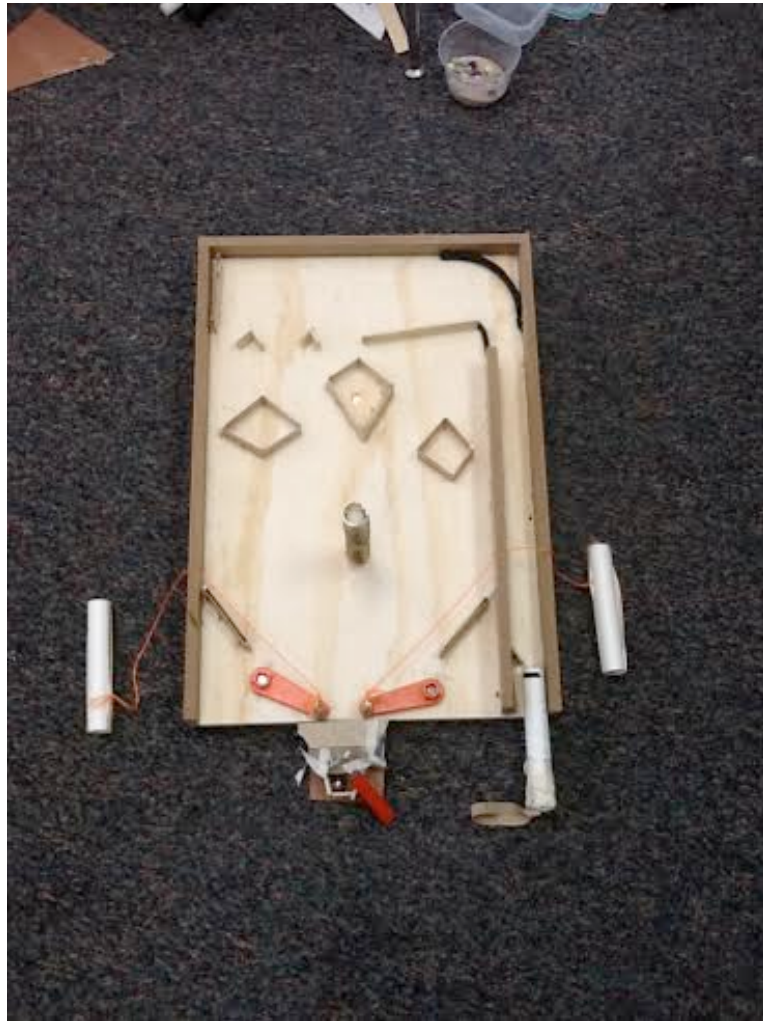


How Scientific is a Pinball Machine?



by. Hunter Freriks
Mr. Commerets class
2013-2014

Table of Contents

Making a bulb light up.....	3
Electromagnet.....	4
Newtons laws of motion.....	5
Marbles on a ramp.....	6
Final Reflection.....	7
Glossary.....	9

Making a Bulb Light

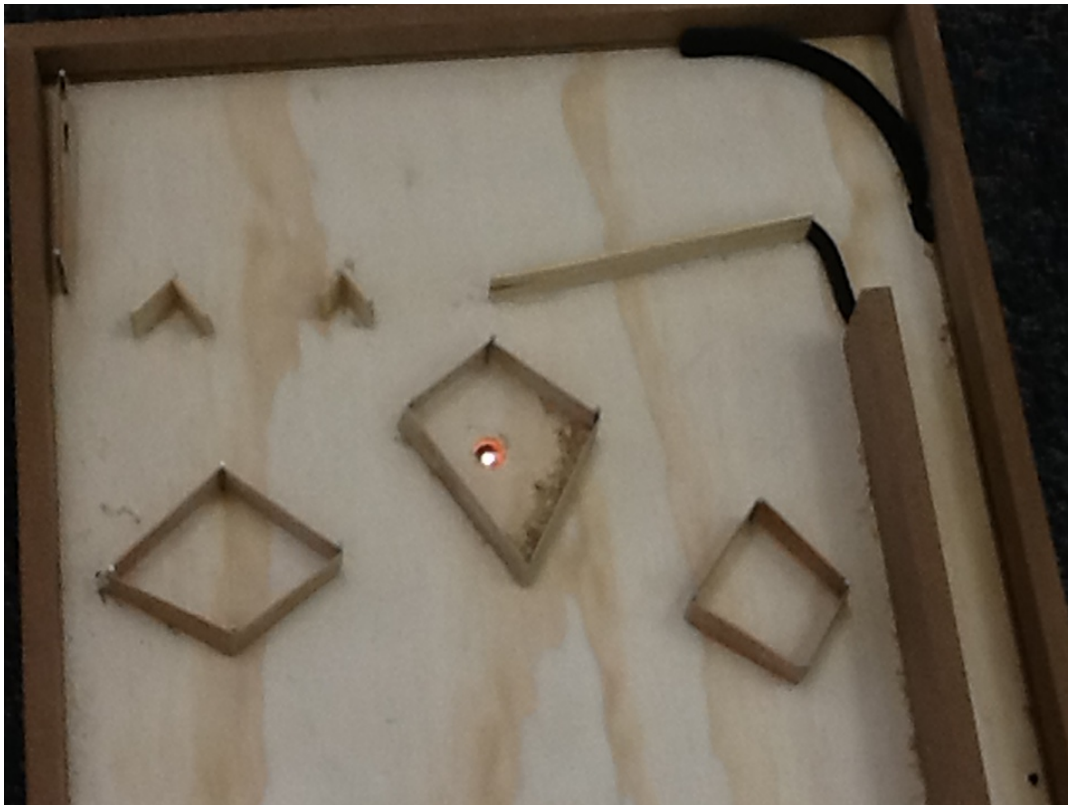
What I learned

I learned how to make a circuit all you need is a light bulb (**load**) a **battery (source)** and two **wires**(path).

I also learned you can not make a switch with a **wire** cardboard tinfoil and a light.

Where it is on my pinball machine

- in the bumpers.



Electromagnet

What I learned.

- How to make an **electromagnet** with a **battery wire** and a nail.
- I learned that **electricity** can be made by magnetism.
- I learned that the Earth is a giant magnet.

where it is on the pinball machine

- at the end where the ball goes.



Newton's Laws of Motion

Law #1 Law of inertia

- An object at rest will remain at rest unless acted on by an unbalanced force. An object in motion continues in motion with the same speed and in the same direction unless acted upon by an unbalanced force.

Law #2 $f=ma$

- Acceleration is produced when a force acts on a mass the greater the mass (of the object being accelerated) the greater the amount of force needed (to accelerate the object).

law#3 Force-Pairs

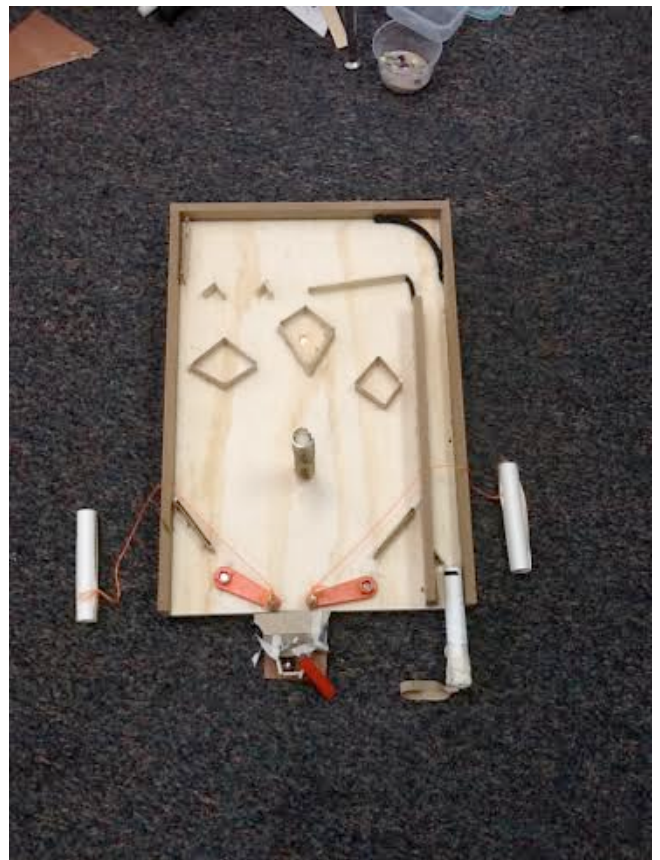
- For every action there is an equal and opposite reaction

the time I floe in winter

I was sledding down a big hill I was going super fast and my sled hit a rock. The sled stopped but I didn't I kept going I flew in the air and landed flat on the ground.

where it is on my pinball machine

- on the whole thing...



Marbles on a ramp

where it is on my pinball machine

- the whole pinball machine is like a big ramp.

What i learned

I learned that big marbles roll faster than smaller marbles.



Content

At first I was confused why we were making pinball machines in science but now I know that they are really scientific.

One of the things I thought was surprising was how long it took before we started building.

One of the things I learned is it is hard to come up with an idea for the machine.

collaboration

The joys of working with a group is it goes a lot faster than working by yourself.

One of the struggles is we kind of fight a lot.

In the future my group is going to try to not fight as much.

Glossary

attract - To attract means to pull toward one another. Iron and steel objects are attracted to magnets.

battery - A battery is an electric cell that provides electricity or a power source for a variety of electrical devices. The battery is a source in an electrical circuit.

closed circuit - A closed circuit has a complete path, which allows electricity to flow continuously.

conductor - A conductor is a material that allows electricity flow through it. Metals are examples of good conductors.

current electricity - Current electricity is the flow of electricity charge through a wire or other conducting material.

electricity - Electricity is a form of energy that is found in nature (lightning, static) and can also be produced through rubbing, chemical reactions, and generators. Electricity is produced through the movement of electrical charges.

electromagnet - An electromagnet is produced when electricity flows through a coil of wire wrapped around an iron bar. It acts like a magnet.

friction - Friction is the rubbing of surfaces. Friction can produce heat energy.

light bulb - A light bulb is a lamp or light source whose light is produced by the glow of a heated wire. The light bulb requires an electrical circuit to heat the wire.

load - A load is the part of a circuit that uses electricity by giving off light, sound, heat, or increasing magnetic interaction. Light bulbs, motors, and electromagnets are examples of loads.

magnet - A magnet is a material that has the ability to attract iron, steel, or an iron alloy.

Magnetic - A Magnetic material is a substance that is attracted to a magnet and can act like a magnet.

Magnetic field - A magnetic field is area of attraction and repulsion that surrounds a magnet.

Magnetically - If two objects magnetically attract each other, they are pulled toward each other. Iron and steel objects are magnetically attracted to magnets. When two unlike poles of magnets are placed near, they are magnetically attracted.

Magnetically Repel - If two objects magnetically repel each other, they are pushed away from each other. When two like poles of magnets are placed near, they are magnetically repelled.

Open circuit - An open circuit has a break in the conducting material of the path. Electricity cannot flow continuously in an open circuit.

Path - A path is the part of a circuit along which electricity travels. The path is made of conducting material.

Simple Circuit - A simple circuit is the circular path of electric current, from the source energy and back. A complete circuit includes a source, path, and load.

source - A source is the part of the current from the conducting material along the path. Batteries are examples of source.

switch - A switch is a device made of conducting material that can open and close an electric circuit.

wire - The wire in an electrical circuit provides a path for the flow of electrons from the source (battery) to the load (light bulb).