

Makerspaces in The Highschool Curriculum

Our Challenge

Inspire teachers to integrate Makerspaces into NGSS-compliant STEM curriculums in order to better engage high school students.

Objective

To create a workshop for high school teachers that will inspire, engage and empower them to incorporate Makerspace equipment into their class.

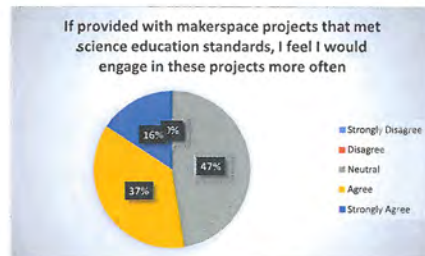
Research

Conducted research into the Makerspace community

- ❖ Visited multiple Makerspaces Including Harrold Washington Library, Museum of Science and Industry Fab Lab, and the IIT ideashop.

Conducted research into the new Next Generation Science Standards (NGSS)

Conducted research on teacher's knowledge of Makerspaces



Insights

Group Insights

- ❖ Makerspaces implement a flashy exhibit in order to obtain the public's interest.
- ❖ Versatile easy to use machines more practical in Makerspaces.
- ❖ Computer programs used in makerspaces do not promote group activities/projects
- ❖ Teachers find hands-on activities effective yet hard to implement
- ❖ Main drive for some Makerspace projects is creativity and self-expression
- ❖ Makerspaces can be intimidating for the uninitiated, possibly limiting their use.

How Might We?

- ❖ Find the most accessible software that is user-friendly and emphasize individual contribution?
- ❖ Attract teachers and students to Makerspaces and retain their interests?
- ❖ Adhere to the NGSS when integrating Makerspaces into high school curriculums?

Our Deliverable

An instructional workshop package that will create an experience for high school teachers that will allow them to take the concepts learned about Makerspaces and apply them to their class rooms

Design Principles

The workshop must

- ❖ Focus on the easier-to-use machines and simple projects
- ❖ Make the Makerspaces less intimidating
- ❖ "Steak vs Sizzle": use flashiness to grab teacher attention and generate "buy in"
- ❖ Projects should engage creativity and captivate
- ❖ Use software available to both teachers and students

The Workshop

Includes

Laser Cutting walkthrough	Possibilities of Makerspace equipment
3D Printing walkthrough	Project examples to apply in classrooms

Laser Cutting

- ❖ Walkthrough of the basics of laser cutting
- ❖ Introduction to laser cutter equipment
- ❖ Introduction to Inkscape program
- ❖ Rundown of the bridge project using a laser cutter

3D Printing

- ❖ Walkthrough of the basics of 3D Printing
- ❖ Introduction to 3D printer equipment
- ❖ Introduction to Tinkercad program
- ❖ Rundown of the derby car project using a 3D printer

The Website

A supplemental resource for teachers after the workshop
Contains

- ❖ Links to open source software
- ❖ Video tutorials
- ❖ In class project ideas
- ❖ Makerspace community for teachers

Group Members

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