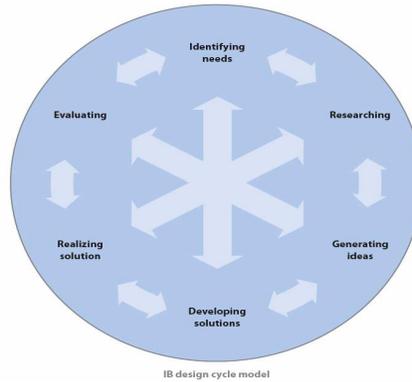


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Tallest Straw Design



Identify Needs

In December 10, 2009 Mr. Youmans told us to create the tallest straw building by just using straws. The point of this project was to be creative and use our engineering skills to create a straw building that will have a strong support.

Researching

I thought of a way to create the tallest straw building by creating support inside the building and thickening the base. I opened Netscape internet browser and started researching the best straw building. I used the picture on http://www.mysciencebox.org/files/images/Earthquake%20tower.img_assist_custom.jpg to create my building and the reason why I chose it is because it resembles the buildings that are used today.



Generating Ideas

For the building I used 55 straws and 55 straw papers to tie the straws together so they won't fall apart. I've realized in my research that in order to have a strong building the base has to be well-built to hold the straws and also the joints should be thickened to hold the tower straight. For the bridge, I thought that tying 3 straws to form a bundle and using 4 bundles to form a square and 2 other bundles to cross inside the square will create a strong base. Every 5 inches I will place a base so that the building will hold up straight. My goal for the tower was to be 2 feet tall or even taller. For the joints there should be a 40 degrees triangle formed by 2 bundles cutting across the side of the building. The estimated time for this project I thought would be around 2 days because I was working individually on this project. I knew the hardest part would be tying the straws with paper because I have to be careful for the paper not to rip.

Developing Solutions

1. Took 55 straws and 55 straw papers.
2. Tied 3 straws together to form a bundle.
3. Used 4 bundles to form a square and 2 bundles to cross the square to make the base.
4. Used 4 bundles to tie on each side of the base going in a vertical direction to create the height.
5. Kept on adding bundles of straw until it reached 5 inches.
6. Every 5 inches a base was added with the same design in step 3 to support the tower.
7. For the side of the tower, 2 bundles were crossed to form a 40 degrees angle between the bases to prevent the straws from bending.
8. Step 1-7 was repeated until the 55 straws were finished.
9. The maximum height of the tower reached to 2 feet 5 inches.

Realizing Solution

My goal for the tower has been reached and the tower so far was holding still. I've realized that the taller the building gets it will eventually bend because there is not that much support for holding the straws in place. By using only straws the project was a success but if I had other reliable material and resources to use for the tower, then probably I could have created a strong a well designed tower that can hold weights. I have realized that the reason why the tower is so fragile is because of the paper that I tied to hold each straw. The paper wasn't thick

enough to hold the 3 straws that formed a bundle and just by moving the tower a little, the paper that is holding the straws tends to rip. I might not be good in tying paper but I know that I could have created a better tower if I used thick strings.

Evaluation

A drinking straw is a short tube used for transferring a liquid - usually a drink from one location to another (such as from a cup, to one's mouth). The earliest drinking straws were hollow stems of grass, literally made of straw.

In this research I have concluded that a building can be created by using the most ordinary material. I believe this was a very interesting project because it gave me the time to be creative to design a straw tower by just using straws. Straws were perfect for this project because the fact that they are bendable makes it easy to create anything. By comparing my straw tower with other classmate's tower, I've realized that there are so many different designs that can hold the straws up and every one was pretty creative for developing their ideas.

There were some problems I encountered that were mostly my fault but I did reach my goal and that was to use all the 55 straws and make it over 2 feet. Working individually was very difficult especially the fact that I had to create over 20 bundles in 2 days. Also, the paper that I used to tie the straws together took my time away because I ripped approximately 26 papers. Overall the design that I have created was very creative and the tower resembles the building that are used today.