Posted on **January 27, 2014** by **Karen Fasimpaur**

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The Tiny House Project

On Thursday, January 30, we'll be doing our first "Lens into the Classroom."

The idea of these sessions is to look at a real teacher's classroom dilemma and to assemble a group of other folks to go through a tuning protocol about this, which will them be "fishbowled" through a Google Hangout. (The idea is to let a larger group watch the session and brainstorm their own ideas. We hope that this will inspire others to try using a protocol like this at their own sites. As we progress with DLMOOC, you might even want to do this yourself online via a hangout.)

The teacher for this week is Brandon Cohen, a 12th grade Environmental Science teacher from High Tech High. Below is a description of his dilemma and some background on the project.

HTH Tiny House Project Tuning – Focusing on Student Work
Brandon Cohen – 12th grade Environmental Science – bcohen AT hightechhigh DOT org

Dilemma:

If I were to attempt this project again, what kind of student work would better enable me to see student understanding of the environmental content while not taking attention and resources away from the large final product?

Project Overview:

The Tiny House Project, spanning two semesters, addressed the environmental issues stemming from common modes of consumption in the typical Californian home by designing and building a 100 square foot, fully functioning home that demonstrates how to lessen our impact through simple, smart living and alternative, green building materials.

Participating Classes:

Spring 2013 – Collaboration between Environmental Science & Multimedia (Maria McTighe, teacher)

Fall 2013 – Collaboration between Environmental Science & Engineering (David Berggren, teacher)

Project Was Exhibited:

- San Diego County Fair, June 8 – July 4, 2013 (Awarded Best of Show)
- San Diego Maker Faire, December 7, 2013 (Limited to exhibition of placards)
- HTH Schoolwide Exhibition, December 19, 2013
- San Diego Earth Fair, April 26, 2014

Process and Assignments:

Home Consumption Study – Students gather data and calculate the consumption of natural gas, electricity, water, and gasoline from each appliance and fixture in the home through unit conversion calculations.

Home Trash Study – Students classify and weigh trash by category (recyclable, compostable, and landfill-bound)

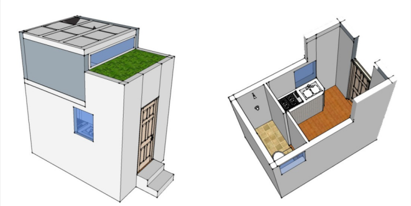
Tiny House Design – Students research and share existing, alternative housing options, propose solutions to incorporate in the Tiny House, and design their own Tiny House in SketchUp. Then, the class votes on the design that best addresses our issues.

Solicitation of Donations – Students are divided into groups based on the 14 different systems or parts of the house. After learning how to write a professional email and place a professional cold call, students step outside their comfort zone by seeking donations from local vendors and national manufacturers

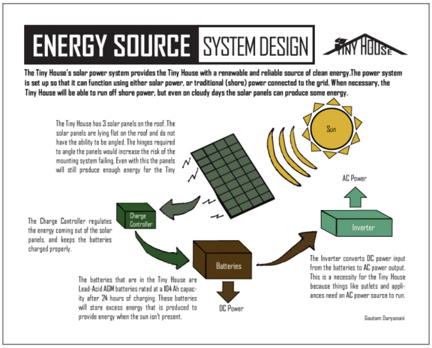
Construction – Students construct the Tiny House under supervision of the teachers and, at times, a licensed general contractor.

Tiny House System Placards – Following research and design, each student creates an 8" x 10" informational placard that highlights their group's system and how it compares to a that of a traditional home

Here is the project proposal and more information on the systems.



— The Final SketchUp Design Created & Selected to Build by the Spring 2013 Class



ENERGY SOURCE SYSTEM DESIGN

TINY HOUSE

The Tiny House's solar power system provides the Tiny House with a renewable and reliable source of clean energy.The power system is set up so that it can function using either solar power, or traditional (shore) power connected to the grid. When necessary, the Tiny House will be able to run off shore power, but even on cloudy days the solar panels can produce some energy.

The Tiny House has 3 solar panels on the roof. The solar panels are lying flat on the roof and do not have the ability to be angled. The hinges required to angle the panels would increase the risk of the mounting system failing. Even with this the panels will still produce enough energy for the Tiny

The Charge Controller regulates the energy coming out of the solar panels, and keeps the batteries charged properly.

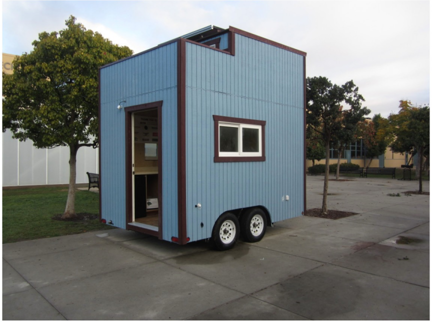
The batteries that are in the Tiny House are Lead-Acid AGM batteries rated at a 104 Ah capacity after 24 hours of charging. These batteries will store excess energy that is produced to provide energy when the sun isn't present.

The Inverter converts DC power input from the batteries to AC power output. This is a necessity for the Tiny House because things like outlets and appliances need an AC power source to run.

Gautam Daryanani

Sun
AC Power
Inverter
Charge Controller
Batteries
DC Power

Mohamed Hag



The Tiny House Tour
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4 THOUGHTS ON "THE TINY HOUSE PROJECT"

Kate Herzog on **January 27, 2014 at 6:59 pm** said:

What a wonderful project! I blogged about this concept & when I was a librarian at ITT Technical Institute, since I thought it would make a great capstone project for our Drafting & Design students. So I made this suggestion to my fellow DLMOOC librarians (1-25): My +DL Mooc activity suggestion:

"Libraries have traditionally served as repositories & archives. We should offer our services as connectors of both resources & people.
Given the plethora of artifacts generated through PBL activities (including portfolios, videos, photos, drawings, etc.), I propose that each school librarian serve as the archivist of his/her school's artifacts. That could include developing a database with metadata, tags, contact information for teacher/project supervisor. In addition, we could encourage 'narration' of project process, articulation of lessons learned (both 'how I did it well' & 'how I'd do it differently'). This activity might help bring continuity to an activity – allowing it to grow by being refined by future classes. What do you think of this suggestion? #librarians"

Did you work with your librarian to archive these photos, drawings, & other artifacts? Especially since this project was run several times, don't you think that having an archive of project artifacts, Gantt charts, post-project reflections would 'enhance' subsequent iterations?

Reply ↓

Jadzia Cypress on **January 31, 2014 at 5:36 am** said:

The project is interesting and no doubt enriched the students' understanding of both tiny houses and ability to work with solar energy. The hands-on learning and research component is definitely integral to learning. Being able to see something take shape that you have envisioned and actually finish the house they had planned must have been a truly empowering experience for your students.
I have also blogged about this movement and find it a fascinating reaction to the status quo and the banking system. Yet I find this project, in its conception, very much in keeping with the status quo, which is disheartening. Was there no questioning of what was really primary in a dwelling space? The kitchen counter takes up an enormous amount of space. Where is the living area? Perhaps the tour simply did not show this off well.
The project does not seem to show much innovation and it certainly is possible. The following link is a similar project which found some unusual answers to questions that must have been asked at some point during the project you worked on. Food for thought – .http://tinyhouseblog.com/tiny-house-concept/otis-new-take-american-dream/

Reply ↓

Shlomit Blumberger on **February 4, 2014 at 11:10 am** said:

To Brandon
I was really excited to see your project on the "lens into the classroom" session. At the beginning of December I visited HTH as a part of the Israeli delegation. I didn't got to see the tiny house model but I met 2 of your students at the San Diego Maker Faire. I had the chance to talk to one of them. Sadly I don't remember her name. I do remember how impressed I was from her knowledge and enthusiasm. I asked her if she had the chance to use that environmental experience in her real life. She told me about how she helped her parents calculate how much money a solar electricity system will save them. A solar electricity agent gave them the wrong impression that it will be profitable very fast and she was the only member of her family that had any idea in that specific issue. She helped her parents decide on that mater and it made her fill valuable. She also told me that in the future, when she'll have her own house she wants to have a more environmental water system. I hope that my story helps u to see student understanding of the environmental content. I know that I was impressed. Keep on the good work and thank you for sharing it with us.
I watched the session from the archive and had a tuning thought about a social potential aspect of the project. In Israel the only people who use these environmental facilities are rich or naturalist Enthusiasts. Most of the working class struggling to survive and don't have the time to learn and invest in the environmental new ideas even though it can eventually save money and save the world. What if instead or after building the tiny house as an example your class will help a real family to transform their house to green energy and green materials?

Reply ↓

Gabriel Colomer on **February 12, 2014 at 4:00 pm** said:

Great work!
Maybe you could also bring humanities into the project. Check this:
http://www.designboom.com/design/mobile-homeless-shelter/

About this design, I would ask students: is it a solution, or rather a patch?
And… can we propose a patch, to attend the needs of people living in the streets, while simultaneously bringing attention to the roots of the problem?

Reply ↓

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