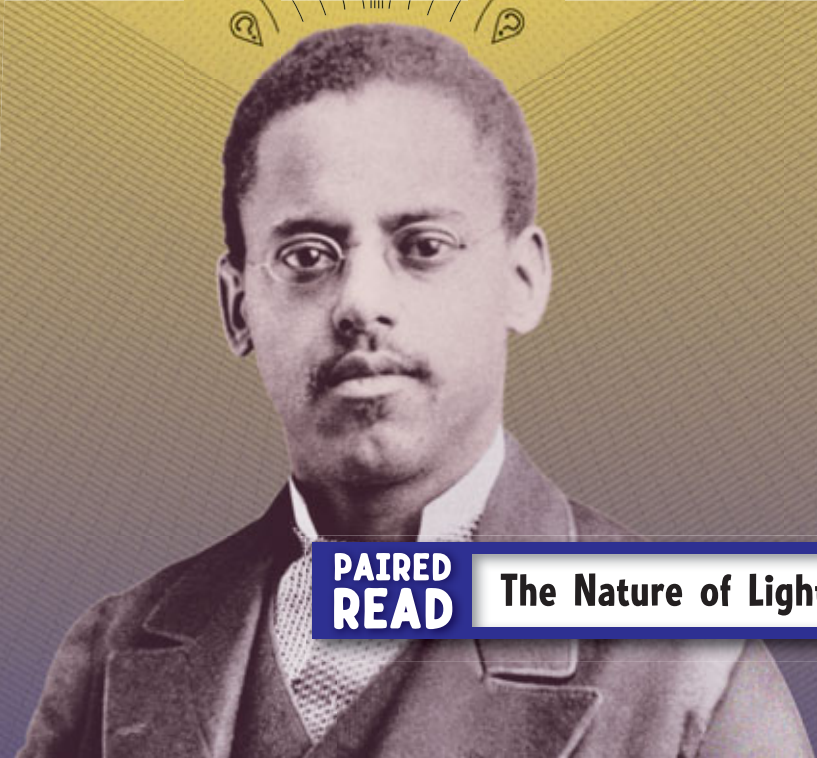
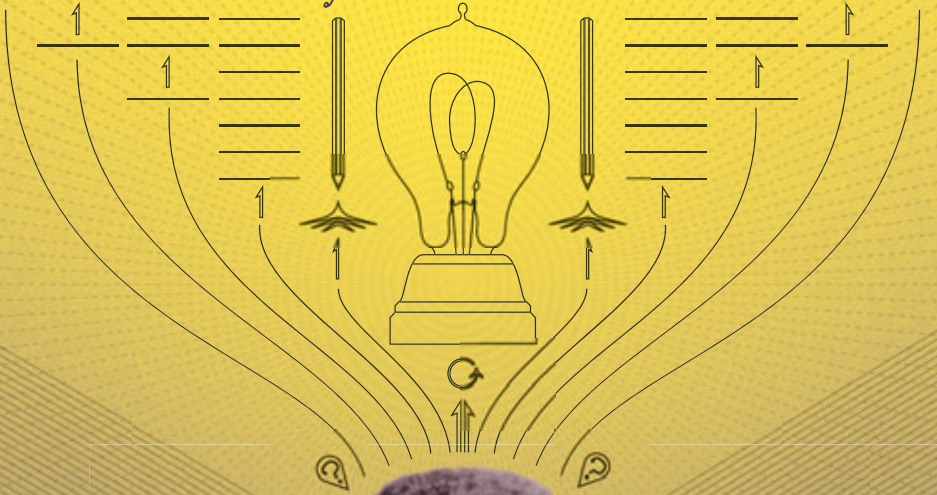


Biography

The
INVENTIVE
LEWIS
LATIMER

by *Maria Gill*



Mc
Graw
Hill

**PAIRED
READ**

The Nature of Light

STRATEGIES & SKILLS

Comprehension

Strategy: Summarize

Skill: Problem and Solution

Vocabulary Strategy

Greek Roots

Vocabulary

dizzying, experiments,
genuine, hilarious, mischief,
nowadays, politicians,
procedure

Content Standards

Science

Physical Science

Word Count: 918**

Photography Credit: Queens Borough Library, Long Island Division, Latimer Family Papers

**The total word count is based on words in the running text and headings only. Numerals and words in captions, labels, diagrams, charts, and sidebars are not included.



Essential Question

How can inventions solve problems?

↓

The

INVENTIVE

LEWIS

LATIMER

by Maria Gill

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A TOUGH START

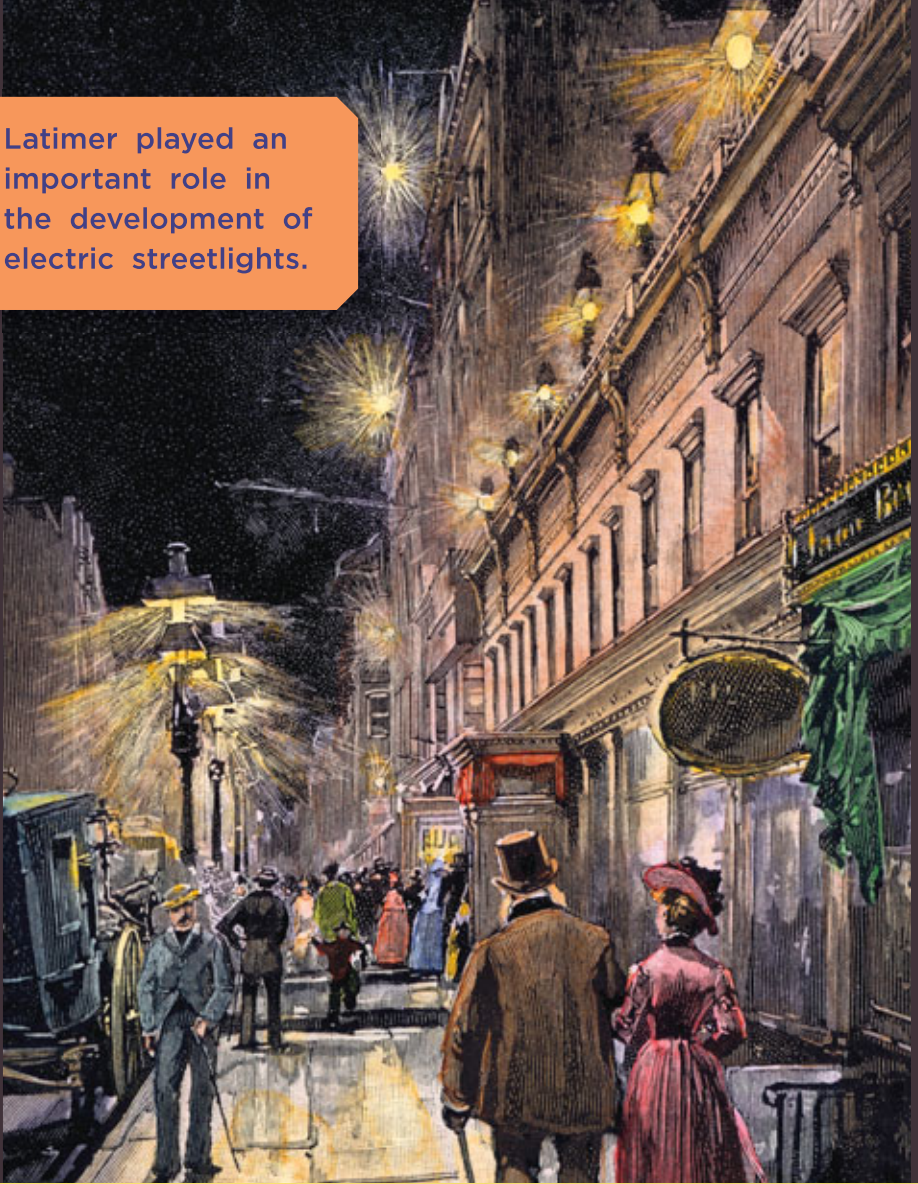


Lewis Latimer became an important inventor.

Lewis Latimer was born in the nineteenth century. He grew up at a time when black people were enslaved. They had few rights. Many politicians and other people wanted to outlaw slavery. They wanted every American to be free. The Civil War, which was fought from 1861 to 1865, ended slavery.

Lewis Latimer didn't let these difficult times get in his way. He worked with some of the United States' greatest inventors. He became an important inventor, too.

Latimer played an important role in the development of electric streetlights.



Latimer worked hard. He wanted to find genuine solutions to problems. He improved the light bulb to make electric lighting cheaper.

Latimer got help from people. To thank them, he gave other people the chance to follow their dreams.

Lewis Latimer was born in Massachusetts in 1848. His parents had run away from slavery in Virginia in 1842. They went to Massachusetts. Lewis's father, George, was arrested there.

Massachusetts was a free state. People there were against slavery. But a judge ruled that George still belonged to the slaveholder. People who were against slavery didn't agree with the judge. Someone paid the slaveholder in Virginia so George could be free.

George Latimer worked hard, but he did not have much money. Lewis often missed school to help his father. There was little time for mischief or play.



The slaveholder advertised in newspapers to try to find George Latimer and his wife.

When Lewis was eight, a court decided an enslaved person was not free, even in a free state. Lewis's father went missing after this. He was probably afraid he could lose his freedom. Lewis quit school. He took a job to help his family survive.

The Civil War broke out when Lewis was 13. He joined the Union navy when he was 16 to fight against slavery.

STOP AND CHECK

What obstacles did Lewis Latimer face?

The Civil War

In 1861, President Abraham Lincoln wanted to end slavery. Eleven southern states refused. They formed the Confederate States of America. The other 23 states were against slavery. They called themselves the Union. War broke out between the Union and the Confederate states that year. The Confederates were defeated in 1865. Slavery was outlawed as a result of the Civil War.

During the Civil War, Latimer served on the U.S.S. *Massasoit*.



DRAWING HIS WAY

Latimer began working as an office boy for a law firm in Boston, Massachusetts several years after the Civil War had ended. The firm applied for patents for new inventions. A **patent** kept others from copying an invention. **Drafters** drew the inventions to show how they worked.

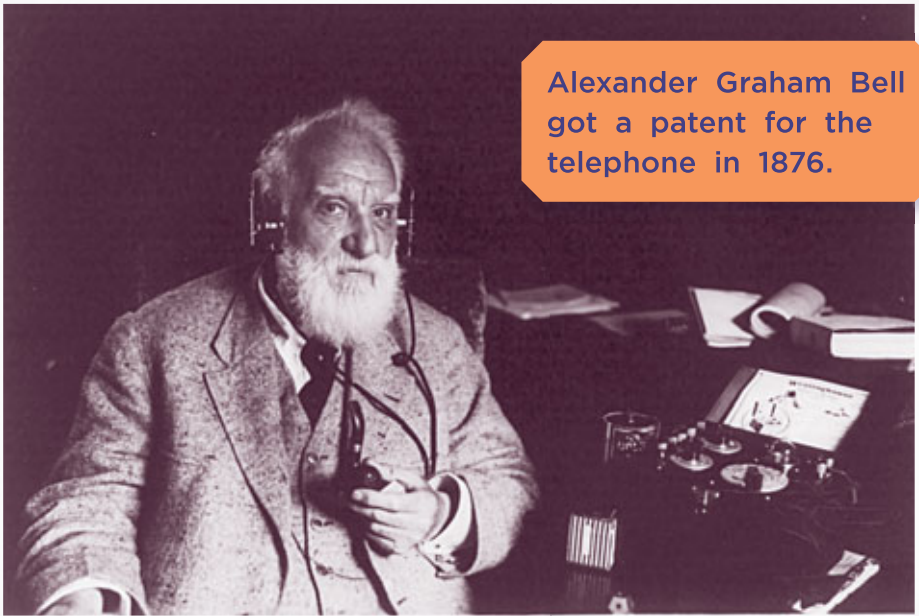
Latimer was good at drawing. He borrowed some books and tools. He learned how to draw and measure carefully. Then he showed his drafting to his boss. His boss gave Latimer a job as a drafter.



Latimer used drafting tools such as compasses and rulers.

Latimer became friends with a teacher named Alexander Graham Bell. Bell worked at a school for deaf people.

Bell showed Latimer some drawings for his new invention. It was a machine to help his deaf wife to hear. This machine later became the telephone.

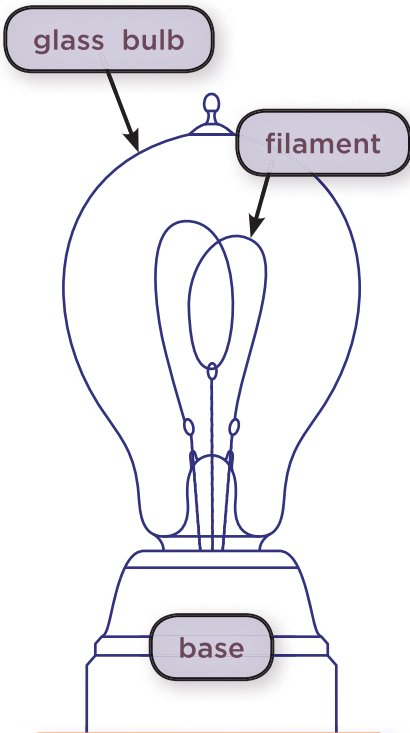


Bell wanted to apply for a patent so he could protect his invention. He asked Latimer to draw a picture of the machine.

At this time, inventions like Bell's telephone were changing the world at a dizzying rate. Thomas Edison had invented a light bulb. It could burn for several hours.

In 1880, Latimer began working as a drafter for an inventor named Hiram Maxim. Maxim owned the United States Electric Lighting Company. Maxim's company was making light bulbs.

Edison's Light Bulb



Edison's first light bulb looked like this.

In 1878 and 1879, Thomas Edison worked to invent a light bulb that would burn for several hours and was cheap to make. A light bulb uses electricity to heat a piece of material called a **filament**. The filament lights up when it gets hot.

Edison tested many different materials. They all burned out too quickly. Finally he found that cotton that had been baked could burn for 15 hours.



Hiram Maxim's company
made electric bulbs.

Latimer knew that electricity would help people. They could do their work faster by using electric machines. They could use electric lights to read and work at night.

Light bulbs cost a lot to make. They didn't last long. Latimer wanted to make them cheaper and better. Other inventors were also trying to make a better light bulb.

STOP AND CHECK

How did Latimer want to improve light bulbs?

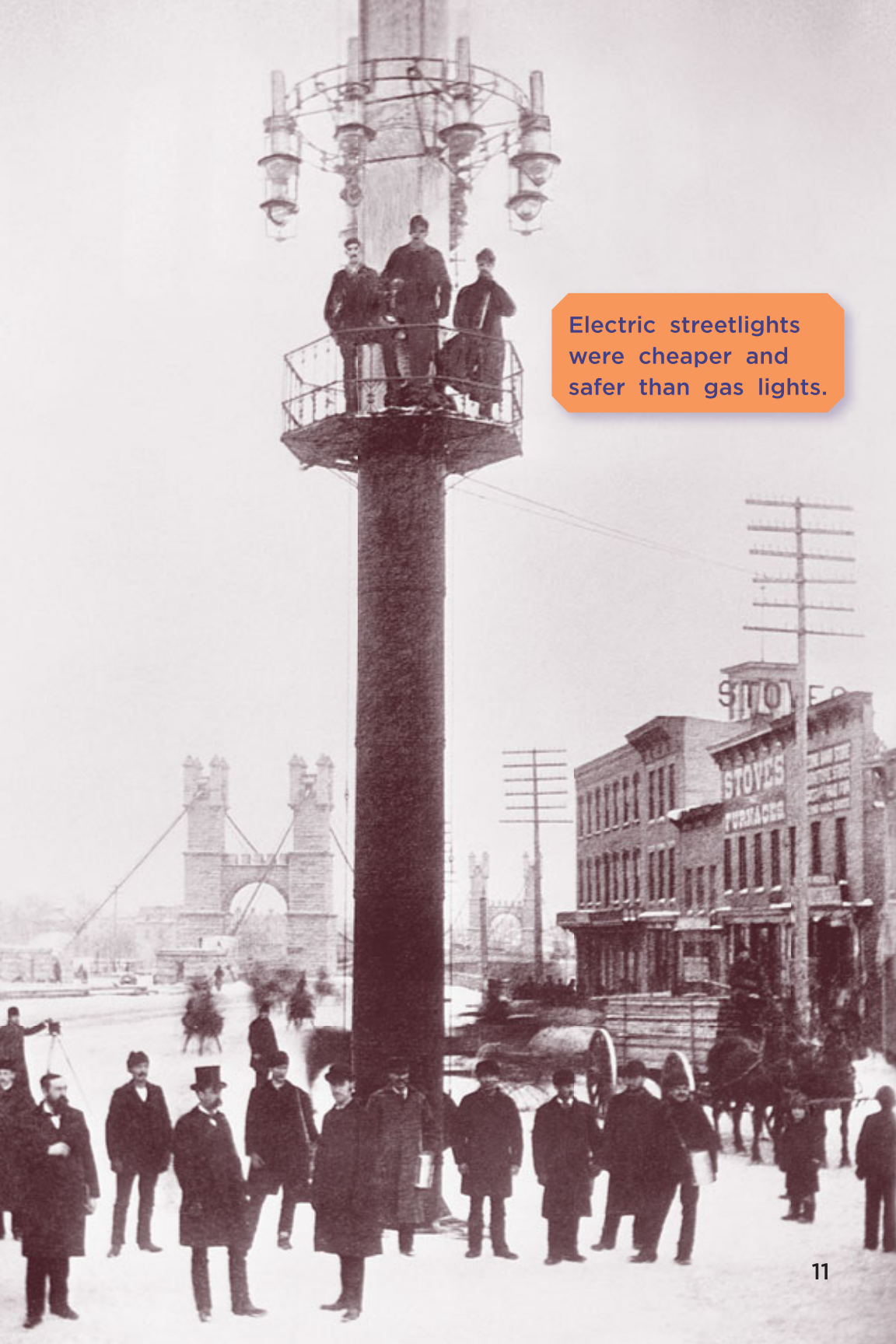
A BRIGHT LIGHT

At Hiram Maxim's company, Latimer did many experiments to improve light bulbs. In 1881, he found that a filament lasted longer when it was inside a cardboard envelope. This also made light bulbs brighter.

Latimer made other improvements to light bulbs. He took out patents on his inventions. These light bulbs were cheaper. More people could buy them.

New factories were built to make the light bulbs. Latimer was in charge of planning the new factories.

Latimer became known as an expert on electricity. He told city councils about the best procedure for installing electric lights. His work helped cities to light their streets.

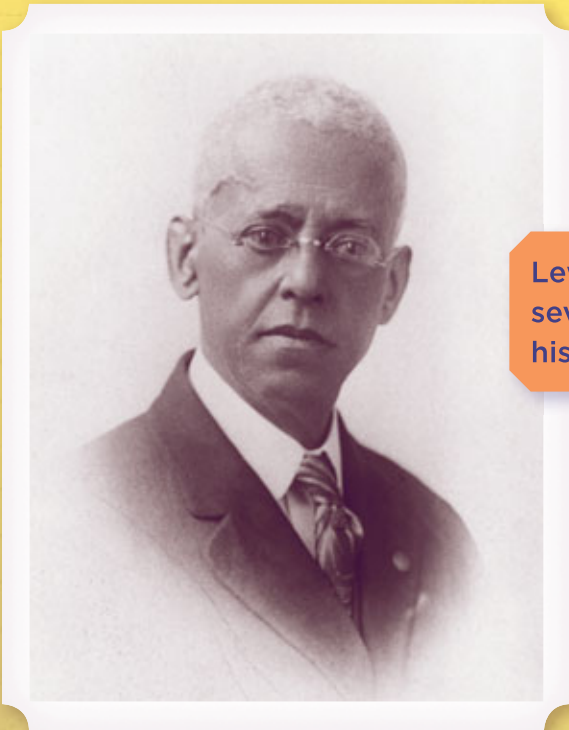


Electric streetlights were cheaper and safer than gas lights.

Thomas Edison sued some of the electric companies in 1884. He said they were using his design to make light bulbs.

Edison asked Latimer to work for him. He believed Latimer's knowledge would help him win his case in court.

Latimer worked with Edison for many years. He helped Edison apply for new patents. Latimer helped defend Edison's designs in court. He also developed his own inventions, such as an elevator.



Lewis Latimer held several patents of his own.

The Edison Pioneers



Edison was grateful for Latimer's help. In 1918, he asked Latimer to join a group of inventors who had worked with him. Latimer was the only African American in the group.

Lewis Latimer is standing in the front row; Thomas Edison is seated.

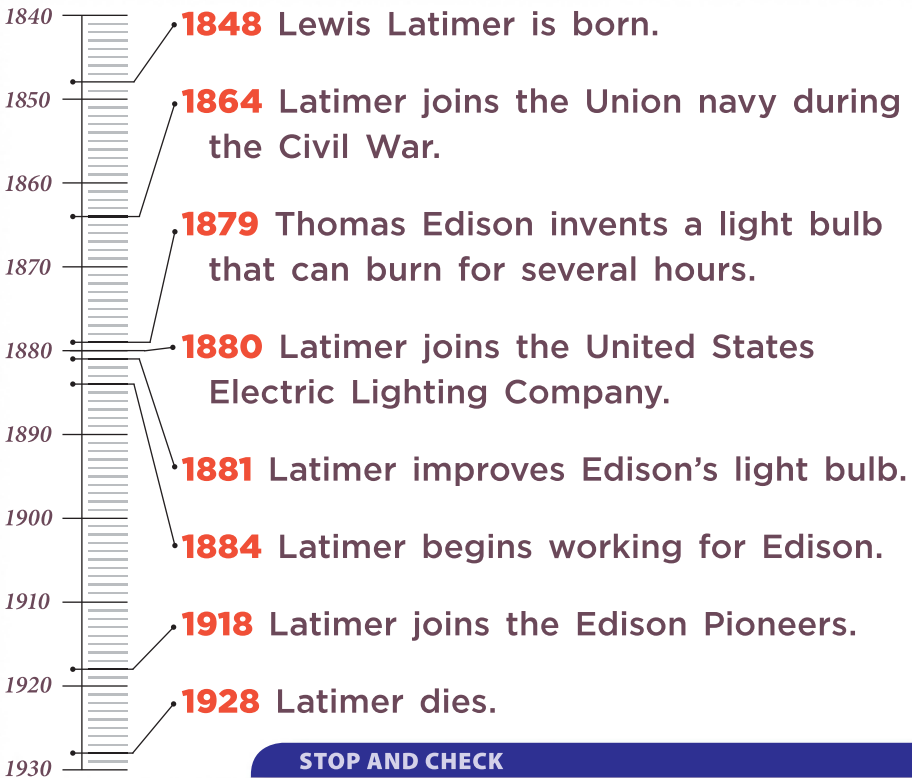
Latimer also helped other people. He never forgot how hard his early life was. He wanted to make other people's lives easier.

Latimer worked to improve the rights of African Americans. He taught English and drafting to immigrants. He also helped young inventors to apply for patents.

Lewis Latimer had a tough start in life. He looked for ways to improve his life and to help other people too. He became very successful.

His inventions helped light up homes, businesses, and cities. Latimer's work with immigrants, African Americans, and young inventors made their lives brighter, too.

Time Line



STOP AND CHECK

What were Lewis Latimer's achievements?

Respond to Reading

Summarize

Summarize the ways that inventions solved problems in *The Inventive Lewis Latimer*. Use your graphic organizer to help.

Problem	Solution

Text Evidence

1. What kind of text is *The Inventive Lewis Latimer*?

GENRE

2. What problem did Lewis Latimer solve on page 10? What was his solution?

PROBLEM AND SOLUTION

3. Look at the word *telephone* on page 7. This word comes from the two Greek roots *tele* and *phono*. The root *tele* means “far.” Use what you know about the word *telephone* to figure out the meaning of the root *phono*.

GREEK ROOTS

4. Write about an important invention in *The Inventive Lewis Latimer*. What problem did the inventor solve? Be sure to include details from the text in your answer.

WRITE ABOUT READING

Compare Texts

Read about how an electric circuit gets electricity where you need it.



Today we have electricity in our homes. We flick a switch and the light goes on. We might think it hilarious that Edison's first light bulb burned for only 15 hours. Nowadays some light bulbs can last 20,000 hours!

A light bulb needs an electric **circuit**. This is a pathway for an electric current. The current runs from the power source to the light bulb and back again. A battery is the source for this circuit. The battery, light bulb, and wires make a complete loop.

Testing Light Bulbs in an Electric Circuit

You can make an electric circuit to test how well a battery can power light bulbs. You can add light bulbs to the circuit. Then you can see that the battery can light up several bulbs. You will need an adult to help you.

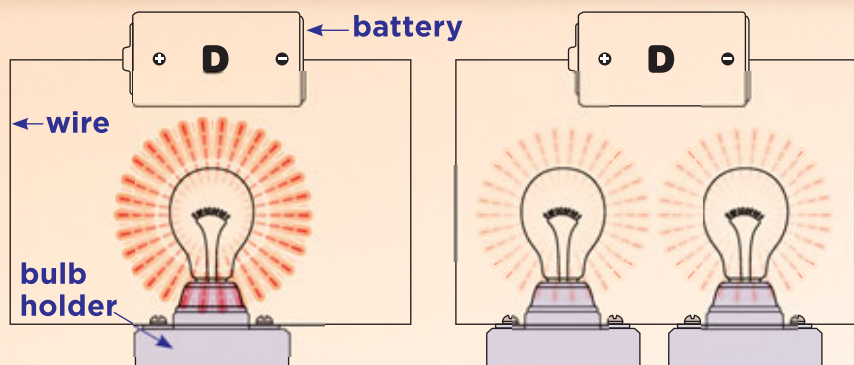
For the electric circuit, you will need

- 2 feet of insulated copper wire
- a wire stripper
- 3 small light bulbs in bulb holders
- 1 size D battery
- electrical tape



Instructions

- 1 Cut the copper wire into four pieces. Use the wire strippers to take off half an inch of plastic coating from the ends of each piece of wire.
- 2 Tape one end of a piece of wire to the negative (-) end of the battery. Tape one end of a second piece of wire to the positive (+) end of the battery.
- 3 Connect the other ends of these two pieces of wire to the screws on the bulb holder. Watch the bulb light up!
- 4 Now use the other pieces of wire to connect a second bulb to the circuit, as shown. Then add a third bulb. See what happens.



Make Connections

How does an electric circuit solve a problem?

ESSENTIAL QUESTION

How are the inventors in *The Inventive Lewis Latimer* like someone experimenting with an electric circuit in *The Nature of Light*? **TEXT TO TEXT**

Glossary

circuit (*SUR-kit*) a complete and closed pathway around which an electric current flows (**page 16**)

drafters (*DRAFT-uhrs*) people who make plans or drawings (**page 6**)

filament (*FI-luh-muhnt*) the thin wire inside a light bulb that lights up when heated by an electric current (**page 8**)

patent (*PAT-uhnt*) a document that protects an invention from being copied without the inventor's permission for a certain number of years (**page 6**)

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Focus on Science

Purpose To invent something to solve a problem

Procedure

Step 1

With a partner or on your own, brainstorm new inventions that will solve problems. Be creative!

.....

Step 2

Choose one invention that you would like to design.

.....

Step 3

Draw your invention. Include lots of detail and labels. Write at least one paragraph describing what your invention does. Why is it needed? How does it solve a problem?

.....

Step 4

Share your invention with the rest of the class.

Conclusion What have you learned about inventions? Do you think your invention could be made and sold? Why or why not?

Literature Circles

Nonfiction

Thinkmark

The Topic

What is *The Inventive Lewis Latimer* about?

Text Structure

What are two of the helpful things that Lewis Latimer invented?

Vocabulary

What new words did you learn in the text?
What helped you understand what they mean?

Conclusions

What conclusions can you make about people who are inventors?

Make Connections

What other inventions or inventors do you know about? What problems did they solve?