The Wonder Factory

TEAM MEMBERS

LONDON STARLIN

MOHAMMED KATTAN

ABDULLAH ALSHAMMARI

PROJECT SPONSOR: THE WONDER FACTORY

INSTRUCTOR: DR. JENNIFER WADE

FACULTY ADVISOR: SARAH OMAN

Project Description

▶ The Wonder Factory has asked us to develop, design, and construct an interactive display for public consumption.

Project Goal:

The interactive display that our team selects to build will positively influence the Flagstaff community by getting their youth and young at heart more aware and knowledgeable about science, technology, engineering, art, and mathematics (STEAM)

London

Pugh Chart

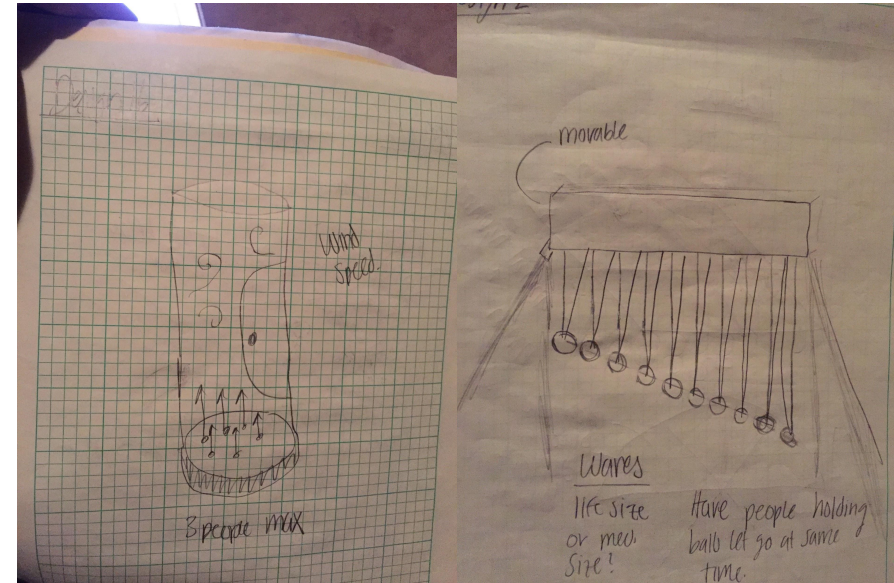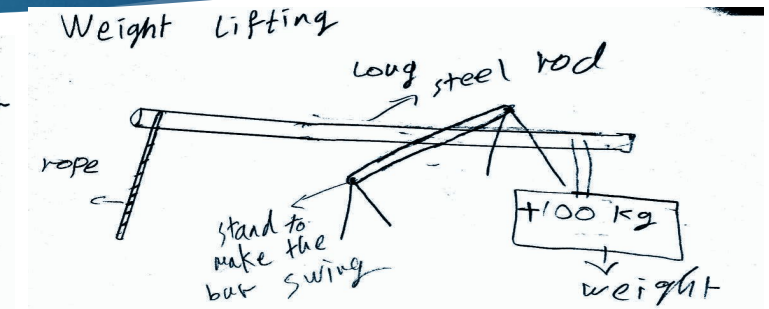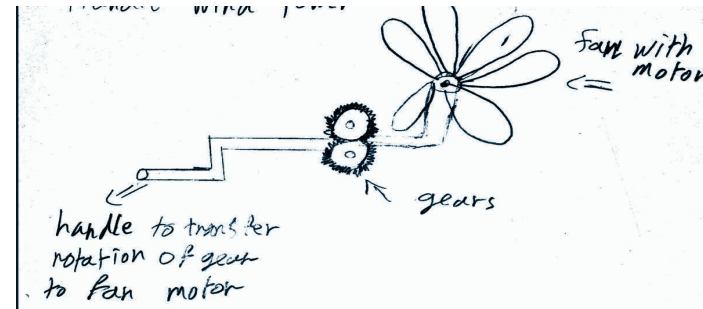| Customer Requirements	Weight lifting	Handle Wind Power	Water Cycle	Ball Race	Catapult Rubber Gun	Wind Turbine Using Gears	Lifting Jack Using Gears	Magnetic Train	Pendulum Wave	Wind Tunnel	Musical Water	Life Size Operation
Safe	0	0	0	0	-1	0		0	-1	0	-1	-1
Simple Instruction	0	-1	-1	0	0	-1		-1	0	0	0	0
Hands-on	0	0	-1	0	0	0		0	0	-1	0	0
Wow Factor	1	1	0	0	1	0		0	1	0	1	0
Simple to assemble	1	0	0	1	1	0		1	1	0	0	1
mult. STEAM concepts	0	0	0	-1	0	0	D	0	0	0	0	0
Narrative	-1	0	0	-1	-1	0	A	-1	0	0	0	0
Visual appearance	1	1	1	0	0	1	T	0	1	1	1	1
Relatable	1	1	0	0	1	1	U	1	0	1	0	0
Durable	0	0	-1	0	-1	0	M	-1	-1	0	-1	-1
Educational	-1	0	0	-1	-1	0		-1	0	0	-1	0
Mobile	0	0	1	1	1	0		1	1	0	0	0
Mult. visitors	1	0	0	0	0	0		0	1	1	0	1
Positive	5	3	2	2	4	2		3	5	3	2	3
Negative	2	1	3	3	4	1		4	2	1	3	2
Same	6	9	8	8	5	10		6	6	9	7	8
Total	3	2	-1	-1	0	1		-1	3	2	-1	1

Abdullah

Designs Considered

Disadvantages

▸ Moving parts

▸ Material Selection
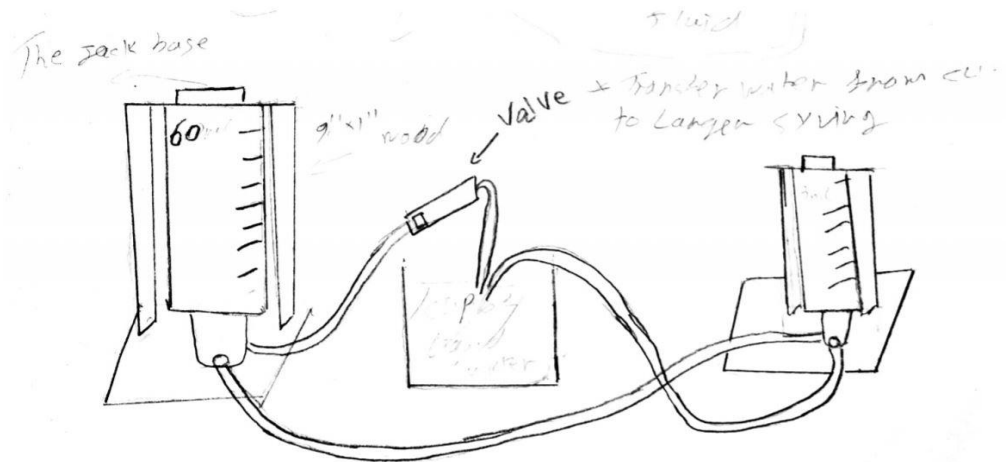
▸ Some need permanent housing

Advantages

▸ Educational aspect (how it works)

▸

London

Selected Design(s)

- From the Pugh chart, the final design will be the Hydraulic Lift.

- The prototype

Customer Requirements	Weight lifting	Handle Wind Power	Pendulum Wave	Wind Tunnel	Hydraulic Lift
Safe	0	0	-1	0	0
Simple Instruction	0	-1	0	0	0
Hands-on	0	0	0	-1	0
Wow Factor	1	1	1	0	1
Simple to assemble	1	0	1	0	1
mult. STEAM concepts	0	0	0	0	0
Narrative	-1	0	0	0	0
Visual appearance	1	1	1	1	1
Relatable	1	1	0	1	1
Durable	0	0	-1	0	0
Educational	-1	0	0	0	0
Mobile	0	0	1	0	1
Mult. visitors	1	0	1	1	1
Positive	5	3	5	3	6
Negative	2	1	2	1	0
Same	6	9	6	9	8
Total	3	2	3	2	6

Mohammed

Budget/Funding

▸ GoFundMe Account:
    https://www.gofundme.com/the-wonder-factory-capstone-team
▸ Fundraising night at a restaurant

Income			Budget	Acutal	Difference
		Budget	2,000	TBD	2,000
Total Income			2,000	TBD	[2,000]
Expenses			Budget	Actual	Difference
	Materials		700	TBD	700
	Prototyping		200	TBD	200
	Shipping		175	TBD	175
	Manufactoring		225	TBD	225
	Mic. Expenses		250	TBD	250
		Subtotal	1300	TBD	1,300
Total Expenses			1,300	TBD	1,300
Net (Income-Expenses)			1,300	TBD	1,300

The Wonder Factory Capstone Team

the wonder factory
an interactive engineering and science center

$100 of $2,000

London
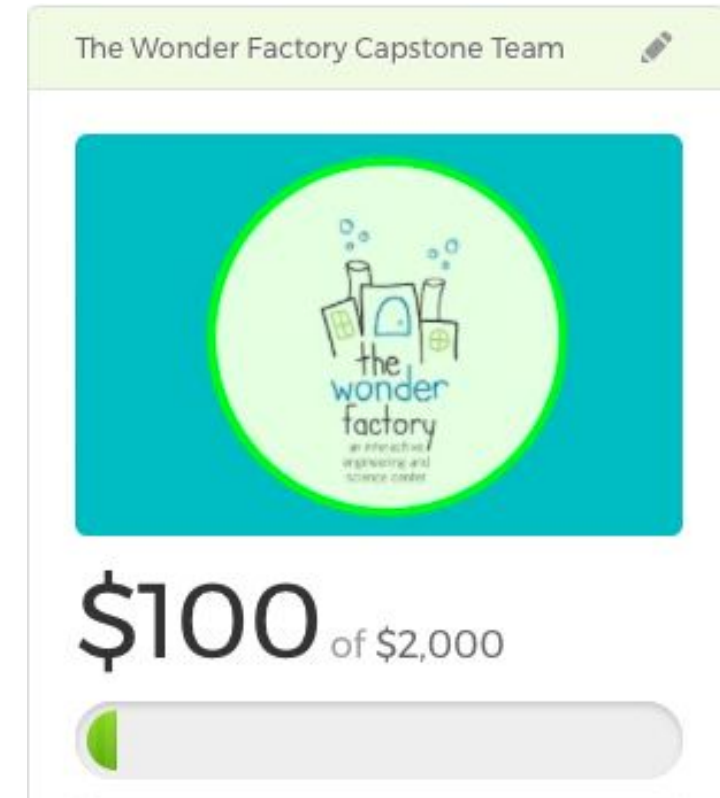
Gantt Chart

Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
	Phase 1					Phase 2				Phase 3						
Team Meeting	■															
Team Charter	■															
Schedule Client Meeting	■	■														
Formulate Questions	■															
Meet with Client		■														
File Documentation		■	■													
Research			■	■	■											
HOQ				■	■											
Gantt Chart Phase 1			■	■	■											
Post a Webpage		■	■	■	■											
Staff Meeting 1			■													
Questionnaire			■													
Report			■	■												
Presentation 1				■												
Preliminary Report					■	■	■	■	■							
Staff Meeting 2					■											
Team Meeting						■										
Team Meeting						■										
Editing Report							■	■	■							
Functional Model						■	■	■								
Black Box Model						■	■	■								
Gantt Chart Phase 2						■	■	■	■							
STEAM Night						■										
HOQ (ER)						■	■	■								
Concept Variants				■	■	■										
Staff Meeting 3							■									
Create GoFundMe								■								
Update Website																
Indivisual Analysis							■									
Pugh Chart							■	■	■							
Concept Selection							■	■	■							
Presentation 2								■								
Team Meeting								■								
Staff Meeting 4									■							
Editing Report										■	■	■	■			
Teem Meeting																
Gantt Chart Phase 3										■	■	■	■			
Contact Resturants											■					
Material Selection											■					
Economic Analysis										■	■					
Prototyping													■	■	■	
Testing														■	■	
Staff Meeting 5															■	
Final Project Proposal											■					
Final Presentation													■	■		
Website Functioning													■	■	■	■

London

Questions?

Black Box

Hydraulic lift