacher.



Obviously he is passionate about providing "Hands-on learning" for students. We toured the new facilities, but also visited the regular Technology Education shops and teachers. What I noticed most when observing the students in the two different programs was the engagement. In the trades sampler programs, the students are part of a cohort group for a whole semester and they were all excited about

their learning. In the regular Tech Ed classes, it looked very typical with only a portion of the students really engaged in their learning.

The trades sampler programs provide students with an opportunity to work in groups on major projects such as an 8' x 12' structure in the Construction Sampler in comparison to many

of the individual projects that General Tech courses cater to. General Tech courses provide an opportunity for high school students to work with their hands and see if they want to further their studies in Trades training. The Trades Sampler Programs are the next logical step for training of specific skills to help them choose a trade and either continue studies at TRU in a foundation trades program or get a job and then ultimately an apprenticeship.



The total cost of the new NorKam Trades and Technology Centre is projected to be \$7.4 million. The Ministry of Education is investing \$4.6 million in the new Centre. Through the government's Skills and Training Plan, the Ministry of Jobs, Tourism and Skills Training is providing \$1.7 million. The balance of \$1.1 million is being provided by the Kamloops/Thompson Board of Education.

The new Trades Centre has been a work in progress for School District # 73 for the past 10 years. They opened the doors for the first two sampler programs in February. The 36 seats are filled to capacity and

taught by Red Seal instructors from Thompson Rivers University. The school district is pleased that TRU is now providing such a wonderful program for high school students. This new venture with TRU grants students credit towards their graduation requirements as well as academic credits that may be applied to programs at TRU. The sampler programs have drawn students from every school within the city limits. The district is well



underway in fulfilling their goal of having two cohorts in each of the samplers for a total of 72 students for the upcoming school year. The programs encompass many of the recommendations indicated in the BC Skills for Jobs Blueprint such as providing relevant hands-on

learning. The following links provide more information on the NorKam Trades Centre.

<http://www3.sd73.bc.ca/general/content/ground-breaking-norkam-trades-centre-excellence>

<http://www.kamloopsthisweek.com/norkam-trades-and-technology-centre-open-for-learning/>

http://www.kamloopsbcnow.com/watercooler/news/news/Kamloops/15/01/07/NorKam_Trades_Centre_Completion_Expected_in_February

Free Tools and Equipment

Skills Exploratory course tools and equipment are being supplied by the BC Construction Association to school districts on North Vancouver Island, Northern and Central BC. In conjunction with the BCTEA we have been working together to provide the tools and equipment to properly run the new Ministry of Education's Skills Exploratory course. The tools will be on a 2 year lease, with the stipulation that they be used to run the new Skills Exploratory course and thus help better prepare students for a job or post secondary training in a construction related occupation. After the 2 years if the tools are being used for the course, then they will become the property of the school district. If the tools are not being used as intended, then they will be packaged up and moved to another district that requires them. The tools and equipment were distributed in May.

Unanticipated funding with a very short purchasing window came in at the end of March. The BCTEA and the BC Construction Association jumped at this opportunity and have purchased 26 sets of tools and equipment that would be required to run this course. Each set of tools is worth approximately \$40,000. To learn more about the course, and see



the required tool list, please go to the BCTEA web site and look up Skills Exploratory course under the resources tab. If you teach on the north Island, or northern or central BC, and are planning on teaching this course, please send Randy Grey a message. I would like to keep all the teachers connected to help share best practices and concerns. If you are teaching this course presently, yet are not receiving the tool package, send a message so we can work on obtaining more kits for schools that did not receive kits. This could be anywhere in the province.

Moving forward the BC Construction Association would like to continue providing equipment and tools to all school districts in BC and as an organization we are very fortunate to have them assisting us in revitalizing our shops.

Randy.grey@sd71.bc.ca

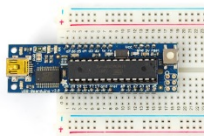
Useless Box Project

Written by: Steve Claassen

Over the last 22 years I have taught many different Technology Education classes (wood, metal, electronics, robotics, etc) from Grades 7 – 12, but the common theme in every district and school I have been in has always been electronics. Each year I find a way to go to the BCTEA conference in October looking for that ONE thing or next best project to improve my teaching or to take back to my school and have my students MAKE. The conference in the fall of 2011 was the year that changed how I teach (actually facilitate now) electronics as I was introduced to Arduino.



Over the last 4 years I have been experimenting with Arduino and how far I can push kids at MAKING their own projects. I started with an Arduino UNO (ATMEGA328 chip), but quickly moved to a Boarduino (same ATMEGA328 chip) as I like teaching breadboarding and flat, neat wiring is very important to me, especially for troubleshooting.



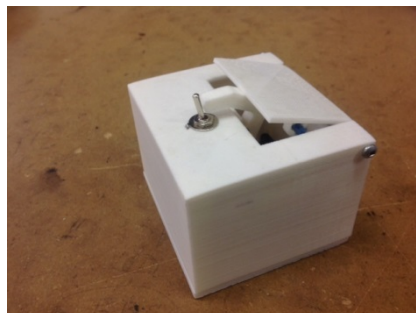
I was introduced to the ATTINY85 chip by a friend a couple years ago and you had to program it with another Arduino. Technology advanced and eventually I found a small USB programmer on the Sparkfun website to program the ATTINY85.



<https://www.sparkfun.com/products/11801>

Over the same 4 years I have also created an online resource teched.gpvanier.ca for starting off using Arduino. My students all go through the same basic Arduino labs to get started, but then the magic starts to happen as the creativity begins. I augment the beginning labs with more complicated ones, only for concepts when kids want to do more. I DON'T teach a project anymore, I teach a process.

THE USELESS BOX

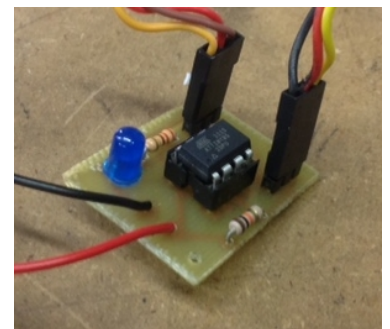


Google is my friend and one night I was looking for different

ideas to throw at my students to MAKE and found the "Useless Box". There were many variations to this project on the web but the concept is the same.....flip a switch and an arm comes out of the box and turns it off. Nothing more and yes, pretty useless. So we started.

The project consists of a toggle switch, micro servo motor and at the core either an ATMEGA328 chip or ATTINY85 chip. If you go with an ATTINY, you have to understand the chip has limited programming capability.

Using the labs I created, a couple students breadboarded and programmed the circuit within a couple hours and we had a prototype. The same students made a final version of a schematic and a PCB layout using Diptrace (*I use diptrace as I found it very user friendly and I make my own parts up for students to use. I also use Fritzing*). Using circuit board transfer paper, a laser printer and a t-shirt press, they made a circuit board which they then etched, drilled and soldered.

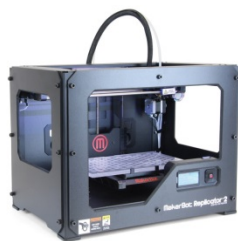


Traditionally, I would buy a case or pre-cut plastic ABS pieces and have students glue it up to make cases in electronics, however 6 years ago, I presented a business plan to my principal at the time to acquire a laser engraver (\$15,000) and in exchange, we make the awards for the school. Pretty good deal for my students and program.



So for a number of years my students used CAD (ProgeCAD as it was free to schools) or drawing software like Coreldraw or Illustrator to design and then cut plastic or wood to make cases.

The laser cut it for several years but then I had a chance to buy a 3D printer 3 years ago. A few PAC presentations later and a school review and I had 2 more machines. I currently run 3 Makerbot Replicator 2 3D printers and I am looking for my 4th.



You need at least 3 – 4 printers to run a whole class successfully. Back to the project.....

The students and I worked on a case design for the “Useless Box” over a couple of weeks and settled on the design. It takes a bit for students to understand what designs can and cannot be printed using a 3D printer.



Currently I have been using Creo Parametric as my 3D modelling software as it was free to schools when I started 3D printing. I plan to switch to Autodesk Inventor for next fall as Autodesk products have become free to schools now.

The end result was a 4 piece case design (base, top, lid, finger), that when finished, you simply screwed all the pieces together.



Overall, the project is pretty useless, but the number of students that come into my room to “play” with it is quite funny. I have had different students this year MAKE different versions of the useless box and currently one student has hacked a dot matrix printer and is working on a version with 5 switches.

Below is a basic schematic of the project and the pcb layout for it. If you have any questions please contact me @ steve.classen@sd71.bc.ca

