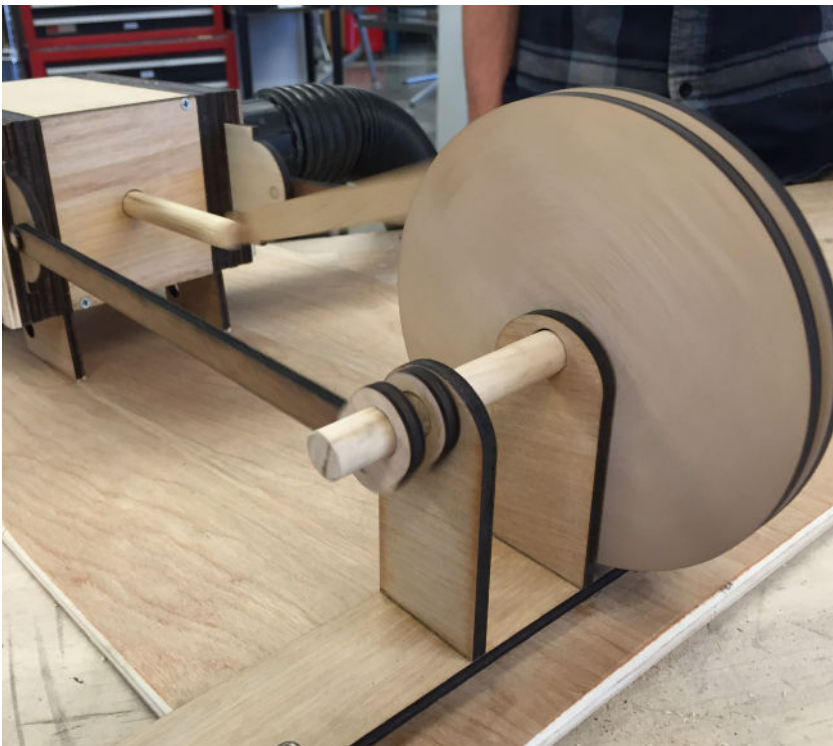




Cyclic Machines

*Mike Amarillas, 12th Grade Engineering
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Seniors at HTHNC received a simple prompt: “Create a machine or kinetic art piece that operates cyclically. Consider using a motor or human power to drive the mechanism(s).” Drawing inspiration from various real-life and online sources, students designed machines in a wide variety of domains. Some student groups made marble mechanisms with rollercoaster-like tracks, while others made gear-based art, and a few made motorized bicycles. After initial planning and prototyping, each group sat down with their engineering teacher to draft goals for the machine’s functionality and aesthetics. During the build phase, groups utilized the resources in the HTHNC Makerspace that best suited their needs. Most relied heavily on the laser cutter and a handful incorporated 3d-printed parts. Some basic materials were available to all groups, with the option to source additional materials online and make requests for purchase orders. In the first iteration of the project in Fall of 2015, students had just four weeks to build and very few groups met their goals by the time of school-wide exhibition. The current semester of HTHNC seniors will have roughly four times that long and will exhibit their work in June of 2016.

Teacher Reflection

I hoped this project would allow students to express themselves through design and technical work. I appreciate when science, technology, engineering, art, and math are deeply blended and not merely set up to complement one another.

Student Reflections

It was really cool to see the differences in other students’ projects as compared to mine and see the challenges and difficulties they faced. And it was a lot of fun.
—Kira M.

The cyclic machine project was an opportunity to use hands on experiences and physics concepts to make machines that didn’t just display learning but were fun to use.
—Ryan G.

To learn more about this project and others, visit <http://mamarillas.weebly.com/>