Standard 2: Engineering Design

Engineering design is an iterative process that involves modeling and optimizing to develop technological solutions to problems within given constraints.

**Strand 2.1:** Identify and explain the steps of the engineering design process, i.e., identify the need or problem, research the problem, develop possible solutions, select the best possible solution(s), construct a prototype, test and evaluate, communicate the solution(s), and redesign.

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Thomas Edison worked with a **TEAM** of inventors in Menlo Park, **NEW JERSEY**.

Their goal was to produce a minor invention every **10** days and a major invention every **6** months.

When inventing the light bulb the major challenge was to have the filament be able to withstand extreme **HEAT** so that it would not burn. In 1879 they tried using cotton thread and it was successful.

Edison used the concept of gas distribution when working on his idea for providing electricity to people. He knew that in order to be accepted, electricity needed to be **CONVENIENT**  and **AFFORDABLE**.

He needed to develop an electrical **SYSTEM**. He and his team were successful in providing electricity to a 10 square block section of London.

In 1882 he created the first power station in **MANHATTAN**. The **IMPROVEMENTS** to peoples’ lives included comfort, safety, and productivity.

Edison’s concept of having inventors work as a team in a **RESEARCH LAB** was unique.

Lewis **LATIMER** was a key contributor to Edison’s electricity work. He was an expert in mechanical drawing (or drafting) which he **TAUGHT HIMSELF**.

Prior to working for Edison he worked for **ALEXANDER GRAHAM BELL** during the invention of the telephone.

Edison also invented the **PHONOGRAPH** in 1877. His experience and experiments with the telegraph led to this invention.

His first recorded words were **MARY HAD A LITTLE LAMB**. People thought the phonograph was a **TRICK** when they heard it for the first time.

After a **FAILED** invention Edison decided to only invent things that people wanted or needed.

Edison spent a lot of time working with cement and actually created the cement used to construct the original **YANKEE STADIUM**.

Edison made good use of **ADVERTISING** to get the news of his inventions to the public.

Edison was constantly trying to improve on his own inventions and the inventions of others. His first light bulb lasted **1 DAY**.

Edison holds more **PATENTS** than any other inventor.