Journal

On day 1 of working on creating our "Power the World" project we worked on creating the light fixture. At the end of the project the lights turn on. We worked on figuring out how to make the car get released to roll down the ramp due to gravity. Then we thought of the idea to have the batteries slightly out of place so that the car would knock the battery into place, turning on the LED string of the lights.

On day 2 we covered the boxes with black paper. Kaiden fixed the marble run machine. Olivia and Andrew did the covering of the boxes. Levi is figuring out a new track for the marble run. The cardboard we were going to use was not good enough. On day 3 we tested out the marble run ramp and the funnel building. We failed multiple times. Levi is spray painting pieces of wood to look like roadblocks. Kadien goes to the funnel building to stay up. We got the whole project to work .

On day 4 it was a pretty chill day. We only painted a few pieces of wood. We are just experimenting to see what works and what doesn't.

Day 5 we decided to make a fluid step. So we found syringes and attached them with a hose. We pushed the bigger syringe to make the small syringe move to make the marble run turn on. Day 6 we decided to make a chemical step. We decided to mix together baking soda and vinegar to make a balloon blow up.

Day 7 the chemical step wasn't efficient enough for us so we decided to use Alka-seltzer and water.

Day 8 we figured out we were going to attach the test tube to the piece of wood that would fall over to make the balloon blow up.

Day 9 we got it all to work and we kinda just kept running it.

Day 10 We got all of the electronic stuff done and ready. We also took pictures with one of our sponsors.

Story- Travel To The Lights

The young marble, Marvin, lives in an apartment building. He started the day with his casual morning routine. Marvin arrived at the parking garage. Then, he went up the elavator. He found his car and traveled down the parking garage ramp.

Tragically, Marvin crashed into the side of the biggest building in town. The building shook so much that it made a bird fly down to the lower building. When it went to land, it missed the side of the building and slipped into a huge sand pit near the construction site below.

A construction worker named Duane got in the work truck to drive away and avoid the falling sand. He was not paying attention and ran into the light pole. The construction site had recently lost electricity due to a miscommunication, but, ironically, Duane hitting the light pole must have pushed a wire right into place and powered up the construction site once again.

Materials Cost

Connects	2.00
Marble run	2.00
Base recycled cardboard	free
String	0.10
Таре	1.00
Colored paper	0.50
Tempera paint	0.10
Recycled old cars	free
4 AA batteries	2.00
Sand	free
Funnel	0.25
Test Tubes	1.00
Hose	0.25
Balloon	0.50

Total -Percent Recycled 80%

Reflection

- 1. Marble Run
 - a. We had to think of a first step, and we saw some marble run pieces laying around. After some thought, we had an idea. We had faced some issues though such as finding batteries and the marble kept getting stuck.
- 2. Ramp and Car Hitting Block
 - a. We also had some problems with the ramp and wood block. The group had to do some digging to get a car.
 Also, the wood did not match the color scene so we had to find some paint. Lastly, the car didn't have enough power to knock the wood down at first.
- 3. Cup of Sand
 - a. At first, we were going to use a regular weight to put in the cup. Once we realized that the mardle wouldn't impact the weight and make the cup fall, we had to find a different solution. The sand we found was the perfect response.
- 4. Powering the lights
 - a. The battery pack and turning on the lights took a lot of execution and thinking. We had to look for a way to make the lights turn on without using our hands. We knew we wanted to make the car hit something to power it up. After a while we came to the decision to already have the pack turned on and then hit the battery in.











Description of the Machine

To start with, we push a syringe that increases the air pressure. The increase of air pressure makes the small syringe move. The small syringe turns on the switch. The chain pulls the mardle up and sends it down the marble run. The marble hits the car giving its kinetic energy to a car. The car goes down an incline plane. The car then hits a block of wood and the wood falls. When the wood falls it mixes the Alka seltzer and it gives off CO2. The CO2 fills the balloon which tilts the tube ramp at the top. Next, a mardle that was already placed in the tube ramp rolls down and uses gravity as it falls into a funnel sitting below it. As the marble rolls around and out the funnel falls into a cup of sand. This causes the cup of sand to fall, pulls the string, and lifts a bar that is holding a car back. The car speeds down the ramp and hits an AA battery into the battery pack. Lastly, the lights power and brighten the world.

Steps

#1. Fluid step. Push the syringe increasing the pressure in the system. Making the small syringe move.

#2. The small syringe flips the switch.

#3. Electrical step. The electricity makes the elevator move, lifting the marble.

#4. Marble rolls down marble run.

#5. The marble pushes the car down the ramp.

#6. The car hits the board and it falls over.

#7. Chemical step. When the test tube tips it mixes water and Alka seltzer to release CO2.

#8. The reaction increases the pressure in the system inflating the balloon.

#9. The gas in the balloon makes the cardboard tube rise.

#10. Gravity makes the marble fall into a funnel.

#11. Marble falls into the cup and into tips over.

#12. The cup falling pulls the string which lifts the gate.

#13. Gravity pulls the car down the ramp.

#14. The car hits the battery into place.

#15. Electrical step. The lights turn on.

Advanced Steps

Electrical-

After you flip the switch, a chain powered by 4 AA batteries picks up a marble and sends it down a marble run.



Mechanical-

When the sand cup falls, a bar gets pulled up, which makes it a pulley, and then gravity pulls the car down the ramp.



Fluid Step:

Push the plunger which increases air pressure which makes the small syringe move.



Chemical Step:

The Alka-Seltzer goes into the water which causes air to go through the hose and makes the balloon expand.

