

Construction Document report

Card Tower Project

Team: Los Constructores
Crew:
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Bill of Materials

Materials	Quantity
Index Cards	75 cards
Masking Tape	917 cm
Scissors	1 pair

Building Procedures

To build the main structure:

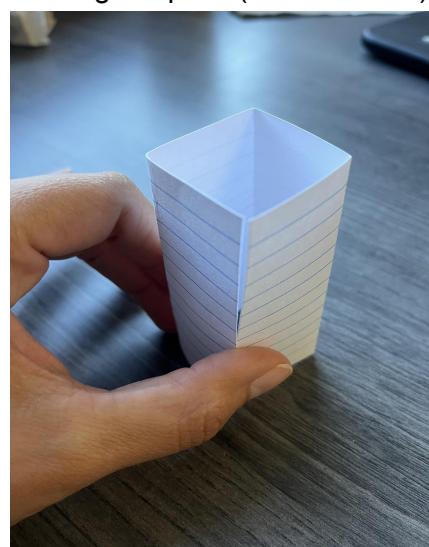
1. Take an index card and fold it in half along the short side of the card (see Picture)



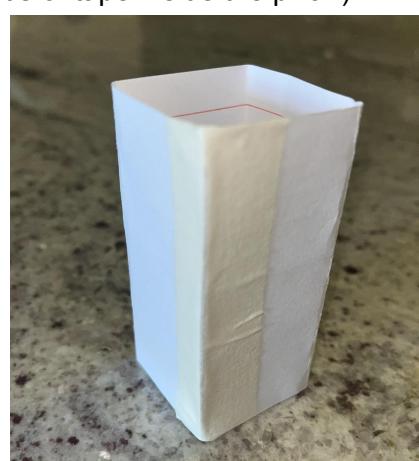
2. Fold it in half again along the same side (see Picture 2)



3. Unfold and form a rectangular pillar (see Picture 3)



4. Tape together the ends with 8 cm of tape to ensure the stability of the pillar. (Fold the remaining ends of tape inside the pillar.)



5. Make 13 rectangular pillars

To assemble the main structure

1. Take a single index card and roll it up along the short side of the card. (Do not let the card fold or form stress lines.)



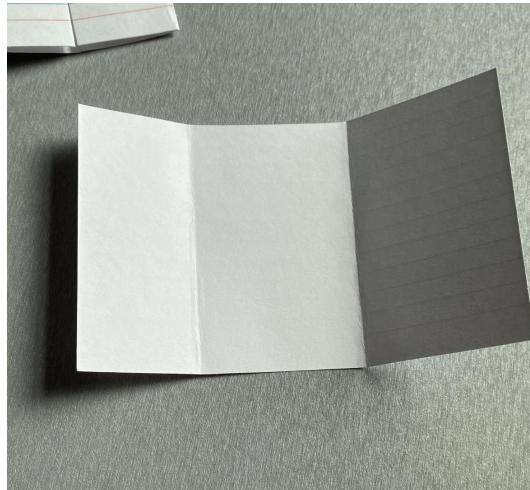
2. Take a pillar and insert the rolled card halfway through the pillar. (The rolled card will work as an inner support and does not need to be taped)



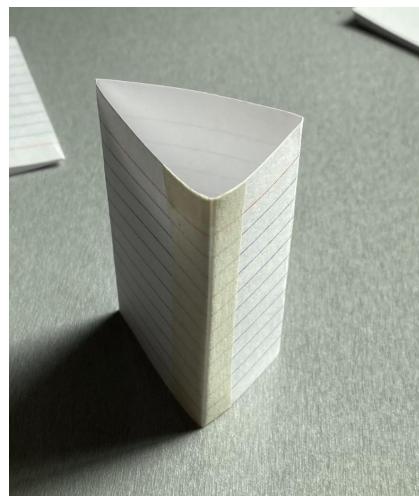
3. Take another pillar and stack it on top of the previous pillar.
4. Tape the connection between the pillars with 13 cm of tape.
5. Stack another rolled card on top of the inner support of the previous pillar.
6. Repeat this procedure until you have a column 13 pillars high
7. Only 12 inner supports are needed.

To assemble the base:

1. Fold an index card into thirds, making 1 section of $\frac{1}{4}$, and 2 sections of $\frac{1}{2}$ s. Use the square pillars as a guide to fold the $\frac{1}{4}$ section.

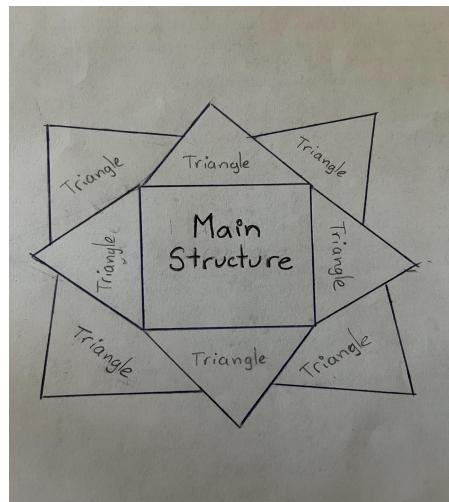


2. Unfold and form a triangular pillar.
3. Tape the ends together with 8 cm of tape to ensure the stability of the pillar.



4. Build 8 triangular pillars.

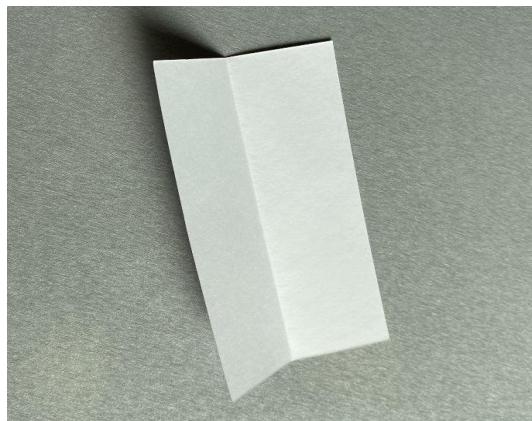
5. Arrange the 8 triangular pillars around the base of the column (See the image)



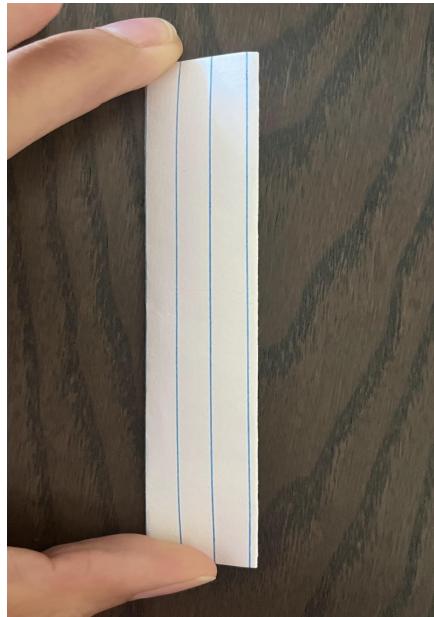
6. Attach them to the main column by using 4 cm of tape at the top and bottom of each pillar.

To assemble the support beams:

1. Fold the index card in half along the long side of the card. (same process as the pillars but using a different side of the card)

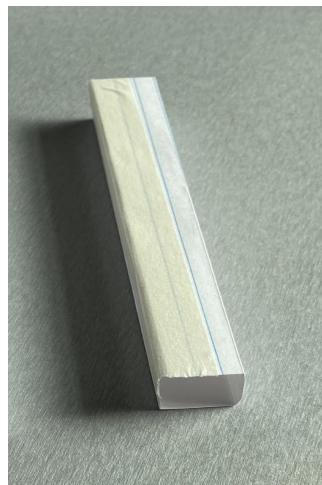


2. Fold in half again along the same side



3. Unfold and form a long rectangular pillar.

4. Tape together the ends with 13 cm of tape.

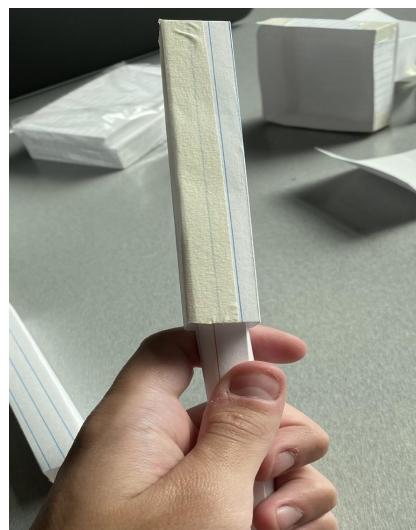


5. Make 20 long rectangular pillars

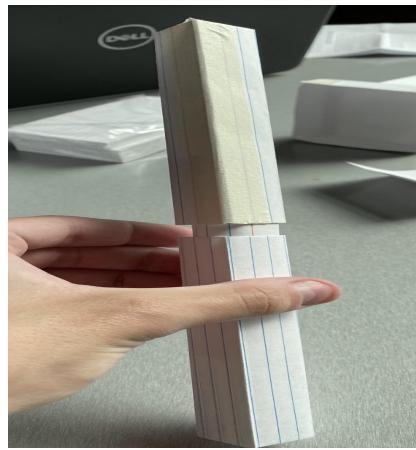
6. Take a single index card and roll it up along the long side of the card



7. Insert the rolled card halfway through the long pillar to create an inner support



8. Stack it together as done in the main structure (Each support beam will have 5 rectangular pillars and 4 rolled cards).



9. Tape each connection between the pillars with 8 cm of tape (4 connections per column)
10. Cut both ends of the support beams at a ~57 degree angle for the top and ~33 degree angle for the bottom connection. Both angle cuts must be facing each other like a triangle (Do it for the 4 columns).
11. You may want to construct the 5 card support first, then lay it where it should be to find the correct angle to cut it.

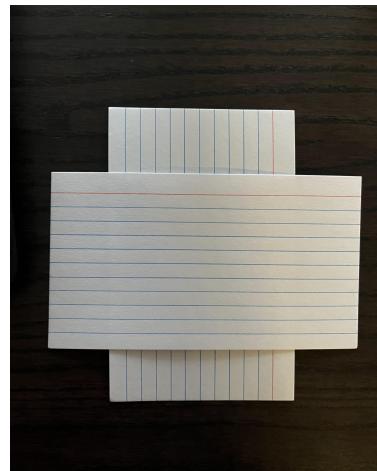


12. Tape the bottom end to the middle of a single index card with 4cm of tape. This will increase the stability of the base of the support beam.
13. Tape the other end to the side of the main structure using 16 cm (4cm on 4 sides) of tape.
14. Make 3 identical support beams and attach to the remaining 3 sides of the main structure. The supports should be attached just below the top of the 7th main support card.

15. Use a single piece of tape (26 cm) to make a bridge of tape between the single index card at the base of the support column to the top of the triangular base pillar of the main structure.

To build the top:

1. Place two index cards on top of each other forming a cross.

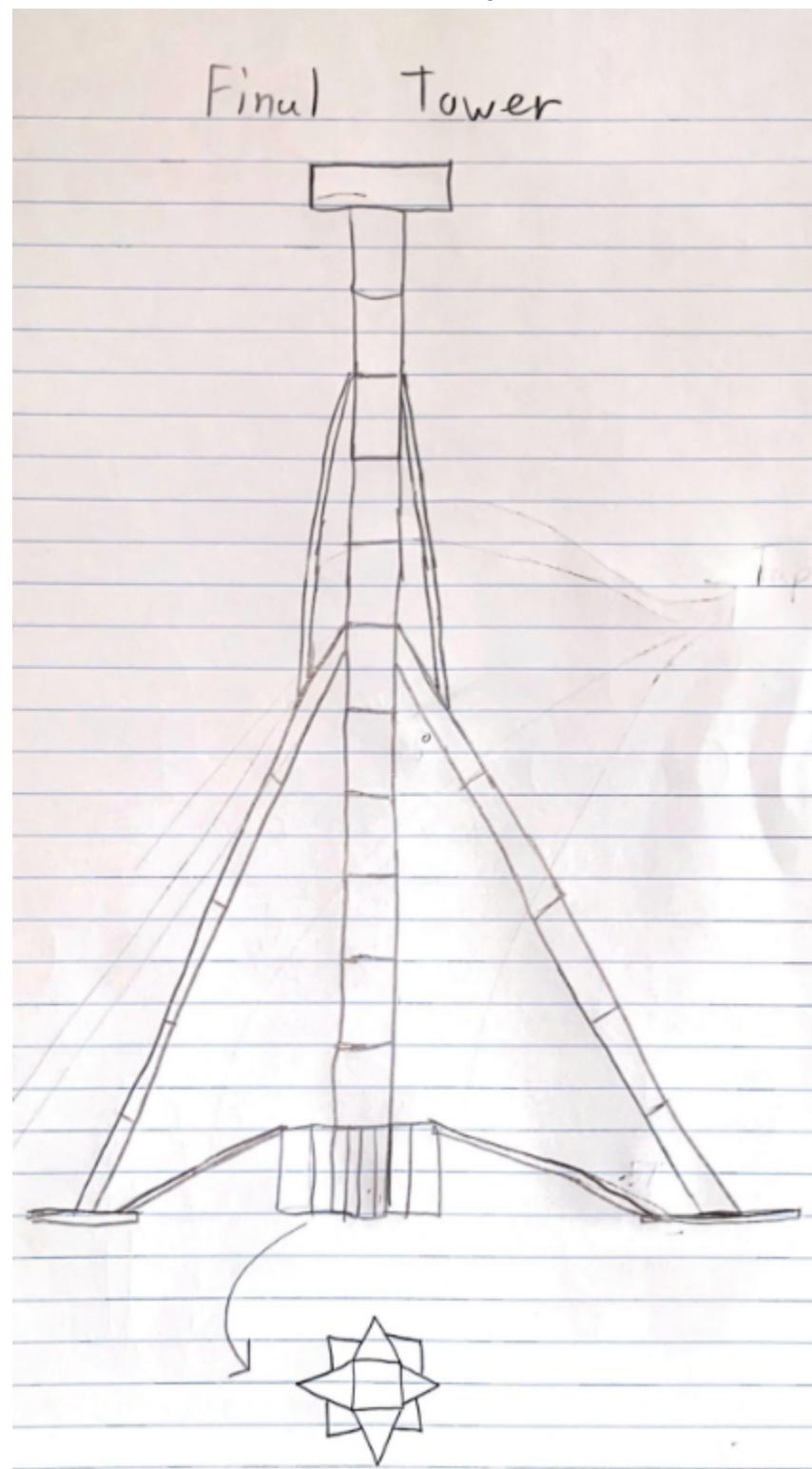


2. Fold up and tape the edges(2cm for each side) to form a square tray where the coins will be placed.



3. Tape the top to the main structure using 4 cm of tape for each side.

Final Drawing



- ❖ Expected Height: 1 meter
- ❖ Expected Strength: 66 pennies
- ❖ Expected Time of construction: 30 min

Table of Investment

Materials	Unit cost	Quantity used	Amount
Card (ea)	\$ 1,000	75	\$ 75,000
Tape (cm)	\$ 100	885	\$ 91,700
Scissors (ea)	\$ 5,000	1	\$ 5,000
			Total Investment
			\$ 171,700

Table of Revenue

Qty	Description	Unit Pmt	Payment
1	Minimum specific met	\$ 100,000.00	\$ 100,000.00
56	Additional Pennies loaded	\$ 5,000.00	\$ 280,000.00
			Total Project Revenue
			\$ 380,000.00
			Anticipated Net Profit \$ 208,300.00

- ❖ The projected revenue is based on a 1 meter tall tower that can hold 66 pennies and be constructed in 30 min.