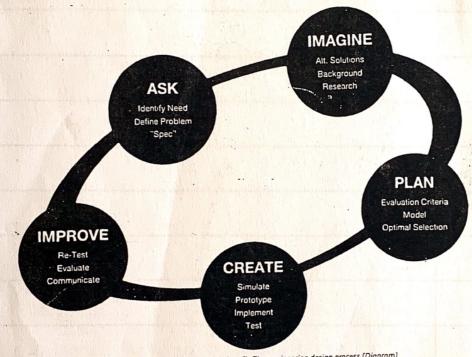
Engineering Design Process Engineering Notebook

Earthquake Structure Design Challenge



Museum of Science (Image creator). (2016). The engineering design process [Diagram].

Retrieved from http://www.eie.org/overview/engineering-design-process

Table of Contents (to be completed at the end of the EDP assignment)

Description	Page Number
	Burght Mast 1 19
	ARTON CONTRACTOR
	Mark T

Scenario

When an earthqueck occurs, many buildings are not structurally sound and get distroyed, especially in Third World Countries. To when an earthquille hits, buildings are destroyed lives are last. Third world countries have high poverty rates (poor) and high mortility rates. They also lack hulmanheeds, like no or limited access to water, shelter and food. They build structures as cheaply as possible, so when an earthquake hits, the structure falls.

positiva (A) de l'altre sala l'estre e specification (business), suprepuit roce.

ASK

Problem Statement

Problem Statement: To design and build a 3 story, two foot tower that will withstand a simulated earthquake for 20 seconds.

Specification Sheet

Justification – The reason why this is a specification based on the engineering design challenge or the customer's needs.

Weight: Number assigned to a specification based on its importance (on a scale of 1 to 5, with 5 being the most important)

#	Specifiations	Weight
1	Tower should use only the provided materials.	3
2	Tower is at least two feet tall.	5
3	Tower has 3 stories.	5
4	Tower can withstand a simulated earthquake for 20 seconds.	5

1100 19019 Search State of Mary & Search Search 101 10100 319100 ALONE 1910 IMAGINE

Problem Statement

Problem Statement: To design and build a 3 story, two foot tower that will withstand a simulated earthquake for 20 seconds

procedurations of the contraction of the contraction of the sound shalle more

A Thirth weather the sugar as the

Background Research

- Summary of information from sources
- Bibliography

What I know about earthquakes is that wery year there are thousands of earthquakes around the world, when the plates move against each other it would stick and start Shaking until it a is not sticking to agree each other, as the plates move there ctarts to get craks, the bigger the lines are from the needles, the bigger the earth quake is, when a earthquake happens, you have to hide under a table, if a earthquack happens there also might be as tsonomi because the when the two plates rub together that the shaller and the waves combine together if a ear thousand is big there is a change that there could be a big tounamitod! when the plates rub together a had carthquate can happen, a hoge tsunami could nappen and probably all of the wildings would fall down and you want have a house if all of the buildings fall, and probebly everyone can loose there life necause all of the buildings wold tall on you or you would drown from a big termani, in an earth Page 6 earthquare, everything from the store and just everything could fall down to an aform winds that wears you viould have to be prepared if there is an earthquake because it might last all day or a coope of days, the bigger the earth wake is

and more people would get nort because the more damage the more people would the April 1800 to the work with the April 1800 to the work the more damage the more people would be a probably mose their WHOLE ENTIRE LIFE!

Dr 8 walt stics about them short here winds is the will the place may a party of the pa of the state of the service of the sould be sould be serviced to the sould be south more than sails of the property and some of the Even the readily the bag of the cut the good is when a contractive represent the party of the or with the of the configuration We wise M. Derived transfor of plant and find a this sal how which is the man willy say experie beginning it is a supplied to the season of these entity and make lottermount ports on the place and registery a soil or plante sair property of seek production Must what he had been the the track to the property plant of the track to the track 2 At 40 His 2 WORLD Step Prograpy has made the sold sold my nather Durling but, this epalohi 77 03/200 1/2 Dear property of 70 the secretary 170 - The case of the same with the same the Carl total por the close the card total total Husto vope - Commence with some tool author blows respired to my believed as every and second of property on of season CLOSING ACTIONS ACT WAS A WAY TO MAKE THE STATE OF THE ST

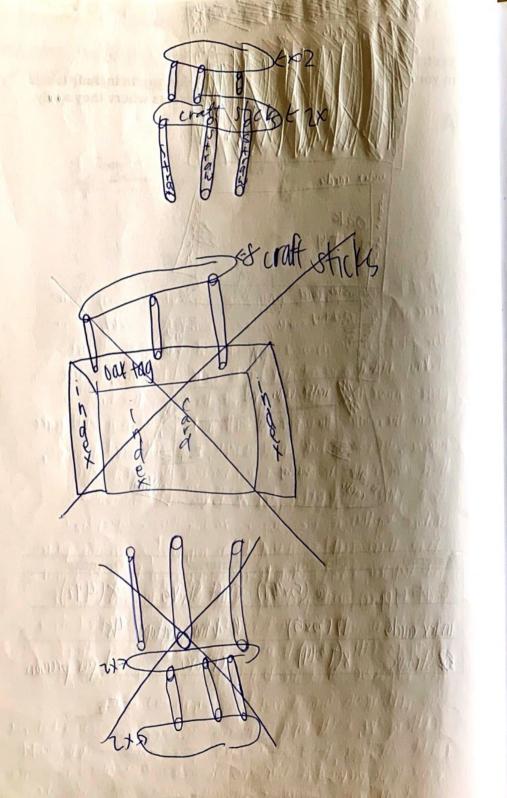
Sketch but ideas (A st. B) below. Alrease make sure to include labels in your design and indivare the screening concepts where they apply.

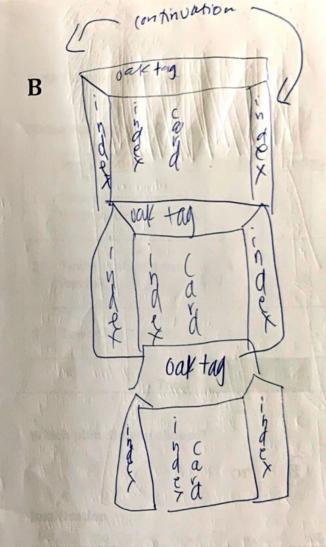
A production of the state of th

Material	Quantity	Material	Quantity
Oaktag	6 (5×101)	aft Stills	8(412)
index cards	D(px5)	4 + makingtape	48
* Straws	8(7 214)	Scisore	1 per peorso

ally part por say falling

Will all hay that the than





Material	Quantity	Material	Quantity
Oaktag	垂4	indus cared	6
# straus	4 steams	craft chick	8
SCISONS	1 PEXTORISON	tope	148"

Page 8

Pugh Chart (decision matrix)

Please evaluate specifications.

	Specifications	Weight	Desi	gn A	Desi	gn B
1	Tower should use only the provided materials.	4	M	A M		4
2	Tower is at least two feet tall.	4			30 / A	4
3	Tower has 3 stories.	4			Apr	4
	Total		P. C.		To the state of th	12

Which plan did you choose?

Α	or	B

Me and my partner chose & because we think it is going
to be taylor than A and we think it is going to be
retter than our first build. We also think that our
plan B is goin to hold during the earthqualk!"

Clearly Write Out the Steps for Executing the Design

(These instructions should be clear enough to allow someone else to follow them. Use illustrations if necessary to make the instructions clear.)

First, we are going to get our supplies. Next, we are going to
lay the a index card on the table and then we are going to
tape the masking tape the other index card on the
side and on the in the Grount of the index card that you
lied on the floor! Ell Then, we are going to put the oaktag
on the top and just keep repeting it I more times!
Last, we are going to put the straws on top the last
tower then we are going to put two craft sticks
and trape them together and then do the same thing
I more time!

List Your Materials And the Market Ma

Material	Quantity	Material	Quantity
Oale tay	110	craft sticks	umas II
index cards	12	4 tope	48"
SHAWS	8	School	I per puorson

CREATE

Problem Statement

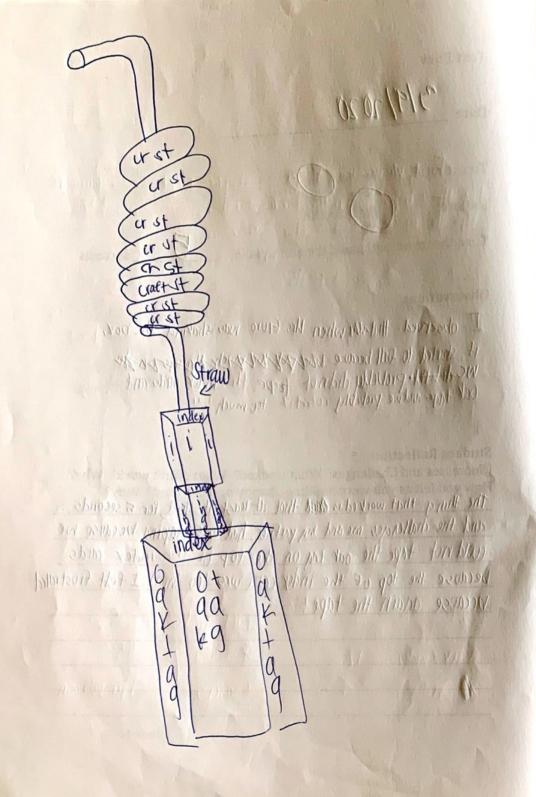
Problem Statement: To design and build a 3 story, two foot tower that will withstand a simulated earthquake for 20 seconds.

Scoring Sheet

Criteria	Exceeds 5	Meets 1.71	Needs Improvement
1. Materials	nor the contraction	The tower used only the provided materials.	The tower used other materials than what was provided.
2. Height	The party of	The tower is two feet tall.	The tower is under 2 feet tall.
3. Stories		The tower has 3 stories.	The tower has less than 3 stories.
34 Durability	The tower can withstand a simulated earthquake for more than 20 seconds.	The tower can withstand a simulated earthquake for 20 seconds.	The tower did not withstand a simulated earthquake for 20 seconds.

	Specifications	Weight	Score	Weighted Score= Weight x Score
1	Tower should use only the provided materials.	3	3	9
2	Tower is at least two feet tall.	(5)		5
3	Tower has 3 stories.	5	3	15
4	Tower can withstand a simulated earthquake for 20 seconds.	5		Her Garsen
	Total			34

Test Data
3/9/2020
Date
Two feet tall Yes or No
3 stories Yes or No
Time the tower withstood the earthquake seconds
Observations
I observed that my when Mrs. Guro was shaking the box,
it started to fall because 1884 port be probably and we did not tape the index cards and oak tags and we probably cuted it too much!!
Student Reflection (Successes and Challenges: What worked? What didn't work? Why?
How you felt as you were buildinghappy or frustrated? Why? The thing that worked is that at least it stood for 6 seconds
and the challenges me and my partner had was taping because we
coold not tape the parting on the top of the index cards
because the top of the index card was too thin! I felt frustrate
vecause again the tape!
MANUAL MA



IMPROVE - PLAN

Problem Statement

problem Statement: To design and build a three story, two foot tower that will withstand a simulated earthquake for 20 seconds.

Sketch your new Design (include labels)



Description of the Design Change and Justification

the war matereds because our last bold, the straw and craft sticks were not staying together when we taped it!

Clearly Write Out the Steps for Executing the Design

(These instructions should be clear enough to allow someone else to follow them. Use illustrations if necessary to make the instructions

First, we are going to put an oaktag facing up and
tape the sides like that too! Then, we are going to put an index
card On the top for the roof! Next, we are going to do
that 2 more times. Those Fourth, we are going to build
4 index cards and then put an index card on the top to make
the roof! Ill live are going to do that I more time on top of that
one that we just built.) of Fifth, we are going to put a straw on top
of the index ards. A sixth, we are going to put craft
of the index cards. A sixth we are going to pot craft sticks on top the straws! & Lastly, we are going to
put I mor straw on the craft sticks!

List Your Materials

Material	Quantity	Material	Quantity
Oaktag (5 by 7 inches)	4	Index card (3by 5 inches)	11
Craft Sticks (4 by 1/2 inches	8	Straws (5 by 1/2 inches)	2
scissors (48 inches)		: Scissors (1 per person)	

IMPROVE - CREATE

Problem Statement

Problem Statement: To design and build a three story two foot tower that will withstand a simulated earthquake for 20 seconds.

rat Allen IVI on	The tower is two feet tall.	The tower is under two feet.
r North) & Fich	The tower has three stories.	The tower has less than three stories.
he tower can rithstand a mulated arthquake for	The tower can withstand a simulated earthquake for	The tower did not withstand a simulated earthquake for 20 seconds.
	rithstand a mulated	three stories. the tower can withstand a withstand a simulated earthquake for

	Specifications	Weight	Score	Weighted Score= Weight x Score
1	Tower should use only the provided materials.	3	3	9
2	Tower is at least two feet tall.	5	79	15
3	Tower has 3 stories.	5	3	15
4	Tower can withstand a simulated earthquake for 20 seconds.	5,,,,,,	(all b)	from Fox LI
(1)	Total			44

Test Data
Date 3/12/2020
Two feet tall Yes or No
3 stories Yes or No
Time the tower withstood the earthquake seconds
Observations I observed that the the craft sticks
unade more preshure on the tower because
we used to much of the craft sticks!
Student Reflection (Successes and Challenges: What worked? What didn't work? Why? How you felt as you were buildinghappy or frustrated? Why? What worked is every thing and what did not work is the
wast sticks. May ME and MY PARTIVER was Frostreaded
when we were building our house also it was frustrating
when we were sadbuilding the craft (ticks and putting
the straws on topof it?
MAN THE WAY OF THE STREET THE STR
William Commence of the Commen
CONTRACTOR OF THE STATE OF THE