

Inventors

Strand	Force, Motion, and Energy
Topic	Contributions of inventors: Ben Franklin, Thomas Edison, and Michael Faraday
Primary SOL	4.3 The student will investigate and understand the characteristics of electricity. Key concepts include f) historical contributions in understanding electricity.
Related SOL	4.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which k) data are communicated with simple graphs, pictures, written statements, and numbers.

Background Information

Ben Franklin suspected that lightning was an electrical current in nature. If it was, then current from lightning would pass through metal, a conductor. He tested his idea by using a key attached to a kite. The kite was used to get the metal key up to the lightning.

Michael Faraday discovered that moving a magnet inside a wire coil could make electricity. This was the first electric motor. He later built the first generator and the first transformer.

Generators create electricity by turning a magnet inside a coil of wire. Transformers can either reduce or increase voltage. Transformers outside of our homes decrease the voltage to make electricity safe to use in the home.

Thomas Edison had 1,093 inventions. One of his greatest challenges was the development of the incandescent, electric light. He did not invent the light bulb; he improved a 50 year old idea. He used a lower amount of electric current, a small carbonized filament, and an improved vacuum inside the globe to produce a long lasting, reliable light source.

Materials

- Copies of the attached Inventors worksheet for each student

For each group:

- The following questions written on sentence strips:
 - “What did he discover or invent dealing with electricity?”
 - “How did his work impact our lives today?”
- Reference materials, such as encyclopedias, trade books, or Internet sites
- Large chart paper or butcher paper

Vocabulary

electricity, magnets, electromagnets, inventor

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Introduction

1. Write the names of Ben Franklin, Thomas Edison, and Michael Faraday on the board. Ask students to come up and write anything they know about these men on the board underneath the appropriate name. If students write down incorrect ideas, leave them up so that they can be corrected at the end of the lesson.
2. Tell students that they will be checking these ideas by researching each of these inventors.

Procedure

1. Divide students into small groups of three to four students and assign each group one of the historical figures: Ben Franklin, Thomas Edison, or Michael Faraday. Lay the sentence strips reading “What did he discover or invent dealing with electricity?” and “How did his work impact our lives today?” on each table. Give reference materials to each group.
2. Allow groups to research their inventor. Students should record their findings on a sheet of chart paper or butcher paper. Encourage them to focus on the discoveries and inventions that are directly related to electricity, and to find as much information as possible.
3. When the groups have completed their research, have students discuss which of their findings seem important or seem to answer the questions the best. They should circle the data that they believe to be important.
4. Tell the students *“You are a journalist covering one of the most important discoveries of your time. Report the findings of your historical figure in a newspaper article as if they just happened. Make sure to explain the findings in detail and tell why your historical figure is important!”* Have the students work independently to write the newspaper article on their inventor by using the information from the chart paper or butcher paper.

Conclusion

1. Have students present their article to the class.
2. During classmates’ presentations, the students should listen carefully and record important facts for each historical figure on the attached Inventors sheet.

Assessment

- **Questions**
 - What is the importance of Benjamin Franklin when studying electricity?
 - What is the importance of Thomas Edison when studying electricity?
 - What is the importance of Michael Faraday when studying electricity?
- **Journal/writing prompts**
 - You are able to choose from Thomas Edison, Ben Franklin, or Michael Faraday to have for a dinner guest. Choose one, and write about what it might be like to have him over for dinner.

- What is something that you would like to discover or invent? How would your discovery or invention change the world? Connect your discovery or invention to one that you have learned about in class.
- **Other**
 - Assess completed Inventors worksheet.

Extensions and Connections (for all students)

- Have students create a timeline listing each discovery for each figure discussed.
- Allow students to research an inventor that has created something for electricity that they use today.

Strategies for Differentiation

- During group activities, assign roles for each student so that everyone is involved and engaged. You may need to assign specific roles to students to accommodate their individual academic needs.
- Allow students to record their findings in digital audio for presentation.
- Provide leveled research books for research.
- Instead of presenting in real time for the class, students can record their presentations using digital video or audio.
- Create grab bags including items that would have belonged to each inventor. Direct students to guess the inventor.
- Allow students to dress up in costumes representing each character.
- Direct students to create a character map of the inventor they are describing.
- Assign different aspects of the research to different students based on ability levels.
- Provide detailed questions to students who need more guidance in the research process.

Inventors

Name: _____ Date: _____

While listening to presentations, list important facts for each historical figure below.

Ben Franklin

1. _____

2. _____

3. _____

4. _____

5. _____

Thomas Edison

1. _____

2. _____

3. _____

4. _____

5. _____

Michael Faraday

1. _____

2. _____

3. _____

4. _____

5. _____
