

## **Matt Brown—Warren Tech North, Arvada Colorado**

HUNCH started out as an afterschool activity, but after or even during, I realized that for us to be able to do it effectively we had to change that and it has been a part of my class since. At Lakewood, everyone participated in HUNCH from all classes. It now serves as our major project for first year students and second year students that wish to continue with it. It is tough throwing first year students into this right away without any background info at all, but next year I am going to pare down what we do in the first semester to be focused exclusively on SolidWorks (earn the CSWA), the Design Process/Engineering Portfolios and HUNCH. There will be some introduction to Additive Manufacturing (AM), but it will be minimal (full immersion in the second semester - earn the SME AM Certification)). I have always operated this program as a year long, client based PBL activity. This goes beyond the engineering design aspects and includes:

1. Client Communication
2. Resumes, Portfolios & Business Cards
3. Presentation skills
4. Professionalism (Presentation, client interactions, and the workplace)

I structure my classroom to be along the lines of a production shop, focusing on AM. Students have access to bins containing a wide range of hardware and electronics; fasteners, springs, gears, Arduino, Raspberry Pi, etc. Students also have access to a wide range of AM printers and technologies; FDM, SLA, and SLS.

The classroom is broken into 3 separate spaces;

1. The design space with laptop computers, soldering stations, hardware storage, and presentation/instructional space
2. FDM work space: MakerBot Replicators and Method X, Stratasys F450 , F370, 2-F170's & a uPrint SE Plus
3. SLA & SLS work space: Stratasys J55, Formlabs Form 2, 2- Form 3's, 2- Form 3B's, Form 3BL, Fuse I

Flexibility in the classroom is important to me. All spaces have tables on wheels so that students can orient their work space to reflect the need at the time. We also use laptops instead of desktops so students can go where they need to go to the work that they need to do at that time.