

Engineers Start with a Concept

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. What does the author mean by stating “an engineer made it real”?
 - (A) Engineers are hired by people who need ideas.
 - (B) Engineers are the people who usually have good ideas.
 - (C) Ideas are real, and objects are not real.
 - (D) A concept is just an idea until someone figures out how to build it.

 2. Having scientific knowledge helps an engineer to _____.
 - (A) determine whether or not to follow the engineering process
 - (B) learn more about theme parks
 - (C) create a design that could work in its environment
 - (D) learn more about rules at hospitals

 3. List some things that you use that were probably designed by an engineer.
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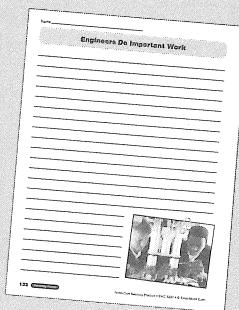
4. Why is it important for engineers to use a process?
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5. If the final product failed the testing stage, what do you think an engineer would do?
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Write About the Topic

Use the Writing Form to write about what you read.

Think of something created by an engineer. Explain how an engineer used the process to create it and what considerations the engineer probably made. Use text details.



Inventions Impact Our Lives

Level 1 ■■

Words to Know list, Reading Selection, and Reading Comprehension questions

An Invention We Depend On

Fill in the circle by the correct answer. **True** or **False**.

True

An Invention We Depend On

False

Words to Know

invention
luxury
emitted
current
filament
instrument
engineer
LED
patented
convenient
architects

Lightbulb

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Level 2 ■■■

Words to Know list, Reading Selection, and Reading Comprehension questions

Creative Inventions

Fill in the circle by the correct answer. **True** or **False**.

True

Creative Inventions

False

Words to Know

inventions
practical
unique
steered
magnetic compass
necessities
rotates
automatically
stumble
shutter

Lightbulb

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Level 3 ■■■■■

Words to Know list, Reading Selection, and Reading Comprehension questions

Technology and Inventions

Fill in the circle by the correct answer. **True** or **False**.

True

Technology and Inventions

False

Words to Know

inventions
accustomed
applying
device
symbolize
unique
object
technologically advanced
convenience
values
industry
flying drone
imitations

Lightbulb

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Assemble the Unit

Reproduce and distribute one copy for each student:

- Visual Literacy page: Inventions Impact Our Lives, page 141
- Level 1, 2, or 3 Reading Selection and Reading Comprehension page and the corresponding Words to Know list
- Graphic Organizer of your choosing, provided on pages 180–186
- Writing Form: Inventions Impact Our Lives, page 142

Introduce the Topic

Read aloud and discuss the Inventions Impact Our Lives photos and paragraphs. Ask students to mention some inventions or inventors they know of. Explain that all inventions start out as mere ideas. Point out that many inventions are improved upon with technology after they are first created.

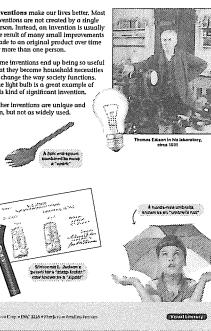
Read and Respond

Form leveled groups and review the Words to Know lists with each group of students. Instruct each group to read their selection individually, in pairs, or as a group. Have students complete the Reading Comprehension page for their prompt.

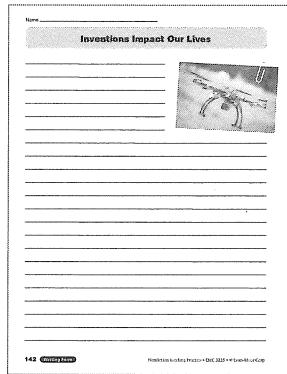
Write About the Topic

Read aloud the leveled writing prompt for each group. Tell students to use the Graphic Organizer to plan their writing. Direct students to use their Writing Form to respond to their prompt.

Inventions Impact Our Lives



Visual Literacy



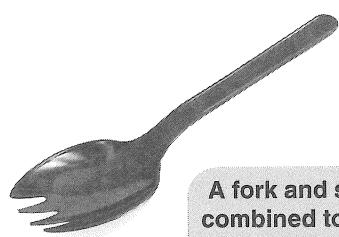
Writing Form

Inventions Impact Our Lives

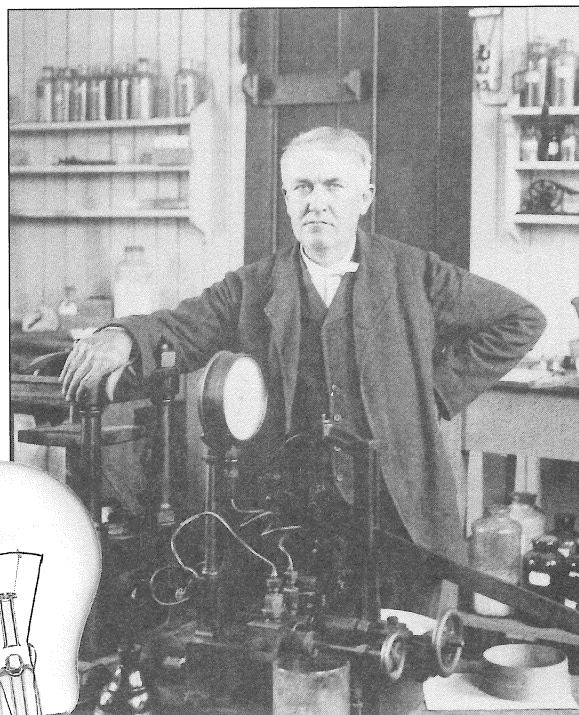
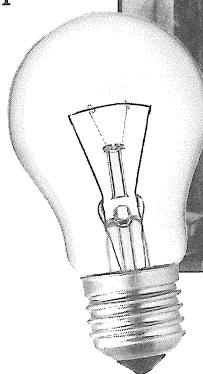
Inventions make our lives better. Most inventions are not created by a single person. Instead, an invention is usually the result of many small improvements made to an original product over time by more than one person.

Some inventions end up being so useful that they become household necessities or change the way society functions. The light bulb is a great example of this kind of significant invention.

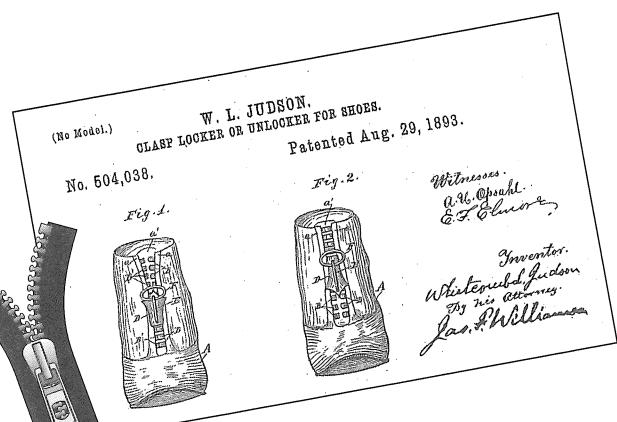
Other inventions are unique and fun, but not as widely used.



A fork and spoon combined to make a "spork"



Thomas Edison in his laboratory, circa 1901

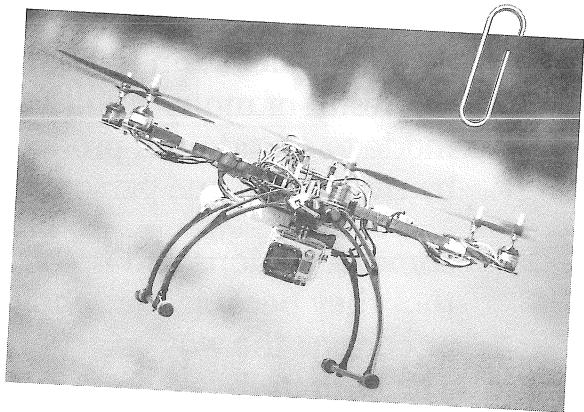


Whitcomb L. Judson's patent for a "clasp locker," now known as a "zipper"



A hands-free umbrella known as an "umbrella hat"

Inventions Impact Our Lives



Words to Know

An Invention We Depend On

invention

luxury

emitted

current

filament

incandescent

engineer

LED

patented

convenient

architects

Words to Know

Creative Inventions

inventions

practical

unique

steered

magnetic compass

necessities

rotates

automatically

utensil

stumbled

X-rays

shellac

Words to Know

Technology and Inventions

inventions

accustomed

applying

devices

symbolize

unique

aspect

technologically

advanced

convenience

values

industry

flying drone

missions

**Inventions Impact
Our Lives ■**

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Our Lives ■■■**

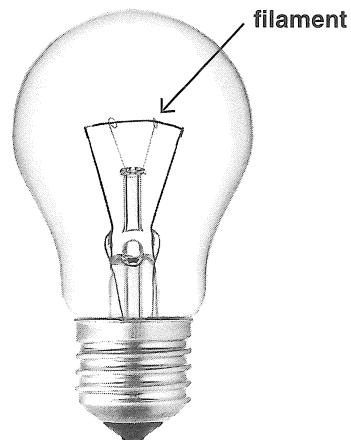


An Invention We Depend On

Would you be able to go through a whole day without using a single light bulb? Most people probably wouldn't. Today, almost every building uses light bulbs as their main light source. Although we use them daily without much thought, light bulbs were once a luxury and the newest technology. A lot of people's hard work led to the light bulb's invention, which has impacted our lives greatly.

What Is a Light Bulb?

The first light bulbs were glass containers that emitted light when an electric current heated a part inside called a filament. Electric light bulbs are also known as incandescent light bulbs. These days, we use energy-saving bulbs that are better for the environment. Nick Holonyak, Jr., an American engineer, invented the first light-emitting diode (LED) in 1962. An LED light bulb uses one-third the electricity as an incandescent and lasts far longer.



Incandescent light bulb

The Invention of the Light Bulb

In 1802, a British scientist named Humphry Davy created the first electric light. Then, in 1835, other British scientists created the first constant stream of electric light, although the light didn't shine very long. In the following decades, scientists experimented with light bulb filaments made of various materials, hoping to create a longer stream of electric light. In 1860, Joseph Swan found a material that produced a good light, but it burned out quickly. By this time, none of the light bulbs created were ready to be sold to the public for everyday use. Then, in 1878, Thomas Edison made more progress. He spent a lot of time researching what previous scientists had done. He and his team spent years experimenting with light bulb filaments. They eventually created the first light bulb that could emit constant electric light for 1,200 hours. Edison immediately patented his light bulb design so that light bulbs could be created and sold.



LED light bulb

Light Bulbs Impacted the World

Light bulbs were safer and more convenient to use than oil lamps and candles. Increased use of light bulbs resulted in people being able to have a longer work day, so the average work day increased. Light bulbs also led to changes in building designs. Architects created windowless buildings, and lights could be placed in elevators and other new places.

An Invention We Depend On

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. Joseph Swan was probably _____.
 A a candle maker
 B a customer
 C an architect
 D a scientist
 2. Why does the author state that light bulbs were a “luxury”?
 A They weren’t common.
 B They were viewed similarly to how they’re viewed today.
 C They didn’t change the things that people were able to do.
 D Everyone had them in their homes during the 1800s.
 3. Write one of the main ideas of the text.
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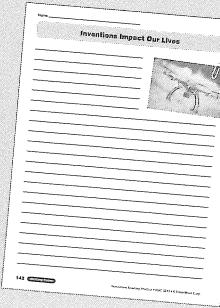
4. Why was it significant that lights could be placed in new places such as elevators?
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5. Why do you think scientists spent so much time creating a constant stream of light?
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Write About the Topic

Use the Writing Form to write about what you read.

Who should receive credit for the invention of the light bulbs we use today? Write an argument using details from the text.

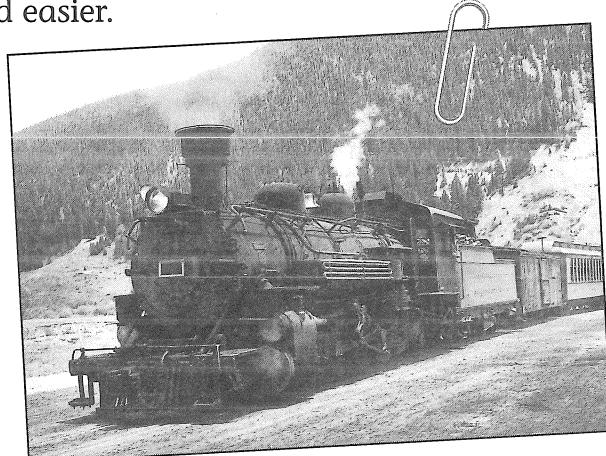


Creative Inventions

Over the years, people have invented many wonderful things with practical uses. There have also been some very unique inventions. Overall, the purpose of most inventions is to make our lives better and easier.

Practical Inventions

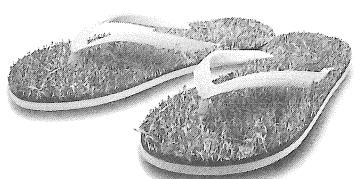
Many inventions have made people's lives easier and have steered us on a path that allowed further progress. A perfect example of this is the invention of the computer. We all know that the computer, invented in the early 1900s, can serve many purposes. After the first computer was developed, people kept improving it. Today, we use computers for research, keeping records, writing, and more. Another amazing yet practical invention was the steam engine. It took about a hundred years to develop. Steam engines have been used to power large trains, ships, and power plants. Yet another important invention was the magnetic compass. It started being used between the 9th and 11th centuries. Sailors used compasses to avoid getting lost on rough seas.



Steam engine train

Wacky Inventions

Not all inventions are useful enough to end up as necessities in people's homes. Did you know that someone invented a plastic ice cream cone that rotates the ice cream scoop automatically? Another person invented an eating utensil called a finger fork. It is similar to a regular fork except that the user doesn't have to hold it because it slips onto the index finger like a sleeve. Another odd invention is grass flip-flops. These are meant to give the wearer the unique feeling of walking on fresh grass.



Grass flip-flops

Accidental Inventions

Some inventions, such as the light bulb, happened over a period of time and as a result of trial and error. Other inventions, however, were stumbled upon accidentally. Did you know that cornflakes were first created by accident? And X-rays (like the ones used in hospitals to identify broken bones) were also discovered by chance. Another accidental invention was plastic. In the early 1900s, a chemist was trying to create a substance to replace shellac, a hard, glossy material. His accident turned out to be one of the most common materials used today.



X-ray of hand

Creative Inventions

Fill in the circle by the correct answer. Then write the answers to numbers 3, 4, and 5.

1. The main idea of the text is that _____.
 (A) people invent things for no specific reason
 (B) inventions make our lives easier and better
 (C) inventions are usually silly and fun
 (D) all inventions have practical uses
 2. People invent things _____.
 (A) for many different purposes
 (B) mainly for attention
 (C) mostly for comfort
 (D) for work
 3. Is an invention more, less, or equally valuable if created by accident? Explain why.
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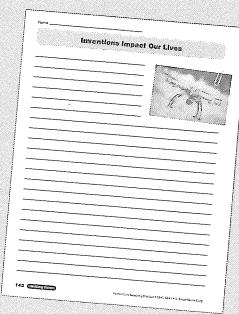
4. What does the author mean by stating that some inventions allowed further progress?
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-

5. Which of the “wacky” inventions did you find most surprising, and why?
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Write About the Topic

Use the Writing Form to write about what you read.

Describe what the world would be like if people didn't invent new things. Use your own examples and details from the text.



Technology and Inventions

There are certain items people are accustomed to using every day. Most people probably don't think about how or why the things we use were invented. However, people have been inventing for centuries. It's important to think about these inventions, because technology can reveal a lot about the society that uses it.

What Is Technology?

Technology is applying knowledge and using resources to create. Technology is meant to further people's lives and solve problems. Specific methods, materials, and devices fall under the category of technology.

How Technology Reveals Information About Society

Technology can symbolize the most meaningful things about society. Every culture, society, and community is unique. Like food or literature, technology is one aspect of society that can be studied.

Some Questions That Can Be Asked About Society

What are the people interested in? What are their hobbies?

What are the people's priorities? What are their concerns?

How technologically advanced is this society? What tools do they use often?

Inventions Are a Symbol

We invent things for entertainment, comfort, and progress. A society's inventions can reveal a lot. Inventions meant to solve specific problems reveal what concerns people have. Inventions for entertainment reveal what people like. For example, new games are invented all the time. This fact reveals that social activities, such as playing games with others, are a favorite pastime of our society. Inventions to improve comfort or convenience reveal how much a society values the comfort of its people. Inventions that are created for the purpose of making progress in work and industry reveal how advanced a society is. For example, the flying drone is one of the newest forms of technology. A drone is basically a flying robot that doesn't need a pilot, and it can be used for many purposes, including search-and-rescue missions and delivering packages to people's homes. What other new inventions can you think of, and what do they say about society?

