

Argumentative Performance Task: 3D Printers

Student Directions

Task:

Your class is studying about computer technology and development. You are given five resources about 3-D printers and how copyright, patent, and trademark law apply to 3D printers.

Read the sources carefully to **write an argumentative essay** supporting or opposing the school library getting a 3D printer for students to use. Make sure to address potential counterarguments in your essay and support your claim with information from the sources you have examined.

Sources for Performance Task:

Source #1

Here is a document that outlines the District of Columbia Public Library's 3D3D Printing Policy.

DCDC Public Library 3D Printing Policy

The Digital Commons, located in the Martin Luther King Jr. Memorial Library, provides access to new technology, including 3D printing for a fee, which is collected at the time of file submission. This is a staff-mediated service and is available on a first-come, first-served basis.

The DCDC Public Library reserves the right to refuse production of any content at any time at the discretion of Library staff. Examples of specific content that will not be produced include, but are not limited to:

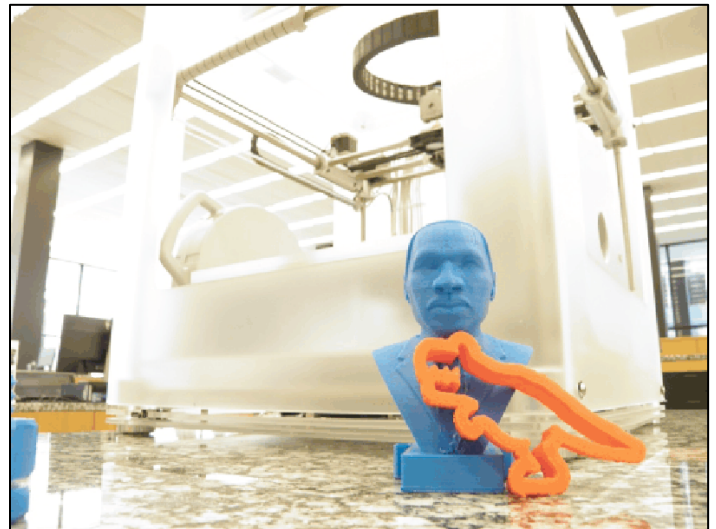
1. Content that...infringes upon the safety and security of minors.
2. Content that may be construed as having intent to harm.
3. Content that may infringe upon the intellectual property rights of a third party.

By submitting content, the customer agrees to assume all responsibility for, and shall hold the library harmless in, all matters related to patented, trademarked, or copyrighted materials.

The DCDC Public Library is not responsible for any damage, loss, or security of data arising from the use of its computers or network, nor for the functionality or quality of content produced on the 3D printer. Refunds are not permitted.

Customers will be notified when their print job has been completed, and all files will be deleted from the system at that time. Projects that are not picked up within fourteen (14) calendar days following notification will not be retained.

"3D Printing Policy," from DCDC Public Library. In the public domain.



Source #2

This article from the *New York Times* discusses the legal issues surrounding 3D printer usage.

Beyond 3-D Printers' Magic, Possible Legal Wrangling

by Phyllis Korkki

When reports first appeared that computers could produce three-dimensional objects—from toys to auto parts to household items—it sounded like a page from a science fiction novel.

But the era of 3-D printers is upon us. For \$1,299, plus shipping, you can even buy one from Staples¹ to use at home.



There's still a gee-whiz aspect to the technology, but once that fades away, it's likely to set off something else: lawsuits. That warning comes from two law professors in a paper to appear early next year in *The Georgetown Law Journal*.

The 3-D printing "will do for physical objects what MP3 files did for music," wrote Devan R. Desai, professor at the Thomas Jefferson School of Law, and Gerard N. Magliocca, professor at the Robert H. McKinney School of Law at Indiana University.

Using computer-modeling software, 3-D printers can reproduce objects using layers of materials like rubber, plastics, ceramics and metals. Some websites share software to build these objects; the attitude of many of the software makers is: "I designed this cool thing, and I want you to be able to print it," Professor Desai said in an interview.

But just as people copy music files, it seems probable that they will do the same with objects—a tool, say, or a piece of furniture that may be covered by a patent. All patents are available to the public, and it would be possible for a knowledgeable person to pore over a patent file and create software that can reproduce the invention described, Professor Desai said. Also, 3-D scanners can scan some objects and translate them into computer models, to be modified or printed.

So what is a patent owner seeking to stop an infringement to do, given that tracking down people in their homes would be extremely difficult?

One option would be to go after the makers of the printing hardware, but that would be a misguided approach centered on a general-purpose technology with many legal uses, Professor Desai said. Patent holders could also sue the websites that host the software that enables the printers to manufacture the objects, but this, too, could stymie² perfectly legal inventions and end up putting a stranglehold on innovation, he said.

Just as record companies were unable to stop music file sharing, manufacturers will not be able to prevent the proliferation of 3-D printing, he said. While violation of patents is a concern, and there may be ways to sue some individual lawbreakers, the best way to handle this threat, he said, may well be to embrace the new technology and the new markets it opens.

People who use unauthorized music-sharing sites know that the files they download may be poor in quality or corrupt, or even contain viruses; that's why they are willing to pay for their music on sites like iTunes. Similarly, manufacturers can set themselves up as authorized dealers for 3-D software and material, Professor Desai said, so that "consumers would know they were getting a trusted product."

A main advantage of 3-D printing is that users can customize items to their personal needs—for example, by adjusting the sizes and shapes of parts. Manufacturers could customize their mass-market products for people using 3-D printers and promote them as having superior quality, Professor Desai said.

Is the government likely to take an aggressive approach toward 3-D printing violations? That's hard to know, but past efforts by the government to stop illegal taping of movies and television shows, along with illegal downloading of music, have not been very effective, and the same seems likely to be true of 3-D printing, Professor Desai said. The march of technology is just too insistent.

¹Staples: an office supply store

²stymie: to prevent or hinder progress

"Beyond 3-D printers' magic, possible legal wrangling" by Phyllis Korkki, from http://www.nytimes.com/2013/11/24/business/beyond-3-d-printers- magic-possible-legal-wrangling.html?_r=0 .

Source #3

This source is an excerpt from an academic paper published by Public Knowledge, a non-profit group devoted to "preserving the openness of the Internet and the public's access to knowledge."

What's the Deal with Copyright and 3D Printing?

by Michael Weinberg

In the United States, copyright and patent rights can both be traced to the Constitution and are designed to encourage the creation and dissemination¹ of creativity and knowledge. The rights are related but do not overlap: copyright and patent are mutually exclusive and their types of coverage are different in important ways.

Copyright covers artistic, creative works. Essentially, copyright covers the types of things that you would look to an artist to produce: paintings, movies, novels, and sculptures.

Copyright automatically protects those works from the moment they are written down (or painted, or filmed—the technical term is "fixed in a tangible medium"). Copyright also protects an "original" work that is not unique in the world as long as the author was unaware of existing versions. In most cases, copyright protection lasts for the life of the author plus 70 years after her death. Finally, copyright infringement² can be an expensive proposition. The law allows rights holders to assume—assume—without the burden of actually proving harm—harm—damages of up to \$150,000 for willful acts of infringement. All of this means that copyright is very easy to get, lasts a very long time, and is expensive to infringe upon.

In contrast, patent covers useful articles—articles—things that do things. Essentially, patent covers the types of things that you would look to an engineer or scientist to produce: machines, technical systems, and compounds. Unlike copyrights, you need to apply for a patent before you can get any protection.

In addition to paying the application costs and being willing to wait, in order to get a patent you need to prove that your machine, system, or compound is actually new and non-obvious to society as a whole—not just new to you. If you get your patent, it will last for 20 years. If someone infringes on your patent, you need to prove damages. Compared to a copyright, a patent is hard to get and does not last very long.

In a practical sense, copyrights and patents are mutually exclusive. If you have a useful article you cannot protect it with a copyright. Conversely, you will not be issued a patent on an artistic work. That means that if something is eligible for patent protection—even if it does not have patent protection—it cannot be protected by copyright.

This dichotomy³ is part of the reason why most of the physical world is not protected by any type of intellectual property. Most physical objects serve some utilitarian⁴utilitarian⁴ function, which means that they are not eligible for copyright protection. However, even though they can generally be described as being in the patent sphere, these objects are, in all likelihood, not protected by patent. Why?

First, most physical objects are not really new or non-obvious enough to secure patent protection. Of those truly new and non-obvious objects, only a portion of them are worth the trouble of patenting. And of those that actually have been granted patent protection, only a small portion will still be protected under patent's 20-year term. The result of all of this is that only a small portion of the objects coming out of a 3D printer will actually be protected by intellectual property: those objects protected by copyright and some number of useful objects protected by an active patent. The rest—those objects that do something but are unprotected by patent—will be free to be used by anyone for any purpose.

This stands in stark contrast to many of the things that we traditionally think of as being created on a computer (the emails, pictures, movies, etc.), almost all of which will be automatically protected by copyright for the rest of the author's life plus an additional 70 years.

. . . . Being able to identify when copyright does and does not protect an object is the first step in knowing if copying or building upon it will lead to trouble.

¹dissemination: spreading far and wide

²infringement: violation

³dichotomy: division in two parts

⁴utilitarian: useful

Weinberg, M. (2013). *What's the deal with copyright and 3D printing?* Washington, DC: Public Knowledge. Retrieved October 21, 2013, from <http://www.publicknowledge.org/Copyright-3DPrinting>

Source #4

A violation of copyright law is called an "infringement." The following passage also comes from an academic paper published by Public Knowledge, a non-profit group.

3D Printing Fits Within the Existing Online Copyright System

Over the past fifteen years, a fairly robust system has evolved to deal with websites that host copyright-protected content that is uploaded by users—a broad category that includes everything from massive sites like YouTube to personal blogs that allow comments. The good news is that, thus far, the system has been able to handle copyright-protected 3D printing-related content about as well as it handles everything else. . .

This system is governed by rules enacted as part of the Digital Millennium Copyright Act (DMCA), which [requires] . . . hosting sites to act as impartial messengers between uploaders those[those who upload content to a website they do not manage] and rights holders those[those whose work is protected by copyright law]. Anyone can upload a file to a site. If a rights holder objects, they send that site a request to take down the file (known colloquially as a "DMCA takedown notice"). When the site gets that request it takes the file down and alerts the uploader about the notice. The uploader then has two choices: accept the takedown or fight it. If the uploader chooses to fight, she notifies the site that there is no infringement. The site then reposts the file and informs the rights holder that the file is back up. At that point, the rights holder has two choices: accept that the file is non-infringing and move on or sue the uploader for copyright infringement. Critically, at no point in this process does the site evaluate the claims of either side.

That System Generally Works

More broadly, this process that allows rights holders to request works be taken down without going to court informs how many rights holders patrol all of their rights online. For physical objects protected by copyright, this system appears to be working. When someone uploads the file for an object that is protected by copyright, rights holders have successfully requested that it be taken down. Conversely, we have also seen companies avoid making copyright claims that were not supported by law.

. . . But Sometimes It Doesn't

Of course, just as this "notice and takedown" process can be abused in other areas, it can also be abused in relation to 3D printing. As is the case in situations unrelated to 3D printing, this abuse often occurs when someone objects to something happening online and simply assumes that they can use copyright to stop it.

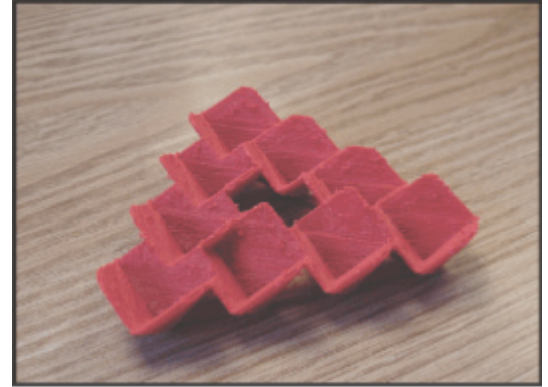
The story of the first 3D printing-related copyright takedown request is a case in point. A designer named Ulrich Schwanitz created a 3D model for an optical illusion called a "Penrose triangle." He uploaded his design to a website, Shapeways, that allows designers to sell 3D printed objects and invited the public to purchase a copy in the material of their choice. He also, for better or worse, both claimed that creating this design was a massive design achievement and refused to tell anyone else how he made the object.

A Penrose triangle printed by a 3D printer

As is often the case on the Internet, shortly thereafter another designer uploaded a Penrose triangle to a site called Thingiverse with the comment:

“Inspired by Ulrich Schwanitz's 'challenge' about the 'Impossible Penrose Triangle' I thought I'd give it a try. Looks pretty neat.”

Unlike Shapeways, the website Thingiverse is built around sharing design files. As a result, because it was now up on Thingiverse anyone could download the design, understand how it worked, and print out their own version at home.



Schwanitz did not appreciate that user's behavior and sent a request to Thingiverse that the model be removed. Thingiverse complied, but eventually public outcry convinced Schwanitz to dedicate his design to the public domain and retract the takedown request.

Although the story ends well, there is a gaping hole at the center of it: the entire narrative assumes that Schwanitz has a copyright in his design that was copied in the first place. This assumption overlooks a few critical things. First, the Penrose triangle itself predates Schwanitz's design by decades. That raises questions about how much of Schwanitz's work is actually original. Second, and perhaps more importantly, the Penrose triangle is a version of an optical illusion.

Optical illusions are arguably beyond the scope of copyright. If Schwanitz did not own a copyright in his design, he had no right to demand that it be taken down in the first place.

It is unlikely that Schwanitz engaged in a detailed analysis of the copyright ability of his original design before issuing his takedown notice. Instead, trained by over a decade of takedowns related to music, movies, and other digital works protected by copyright, he may have simply assumed that he had a right that was being infringed upon by artur83.

As 3D printing and modeling grow in popularity, it is likely that we will see more companies and individuals assuming they have a copyright for a design or object and demanding removal of unauthorized versions. While most modern songs, movies, and pictures are protected by copyright, the same cannot be said for physical objects. For that reason, when a site receives a takedown request it may be wise to at least consider if the object is protected by copyright in the first place.

Excerpted from:

Weinberg, M. (2013). *What's the deal with copyright and 3D printing?* Washington, DC: Public Knowledge. Retrieved October 21, 2013, from <http://www.publicknowledge.org/Copyright-3DPrinting>

Source #5

This source is a blog post, written by a librarian who works at a public library.

Mission Creep—A 3D Printer Will Not Save Your Library

by Hugh Rundle

So you think your library needs a 3D printer. You're going to be modern, ahead of the curve, futuristic, not-your-mother's-library. Congratulations. But why exactly is it appropriate for a library service to provide 3D printing?

"We have 2D printers, 3D printers are just the next step" you say? Not so fast. Printing and copying in two dimensions is about making a copy of the information. Librarians have spent the last decade talking about how it's all about content, but three-dimensional products are not content, they are containers. . . . If 3D printing was truly a useful technology for libraries, there would be serious articles about the potential for information storage, discovery and dissemination. What the blogs, tweets and presentations of 3D printing enthusiasts are filled with is mostly stories about 3D printers that print in chocolate. Well, whoopee.

The harsh truth is that there is no business case for public libraries to provide 3D printing. . . . How many of the librarians clamoring for 3D printers currently provide their patrons with laundry facilities? Sawmills? Smelting furnaces? Loans of cars or whisky stills? I'm guessing none. All these services would be justifiable on the same grounds used to justify 3D printing—individuals would find the service useful, currently they are expensive to buy or rent commercially, and potentially they could be helpful to productivity and the economy. They are also nothing to do with the core business of libraries. . . .

Libraries could provide any number of services that look a bit like our core business, but librarians need to ensure that they understand why they are providing them and what the ramifications are. Yes, libraries provide access to information sources and creation tools that can be expensive to individuals, but that doesn't mean that loaning or providing access to things that are expensive is what libraries are for. Messing around with 3D printing is not a feature of modernity. It is a symbol of failure.

As librarians we deal with intangibles. Tying your library to something like a 3D printer moves you in the wrong direction. It moves you towards manufacturing physical products. It leads you to the tangible—that's not your job. It is the concept of the intangible that connects all the objects librarians have traditionally dealt with—books, records, photographs, magnetic tape and compact discs. It is this tradition of dealing with the intangible that makes librarianship such an exciting profession right now.

Rundle, H. (2013, January 2). *Mission creep: A 3D printer will not save your library*. [Web log]. Retrieved from <http://hughrundle.net/2013/01/02/mission-creep-a-3d-printer-will-not-save-your-library/>