If you own a bicycle and your neighbor Sam takes it without your permission, that is theft. There are laws against theft.

Imagine that you write a song. People like it—a lot. Without your permission, Sam copies your song and sells it to a record company. Sam makes a lot of money.

Imagine that you spend a lot of time and you invent a solar-powered cell phone. You explain your invention to Sam. Without your permission, he copies it and sells it to a cell-phone company for a lot of money.

When Sam steals your bicycle, he takes the bicycle—physical property. But the song and solar-powered cell phone are different. You still have the song and cell phone. He just copied them.

Sam did not steal your physical property. He stole your intellectual property. Your intellectual property is protected by law.

Your song is protected by copyright law. Copyright law protects artistic works. These include music, paintings, drawings, plays, stories, and even software.

Your cell phone is protected by patent law. But you must apply for a patent and show you were the first to invent it. Patent law protects inventions.

The First Patents

Patent and copyright law has existed for a long time. The first patent was issued in Florence, Italy, in 1421 to Filippo Brunelleschi. A famous architect, he had built the great dome of the cathedral in Florence. His patent was for a new kind of boat. He had refused to build the boat until Florence gave him a patent on it.

He was afraid others would copy the boat. The people of Florence wanted to use the new boat, and they wanted to encourage Filippo to keep inventing useful things. So the city passed a law granting him a patent. The law gave him the sole right to operate his new boat for three years.

As it turned out, nobody wanted to copy his invention. The boat sank. But other parts of Italy saw the need to issue patents to spur new inventions. Many special laws were passed granting people patents. By 1474, Venice had passed a patent law. It included many of the parts of today’s patent laws:

1. The invention must be original.
2. It must be useful.
3. The law imposed a fine on those who copied the invention without permission.

During the next 300 years, many European countries adopted patent laws.

The First Copyrights

The first copyright laws were spurred by an invention in the 1400s—the printing press. Before the printing press, books were hard to make. Most were copied by hand. Few people could read.
The printing press changed this. With the press, books were cheap to make. As they became more available, more people learned to read. Publishers could make money selling books. Authors demanded protection to keep others from copying their work.

Venice was the center of printing in Italy. In 1496, the republic issued the first known copyright. It gave an author sole control over his book. It also threatened a fine of 500 gold ducats to anyone who printed his work without permission.

Other European countries also began offering legal protection to authors, artists, and composers. These laws influenced the American colonies when they began to address the issue of intellectual property.

**The Colonies and the States**

**Patents for Inventions.** At first, inventors had to ask colonial governments for the “exclusive right” to make and sell a product. Many of these requests were granted. For example, in 1641, Massachusetts granted a man a 10-year exclusive right to use his process for making salt. Similar grants were made throughout the other colonies.

South Carolina heard many requests. With more and more requests coming to the legislature, many saw a need for a patent law. In 1784, a year after the American Revolution ended, South Carolina passed the first state patent law. It stated: “The Inventors of useful machines shall have [an] . . . exclusive privilege of making or vending their machines for the . . . term of 14 years . . . .”

Patent grants continued to increase during the 1780s. Most states granted a 14-year term on their patents. No national patent law was passed because the new American government was run under the Articles of Confederation. The articles did not permit the national government to pass such a law.

Without a national system, inventors often needed to seek grants in many states. This was complex and costly. A national system was needed.

**Copyrights.** The first printing press in North America came to Massachusetts in 1639. Massachusetts passed two laws giving copyright protection to one author. No other copyright is known to have existed before the American Revolution. Without protection, American authors found it difficult to make a living. Few American popular works were published.

During the revolution, a group of American authors lobbied states for copyright protection. The most well known member of the group was Noah Webster. He later created *Webster’s Dictionary*. In 1782 and 1783 Webster asked several state legislatures to pass copyright laws. Other authors submitted similar petitions.

The authors also pressed the Continental Congress for support. Congress did not have the power under the Articles of Confederation to pass a copyright law. But on May 2, 1783, it passed a resolution urging states to enact copyright laws.

The resolution worked. It was aided by Webster and others who continued to lobby. Webster traveled to almost every state. He even visited General Washington at Mount Vernon and asked for help in persuading the Virginia legislature. By the end of 1786, all of the 13 states (except Delaware) had passed copyright laws. Most of the laws provided copyright protection for 14 years and strong fines for violators.

**The U.S. Constitution and Intellectual Property**

The Articles of Confederation proved too weak. Congress could not pass copyright or patent laws. But that was minor. Congress could not deal with major economic problems, like the debt from the
Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .

Many members of the convention had served in state legislatures when copyright and patent laws were adopted. The convention approved the intellectual property clause unanimously without any debate.

The Constitution granted Congress the power “to make all laws . . . necessary and proper” to carry out its powers.

National Patent and Copyright Laws

When the first Congress met in 1789, it formed a committee to draft a law to protect intellectual property. Applications for patent and copyright protection began pouring in. Many of the patent applications were for steam engines and other new machines. One was for a “cure for the bite of a mad dog.”

Excited by the potential benefit of the inventions described in the applications, the new president, George Washington, addressed Congress in January 1790. He urged action on the new law. Within four months, Congress had passed laws to protect patents and copyrights.

The patent law let the government issue a patent if it found the invention was “sufficiently useful and important.” The secretary of state kept a register of approved patents. The patent law granted to the patent owner “the sole and exclusive right and liberty” to make and sell his invention for a term of 14 years. Congress shall have Power . . .
years. When the patent term expired, the invention would become part of the public domain and anyone could make and sell it.

The copyright law gave an initial term for a copyright of 14 years. It could be renewed for an additional 14 years. Works that violated the law would be destroyed and a penalty imposed of 50 cents per page. The secretary of state would keep copies of each copyrighted work.

During the 200 years since they were signed, Congress has changed both laws many times. In 1836, it set up a Patent Office. In 1952, it added a new requirement for patents. In addition to being useful and new, a patent must also be for something “non-obvious.” More recently, the term of a patent was extended to 20 years.

Changes to the copyright law have included extending the term to the life of the author plus 70 years. Also as new technologies emerged, Congress has added new types of materials that can be copyrighted: sound recordings, photographs, movies, and video. But the central ideas of intellectual property law remain the same. They have bought more benefit to the nation than the founders could have imagined.

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**Some Important Historical U.S. Patents**

<table>
<thead>
<tr>
<th>Invention</th>
<th>Patent #</th>
<th>Year Granted</th>
<th>Inventor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton Gin</td>
<td>X0000072</td>
<td>1794</td>
<td>Eli Whitney</td>
</tr>
<tr>
<td>Reaper</td>
<td>X008277</td>
<td>1834</td>
<td>Cyrus H. McCormick</td>
</tr>
<tr>
<td>Revolver Pistol</td>
<td>X009430</td>
<td>1836</td>
<td>Samuel Colt</td>
</tr>
<tr>
<td>Electric Motor</td>
<td>132</td>
<td>1837</td>
<td>Thomas Davenport</td>
</tr>
<tr>
<td>Vulcanized Rubber</td>
<td>3,633</td>
<td>1844</td>
<td>Charles Goodyear</td>
</tr>
<tr>
<td>Anesthesia</td>
<td>4,848</td>
<td>1846</td>
<td>Chas. Jackson &amp; Wm. Morton</td>
</tr>
<tr>
<td>Steel Making Process</td>
<td>17,628</td>
<td>1857</td>
<td>William Kelly</td>
</tr>
<tr>
<td>Dynamite</td>
<td>78,317</td>
<td>1868</td>
<td>Alfred Nobel</td>
</tr>
<tr>
<td>Typewriter</td>
<td>79,265</td>
<td>1868</td>
<td>Sholes, Glidden, &amp; Soule</td>
</tr>
<tr>
<td>Pasteurization</td>
<td>135,245</td>
<td>1873</td>
<td>Louis Pasteur</td>
</tr>
<tr>
<td>Barbed Wire</td>
<td>157,124</td>
<td>1874</td>
<td>Joseph F. Glidden</td>
</tr>
<tr>
<td>Telephone</td>
<td>174,465</td>
<td>1876</td>
<td>Alexander Graham Bell</td>
</tr>
<tr>
<td>Internal Combustion Engine</td>
<td>194,047</td>
<td>1877</td>
<td>Nicolaus August Otto</td>
</tr>
<tr>
<td>Incandescent Light</td>
<td>223,898</td>
<td>1880</td>
<td>Thomas Alva Edison</td>
</tr>
<tr>
<td>Motion Picture</td>
<td>493,426</td>
<td>1893</td>
<td>Thomas Alva Edison</td>
</tr>
<tr>
<td>Radio</td>
<td>586,193</td>
<td>1897</td>
<td>Guglielmo Marconi</td>
</tr>
<tr>
<td>Air Conditioning</td>
<td>808,897</td>
<td>1906</td>
<td>Willis H. Carrier</td>
</tr>
<tr>
<td>Airplane</td>
<td>821,393</td>
<td>1906</td>
<td>Orville &amp; Wilbur Wright</td>
</tr>
<tr>
<td>Rocket</td>
<td>1,102,653</td>
<td>1914</td>
<td>Robert H. Goddard</td>
</tr>
<tr>
<td>Frozen Food</td>
<td>1,773,080</td>
<td>1930</td>
<td>Clarence Birdseye</td>
</tr>
<tr>
<td>Television</td>
<td>1,773,980</td>
<td>1930</td>
<td>Philo T. Farnsworth</td>
</tr>
<tr>
<td>Photocopying</td>
<td>2,297,691</td>
<td>1942</td>
<td>Chester F. Carlson</td>
</tr>
<tr>
<td>Transistor</td>
<td>2,524,035</td>
<td>1950</td>
<td>John Bardeen &amp; Walter Brattain</td>
</tr>
<tr>
<td>Digital Computer</td>
<td>2,668,661</td>
<td>1954</td>
<td>George R. Stibitz</td>
</tr>
<tr>
<td>Tetracycline</td>
<td>2,699,054</td>
<td>1955</td>
<td>Lloyd H. Conover</td>
</tr>
<tr>
<td>Atomic Reactor</td>
<td>2,708,656</td>
<td>1955</td>
<td>Enrico Fermi &amp; Leo Szilard</td>
</tr>
</tbody>
</table>

Source: Significant Historical Patents of the United States, URL: www.uspat.com/historical/

Notes
1. The cotton gin separates cotton fiber from seeds. Previously, this tedious work had to be done by hand.
2. Vulcanized rubber is made through a process that makes rubber capable of being used in many products, such as tires and shoes.
3. The internal combustion engine is the gasoline-powered engine in most cars today.
4. The transistor is the basic part of every modern electronic device.
5. Tetracycline is an important antibiotic that sparked development of other antibiotics.
6. The atomic reactor made possible the development of nuclear energy as well as the nuclear bomb.
For Discussion and Writing
1. How would you define “intellectual property”? What are some examples of intellectual property?
2. What is the difference between a patent and a copyright?
3. What is the purpose of patent and copyright laws? Do you think they serve a useful purpose? Why or why not?
4. What is the length of copyright and patent protection? Do you think the terms are the right length or should they be made shorter or longer? Explain.
5. Scientist Jonas Salk developed the first polio vaccine, which ended the epidemic of this crippling disease. He was asked whether he intended to patent the vaccine. He replied no, saying, “Could you patent the sun?” Do you think we should deny patents on medical breakthroughs that could save many lives? Or would this stop companies from investing in medical research? Explain your answer.

ACTIVITY

Patent Application
The U.S. Patent Office has issued millions of patents over the years. On page 4, “Some Important Historical U.S. Patents” lists a few of the most significant ones.

Form small groups. Each group should do the following:
2. Discuss and decide on the five inventions that had the most effect on American society.
3. Discuss and answer this question: How did each of the five influence American society?
4. Be prepared to report on the five inventions you chose, why you chose them, and how they influenced American society.

After the groups report back, hold a discussion on this question: Do you think patent protection is important?

Standards Addressed
National High School U.S. History Standard 8: Understands the institutions and practices of government created during the Revolution and how these elements were revised between 1787 and 1815 to create the foundation of the American political system based on the U.S. Constitution and the Bill of Rights.

National High School Civics Standard 25: Understands issues regarding personal, political, and economic rights. (4) Understands contemporary issues that involve economic rights such as . . . copyright, patents.

National High School Economics Standard 2: Understands characteristics of different economic systems, economic institutions, and economic incentives. (4) Knows that property rights, contract enforcement, standards for weights and measures, and liability rules affect incentives for people to produce and exchange goods and services.


National High School Language Arts Standard 10: Understands the characteristics and components of the media. (6) Understands the influence of different factors (e.g., . . . copyright laws) on media production, distribution, and advertising . . . . (11) Understands legal and ethical responsibilities involved in media use (e.g., . . . copyright laws . . . ).

National High School Business Education Standard 11: Understands the legal implications of electronic communications and information systems on business. (3) Knows federal and state copyright and trademark laws that regulate computer hardware and software.

National High School Technology Standard 3: Understands the relationships among science, technology, society, and the individual. (2) Knows ways in which social and economic forces influence which technologies will be developed and used (e.g., . . . patent laws . . . ). (4) Knows that technological knowledge is often not made public because of patents and the financial potential of the idea or invention . . . .

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