

Helping Hands: Empowering the Student Community Using Makerspace and Knowledge Building Principles

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College Heights Secondary School
Upper Grand District School Board

Wednesday January 30, 2019 10:30 - 11:10

**What contributions does
the library make to a
culture of Knowledge
Building in your school?**

Mentimeter

Context

KB & Makerspace

3D Printing Club

Making Connections

Questions

Context



Our school

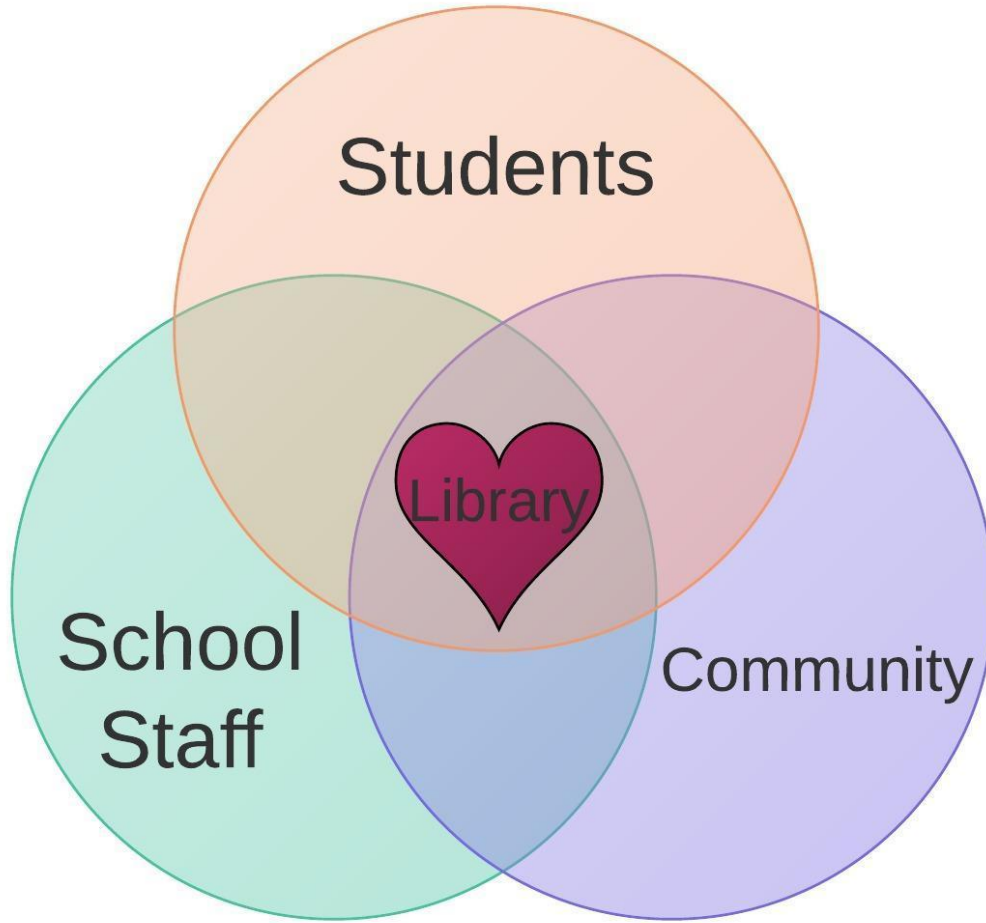
- Vocational focus
- 400 students
- Applied and Essential level programming
- Significant Exceptional population
- School of choice





Library mission statement

The CHSS library is a welcoming, respectful and supportive environment, provides equitable access to information, ideas and experiences, and responds to the needs of the school community.



Knowledge Building and Makerspace





Knowledge building / learning and growth culture

“None of us is as smart as all of us.” Japanese Proverb

Instead of teaching answers....we want to teach our students to engage in their learning - to help them love the process of problem solving and focus on engaging in learning by asking questions and exploring ideas.



Principles of Knowledge Building

→ Real Ideas, Authentic Problems

→ Improvable Ideas

→ Idea Diversity

→ Rise Above

→ Epistemic Agency

→ Community Knowledge

→ Democratizing Knowledge

→ Symmetric Knowledge
Advancement

→ Pervasive Knowledge Building

→ Constructive Uses of
Authoritative Knowledge

→ Knowledge Building Discourse

→ Concurrent, Embedded and
Transformative Assessment



The Culture of College Heights IS Knowledge Building

If we limit ourselves, we will produce highly skilled bakers, cooks, car mechanics, construction workers, welders, early childhood educators, hair technicians, gardeners.

If we raise our expectations, can they not also be:

Innovators

Effective Communicators

Team players - collaborative

Responsible Citizens

Self-Directed Learners

Critical Thinkers



The library provides...

- Support around understanding KB
- Adding KB discourse to existing lessons/projects
- Co-planning, co-teaching, and co-assessing lessons around KB
- The hands on materials (makerspace) to support teachers' introduction of KB principles

K'nex Lesson (explicitly teaching KB)

All ideas are good ideas!

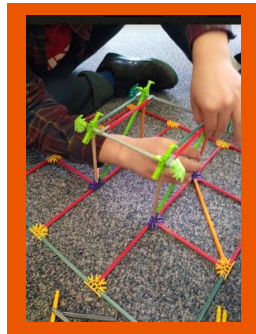
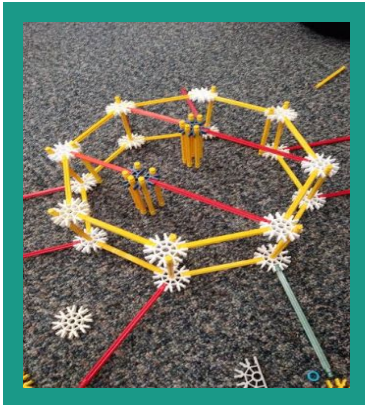
All ideas are improvable (giving and receiving criticism)!

Many minds are stronger than one!



K'nex Lesson

Teaching and practicing
the principles of
Knowledge Building



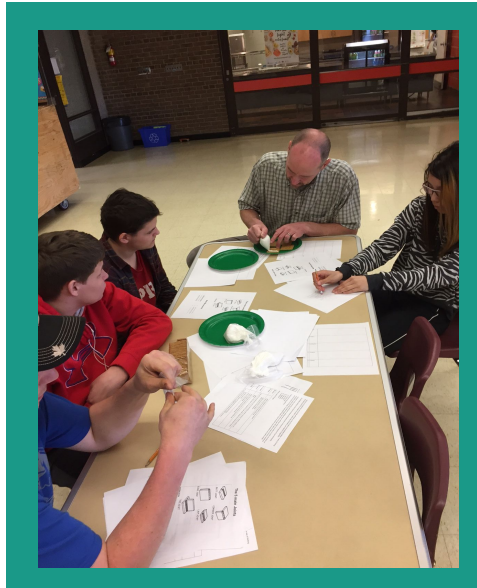
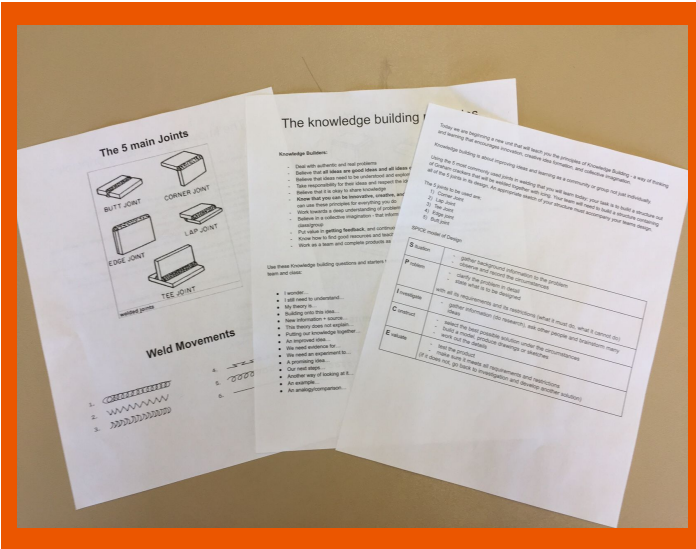
Coding Lesson

(explicit teaching of KB principles)

- Stand alone or linked to curriculum
- KB discourse
- Improvable ideas



Welding Lesson (adding KB to existing lesson)



3D Printing Club





How we started

- I wanted 3D printers
- SHSM wanted a school for a project

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ry Ennett: U of G engineering student gives helping hand to children requiring prosthetics



The Team

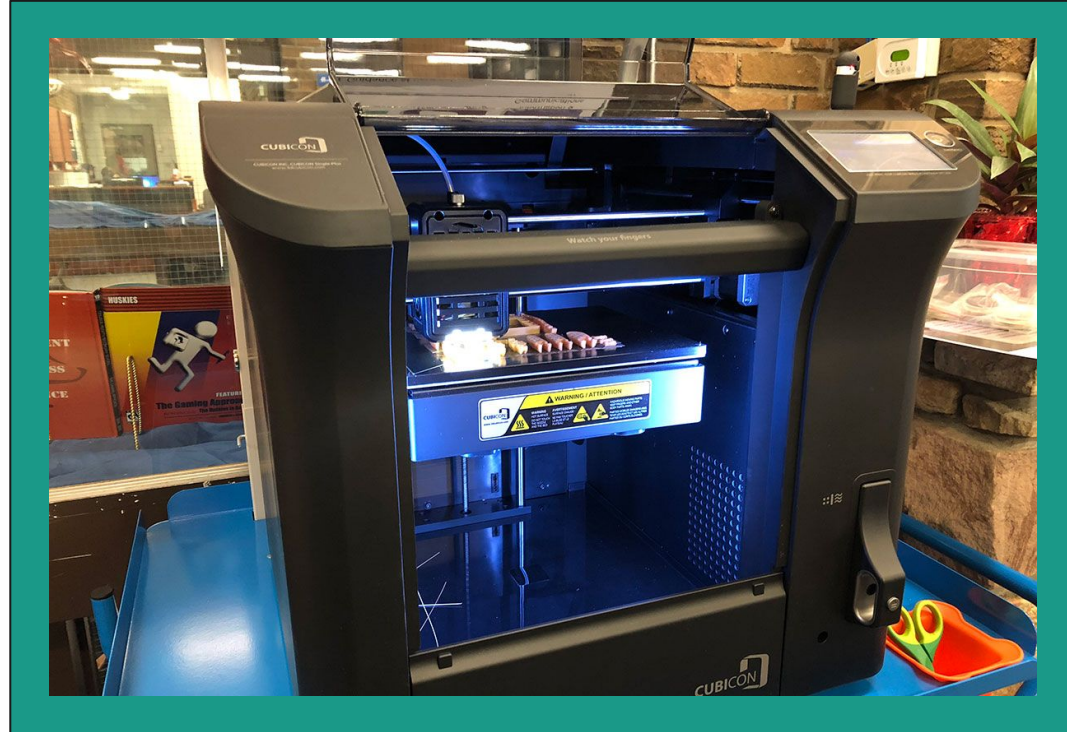
- Charles Benyair, SHSM/Technological Education Curriculum Lead
- Monique van Item, Library Tech for UGDSB
- Sarah Wyche, Teacher Librarian @ CHSS
- Aaron Meyer, Welding Teacher @ CHSS
- Jerry Ennett, U of G Student, Founder Taurus 3D



KB Principles

- An authentic problem
- KB discourse
- Community knowledge, collective responsibility

Inksmith/Cubicon



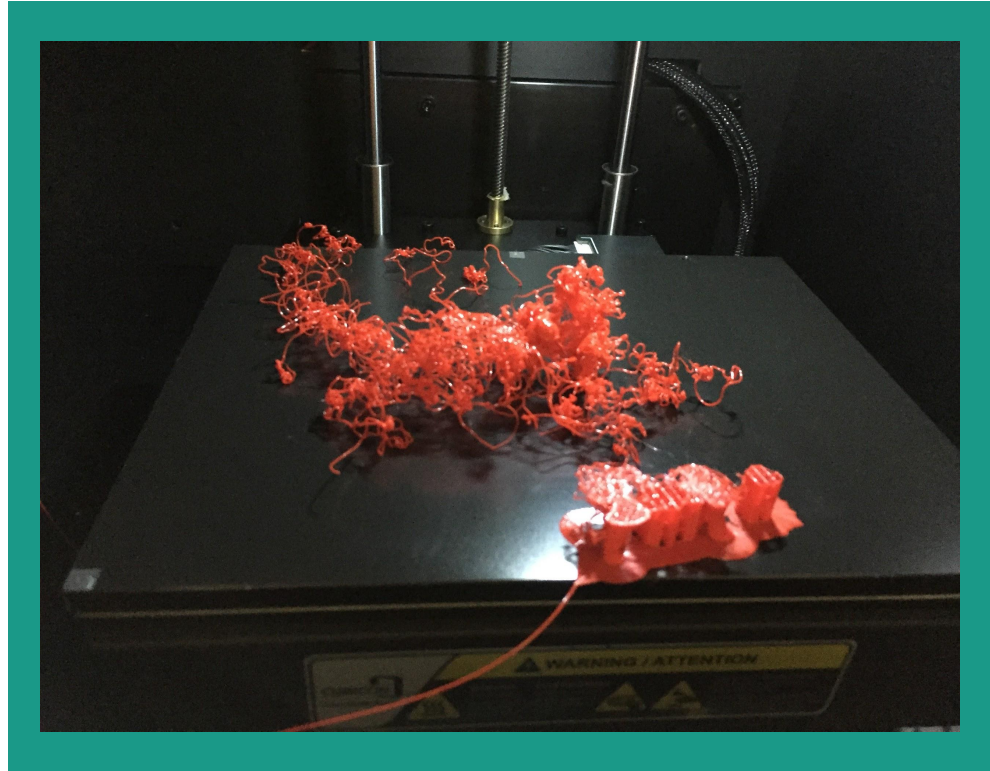
The Club

- Interested students
- At lunch





Struggles



Successes







Iron Man hand - On March 1 the Helping Hands club at College Heights Secondary School in Guelph presented Jordan Singh, middle, with a 3D-printed, Iron Man-inspired prosthetic hand. Members of the club include, from left, Sawyer Newell, Angus Casey, Jacob Oats and Christiaunna McCormick. Photo by Jaime Myslik

Seven-year-old boy receives 3D-printed prosthetic hand



The result

- A hand for a person in our community
- Pride for the students
- A good news story for our school
- Inspiration for teachers



Community Connections

- An authentic community experience
- Students saw the impact of their work
- A sense of being a contributing member of society
- Thinking bigger than the school or the curriculum

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E-NABLE IS GROWING

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NEED A HAND? WANT TO HELP? START HERE!

GET STARTED

Making Connections (or free stuff)





School Connections

- SHSM - 3D printers, PD
- Another school's Comm Tech program built us our VR
- Secondary Curriculum Lead for Experiential Learning (or Experiential Learning Lead or Experiential Learning Consultant)
- IT Liaison - release time and VR devices
- Functional Equity grant
- Cross departmental support



Community Connections

- Field trip - GPL, the Bookshelf, the Dragon
- InkSmith > Kids Code Jeunesse
- YPEP - Action Read, GPL





Mentimeter



Questions?

