

## Design Direction

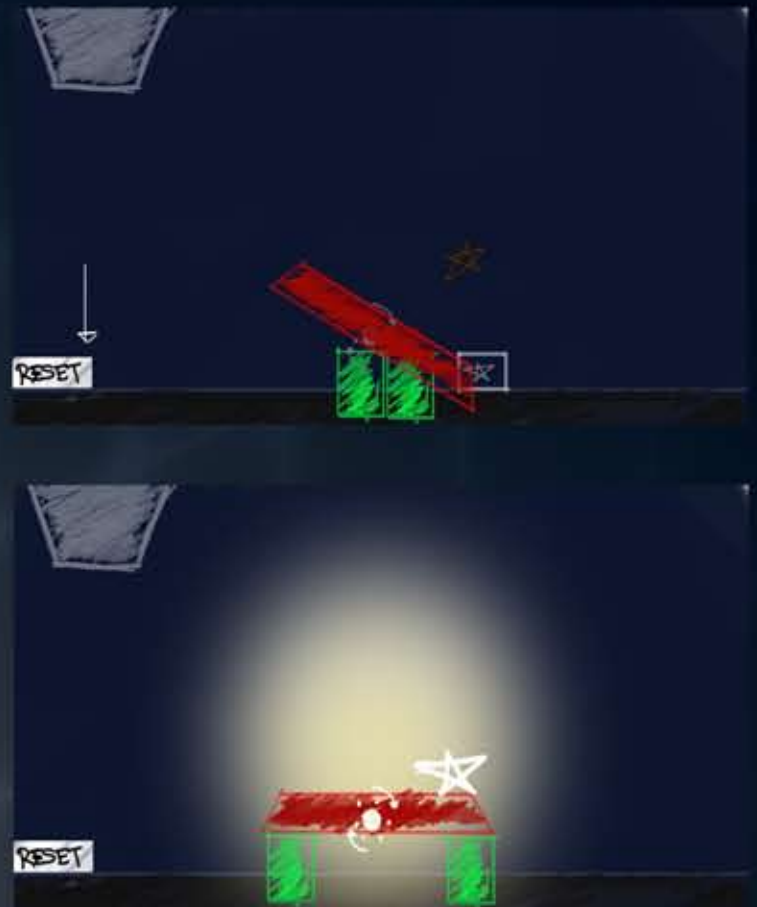
By Luke Jayapalan

We presented our three proposals to HCII on Monday. In this meeting, HCII and ETC agreed to pursue tower building as a design direction for our game. Through this game we hope to help teach first graders some rudimentary engineering principles, such as keeping the center of mass over the base of the structure, having the base be wider than the top, and so on.

Level design is likely to prove a key factor here, as each level will need to introduce concepts gradually. The levels must have enough freedom for kids to be able to experiment, but also must be constrained in such a way that kids have enough guidance to really see how the engineering principles about applied to what they just did.

## Fleshing Out the Mechanics

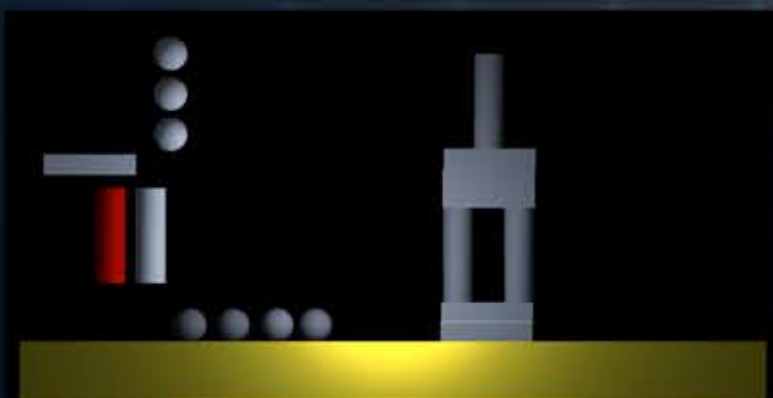
The original design proposal had a pretty simple goal: build a tower taller than your opponent's. While this gives many opportunities for assessment during repeated play--i.e. how many pieces were used, what kinds of materials were used, how many times did the tower fall over, and of course how tall the tower is--we felt it did not have the gradual introduction of concepts that would help kids really learn the principles and apply them. Our new approach is more level-oriented, which we hope will allow for an experience that is fun, varied, and educational.



Check out the current design sketches on our website at:  
[www.etc.cmu.edu/projects/illuminate/?page\\_id=173](http://www.etc.cmu.edu/projects/illuminate/?page_id=173)

As always, bear in mind that the design is subject to change.

## Prototype



We've built a simple tech demo prototype in order to start testing how tower building feels within Unity's physics engine and what kinds of things we can and cannot do within it. We've done a comparison of 2-D to 3-D mechanics, as well as tested how hard it is to stack a tall tower within the physics engine. Bendable objects are looking unlikely, because even creating hinge joints between multiple objects does not create the illusion of a single flexible object. Next on our list is to test compressibility, which has a better chance of success, through the use of Unity's cloth simulation.

## Theme Change

The original tower design was candy-themed, with the player stacking pieces of candy like lollipops, candy corn, chewing gum, and chocolate bars. We liked these objects because they are colorful and have a wide variety of shapes and materials. However, there was concern that the candy theme might not go over well with parents and educators concerned about promoting obesity, so this theme has been dropped.

We've currently replaced it with a theme that involves the light graffiti that inspired our poster, and we hope to do some art style tests with kids in our demographic before we settle on the final art style.

## Calendar

September 26<sup>th</sup>, 28<sup>th</sup>, 30<sup>th</sup>

### Quarters Walkarounds

-Faculty visit each project room and check on current progress.

October 24<sup>th</sup>, 26<sup>th</sup>, 28<sup>th</sup>

### Half Presentations

-Mid-Semester Presentations.

