

The Canada Science and Technology Museum
presents

**A Virtual Exploration Guide
to the
Canadian Science and Engineering
Hall of Fame**

Section 4: Intellectual Property



Intellectual Property

How do you ensure that creators of new ideas get credit for their work? The term *Intellectual Property* comprises ideas, designs and creativity. These are all vital in a prosperous, thriving society. Intellectual property is what lets us improve our technologies and industries, and to compete in world-wide trade. Sensible protection of intellectual property rights encourages innovators by helping them receive the rewards and recognition they deserve.

In Canada, the Canadian Intellectual Property Office (CIPO) oversees the registration of most forms of intellectual property. These forms of intellectual property are:

patents

trademarks

copyrights

industrial designs

integrated circuit topographies.

The CIPO website describes their role and responsibilities, and it also has a great deal of useful background information on intellectual property. Visit their website at

http://strategis.ic.gc.ca/sc_mrksv/cipo/welcome/welcom-e.html



Patents

A patent is the official recognition of the ownership of an invention. The patent formally states that the invention is original, and grants the patent holder exclusive rights to that invention for a set period of time. (In Canada, this 20 years from the date of filing.) The patent holder is usually the inventor, but it could also be the inventor's employer, or someone who has bought the rights to the invention.

Patents cover a wide range of new inventions, or any new and useful improvements of existing inventions. It's important to realize that a patent merely states that the invention had never been registered before and indicates who has the rights to that invention. A patent doesn't *guarantee* that the invention is valuable. Few patented inventions are actually manufactured, and few of those are commercially successful.

So what's the point of a patent? The idea is to encourage developers to share their work with the world. Once an invention is patented, *anyone* can get all the details from the Patent Office. The patent allows the developer to safely share that information. Before you could make any commercial use of the patent, or even invent anything else based on that patent, you'd have to get permission from the patent holder. That usually means paying fees or royalties.

Many patents are for inventions that improve on previously patents. If you invented an improvement, you'd need permission to use the earlier patent in your invention. You'd have to negotiate a license and royalties with the owner of that patent. This demonstrates one of the most important features of the patent system. You were able to find all the information about another inventor's work and use that to develop a new (and hopefully

better!) invention. In exchange for that, you provide your fellow inventor with recognition and financial benefits.

Activity 4.1: How Do You Get A Patent?

(Recommended for all grade levels)

Using your school library or the CIPO website, find out the steps an inventor needs to take to get a patent.

Here are a few things to consider:

What do you need to do to apply for a patent?

What does the CIPO look at when they examine a patent application?

What does the patent provide to you, the inventor?

For more advanced students:

One of the problems facing would-be inventors is precedence: someone else might have gotten there first. Set up discussion groups or assign essays to have students explore this issue. Here are a few points to get you started.

1) When the Patent Office receives several submissions for similar inventions, the owner of the first submission to be received will be awarded the patent, provided all the requirements are met.

Question: Is it fair that the first person to submit should get the patent? If not, how else could (or should) it be done?

2) If an application is made for an un-patented invention, a patent can be awarded, even if the invention is already being manufactured and sold. What could happen to a business that is manufacturing a product that is patented by someone else?

Question: Is it fair for the manufacturer to have to start paying royalties? On the other hand, would it be fair for the patent holder to be *prevented* from collecting royalties?

What would (or should) happen if a manufacturer were able to show that the product had been developed before the new patent holder started developing the idea? How could you establish this fact?

Teacher's Note:

This is a hypothetical question to get your students thinking about the importance of patents. While the scenario we've described here is possible, it is very uncommon. It's the responsibility of the manufacturer to secure all the intellectual property rights necessary to produce its products. Any responsible manufacturer would start by searching the Canadian Patent Database for existing patents and applications.

Activity 4.2: Discovering the Value of Patents

(Recommended for Grades 6 and up)

Use resources such as the CIPO website to discover the benefits of patents. Don't forget to consider the benefits to both the developer and society as a whole. This could be done



as a classroom discussion, a project for small groups of students or as an assignment for individual students.

For more advanced students:

Instead of applying for patents, some developers prefer to protect their products by keeping the details of their manufacture secret. These techniques are called *trade secrets*.



Here are a few questions to consider:

- What products might be protected with trade secrets? (Several products might come to mind, such as soft drinks or a particular variety of fried chicken.)
- What happens if someone discovers a trade secret? Could anything be done?
- Why might a producer take a risk on a trade secret? (Here's a hint: patents eventually expire.) Do you think it's more prudent to obtain a patent for a new idea (which publicizes your invention) or to keep it secret? Can you think of situations where one approach might be better than the other?

To research this question, your students may want to consult the CIPO publication *What's In a Name?* at http://strategis.gc.ca/sc_mrksv/cipo/tm/wian-e.pdf.



Activity 4.3: The Student “Patent Office”

(Recommended for all grade levels)

The student Patent Office is simply a closed box and (optionally) a date/time stamp. You can serve as the Chief Patent Clerk, responsible for marking the date and time on submissions and placing them in the Patent Office box.



Set up an *Invention Festival*, a short period over which small groups of inventors come up with inventions. Whenever each group feels it's ready, it submits its invention to the Chief Patent Clerk (i.e. you!). Submissions remain sealed in the box until the Invention Festival is over. You can either post the Patent Applications or have each group make a short presentation.

For More Advanced Students)

Patent infringement is the unauthorized use of a patented invention. Here are a few questions to consider.

- What would happen if someone were to use your patented invention without your permission?
- How do you stop someone who's infringing on your patent?
- Why would someone infringe on your patent? Think of some possible reasons, such as coincidence or outright theft. (Remember, it's not uncommon for someone to re-invent something that's already been patented.)



Copyrights

A copyright is the authorization to print or reproduce a work, or to permit someone else to print or reproduce it. Copyrights apply to *original* creative works, such as textbooks, novels, paintings, movies and so on. You can't copyright something someone else wrote (or painted or filmed), or something that is clearly just a minor variation of someone else's work.

The concept is simple, but there are a lot of practical details to consider. The CIPO section on copyrights is a good place to discover some of the issues:

http://strategis.ic.gc.ca/sc_mrksv/cipo/cp/copy_gd_main-e.html

Another important difference between copyrights and patents is in how they are granted. Any original creative work is considered to have a copyright the instant it has been created. In other words, the copyright exists automatically. You don't need to *apply* for a copyright, but you can register your copyright with the CIPO. Registering a copyright gives you an official statement that you are the rightful owner.

Virtually all books include a *copyright notice* in the first printed page. An international agreement called the Universal Copyright Convention specifies that the copyright notice include the standard copyright symbol '©', the name of the copyright owner and the year of first publication. For example: "© J.R. Wrighter, 2001."

Some of the countries of the Universal Copyright Convention require copyright notices. In Canada, there is no legal obligation to include a copyright notice, but it's always a good idea to do it.

You can learn more about registering copyrights at this CIPO web page:

http://strategis.gc.ca/sc_mrksv/cipo/cp/copy_gd_regis-e.html

Activity 4.4: Learning about Copyrights

(Recommended for Grades 4 and up)

Assume you have written a novel. Visit the CIPO website section on copyrights and answer the following questions:

- What do you have to do to get a copyright?
- What do you have to do to register your copyright?
- How long does the copyright for a printed work generally last?
- What are the possible terms of copyright protection for a photography?



Activity 4.5: What Can Be Copyrighted?

(Recommended for Grades 5 and up)



Writers often create characters that appear in several books in a series. What happens if you decide to write a story based on someone else's character? Assume your *story* is completely original. Even the writer who created that character agrees that your story is original.

Question: Do you have to get permission from the writer to publish your story?

Have your class research this question at the CIPO website (or elsewhere) and discuss the issues. One way to do this is to set up a mock court case.

Have a team of students prepare an argument that you *don't* need permission to publish your story. Have another team of students prepare an argument for the writer: that you *do* need permission. Both teams will present their arguments to the Classroom Court (i.e. the rest of the class).

Teacher's Note:

This particular question is very contentious. However, it does address a fundamental problem of balancing the rights of creative artists.