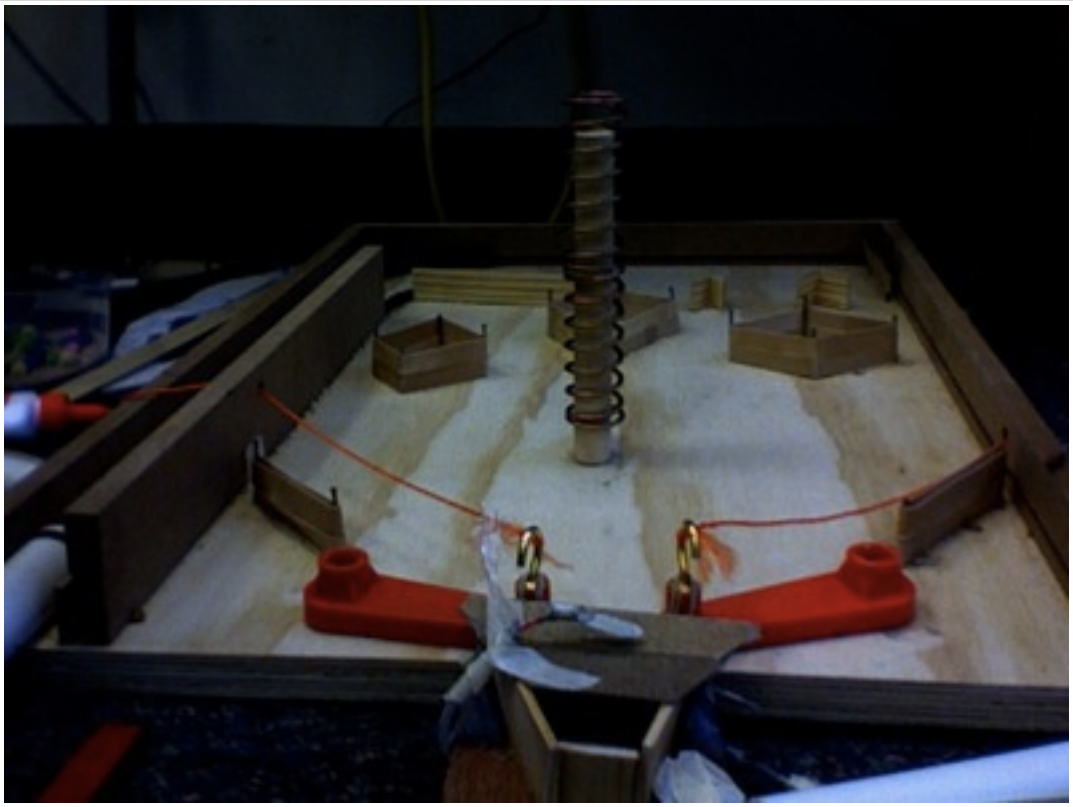
How Scientific is a Pinball Machine ?



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Making a Bulb Light Up

What I Learned

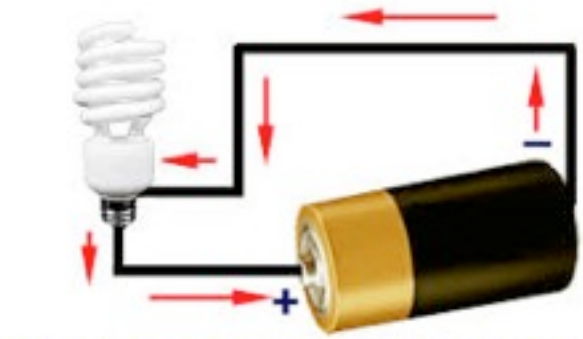
To make a circuit you need a battery holder , light bulb holder and two wires and you need a source(Battery), path(wires) and a load(light bulb). Then you put the battery in the battery holder and the light bulb in the light bulb holder. Then you connect the one wire to one side to the battery and the other wire to the other side of the battery. Then you put one end of the wire in the light bulb holder and the other side of the wire in the other side of the light bulb holder and then it should light up.

Where you will find this on my pinball machine

- You will find it under the wood and the light bulb in the bumpers

Circuit

Once there was a boy named Isaiah Geerlings was home and he had to make a light bulb light up and got a source (battery),Path(wire),and load(light bulb) and then he got that stuff and then he tried to get it a couple times but the last time he did it and it light.



Simple circuit with light

Electromagnets

What I Learned

Electromagnets use electricity to power them.

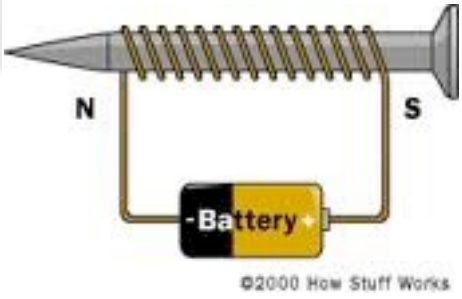
- The more coils on the nail the more power you have.
- It's like a circuit because you have the source(battery,path(wires,load(lightbulb).

- Magnets are in living things.
- the earth is a gigantic magnet.
- This force can be created by the motion of electrons.
- Magnetism is a force that electric currents exert on other electric currents.
- Animals use the magnetism to find there when traveling.

Where you will find this on the pinball machine

You will find it where you pick up the marbles

Once I had two magnets and, "I said I wonder if this will go through my finger?" I tried it once and another and then they where so strong that they slipped and pinched my finger. It hurt!



Newton's Law of Motion

Law #1 The law of inertia What I learned

- 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.
    - He put a stuffed animal troll in the toy car and then someone pushed the car and someone held the ruler in place and when the car hit the ruler the stuffed animal troll wanted to keep moving because an object in motion stays in motion and the troll flew forward.
    - For our second experiment if you were on a stool and there was a hole and then a person pushed it then you would fall into the hole.

Law # 2: F = m x a

- Something that is heavier than an other object,will weigh more, and go more slower. For example,a medicine ball and a basketball.A medicine ball is heavier than a basketball. So the basketball will roll faster and longer than a medicine ball.
    - We pushed the medicine ball and the basketball and the basketball and the basketball normally went farther.
    - We pushed each other on chairs,and we see who was heavier

Law #3 Action - Reaction

- For every action there is an equal opposite reaction.
    - We tied a rope to the walls and tied a balloon onto it and we let go and it went across the rop.
    - A funny part was, when the balloon went out of air, the balloon was covered in tape.

Where you will find this on the pinball machine
You will see Law 1 we have our flippers with a nail in and a rubber band on the back of the board and when you pull it back with the string it will come back instead of it sitting on the board You will see Law 2 the heavier the ball is the faster it will go You will see Law 3 the action is the ball bounces off the rubber band the reaction is the rubber bands vibrating.

Marbles on a Ramp

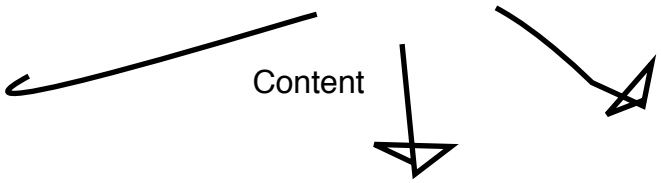
What I Learned

I learned that bigger marbles are faster then little marbles and medium marbles and the more mass = the faster it goes And the results of the whole class was that the big marble took the shortest time and I thought that the little marble would go the fastest.

Where you will find this on the pinball machine

You will see the pinball machine on a tilt and then the marble will roll faster

Once I was on a snowboard and I went down a hill and I started out slow and then I went Faster and faster...



I didn't know that there where circuits on pinball machine's I thought they were plugged into a outlet

I learned that pinball machine's have a lot of scientific stuff to build them

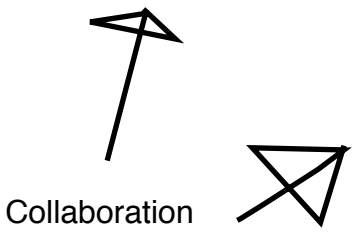
We added a lot of detail and the flippers where fun to make

Final Reflection

Work more as a group listen to each other more

That we had so many idea's that we had a hard time choosing ideas

To listen to people's ideas more



About the Author

Hi my name is Keigan. I like making pinball machine's and in my class I have a crazy teacher. He is a awesome teacher and I have a lot of friends. I like my house and I have a crazy family. I like doing science because It's awesome.

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).