

# How Scientific is a Pinball Machine?

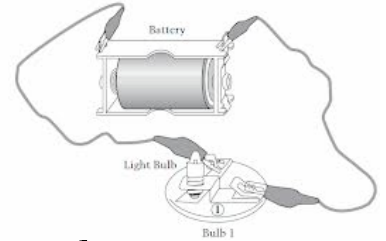


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Mr. Commeret's class  
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## **Table of contents**

Making a bulb light up.....	3
Electromagnets.....	4
Newton's Laws of motion.....	5
Marbles on a Ramp.....	7
Final Reflection.....	8
About the author.....	9
Glossary.....	10

## Making a Bulb Light Up



### What I learned?

That if you have a lot of light bulbs it does not work and if you hold the wire in the wrong place it will shock you, and trust me it will hurt. the battery will help the electricity go through the battery and to the light bulb.

And when the battery gets hot it might light up soon so don't take the wire of the battery. Now let me tell you how it will work. Now on each end of the battery holder connect one wire to each end of the battery holder. and the light bulb should be in a holder as well and the wires should go in the sides of the light bulb holder.

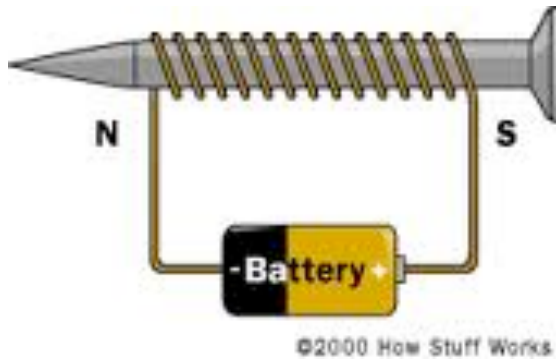
where will you see it?

you will see the circuit at the edge of the pinball machine so we make it look like a pudding hill with a light on top.

# Electromagnets

## What I learned

- A electromagnet is a magnet that is powered by electricity.
- the metal that is rubbed against a magnetic will pick up anything that is attracted to it.
- The metal piece is an attractor for other metal only if the path is plugged in.
- the electricity moves through the path and to the light bulb but only if the wire is plugged in.



where will you see it.  
the magnet attracts the ball so  
you lose and we make the x looks  
like its pudding so you get stuck  
there.

# Newton's Laws of Motion

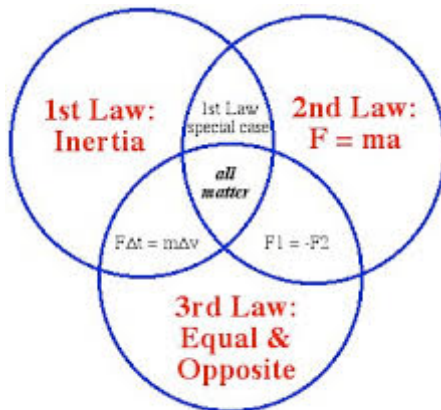
## Newton's laws of motion!

- **Law #1 the law of inertia**
- **what it said**
  - an object in 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
- **Exampals**
  - well when what was blocking it will knock it off because it was in motion so it wants to stay in motion but when you start to push it it does not want to be pushed so you need to use your strength.

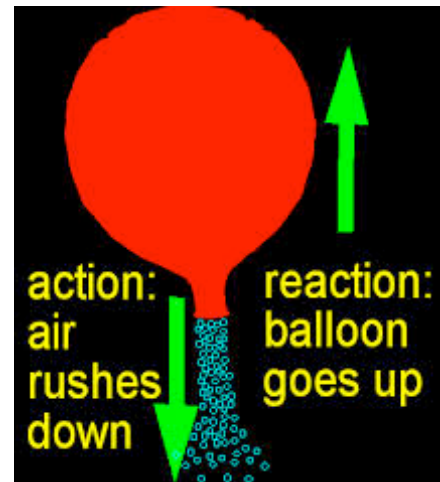
## Newton's law of motion

- **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 ).
  - the greater the mass the less it will move the less the mass it will move faster.

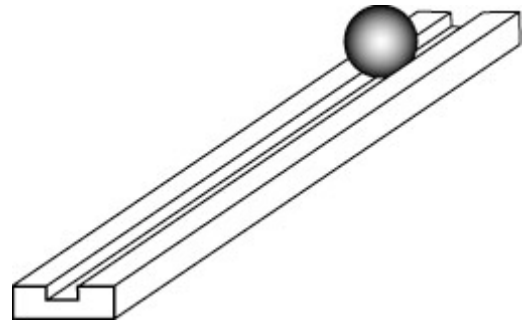
- **Newtons #3 Law of motion**  
**the Law of Force-Pairs**
  - For every action there is an equal and opposite reaction.



Newton's Laws



## Pinball Wizard: Marbles on a Ramp



# Final Reflection

Doan\_Annika Jan 8, 2:55 PM

Yes because it worked out better then we thought that it would not look that scientific and that most of the stuff would not be that creative but it work out.

that our circuit is working and it looks better then we thought. And the paint looks good.

that you need to tell someone what your going to do because if they don't no then they don't think that there building with you they feel like they did something wrong and you don't want them to feel left out.

that the pinball machine is better then we thought and it looks good.

that sometimes people did not agree and we did not get much done and I would have had a little fun if people went with the flow.

that some times people could go with the flow and stick with what we had and not change everything that we have cause that would be a lot of work so go with the flow



## About the Author

My name is Anika and I like to write and read and when I read I get inspired so my teacher inspired my class to write this book and I thought it was a good idea so we wrote this book hope you enjoyed this book. Hope you got inspired to write your own book you can learn more about me.



# Glossary

**attract:** To attract means to pull toward one another. Iron and steel 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 follow continuously.

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

**current electricity:** Current electricity is the flow of electric charge through a wire or another conducting material.

**electricity:** electricity is a form of energy that is found in nature (lighting, 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 a surface. friction can be produced by heat energy.

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

**load:** a load is a part of a circuit that uses electricity by giving off light, sound and 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.

magnet field: A magnetic field is the area of attraction and repulsion that surrounds a magnet.

magnetic pole: A magnet pole is a place on a magnet where the magnetic effect is the strongest. The two ends of a bar magnet are its poles.

magnetically attract: 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 repelled.

magnetically repel: if two magnets magnets repel each other each other, they are pulled towards each other. When two like poles of magnets

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.

repel: To repel means to push away from one another.

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

source: A source is the part of a circuit that pushes electric current from the conducting material along the path. Batteries are examples of a 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 (the light bulb).