

# Walton

## Welcome to Ms. Walton's Wiki Page!

### Spring 2013

Fellows: Grace Bambushew and Andrew Bennett

#### Week 1 – Chair For Mr. Bear

Involves using Legos to build a chair for a stuffed animal that will be both supportive (Bear does not fall off/over when sitting on the chair), and sturdy (chair does not break when bear sits in it, and also passes the “drop test”). This activity emphasizes teamwork, planning, and highlights two important steps in the engineering design process: **test and redesign** after failing initial tests.

Extender activities: Build arms, a footrest, or a cupholder for the chair

#### Week 2 – Downhill Racers

Have kids build cars without motors, explaining that a ramp will be set up for the cars to race down. The goal is to have the cars run down the “hill” and as far across the flat ground as possible. The cars must be able to run down the hill, as well as be sturdy enough to pass the drop test, so the kids keep good Lego building practices in mind. This activity emphasizes design, testing and redesign.

#### Week 3 - Introduction to using the battery pack and wires by making a flashlight.

Students were given one battery pack per group and a few lego-lightbulbs, wires and their kits as well as extra materials and asked to make a flashlight. The challenge was for the students to figure out the necessary configuration of wiring to get the bulb to light up. Once this was figured out, the students were then asked to try to make a functional design for a flashlight (aka can hold in one hand, easily switch on and off, no dangling parts, etc...

#### Week 4 - Introduction to Gears

Student groups were given various sized gears and asked to build a gear wall. The specifications were that any number and configuration of gears must be meshed so that a gear train was formed. The requirement was

## Semester Outline

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### Fall 2012

Fellows: Andrew Bennett, Charlie Colley, and Laura Coughlin

#### [Week 2: Shape creation](#)

We did this activity over the first 4 weeks.

#### Week 3: 3D Shapes

#### Week 4: Additive shapes

#### Week 5: TinkerCAD

#### Week 6: More TinkerCAD

#### Week 7: 3D Printing.

#### 3d Printing Curriculum

Question: what is 3D printing, what is CAD, how do engineers make things

Goal: answer questions, develop knowledge of TinkerCad, create a design in CAD that can be 3D printed

#### Week 1:

- Observation

Week 2:

- Overview of 3d printing and Cad
  - Examples of other small additive processes
    - Oreos- additive layers
    - Demo?
- Drawing pictures of real things
- 3D geometry cubes, spheres

Week 3:

- Drawing simple objects
- Small pieces of lego make up bigger shapes
- Make objects using 1x1 bricks
  - 1x1 bricks represent the little pieces of plastic from 3d printer

Week 4:

- Introduce TinkerCAD
- Pre cut paper shapes that build into 3D shapes
- Play on computers with TinkerCAD
- Talk about making simple shapes in TinkerCAD

Week 5:

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- Draw a picture on paper of simple object shape
- Make that shape in TinkerCAD

Week 6:

- Draw a design of a more complicated shape
- Make the shape in TinkerCAD

Week 7:

- Revise shapes to make them printable
- 3D printer

[Semester Outline](#)