Title
Thomas Edison’s Quest to Electrify the World

Subject Area/Grade Level
Fourth Grade- Social Studies

Investigative Question
How did Thomas Edison’s inventions shape technological history?

PA Academic Standards

Science
- S4.A.1.1- Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems.
- S4.A.1.3 - Recognize and describe change in natural or human-made systems and the possible effects of those changes.
- S4.A.2.1 - Apply skills necessary to conduct an experiment or design a solution to solve a problem.
- S4.A.2.2 - Identify appropriate instruments for a specific task and describe the information the instrument can provide.

History
- 8.1.4.B-Distinguish between fact and opinion from multiple points of view, and primary sources as related to historical events.
- 8.3.4.C-Explain how continuity and change in U.S. history have influenced personal development and identity.

Arts and Humanities
- 9.1.5.A- Know and use the elements and principles of each art form to create works in the arts and humanities.
- 9.1.5.B-Recognize, know, use, and demonstrate a variety of appropriate arts elements and principles to produce, review, and revise original works in the arts.

Reading, Writing, Speaking, and Listening
- 1.1.4.E- Demonstrate fluency in oral reading of grade level texts; demonstrate an appropriate rate of silent reading based upon grade level texts.
- R4.B.3.3.1- Identify, explain, and/or interpret text organization, including sequence, question/answer, comparison/contrast, cause/effect, or problem/solution.
- 1.5.4.B- Develop content, gather, organize, and select the most effective information appropriate for the topic, task, and audience. Write one or more paragraphs that connect to one central idea.
Learning Objectives

Upon completion of the APL Project students will be able to:

- analyze the role of Thomas Edison in the electrification of America
- analyze, interpret, and conduct research with digitized primary source documents
- demonstrate an understanding of electrification as both a technological and social process
- understand how the past connects with the present and the future
- work cooperatively within groups
- identify Thomas Edison's major inventions and explain how they were used and how they contributed to the quality of life in the 1900s
- compare and contrast their own lifestyles with that of Americans in the 1900s and describe how technology has improved the quality of their lives

Duration
Five Days

Materials & Citation of Resources

Materials: Venn Diagram
List of websites for investigation
Investigation worksheet
Primary Sources
Colored Pencils/crayons
Rubric for Final assessment


"Edison's patent drawing for electric lamps."
www.ourdocuments.gov.

Listen to this recording. (RealAudio Format)CREATED/PUBLISHED Orange, N.J.: Edison,1919 Library of Congress


**Inquiry-Based Instruction**

I will use an Inquiry-Based Instruction Model (IBIM) with the following components:

**Ask**- The teacher will ask the students to identify photos of Edison’s early inventions. The teacher will ask the students to explain what life was like in the 1900s. The students will compare and contrast technology in the 1900s to modern day.

**Investigate**- The students will investigate several of Edison’s inventions using primary resources from the Library of Congress’ website. The students will watch a video clip of “The Sneeze” one of Edison’s earliest video clips. They will also view photos of the phonograph and listen to a recording.

**Create**- The students will design new inventions.

**Discuss**- The teacher will lead the class in a discussion about the inventions they investigated, and elicit from the students how the inventions have improved our quality of life today.

**Reflect**- The students will pick one student invention and reflect on how that invention could improve our quality of life. The students will also reflect on how the world would be different without Edison’s inventions.

**Assessment**- Design Invention/Rubric
Description of Procedures

To begin the APL I will show the students a picture of Thomas Edison’s improved invention of the light bulb on the whiteboard. The students will record five observations from the photo. We will then discuss the students’ observations. I will tell the students that the photo is of Thomas Edison’s rendition of the new and improved light bulb. This will lead us to the investigative question of, how has Thomas Edison’s inventions shaped our technological history. The students will view a video of “The Sneeze” one of Edison’s first video recording from the Library of Congress. Then I will divide the students into groups to begin their investigations of Edison’s inventions. Students will be reminded of appropriate group behavior. Each group member will have a particular job: recorder, researcher, and reporter. The students will use the internet to investigate Edison’s inventions. Each group will be given a list of websites as a guide for their investigations, and a worksheet with Edison’s inventions. The students will record the date, two to three facts, and tell how the intervention shaped technology. Upon completing their research each group will share their findings. To wrap up day 1 of the APL the class will compare and contrast modern technology to the early 1900s using a Venn Diagram. Day 1 comprises of the Asking and Investigating Components of my APL.

Day two will begin with a sound recording and photograph of the phonograph from the Library of Congress. We will discuss as a class how the phonograph has been modified throughout the years. Following the discussion the students will return to their
groups and construct a timeline using the information they gathered during the previous
day’s investigation. The timeline must include Edison’s birth and death dates along with
his major inventions. The timeline should have a minimum of ten important events on it
with illustrations. Timelines will be displayed on the Thomas Edison bulletin board in
the classroom. This will cover the Discussion Component of the IBIM.

Motion Picture Films have come a long way since early films. Day three will
begin with a writing prompt: what if Edison were still alive today, what do you think he
would he say about the movies “Star Wars” or “Titanic”? I will replay the movie clip
from day one for the students. Student responses should be three paragraphs in length
with a clear beginning, middle, and end. The end or conclusion should include how the
invention of the kinetograph and kinetoscope has shaped technological history. Students
should proof read their prompts, and then trade with a neighbor. The writing prompts will
be included in the students writing journals. The students will share their responses
remembering to use proper public-speaking skills. I will review these skills with the
class. Through this assignment the students will develop an understanding as to how the
past connects to the present. Inquiry based model: reflection is relative to this section,
with students reflecting on early inventions.

During day four and five the students will design a new invention. The students
will be given a rubric in advance as scoring guidelines. Each student will create their
own invention. Students will be given time to work in the computer lab to complete
research for their final assessment. The students will make a model or final drawing of
this new invention. Each student will also write a three paragraph essay describing what
the invention does, how it works, what problem it solves and how it will improve the
quality of our lives. The students will share their inventions with the classroom. Each student will be given a rubric to score their peers as they’re presenting.

All models or drawings will be on display in the fourth grade hallway. After all inventions have been presented the students will pick their favorite student invention, and write a reflection on it. The reflection should state how the invention could shape today’s technology. The students will be given the opportunity to read the reflections on their inventions.

The primary sources that I included from the Library of Congress were the video clips, the sound recordings, and the photo of the phonograph. I chose these primary sources because I feel that they help the students make that connection with history. The learning is hands-on making it a meaningful experience for the students. Using these primary resources will enhance students’ inquiry skills. By viewing the early motion picture clip the students can see first-hand just how far motion pictures or films have advanced, and also video cameras. I also hope that by including primary sources it motivates the students, and encourages them to be creative and never give up on something they believe in. The primary sources help the students to make the connection between the past, present, and future.
# Assessment Rubric

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Collection</strong></td>
<td>Data was collected several times. It was summarized, independently, in a way that clearly describes what was discovered.</td>
<td>Data was collected more than one time. It was summarized, independently, in a way that clearly describes what was discovered.</td>
<td>Data was collected more than one time. Adult assistance was needed to clearly summarize what was discovered.</td>
<td>Data was collected only once and adult assistance was needed to clearly summarize what was discovered.</td>
</tr>
<tr>
<td><strong>Idea</strong></td>
<td>Independently identified an invention which was interesting to the student and which could be created.</td>
<td>Identified, with adult help, an invention which was interesting to the student and which could be invented.</td>
<td>Identified, with adult help, an invention which could be invented.</td>
<td>Identified an invention that could not be tested/invented or one that did not merit invention.</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td>Each element in the model had a function and clearly served to illustrate some aspect of the invention. All items, diagrams, graphs etc. were neatly and correctly labeled.</td>
<td>Each element had a function and clearly served to illustrate some aspect of the invention. Most items, diagrams, graphs etc. were neatly and correctly labeled.</td>
<td>Each element had a function and clearly served to illustrate some aspect of the invention. Most items, diagrams, graphs etc. were correctly labeled.</td>
<td>The display seemed incomplete or chaotic with no clear plan. Many labels were missing or incorrect.</td>
</tr>
<tr>
<td><strong>Conclusion/Summary</strong></td>
<td>Student provided a detailed conclusion clearly based on the invention.</td>
<td>Student provided a somewhat detailed conclusion clearly based on the invention.</td>
<td>Student provided a conclusion with some reference to the invention.</td>
<td>No conclusion was apparent OR important details were overlooked.</td>
</tr>
</tbody>
</table>