The Origins of Patent and Copyright Law

Our nation’s founders recognized the value of intellectual property, and in the U.S. Constitution, they granted Congress the power to protect it. From the beginning of our nation, Congress has enacted patent and copyright laws to protect the works of creative people and to encourage others to be creative.

When the American Revolution ended, the states faced an economic depression. War debts had mounted, and some states could not pay what they owed. Seven of the 13 states had issued their own paper money, which had little value. Merchants and wealthy planters who were owed money were becoming angry. The new government of the United States was based on the Articles of Confederation, adopted during the Revolutionary War. The articles gave great power to the individual states and little to the central government. With no power to act, the central government failed to address the war debt and other commercial problems. When the Constitutional Convention convened in 1787, its members recognized that a new constitution would need to encourage commerce and to provide the basis for a stable economy.

To that end, the framers gave Congress the power to lay and collect taxes, to pay the debts owed by the United States, to borrow money on credit, and to coin money and regulate its value. They also gave Congress the power to “Promote the Progress of Science and useful Arts” by giving an economic incentive to inventors and writers. That power, and the national patent and copyright laws that soon followed, have stimulated the country’s economy for more than 200 years.

The framers probably could not have predicted how important patents and literary products would become to the national economy. But even in 1787, (Continued on next page)

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they knew the basic reasons for protecting intellectual property: Society benefits from the products of original and creative thought. Protecting these products gives their producers an incentive to create more and thus stimulates greater activity.

**The European Experience**

**Patents for Novel Inventions.** Fillipo Brunelleschi is best known as the architect of the great dome of the cathedral in Florence. He also invented a novel kind of boat that he believed would allow merchants to bring goods into Florence for less money. In 1421, the Republic of Florence passed a law giving Brunelleschi what is thought to be the first true patent of an invention. A preamble to the law stated that Brunelleschi had refused to make his invention available to the public, but he would do so if he would receive protection from others who might copy his invention. The preamble continued, declaring it was desirable that his hidden invention “be bought to light, to be of profit both to Fillippo and to our whole country.” The law gave Brunelleschi the exclusive right to operate his new method of water transportation for three years. The result of granting this privilege, the preamble stated, would “animate Fillipo to even higher pursuits” and stimulate him to more “subtle investigations.”

As it turned out, the invention failed. The boat sank in the Arno river. But other parts of Italy recognized the need to issue grants to stimulate new technology. In the middle of the 15th century, Venice began awarding grants and privileges to people who introduced new techniques. In 1460, a “patent of invention” (a grant to the inventor) was awarded for a “water-raising mechanism.” The award required a “successful test” before the patent became official. It imposed a fine of 1,000 gold ducats on anyone who imitated the invention without a license. By 1474, Venice had passed a patent statute that included many of the elements of today’s patent laws:
1. It required that the device be original.
2. It mandated it be tested for utility.
3. It imposed a standard penalty for infringement.

During the next 300 years, many European countries adopted the model developed in Venice and granted patents for novel inventions.

**Copyrights.** The printing press was invented in Europe in the 15th century. Before then, literary property rights were not legally protected. But the printing press made the rewards of publishing—and of plagiarism—much greater. And Venice, the center of printing in Italy, soon began issuing “privileges” related to books and printing. In 1496, the republic issued the first known copyright. It gave an author exclusive control over a book and imposed a fine of 500 ducats to anyone who printed his work without permission.

Other European countries also began offering legal protection to authors. In Germany, copyright protection was also provided to artists, including the famous Albrecht Durer (in 1511 and 1518). Musical compositions were also protected. In England, authors and publishers lobbied Parliament to pass a licensing act and were finally successful in 1710. The law was titled: “For the Encouragement of Learning by vesting the Copies of printed Books in the Authors or Pachers of such Copies during the Times therein mentioned.” The law (known as the Statute of Anne) gave authors “the sole Right and Liberty” of printing new books for 14 years, beginning from the date of first publication. When the term expired, it extended the right for another 14 years if the author was still alive. The law also set a penalty for infringements, including forfeiting all copies and a fine of one penny per sheet. This law influenced the American colonies when they began to address the issue of intellectual property.

**The Colonies and the States**

**Patents for Novel Inventions.** No laws in the early colonial years provided for issuing patents. But individuals who claimed to have a novel device or product could apply to the colonial government to ask for the “exclusive right” to make and sell the product. And many such requests were granted. In 1641, the General Court in Massachusetts found that Samuel Winslow had a process “to make [salt] by a meanes and way weh hitherto hath not been discoverd” and at “more easy rates that otherwise can bee had.” It gave Winslow the exclusive right to use that process for 10 years. Similar grants were made by the General Court in Massachusetts (e.g., for making candles from whale oil) and in the other Northern colonies.

South Carolina was the most active of the Southern colonies in hearing and granting petitions for patent rights. As early as 1691, South Carolina awarded a patent to Peter Guerard for a rice husking machine (rice was the basis for the local economy). Like other patent grants in the colonial period, it was merely a private grant to one inventor. But with more and more requests for patents coming to the legislature, many saw a need for a law that would standardize provisions and include an examination procedure. In 1784, South Carolina was
the first state to pass such a law. Titled “An Act for the Encouragement of Arts and Science,” the law primarily addressed protecting literary property. But it also contained the following provision: “The inventors of useful machines shall have a like exclusive privilege of making or vending their machines for the like term of 14 years, under the same privileges and restrictions hereby granted to, and imposed on, the authors of books.”

Patent grants continued to increase during the 1780s in many states. Gradually the terms of the state grants became more similar, with most using a 14-year term. But without a national system, inventors often needed to seek grants in many states, which was complicated and expensive. The need for a broader patent protection was clear. As one observer noted on the eve of the Constitutional Convention, “a patent can be of no use unless it is from Congress, and not from them till they are vested with much more authority than they possess at this time.”

Copyrights. The first printing press in North America came to Massachusetts in 1639. Soon thereafter (in 1672 and 1673) the Massachusetts General Court passed two bills giving copyright protection to an author. But no other copyright is known to have existed in any of the colonies prior to the American Revolution. Without protection, American authors found it difficult to prosper, and few American popular works were published.

Beginning in the 1780s, a group of American authors banded together to lobby state legislatures for copyright protection. Perhaps the most well known—and forceful—member of the group was Noah Webster, who later created Webster’s Dictionary. In 1782, Webster was revising a book called the American Speller. (It was the first of a three volume text titled The Grammatical Institute.) In 1782 and 1783 Webster sent petitions to the legislatures of Pennsylvania, New Jersey, Connecticut, and New York requesting general copyright laws and also private protection for his book. Other authors were submitting similar petitions.

The authors also pressed the Continental Congress for support. In March 1783, the Congress appointed a committee of three (including James Madison) to consider the question of protecting literary property. Within a month, the committee submitted its report. Having concluded that protecting literary property “would greatly tend to encourage genius, to promote useful discoveries and to the general extension of arts and commerce,” the committee recommended that Congress pass a resolution encouraging the states to enact copyright laws. The resolution passed on May 2, 1783.

The resolution, and the continued lobbying by Webster and other authors, had an immediate effect. (Webster personally traveled to almost every colony, and in one instance, made a personal visit to General Washington at Mount Vernon, asking for help in convincing the Virginia legislature to pass copyright legislation.) By the end of 1784, eight states had adopted general copyright laws. By the end of 1786, all of the 13 states (except Delaware) had passed general copyright laws. Most of the laws, like the law passed in South Carolina, provided copyright protection for 14 years and significant penalties for infringement. But the Continental Congress, under the Articles of Confederation, had no power to pass national legislation.

National Patent and Copyright Laws

The Constitutional Convention convened in May 1787 to amend the Articles of Confederation and create a new, and stronger, national government. Four months later, on September 17, 1787, the new U.S. Constitution was signed. Article I, Section 8, listed the powers (Continued on next page)
granted to Congress. It included the power to protect both literary and inventive property:

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.

The last clause of Article I, Section 8, specifically granted Congress the power “to make all laws which shall be necessary and proper for carrying into Execution the Forgoing powers . . . .”

The convention’s journals do not record any debate over the intellectual property clause. Most of the clause’s language already appeared in state copyright laws (including the South Carolina law that linked copyrights rights and patents). Many members of the convention had served in state legislatures when copyright laws were adopted and patent applications were approved. The intellectual property clause was unanimously approved and passed without debate. This suggests that the lawmakers who drafted the Constitution knew about the weakness of the state system that required inventors and writers to make multiple applications. Most had been lobbied by Webster and other authors. As one scholar has noted, “When the Constitutional Convention met, the ground had been well prepared.”

When the first Congress convened on March 4, 1789, it formed a committee to draft a law under its constitutional power to protect intellectual property. The first bill was tabled until the next session. In the meantime, 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 “an infallible 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 and urged action on passing legislation. I believe, he said, “that you will agree with me in opinion, that there is nothing which can better deserve your patronage than the promotion of science and literature.” Within four months, Congress had passed legislation to protect patents and copyrights and established a system that in many respects remains in place today.

Congress chose to pass two separate bills, rather than a single bill for patents and copyrights. The patent law, effective April 10, 1790, granted to the patent owner “the sole and exclusive right and liberty” to make and sell his invention for a term not to exceed 14 years. When the patent term expired, the invention would become part of the public domain (which meant that anyone could make it and sell it). The law directed that patent applications must include a description of the invention and be reviewed by the secretary of state, the secretary of war, and the attorney general. The patent would issue if the invention was found to be “sufficiently useful and important.” The secretary of state would keep a register of approved patents.

The copyright law was signed into law on May 31, 1790. Its title was “An Act for the encouragements of Learning, by securing the copies of maps, charts and books, to the authors and proprietors of such copies during the times therein mentioned.” Like most of the laws passed by the states (and like England’s Statute of Anne), the initial term for a copyright under the law was 14 years, and it could be renewed for an additional 14 years. Infringing works would be destroyed and a penalty imposed of 50 cents per page. Copies of each copyrighted work would be deposited with the secretary of state.

During the 200 years since they were signed, both laws have been amended many times. A new Patent Office was established in 1836 to be headed by a commissioner of patents. In 1952, Congress added a new requirement for patents. In addition to being useful and novel, a process or compound for which a patent is sought must also be “non-obvious.” More recently, the term of a patent was extended to 20 years (from the date the patent application was filed). Changes to the copyright law have included extending the term (to the life of the author plus 70 years) and expanding the types of materials that can be copyrighted (to include new technologies such as sound recordings, photography, movies, and television). But the central concepts of intellectual property law remain the same and have undoubtedly brought more economic benefit to the nation than our nation’s founders could have envisaged.

For Discussion and Writing
1. How would you define “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?

**ACTIVITY**

**Patent Application**

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

Form small groups. Each group should do the following:
1. Review “Some Historical U.S. Patents” on the opposite page.
2. Discuss and decide on the five inventions that had the most effect on American society.
3. Discuss and answer these questions:
   a. How did each of the five specifically influence American society?
   b. Do you think patent protection aided the development of each of these inventions? Why or why not?
   c. What do you think would have happened to these inventions if patent protection had not existed? Why?
4. Be prepared to report your answers and reasoning to the class.

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Digital Piracy in the 21st Century

Copyright law protects intellectual property such as music, movies, and video games. Today’s digital media, however, makes copying these products easy. Digital pirates illegally copy and sell or even distribute for free these popular items. This piracy has serious consequences for the American economy.

All U.S. copyright law flows from Article I, Section 8, of the Constitution. This provision grants Congress the 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.” The writers of the Constitution wanted to encourage and reward authors, inventors, and other innovators for their creative work that would eventually become freely available to everyone.

Congress enacted the nation’s first copyright law in 1790. It gave authors the exclusive right to copy and sell their written works for a limited time. The 1790 law granted this right of exclusive ownership (actually a form of monopoly) for up to 28 years. After that, books and other published materials went into the public domain, available for anyone to use and copy.

Since 1790, U.S. laws have added copyright protection to such things as plays, works of art, photographs, sheet music, recorded music, movies, TV shows, software programs, and video games. In 1909, the use of copyright-protected intellectual property without payment or permission became a crime, a form of theft.

U.S. law, however, recognizes the “fair use” of copyrighted works by the public. This is an ill-defined and controversial area of the law, mainly developed in court decisions. Fair use generally allows the free copying and use of at least some portion of copyrighted works for criticism and comment, news reporting, scholarship, and teaching.

In 1984, the U.S. Supreme Court extended fair use to include home VCR recording of TV programs for personal use, but not for distribution to others or for public showings. VCR recordings were analog, not digital. They were not high quality and degraded with further duplication.

Then in the 1990s, new technology allowed people to make high-quality digital copies of copyrighted music on a computer and distribute them free over the Internet. The age of digital piracy began.

Who Are the Digital Pirates?

Introduced in the late 1980s, the MP3 computer file compressed data for images and music. This made the downloading and copying of music files on a computer and CD “burner” much easier. Soon, individuals were putting pirated music on their Internet web sites for anyone who found them to download, a form of file sharing.

The real explosion in illegal music downloads, however, began in 1999. A college student developed an efficient way for finding and downloading MP3 music files over the Internet. This was the Napster “peer-to-peer” file sharing method.

Napster maintained computer servers that stored a database of music files. Users could download desired songs free of charge from the database, organize the songs, and burn their own CD music albums. Napster quickly grew popular, especially among young people. The phrase “rip, mix, burn” entered the vocabulary of these young Napster users.

By 2001, Napster had 70 million users worldwide, downloading nearly 300 billion songs a year. The music industry sued Napster in federal court. The court found that the downloading constituted copyright infringement, and Napster shut down its servers and went out of business in 2002. (Napster was reborn in 2003 as a legitimate download-for-pay service.)
Alternative peer-to-peer file sharing sites like KaZaA quickly took Napster’s place. These sites differed from Napster. They eliminated centralized servers in favor of connecting users’ computers directly with one another. Thus, every user’s computer automatically became a source for uploading music files to others. A survey in 2003 found that 52 percent of Internet users between the ages 18–29 had downloaded music, most in violation of copyright laws.

The illegal file sharing of movies developed later than music file sharing. Movies require the transfer of huge computer files, which initially limited illegal downloading. But broadband high-speed Internet connections have led to a boom in online movie piracy.

Highly organized “warez” (pronounced, “wears”) group members compete with each other to be the first to illegally post a new movie on the Internet, sometimes even before the film’s release in theaters. Warez members do not seek monetary gain but may be motivated by a desire for fame and glory among their peers.

File sharers are only part of the digital piracy problem. A lucrative worldwide criminal black market has arisen, specializing in the duplication and sale of bootlegged CDs, DVDs, software programs, and video games. Some law enforcement authorities say that black-market digital piracy is even more profitable than drug trafficking.

The sale of illegal copies of DVDs plagues the movie industry. Black-market bootleggers sometimes obtain copies of movies before their release in theaters. They buy them from industry employees or even film reviewers.

Once a movie is in the theaters, pirates secretly use a camcorder to record it directly from the screen. These pirates then burn DVD masters on their home computers and sell them to bootleg factories. The factories use high-speed burners to produce thousands of illegal DVDs and package them with counterfeit cover art.

From the factories, bootleg movies go to the black market for sale. Legitimate retail stores occasionally purchase bootleg copies of DVDs for resale. More frequently, smalltime dealers purchase them to sell at swap meets, Internet sites, and on the streets for as little as a dollar.

According to 2007 estimates, thousands of bootleg movie DVD and music CD factories crank out over 30 billion counterfeit discs a year throughout the world. While some of these factories are in the United States, most are in countries with little or no copyright law or enforcement such as China, Russia, Thailand, Indonesia, and Nigeria.

What Harm Do Digital Pirates Cause?

Digital piracy first harms the original copyright holders: the songwriters, music artists, moviemakers, game developers, software innovators, and other creators of new digital media products. They lose money to those who sell pirated copies cheaply. The theft of their work also discourages them from doing further creative work, defeating the fundamental purpose of the Constitution’s copyright provision.

Today, most original authors of digital media sell their work along with its copyright to large music, movie, and other media companies. These companies take on the financial risk of producing, marketing, and selling the digital products, which cost more to make and sell than just the 50-cent blank plastic disc.

The economic impact is difficult to measure. But clearly billions of unlawful copies have had a significant negative economic impact on the United States.

In October 2007, the Institute for Policy Innovation (IPI), a non-profit public policy organization, released its first report on the overall effect of digital copyright violation on the U.S. economy. Using industry and government sources, the report made a conservative estimate of the economic harm caused by pirated sound recordings, movies, video games, and software.

The IPI report revealed digital piracy on a global scale leads to major losses in U.S. media industry output, jobs, and wages. The study also estimated the additional “cascading effect” on industry suppliers, retail distributors, and government tax revenue. Listed in the chart on the next page are key findings from the IPI study. Figures are based on research studies done between 2005 and 2007.

Beyond the damage to the U.S. economy, some social observers worry about the “scofflaw effect” among the young. The ease of “rip, mix, and burn,” say these observers, is resulting in a generation of young criminals who disregard the intellectual property of others.

The young file-sharing downloaders, however, do not see themselves as criminals. They believe they have the right to take music, movies, and other media off the Internet without paying for them. Their justifications include:

(Continued on next page)
• Greedy corporations overprice music CDs.
• CD albums may only have one or two songs worth getting.
• File sharing allows for sampling a new release before purchasing it.
• Music companies rip off the artists who make their money on concert tours anyway.
• It is not like stealing a CD from a music store.

Fighting the Digital Pirates

Big media companies with huge investments in music, movies, television, and software turned to the federal government in the late 1990s to strengthen copyright laws. The No Electronic Theft Act of 1997 makes it illegal to distribute unlawful copies of music CDs, films, DVDs, and other copyrighted digital media even if no financial gain is involved.

Since 1790, the limited time the law allowed for copyright protection gradually increased from the original maximum of 28 years. If an individual author owns the copyright, it lasts for the author’s lifetime plus 70 years following the author’s death.

In 1998, in an attempt to catch up with fast-developing changes in technology, Congress passed the Digital Millennium Copyright Act. This wide-ranging law gave authority to owners of copyrighted digital media to sue those who illegally copied, distributed, or decoded encrypted products. This act also authorized copyright owners to compel Internet service providers to remove online material if the owners claim it infringes on their copyright.

In September 2003 (just as school began), the Recording Industry Association of America (RIAA), representing most of the music recording business, changed its strategy of attack. The RIAA shifted from suing peer-to-peer file sharing web sites like Napster to going after individuals illegally copying and sharing copyrighted songs.

The RIAA got the names of suspected pirates from Internet providers (including universities). RIAA anti-piracy teams also monitored KaZaA’s network to find other violators. Using this information, the RIAA has coordinated over 25,000 lawsuits against individuals since 2003.

The RIAA meant for its lawsuit campaign to frighten downloaders from grabbing copyrighted music off the Internet. But a backlash occurred when news stories revealed lawsuits against young children and cases of mistaken identity. Some questioned the fairness and logic of suing music lovers who are, after all, the industry’s prime customer target group.

In 2007, a civil jury found a young mother of two in violation of the copyright laws for sharing 24 songs over the KaZaA network. The jury awarded music companies damages of $222,000 or $9,250 per song.

U.S. Copyright law allows damages of $750–$150,000 per pirated song. Even so, online piracy of music, movies, and other digital media persists on a massive scale in the United States and throughout the world.

Thus far, the music, movie, and software industries have used lawsuits as their main weapon against the not-for-profit peer-to-peer file sharing digital pirates. The U.S. Department of Justice has focused on investigating and prosecuting criminal black-market operations that duplicate and sell bootleg digital products.

The Federal Bureau of Investigation cooperates with other U.S. and foreign law enforcement agencies to bring down those profiting from digital theft. For example, in 2004, a federal court sentenced one man to over a year in prison plus a $120,000 fine for illegally copying and selling 11,000 video and audio recordings of live musical acts. The number of such criminal prosecutions, however, is still relatively small.

In much of the rest of the world where intellectual property is often not even recognized, over a third of all music recordings sold are pirated. In China, about 90 percent of the music CDs and movie DVDs sold are bootlegged copies. Recently, the U.S. government filed a formal com-

### Estimated Economic Impact of Global Digital Piracy on the U.S. Economy Annually

<table>
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<tr>
<th>Category</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Lost output of U.S. digital media industries and retail (2005)</td>
<td>$25.6 billion</td>
</tr>
<tr>
<td>Lost U.S. jobs (2005)</td>
<td>373,375</td>
</tr>
<tr>
<td>Lost wages of U.S. workers</td>
<td>$16.3 billion</td>
</tr>
<tr>
<td>Lost taxes at federal, state, and local levels</td>
<td>$2.6 billion</td>
</tr>
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plaint with the World Trade Organization, accusing China of failing to enforce international copyright laws.

**What Should We Do About Digital Piracy?**

Listed below are some major anti-piracy strategies currently being debated.

1. **Keep going after the online pirates and the file-sharing networks that enable them.** Suing end users of peer-to-peer file-sharing networks is the current strategy of the big media companies. They manage to sue only a small fraction of these downloaders of copyrighted music and other media. But the publicity may make others think twice before taking a chance that they may end up having to pay thousands of dollars for “free” music and movies. Defeating file sharing networks like KaZaA is a challenge since they often operate from foreign countries.

2. **Increase efforts to prosecute criminals making and selling bootleg copies of digital media.** Congress should fund more U.S. Department of Justice investigation and prosecution units to take down black-market digital counterfeiters. Congress should also increase prison penalties and fines for profiting from digital theft. Prosecuting digital bootleggers abroad is often difficult since many countries do not have the same copyright protections for intellectual property as the United States.

3. **Use technology to block illegal access, copying, and distribution of copyrighted digital media.** Media companies have attempted to guard their products with various forms of encryption, copy-protection locks, and other technical solutions. MySpace recently agreed to use filters to block unauthorized postings of music and videos. These technical fixes work, but the digital pirates always seem to find ways around them.

4. **Educate the public, especially young people, about the ethical and legal use of copyrighted digital media.** A new FBI anti-piracy warning about unauthorized copying now appears on packaging for music recordings, movies, software, and video games. Some call for instruction of students on the value of intellectual property and consequences for violating copyright laws. Studies have shown that the attitudes of peers (real and virtual), siblings, parents, and teachers all influence how likely a young person will become a digital pirate.

5. **Big media companies should adopt file-sharing technology to make it easier and cheaper for consumers to buy the products they want.** The music, movie, and other digital media industries have been reluctant to abandon their tried and true marketing systems. But Apple’s iTunes Store and similar online enterprises are now selling music directly to customers over the Internet at reduced prices.

The movie industry, however, has been slow to go this route, fearing the lack of online security.

6. **Speed up the time when copyrighted material will become freely available and expand “fair use.”** The writers of the Constitution never wanted copyrights to last forever. Over the years, however, copyright holders have successfully lobbied Congress to extend the term of exclusive ownership to the author’s lifetime plus 70 years. Critics argue that copyrighted material should enter the public domain much more quickly. This would vastly accelerate free access to books, songs, movies, and other intellectual property for the benefit of all. The critics also say that Congress should write rules for nonprofit “fair use” of media still under copyright.

**For Discussion and Writing**

1. Do you agree or disagree with the justifications young file-sharing downloaders give for taking copyrighted songs and other media off the Internet without paying for them? Why?

2. The U.S. Constitution gives Congress the power to set “for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . . .” What do you think is a reasonable term for copyright protection of songs, movies, video games, and software? Defend your answer.

3. What do you think the “fair use” of copyrighted songs, movies, video games, and software should include? Why?

**For Further Reading**


**Activity**

**What Should We Do About Digital Piracy?**

Form six groups to each evaluate one of the anti-piracy strategies discussed at the end of the article. Group members should first make a list of pros and cons for their strategy and then decide whether to recommend it. Each group should report its decision and reasons to the rest of the class. After the presentations, the class should vote on the best strategy.
Patenting Life

The U.S. Patent Office issues patents for new inventions. With the development of biotechnology, scientists are designing new bacteria, plants, and even animals for medical and other uses. The issue arises: Should patents be issued for these living things?

Patenting living things has always provoked controversy. Some of the controversy hinges on moral and ethical issues, and some on legal disputes. Another area of controversy is whether patenting cell lines, specific genes, and diagnostic tests actually helps or hinders medical care.

The Supreme Court has not considered this issue since 1980. Since that time, many revolutionary discoveries in biotechnology have occurred. Scientists, lawyers, and businessmen agree that the law on patenting life has not kept up with new discoveries and that it is time for Congress to act.

Can Living Things Be Patented?

Ananda Mahan Chakrabarty grew up in India. After finishing his PhD, he came to the United States and in the 1970s was working for General Electric in genetic engineering. Chakrabarty invented a new kind of bacteria to which he added plasmids (small pieces of DNA, separate from the chromosome) from other bacteria. His multiplasmid bacteria grew faster and better on crude oil than any of the single plasmid bacteria. His new bacteria were good at cleaning up oil spills because they consumed oil so quickly. After meeting with a patent attorney, he decided to apply for a patent on his oil-eating bacteria.

The U.S. Patent and Trademark Office (PTO) denied Chakrabarty’s patent application in 1973. The PTO ruled that Chakrabarty’s bacterium was a “product of nature” and no one may get a patent for living things. Seven years later, the case made its way to the U.S. Supreme Court, which overruled the PTO.

In its decision, the Supreme Court analyzed the language of the Patent Act (35 U.S. Code 101), which states:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter . . . may obtain a patent therefore, subject to the conditions and requirements of this title.

The court held that the terms “manufacture” and “composition of matter” should be interpreted broadly and that no history or case law indicated otherwise. It cited a congressional committee report from 1952 (when the Patent Act was amended) stating that Congress intended people to be able to patent “anything under the sun that is made by man.” The court acknowledged that true “products of nature” may not be patented: “Thus, a new mineral discovered in the earth or a new plant found in the wild is not patentable subject matter.” But Chakrabarty’s bacteria had different DNA and different properties from any bacteria found in nature. “His discovery,” the court ruled, “is not nature’s handiwork but his own,” and therefore may be patented.

The decision in Diamond v. Chakrabarty did not place limits on what types of living organisms could be patented. And during the 1970s and 1980s biotechnology was exploding. New technologies were being developed to diagnose diseases and develop new drugs. One of those new technologies involved the use of human cell lines. A human cell line is made from cells taken from the body and modified so that they continue to reproduce indefinitely. Establishing a cell line from human tissue is extremely difficult and rarely succeeds. One scientist who developed a cell line was Dr. David Golde at the UCLA Medical Center. Dr. Golde had a patient named John Moore who had leukemia. Golde took samples of Moore’s blood and other bodily fluids, and in October 1976 removed Moore’s spleen. After
the surgery, Moore continued to visit Dr. Golde, who kept taking tissue and blood samples from his patient. By August 1979, Golde had established a cell line from Moore’s T-lymphocytes, a type of blood cell. In 1983, the Regents of the University of California applied for a patent on the “Mo cell line.” The patent was issued in March 1984, listing Golde and a colleague as inventors. The patent was licensed to a biotech company, which agreed to make sizable royalty payments to the Regents and to Dr. Golde. The cell line patent turned out to be a valuable invention for Golde, but Moore received nothing.

Much litigation occurred over who owned Moore’s cells and whether he should receive some of the royalties from the patent. But the patent on his cell line was not disputed. And the Chakrabarty decision did not address the question of whether multicellular organisms (as opposed to unicellular organisms such as bacteria) could be patented.

New technologies were being developed during the 1970s and 1980s to create “transgenic” animals. (A transgenic animal is one that has DNA from another species injected into its genes.) Soon, patent applications were being filed. The first patent on a multicellular organism was granted in 1987 on a “polyploid” oyster in which more than one set of chromosomes had been induced. After the oyster patent was granted, the PTO issued a policy statement saying that people could get patents for non-naturally occurring, non-human multicellular organisms, including animals. One year later, a U.S. patent was issued on the “Harvard Oncomouse,” one of the first transgenic animals to be produced.

Researchers at Harvard College had injected an “oncogene” into a laboratory mouse to make it more susceptible to cancer. Because the mouse was highly susceptible to cancer, it was ideal for identifying drugs that could be used to treat cancer. No litigation took place in the United States over the patent’s validity. But a huge furor erupted in other countries where Harvard had filed for a patent. The patent was initially rejected by the Supreme Court in Canada (but later granted after an amendment). In Europe, the Patent Office considered the case at length. A particular problem that the patent faced was that the European Patent Convention excluded inventions “contrary to ordre public or morality.” Seventeen third parties opposed the patent based on moral concerns. But the Patent Office used a balancing test and concluded that the usefulness of the mouse in furthering medical research outweighed any moral concerns about the suffering caused to the mice. It upheld an amended patent.

Are Genes Patentable Material?

Gregor Mendel was an Austrian monk who lived and worked at the time of our Civil War. Mendel grew pea plants in his abbey’s garden and studied them to learn how traits (like the color and shape of the pea plant) are inherited. The units of heredity that Mendel studied are what we now call “genes.” Genes exist in every living cell. In the 20th century, scientists learned that genes contain the instructions for building the proteins that make cells function and that genes are strung together as long strands of a chemical called DNA.

A large part of every cell’s DNA has no known function (and has often been referred to as “junk”). Identifying the parts of DNA that constitute a “gene”—i.e., that code for a protein—requires research and sophisticated technology. It is that work—the isolation and purification of the gene—that the Patent Office relies on in issuing patents on specific genes.

Much controversy has broken out over whether anyone should be able to get a patent for genes. It is well established in U.S. case law that one may not patent the laws of nature or naturally occurring materials. As the Supreme Court stated in Diamond v. Chakrabarty, a discovery—such as a plant found in the wild—is not patentable subject matter. But a “non naturally occurring manufacture or composition of matter” that is the product of “human ingenuity” can be patented. Thus, inventions, but not discoveries, are patentable.

Many of the early gene patents were for genes that encoded for proteins that could be used for medical purposes. One example is the gene for erythropoietin (EPO), a protein that stimulates the production of blood cells. Scientists invented a way to manufacture the protein by isolating the gene for EPO and putting it into living cells that produce the protein in large quantities. The EPO protein is used to treat people with anemia (and sometimes misused by athletes to improve their performances). A patent for the EPO gene was issued to Amgen, a California company. On receiving the patent, Amgen sued Chugai, a competing drug company, for infringing on its patent. Chugai responded in court that Amgen’s patent was not valid because it did not meet all the statutory requirements for a patent. In 1991, a Federal Circuit Court of Appeals
upheld the patent. The court ruled that Amgen was the first to invent and describe a method for purifying, isolating, and obtaining the DNA sequence that codes for EPO.

Since the early 1980s, many human genes have been patented. A study in 2005 showed that at least 4,382 human genes are claimed in patents. (This represents about 20 percent of the genes in the human body). While courts generally agree that a gene that has been isolated and purified should qualify for a patent, many critics, including distinguished scientists, believe that there should be limits on patenting genes. Some critics argue that properties of the isolated gene, after purification, are not invented by the scientist but rather are the natural, inherent properties of the gene. And as the biotechnology revolution continues, the line between what occurs in nature and the products and processes used by man to make something useful continues to blur.

**Do I Own My Tissue and My Genes?**

Dr. Golde’s patented Mo cell line was developed with cells taken from Moore’s body. When Moore learned about the patent, he sued Dr. Golde (and the company producing products from the cell line). He argued they were using his biopsied tissue without his consent. His case went to the California Supreme Court in 1990. The court ruled that Moore had no ownership right in his tissue and therefore no right to share in the proceeds of the patent. (The court did rule, however, that Moore could sue his physician for failing to obtain a valid “informed consent” because Dr. Golde had not disclosed his personal interests—research and economic—to his patient.)

In ruling that Moore had no ownership interest in the cells taken from his body—and the patent on the resulting cell line—the court could find no legal precedents on which to rely. It did note that the patent on the cell line indicated that the cell line was “factually and legally distinct from the cells taken from Moore’s body.” The court relied on this fact to support its decision that Moore had no ownership right to the patent.

Having concluded that under existing law Moore could not sue Dr. Golde for conversion (i.e., for interfering with an ownership interest in private property), the court considered whether it should create new law by extending conversion law to cover cell lines. It concluded that doing so would likely discourage important medical research, because it would be almost impossible for researchers who use cell lines in their laboratories to find out where the cell line had come from or whose cells had been used to create the line. Where such difficult policy issues are at stake, the court concluded, they should be decided by the legislature.

**Do Gene Patents Promote the Progress of Science?**

The purpose of the patent system is to provide incentives for research and innovation. But many critics believe that gene patents may be doing just the opposite. An example often cited is the issuance of patents for the breast cancer gene.

All cancers involve changes in genes called “mutations.” In most cases, mutations occur after birth. But some cancers, including breast cancer, can be hereditary, which means that the cancer is caused by a mutated gene present at birth in all cells of the body. Two genes associated with breast cancer are called BRCA1 and BRCA2 (for breast cancer 1 and 2). Women with a family history of cancer who inherit a mutated form of BRCA1 have a much higher risk of developing cancer than women in the population at large.

In 1997 and 1998, the U.S. Patent Office issued patents to Myriad Genetics, a company in Salt Lake City, Utah. One patent covered the BRCA1 gene sequence and any method of diagnosing the likelihood of breast cancer using that sequence. The European Patent Office granted a similar patent to Myriad in 2001. That patent was one of the most controversial ever granted. It drew immediate opposition in Europe. After six years of legal wrangling, the European Patent Office revoked the patent in October 2007.

Opposition to the Myriad patent was based in part on cost and access to medical care, and in part on the limitations the patent put on research and new medical discoveries. Under patent law, the patent holder has the right to prevent anyone else from making, using, or selling the invention for 20 years. The holders of the Myriad patent have a laboratory where they use the patent information to screen for mutations in the BRCA genes. But they refused to license the test to any other companies. So doctors anywhere in the world were required to send all samples for testing to Myriad’s laboratory. Doctors in France were angry with this (in part because Myriad charged a fee of approximately $3,000 per test, three times what a French laboratory charged). And perhaps more important, French scientists discovered that the Myriad test
failed to detect 10 to 20 percent of probable mutations in the BRCA1 gene. The patent barred researchers from developing alternative (and better) diagnostic tests. Thus, critics pointed out, a gene patent, like the BRCA patent, can raise the costs of genetic services, diminish the quality of genetic tests, and interfere with access to health care.

Should Congress Act?

The Supreme Court’s decision in *Diamond v. Chakrabarty* to allow the patenting of living things was not unanimous. Justice Brennan, joined by Justices White, Marshall, and Powell, filed a dissent based on amendments to the Patent Act in 1930 and 1970. Brennan wrote that these amendments were clear evidence of “Congress’ understanding . . . that 101 does not include living organisms.” The dissent concluded: “It is the role of Congress, not this Court, to broaden or narrow the reach of the patent laws. This is especially true where, as here, the composition sought to be patented uniquely implicates matters of public concern.” The majority’s decision echoed the belief that the concerns about patenting living things should be addressed by Congress, which, it said, could simply exclude organisms produced by genetic engineering from patent protection, or could “craft a statute specifically designed for such living things.”

Many experts in biotechnology and gene patenting agree that it is time for Congress to pass legislation to address the many issues regarding biotech patents. One of those issues is the patenting of human biological materials, including the question of whether donors of human tissues and cells should be compensated for their donation. A second issue concerns the negative effects on medical research of patenting gene sequences. Many experts believe that while processes and products (e.g., a new drug or a diagnostic test kit) should be patented, the actual gene/DNA sequence should be available for use by all researchers. A third issue concerns the patent process. In Europe, a third party can file an opposition to a patent. It was this process that resulted in the European Patent Office revoking the patent on the BRCA1 gene. Many believe that a similar process should be put in place in the United States, since existing U.S. law does not allow challenges to patents (except for lawsuits asserting that a patent has been infringed).

Congress will soon have a chance to address some of these issues. A bill titled the Genomic Research and Accessibility Act was introduced in February 2007 and is now before the House Judiciary Subcommittee on Courts, the Internet and Intellectual Property. If the bill passes out of committee, our representatives will have a chance to decide whether the current patent law is promoting or impeding progress in medical and scientific research and in the development of new technology.

For Discussion and Writing

1. What is a patent? What purpose do you think patents serve?
2. What issue did the U.S. Supreme Court decide in 1980 case of *Diamond v. Chakrabarty*? What did the court hold? Do you agree with its decision? Why or why not?
3. Why was the Harvard Oncomouse developed? Seventeen third parties objected to the patent in Europe. What is meant by a “third party”? What was the controversy about? Do you agree with the decision made by the European Patent Office? Explain.
4. What is the controversy over gene patents?
5. Why did the patient John Moore sue Dr. David Golde? How did the California Supreme Court rule in this case? Do you agree with the ruling? Explain.

For Further Reading

The House Acts

Imagine that a U.S. House of Representatives subcommittee is considering legislation on issues related to patenting life. The subcommittee will consider the following issues:

1. Should donors of human tissues and cells be compensated for their donation if a patent is issued from research on these cells?
2. Should it be legal to patent actual gene/DNA sequences or should these be made available to all researchers?
3. Should a third party be able to file an objection to a patent? Current law does not allow third parties to object to the granting of patents.

All three of these issues are briefly discussed above in the three paragraphs under “Should Congress Act?”

Form small groups. Each group will role play members of a congressional subcommittee and will decide the three issues above.

Each group should do the following:

1. Select a chair to run the committee meeting.
2. Discuss the first issue, list the pro and con arguments, and decide the issue. Repeat this process for the remaining two issues.
3. Have the chair assign one of the issues to different members of the group for reporting back to the class.
4. Be prepared to report the decisions and reasons for them.

Have the groups report back on each issue and then have the class, role playing the House of Representatives, vote on each issue.

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Ranked one of the “five super-sites” for “research and study” by the Los Angeles Times. (August 26, 2007, p. C2, “A students’ guide to research online” by David Colker.)
The Cheating Problem

Students, teachers, and administrators are grappling with the problem of cheating in American high schools. The issues most often debated involve what constitutes cheating, why some students cheat, and what should be done about cheating.

Cheating is a serious problem in American schools. According to a 2006 survey of more than 35,000 high school students conducted by the Josephson Institute of Ethics, about 60 percent of the students admitted to cheating on an exam during the previous 12 months. A Princeton University study in 2001 showed that 74 percent of high schoolers admitted to cheating or plagiarism at some point during the previous school year. A similar study of 4,500 high schoolers done at Rutgers University, and published in 2002, echoed these studies. Almost three-quarters of the students had cheated at least once during high school. The sting of these figures is made worse by the attitudes expressed by the students. Fifty percent of the students polled said they saw nothing wrong with copying questions and answers from a test. Fifty-seven percent of the students said that copying some sentences for a written assignment or getting answers from someone who had taken a test was not a problem.

The consequences of widespread cheating are hard to measure, but many think it may affect the ethical fiber of society. Forty-six percent of students in a recent Who’s Who Among American High School Students say that “declining social and moral values” are the biggest problem facing their generation. By contrast, only 15 percent of those students say that crime and violence are the main problems. Michael Josephson, founder of the Josephson Institute, concurs, saying that “we’re harvesting a generation of nuclear inspectors, auto mechanics, and politicians who will do what it takes to get what they want.”

What Is Cheating?

Webster’s New World Dictionary defines “cheat” as “the act of deceiving or swindling.” In the school setting, cheating normally refers to a breach of academic integrity. According to Gary J. Niels, author of “Academic Practices, School Culture, and Cheating Behavior,” academic integrity means “respecting the value of words, thoughts, images and ideas . . . it includes an understanding of the principles of ownership with respect to words, thoughts and ideas.”

The principles of academic integrity are fairly simple. Everyone’s words and ideas deserve respect. No one has the right to take credit for someone else’s words or ideas. We must “give credit where credit is due.” We demand the same from others in return. This means, among other things, not copying someone else’s essay or artwork, forging someone else’s signature, or allowing someone else to copy our work.

Cheating takes numerous forms. One of the most frequently cited forms is copying someone else’s work. Other forms include looking at notes during a test, writing a report for someone, arranging to give answers by signals, finding a test in the trash to memorize the answers, and getting answers from someone who had already taken a test or term paper. Some actions are considered cheating by some but not by others, such as studying someone else’s notes or buying a published study guide instead of reading the assigned book.
A common cheating practice is plagiarism, copying another’s writing without giving proper credit. In the Rutgers University study, 57 percent of the students felt that copying “a few sentences” from another source was no problem. Yet some students copy more than a few sentences, as a University of Virginia survey has shown. Faculty at the university say that the Internet is the “No. 1 societal force leading students to commit acts of plagiarism,” according to Wired magazine news.

The Internet provides a rich source of information on virtually any topic. Students can easily copy information without even typing, insert it in a school assignment, and pass it off as their own. For more advanced cheaters, the Internet has “term paper mills,” databases with hundreds, and sometimes thousands, of pre-written and ready-made term papers and essays. These databases offer papers for a fee. For a larger fee, many of these companies will custom-write papers. Such companies existed before the Internet, but the Internet has made them more popular. The Kimbel Library at Costal Carolina University lists these companies. In its first listing in 1999, there were 35 term paper sites on the Internet. By 2006, the number had grown to more than 250 sites.

Many states make it a crime for businesses to write term papers for students. Businesses get around such laws by posting disclaimers saying that the papers they are selling are for research purposes only and are not to be turned in for class credit.

**Why Do People Cheat?**

Access to the Internet provides a temptation, but what makes people give in to such a temptation? There are many reasons.

Donald McCabe, who conducted the Rutgers University surveys mentioned above, says: “Students sense a deterioration of general societal values, and incorporate that into their own lives.” In other words, cheating does not have the stigma it once had in American society.

Some researchers believe economic instability motivates people to cheat. Social critic Christopher Lasch commented that business competition drives people not to excel, but rather to “struggle to avoid crushing defeat.” In a race to get advantages over others, cheating is tempting.

Studies reveal that students who cheat try to justify it. Cheaters might resent teachers who give them meaningless assignments or “busywork.” Students might say that teachers do not seem to care about cheating. They might complain that cheating is necessary because the teacher’s pace of instruction is too overwhelming.

Some students might do their own risk-benefit analysis. They might think that they will not get caught. Or they might believe that if they do get caught, the punishment will not be severe.

Often high-achieving or more affluent students find themselves in an atmosphere ripe for cheating. Many adolescents in wealthy families endure intense pressures to succeed. According to Niels (who heads the Winchester Thurston School in Pennsylvania), privileged young people “believe that they must choose occupations that befit their social status and they must earn an income which enables them to maintain a lifestyle equivalent to their parents’.” Niels cites a study on adolescent alienation, published in 1990 in...
the Journal of Research and Development in Education. It states that private schools might unintentionally promote cheating because of the heightened expectation that students must perform well academically. The Who’s Who survey, cited above, also showed that four out of five adolescents at the top of their classes cheated at some point during their academic career.

What Should Be Done?
Schools have implemented different methods to curb cheating. The spectrum runs from open discussion of cheating and plagiarism in the classroom to schoolwide honor codes. A 1990 study in the Journal of Educational Research suggested that the impulse for students to cheat decreases when teachers explain the purpose and relevance of course assignments. Also, students feel more pressure when the grade depends on only a few heavily weighted tests. Increasing the number and variety of graded assignments lowers the pressure on students. According to the study, teachers and students agreed that clear and well-structured objectives and lessons, teacher communication with students who have academic difficulties, seating assignments, and close teacher supervision during tests all would reduce the likelihood of cheating.

A similar approach could reduce plagiarism on term papers. Teachers could make interim assignments before the whole paper is due. These might include a thesis statement, an outline of the paper, a summary of the paper, and a rough draft. The teacher would grade and make comments and suggestions on the interim assignments. Students would be expected to respond to the comments in the next interim assignment.

Other studies show that as the risk for students getting caught for cheating increases, the instances of cheating decrease. One way to increase the risk is implementing an honor code. A code lets students know that the school has core values. Many high schools and colleges already use codes to define cheating and clearly outline consequences. For example, Brandeis University’s honor code states that:

Every member of the University community is expected to maintain the highest standards of academic honesty. A student shall not receive credit for work that is not the product of the student’s own effort.

It also states if a student “either knowingly or through negligence” provides “[his or her] own work to assist another student in satisfying a course requirement,” then that shall constitute “an infringement of academic honesty.” The code further states: “Talking during an examination, or possession or use of unauthorized materials or equipment during an examination constitutes an infringement of academic honesty.”

Boston College High School requires that all students and faculty sign an “Integritas Pledge” (“in the spirit of honor”). Students are expected to write “Integritas” and their signature on the top of every assignment, quiz, test, and exam. An elected “Honor Council” of students, supervised by a faculty advisor, judges violations of the honor code. In general, the code defines cheating as “deliberately giving or receiving unauthorized information on any assignment or examination,” and as “passing off or attempting to pass off another’s work as your own.”

Other schools are turning to the Internet and sophisticated software to combat plagiarism. The digitalization of information makes it easy to copy someone else’s work. It also makes it easier to catch cases of plagiarism. Once upon a time, a student could go to a library, find an obscure book, and copy it word-for-word without much danger of being caught. Today, that obscure book is more and more likely to be in a database, and a student plagiarizing it will be caught if a school employs the proper technique.

Teachers at some schools rely on Internet search engines. They simply type a suspicious phrase into the search engine and see if it appears on the Internet. But more and more schools are turning to sophisticated plagiarism-detection services, such as TurnItIn and MyDropBox. These programs used to be utilized exclusively by colleges, but today many high schools also use them. Although each works differently, they basically detect plagiarism by maintaining large databases of articles from magazines, journals, newspapers, books, the Internet, and previously submitted student papers. When a teacher submits a student’s paper to the company, the paper is compared to the database to see if any part of it has been copied.

(Continued on next page)
For Discussion and Writing

1. Do you think cheating is more common in schools today than in the past? Why or why not?

2. How would you define cheating? Do you think the following are instances of cheating? Rank the instances you consider cheating in order of seriousness.
   a. A student copies a few sentences off the Internet into her English paper. She does not put the sentences in quotation marks or otherwise attribute the sentences to the actual author.
   b. Almost everyone in a math class is cheating and doing well. Ron has never cheated but is not doing well in the class. He decides to sneak notes into the final exam so that he can do better.
   c. A student gets an A on her history paper. She sells it to an Internet term paper mill.
   d. A student sleeps through class but borrows his classmate’s notes to study for the exam.

3. Why do you think people cheat?

4. It is often said: “Cheaters only hurt themselves.” Do you agree? Explain.

5. How have schools addressed the problem of cheating? What are the pros and cons of these approaches? What do you think should be done about cheating? Why?

ACTIVITY

What Should Be Done About Cheating?

In this activity, students discuss and create their own honor code.

1. Form small groups of students. Each group should have a discussion leader, task master, and a recorder.

2. Each group should:
   a. Discuss these questions:
      (1) What should be the purpose of the honor code?
      (2) What values should the honor code promote?
      (3) What definition of cheating should be included in the honor code?
      (4) What consequences there should be for cheating?
      (5) How the code will be enforced?
   b. Draft an honor code, being careful that the consequences and enforcement correspond to the purpose and values of the code.
   c. Be prepared to report its conclusions to the questions and its honor code to the class.
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 Civics Standard 27: Understands how certain character traits enhance citizens’ ability to fulfill personal and civic responsibilities. 2. Understands contemporary issues that involve personal responsibilities (e.g., cheating on examinations...). (Grades 6–8)

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 Working With Others Standard 4: Displays effective interpersonal communication skills. (2) Exhibits positive character traits towards others, including honesty, fairness, dependability, and integrity

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... .

California History-Social Science Content Standard 8.2 Students analyze the political principles underlying the U.S. Constitution and compare the enumerated and implied powers of the federal government. (6) Enumerate the powers of government set forth in the Constitution... .

California History-Social Science Content Standard 11.1 Students analyze the major social problems and domestic policy issues in contemporary American society.

California History-Social Science Content Standard California 12.2 Students evaluate and take defend positions on the scope and limits of rights and obligations as democratic citizens, the relationships among them, and how they are secured. (2) Explain how economic rights are secured and their importance to the individual and to society (e.g., copyright and patent).

California History-Social Science Content Standard 12c.1: Students understand common economic terms and concepts and economic reasoning.

California History-Social Science Content Standard 12c.2: Students analyze the elements of America’s market economy in a global setting. (3) Explain the roles of property rights, competition, and profit in a market economy.

California History-Social Science Content Standard 12c.3: Students analyze the influence of the federal government on the American economy. (1) Understand how the role of government in a market economy often includes... defining and enforcing property rights... .

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Sources

Origins of Patent and Copyright Law

Digital Piracy

Patenting Life

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Unit 1: The Ideal of Equality focuses on the constitutional and legal doctrines that developed to ensure minority groups equal protection under the law.

Unit 2: A Diverse Nation provides a brief historical review of the experiences and struggles of various ethnic groups during the 19th and first half of the 20th century.

Unit 3: Civil Rights Movement covers the turbulent period between 1954 and 1975 that changed America forever. It examines the social protests, landmark Supreme Court decisions, the Civil Rights Act of 1964 and Voting Rights Act of 1965, and Mexican-American activism.

Unit 4: Issues and Policies explores current issues of diversity—affirmative action, bilingual education, multiculturalism, reparations, hate crimes, and the extent of progress in race relations.

Unit 5: Bringing Us Together tells of governmental and grassroots efforts to bring people together and provides students with ideas and resources for service-learning projects.

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<td>Traces the development of the Constitution and Bill of Rights. Provides a focus discussion, walks students through the creation of the Constitution, and introduces each of the 10 original Bill of Rights amendments and the 13th, 14th, 15th, and 19th amendments. Concludes with a graphic version of CRF’s popular activity “A Visitor From Outer Space.”</td>
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<td>The Constitution &amp; Bill of Rights: Due Process, Volume 1</td>
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