The background of the slide features several incandescent light bulbs scattered on a dark wooden surface. The bulbs are in various states, some appearing to be broken or disassembled, with their internal filaments visible. The lighting is warm and focused, highlighting the textures of the glass and wood.

INCANDESCENT LIGHT BULBS

Judy



DEFINING THE INNOVATION



Who was the inventor of the incandescent light bulb, and when was it invented?

Thomas Edison
invented the
incandescent light
bulb in 1879.

Why was it invented? What was the purpose of the invention during the Industrial Revolution?

It was invented because using candle and the bulbs before were not efficient and nobody can use them regularly. The purpose of it was so people won't have to go out to buy lightbulbs that often because they burn out fast, and it's also because people can work longer hours at night



DISCOVERING THE PROBLEM
WITH THE INNOVATION? WHAT
ARE THE CONSEQUENCES?

What is a problem that has faced my innovation since creation? What needed to be improved?

It didn't last long and becomes very hot; it was too bright in a way it can cause eye problems like cataracts. It wastes a lot of electricity by producing thermal energy which results in it burning out fast and. It can also harm the environment by emitting CO_2 while producing heat.

The filament in the light bulb needed to be thicker so it's more efficient, and they could have replaced the filament with something else, so it doesn't not use up that much electricity and thermal energy. They also needed to fix the glass because before, they used clear glass which blinded many people because of the glare in the bulb.

What is a problem that has faced my innovation since creation? What needed to be improved?

Problem:
It gets too hot

Consequence A:
Not efficient because of the amount of input energy that becomes thermal energy. It results in the filament burning out fast because of the amount of electricity being used

Consequence B:
It causes eye problems like cataracts because of the infrared radiation coming from the thermal energy produced by the electricity

Consequence C:
It may cause injuries because when it gets too hot, it may explode, and if there is anybody near the exploding light bulb, it may cause serious injuries.



WHERE IS THE
INNOVATION NOW?

What solutions have been utilized in order to take the innovation to where it is today?

Light bulbs have gone from incandescent light bulbs, to halogen light bulbs, to compact fluorescent light bulbs, to light emitting diode light bulbs. Light bulbs have changed a lot over the past years. Instead of incandescent light bulbs, people mostly use LED light bulbs because they're safer, and efficient. Some types of light bulbs we had before the LED light bulbs were compact fluorescent light bulbs (also known as CFLs), fluorescent tubes, and light emitting diode light bulbs (also known as LEDs). they changed the filament and glass.





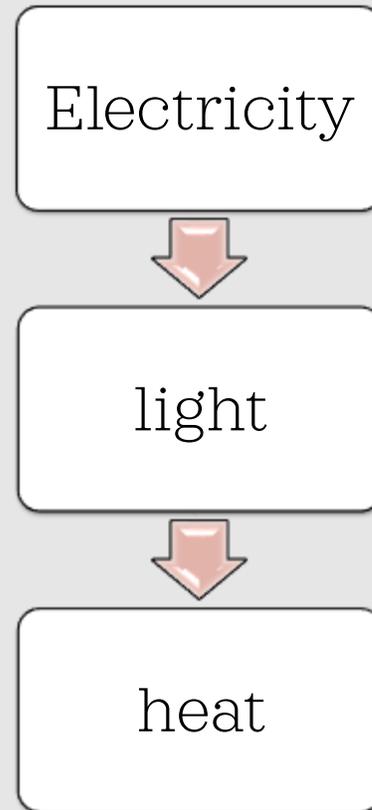
How do the current solutions help the innovation function? What are the positive consequences?

Changing the filaments into LEDs, uses 80% less energy than the incandescent light bulbs which is a benefit because the main problem of the incandescent light bulbs was that they get too hot and burn out fast. Changing filaments into LEDs decreases the amount of electricity being used which will lead to it decreasing the thermal energy produced. It also contains low voltage which means they're safe compared to other light bulbs

What are the negative consequences of the light bulb used today?

- LED light bulbs are most expensive than the incandescent light bulbs.
- It can cause cancer

How does it work today?





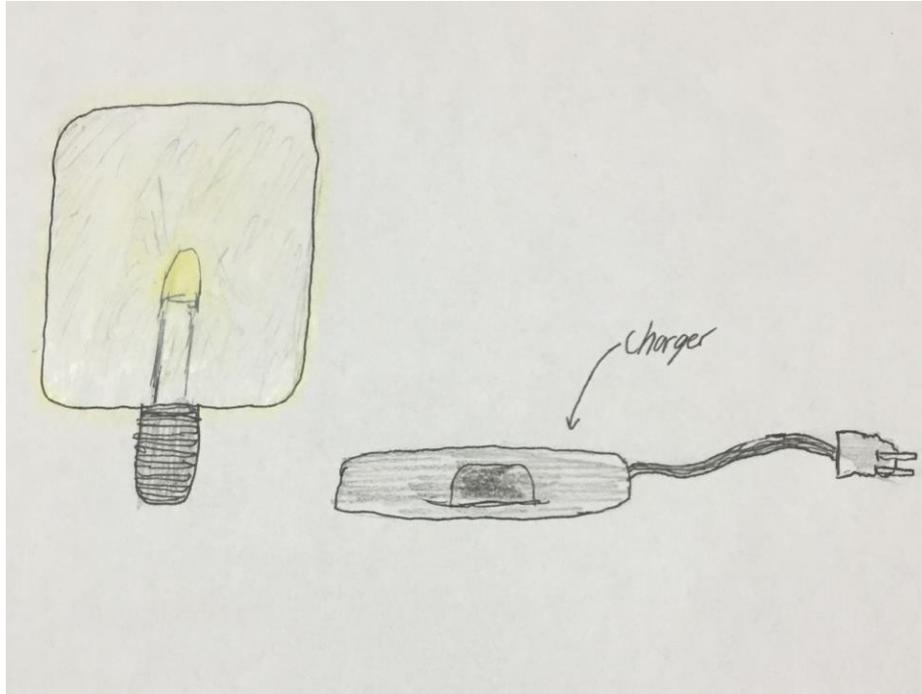
Are there any problems?

Yes. LED light bulbs can cause cancer. The LED light bulbs emit blue light which will cause breast and prostate cancer. So if you have LED light bulbs, it will be safer to stay away from the blue lights.



DREAM OF THE FUTURE

What does this innovation look like?



It would be in a shape of a square with light emitting diodes in them instead of filaments. It will be nice and bright. Instead of the glass being clear, it will be frosted to prevent cataracts and other eye problems. The light from it will be close to natural light. There will be a charger for the light bulb for after it burns out, so people won't have to always go out and buy light bulbs all the time. The LEDs in the light bulbs will come in all different colours so you can buy any colours you want.

How does it function? Why is it better?

Instead of having filaments in the light bulbs, there will be LEDs so it will be more efficient and won't use up a lot of electricity and thermal energy. Replacing the clear glass with frosted glass would prevent cataracts and other eye diseases because it won't be so bright that it will practically blind you. The charger would allow you to charge your light bulb so you won't have to go out and buy more once it doesn't work anymore. The light bulbs can be used a total of 4 times. The shape of the bulb is unique and will allow the bulb to charge by placing the top on the battery.

What are the positive consequences of my solutions?

People won't have to go out to buy more light bulbs that often to buy more light bulbs because it will have a charger for it. Instead of using thermal energy for the bulb to light up, it will go directly to electricity to light, then of course, a bit of thermal energy.

How does my light bulb better serve our world?

It will better serve our world because it won't harm the environment because we won't produce as much CO₂ and won't have to throw away our light bulbs often. It also saves people lots of time because they won't have to always go out to buy light bulbs all the time.