

The Film Piracy Problem

Teacher Overview

Film piracy is the illegal copying and distribution of movies in print, videos, DVDs or electronic files. New developments in digital technology make server-based or peer-to-peer (P2P) file sharing on the Internet convenient and relatively fast. A negative consequence of this new technology, however, is online theft of copyrighted material. This lesson introduces students to the problem of film piracy, focusing specifically on Internet file sharing, especially P2P. The lesson's activities encompass much more than a focus on the effects of film piracy on profits for movie studios or royalties for actors. Activity A helps students define the issue and its implications. Activity B is a problem-solving project that challenges students' team-building skills. Team members assume different roles: One researches and interprets copyright laws; another researches and reports on digital technology; and other viewpoints—the consumer's as well as the filmmaker's—are also explored. In completing their team tasks, students develop critical-thinking skills and a conceptual understanding of their subject. Because devising a solution requires application of knowledge from multiple subject areas, including math and social studies, this is an ideal activity to conclude The Story of Movies interdisciplinary curriculum.

Students will read an article on film piracy. They will work in teams to research both print materials and Internet resources about film piracy. They'll practice communicating information to one another, and then as a team present their "best solution" to the class.

View the Film Standards and Cross-Curricular Connections for this teaching unit.

Learning Outcomes

Students will

- use problem-solving approaches to investigate and understand film piracy;
- research Internet and print sources;
- communicate specific information in a clear and concise way to team members;
- work in collaboration with a team to develop and evaluate a solution to a problem.

Key Terms

(Note: All terms are defined within the activity text that follows.

film piracy, download, upload, revenue, licensing, intellectual property, digital, copyright, fair use, public domain, attribution, copyright infringement, P2P network, residuals

Activity	Print Materials
Activity A Film Piracy and Copyright Laws	<ul style="list-style-type: none">• Reading Activity: Stealing the Show
Activity B The Problem-Solving Project	<ul style="list-style-type: none">• Group Activity 1: The Film Piracy Problem• Research Activity 2-A The Legal Assistant• Research Activity 2-B: The Business Assistant• Research Activity 2-C: The Technology Specialist• Research Activity 2-D: The Film-Industry Spokesperson• Research Activity 2-E: The Consumer Researcher• Group Activity 3: Brainstorming Solutions• Group Activity 4: Best Solution Presentation Sheet

Activity A Film Piracy and Copyright Laws

Concept

Online film piracy is the illegal downloading and uploading of movies in print, videos, DVDs or electronic files.

Engage

Generate pre-reading discussion by asking students the following question:

If you want to see a movie, what do you do? Guide responses to include purchasing tickets to see the movie in theaters and renting or purchasing a DVD copy of the movie for home viewing. Some students may also suggest downloading movies from the Internet. Still others may say they wait until the movie is shown on television.

Continue the warm-up discussion by asking two additional questions:

How does a movie earn money for the movie studio that owns it? Again, focus discussion on box-office revenue and video rentals/sales. Emphasize that television networks and cable channels pay movie studios for the right to broadcast movies. This is called licensing a movie. However, movie studios do not receive a fee when a pirated movie is uploaded to the Internet for free distribution.

Who gets the profits from a movie? The likely response may be “actors.” Remind students that hundreds of artists and craftspeople are involved in the three stages of movie production (pre-production, production, and post-production). Extend discussion to explain that people in their local community who work in movie theaters and in retail video stores, and cable and satellite systems, are also to some extent dependent upon the success of movie studios.

Note: Teachers who wish to introduce their students to the specific roles in the filmmaking process should refer to Chapter 2 of **The Story of Movies** in the Curriculum section of this website **for lesson plans and student activities**, downloadable in PDF format.

Conclude the discussion by asking a final question:

What happens when a movie makes no profits? Some students may say that movies are always profitable, which is not the case. Others may comment that the filmmakers earn less than they might have, which is indeed true. You may wish to share this statistic, provided by the Motion Picture Association of America (MPAA): Approximately 6 out of 10 movies do *not* earn the initial investment made to produce the film.

Explain & Explore

- Define *upload* and *download*. Both terms refer to the transfer of information between computers. In general, an *upload* is when a person sends or makes available a file; *download* is when a person receives a file.
- Distribute **Reading Activity: Stealing the Show**. This article explains a controversial film industry problem—piracy, or movie theft.
- Discuss student answers. Recommended responses are below.

Answer Key for Reading Activity: Stealing the Show

1. What crime did the Missouri teenager commit and why was the FBI involved in the arrest? *He committed copyright theft. According to FBI records, he had illegally copied recently released films with the intent to upload and distribute the copies on the Internet. Because copyright theft is a federal crime, the FBI is involved.*
2. What are two ways a stolen movie print can get online? *Someone removes a print from the studio without permission, such as an industry insider taking a copy from the editor’s rooms or from the music composer; someone records a copy of the film with a camcorder as an early screening plays in a theater. The illegally obtained print is then uploaded onto the Internet and shared with other Internet users.*

3. Approximately what percentage of profits does the movie industry make from DVD or home video rentals or purchases? *50 percent*
4. What is “spoofing”? Why is this strategy not always effective in stopping film piracy? *Spoofing is making a phony copy of a film or a fake listing on a file sharing site and putting it online. Spoofers are trying to make piracy difficult and frustrating, or impossible, and thus discourage people from downloading illegal movie prints. The strategy is not always successful because Internet users quickly alert others that the file being shared is a phony.*
5. What is the short-term effect of film piracy? *The short-term effect is a loss of profits for the movie studios that finance the making of movies.*
6. What is the long-term effect of film piracy? *The long-term effect is that fewer films will be made and those that are made may be restricted to low budgets.*

Think More About It

7. If someone came into your home and took a camera or a DVD player without your knowledge or your permission, would you consider that stealing or sharing? Provide a reason for your answer. Explain how this situation is or is not different from someone downloading from the Internet an illegal copy of a movie. *Answers will vary. Accept all reasonable responses.*

- Draw a cause-and-effect chain of events on the chalkboard or overhead projector. Ask students to supply the consequences not only for the film industry but also for the consumers who view movies.

Inciting incidents: *Theft of a movie print, which is then uploaded online for free distribution*



Immediate outcome: _____



Long-term outcome: _____

The immediate outcome for the filmmakers is a potential loss of profits. For the consumers, the outcome is free movies with a click of the mouse. The long-term outcome for filmmakers is smaller budgets and, quite possibly, fewer films or films of lesser quality for all consumers, even those who do not access the Internet, to enjoy. In addition, fewer opportunities will exist for those with filmmaking talents to be employed in the industry—whether as actors, cinematographers, set and costume designers, musicians, etc. The long-term outcome for movie theaters, retail video stores, and cable, satellite and broadcast TV networks is a loss of business.

Close

Ask students to debate this situation: *If copying a film for distribution is illegal, is it also illegal for someone to download a bootleg film for personal use?* This discussion will open the door to points they will research in Activity B below.

Activity B The Problem-Solving Project

Concept

An effective solution to the online film piracy problem requires an understanding of multiple viewpoints about artists’ rights, film industry profits, *digital* technology, and consumer interests.

Engage

Ask students to imagine that a film they produced for a class assignment was copied and shared by other students. How would they react? Some students may see nothing wrong with this. Some may say, for example, that sharing is a chance for others to see and enjoy the film.

Present the situation in a slightly different way to gauge how student reactions may change. Tell them that the film they produced and submitted for a class assignment was copied by another student, who also submitted the film and received a passing grade even though this other student did none of the work.

Ask:

1. *Is this cheating or is this stealing? Is there a difference between cheating and stealing? What is that difference?*
2. *How would you solve this problem (a) if you were the student who produced the film? (b) if you were the teacher? (c) if you were the parent of the student who copied and falsely submitted the work?*
3. *Which of the proposed solutions are likely to stop the stealing/cheating behavior?*

Explain & Explore

- Explain the problem-solving project and its three stages:

Stage 1: Students meet in teams to discuss the problem and to agree upon the roles each will assume. They will review each task associated with the project.

Stage 2: Students conduct field investigations and/or research the essential questions assigned to their roles. They tap online resources as well as primary and secondary print sources available to them in school and public libraries.

Stage 3: Students meet in teams to present their research findings. Each team then works together to devise the best solution to the problem, using what they've learned from these reports.

- **Begin Stage 1.** Group students into teams of at least 5 but no more than 10. Distribute to each team **Group Activity 1: Solving the Film Piracy Problem**. Allow time for students to discuss the project and to assign roles. In larger groups, encourage two people to assume the same role. (*NOTE:* Each role requires different abilities. Researching *copyright* law, for example, requires excellent reading skills. Researching consumers' point of view is not as challenging. Please review each role prior to assigning this step to the students. You may wish to guide or select who among the team takes on a specific role.)
- **Begin Stage 2.** Distribute **Research Activity 2-A – E**. Each team member will receive one of these sheets, depending on his or her role. The Essential Questions are the starting points for each student's research. Students should try to answer as many of the Essential Questions as they can. However, you may wish to revise or expand the questions somewhat, based on the needs and abilities of your students. Note that each sheet also has a "resource" list. Students can and should search for additional resources that will help them better understand the problem and contribute to creating a solution to that problem.
- Review the Essential Questions with the team members. While other team members conduct their independent study, you may meet with the "legal assistants" from all teams to review the Essential Questions and clarify what they may not understand. Next, meet with the "business assistants," and so on. Suggested answers to the Essential Questions for each sheet follow. Teachers may work with individuals or groups to guide the team members' understanding along these points.

Answer Key for Research Activity 2-A: The Legal Assistant—Essential Questions

1. What is copyright? *Copyright is a form of protection provided by the laws of the United States (Title 17, U.S. Code) to the holders of "original works of authorship," including literary, dramatic, musical, artistic, and certain other creative works.*
2. What is "intellectual property"? *Intellectual property, often known as IP, includes ideas and concepts (music, films, manuscripts, and sound recordings are some examples) as well as designs for product appearance (e.g., the lines, colors, and shapes used in a logo). In addition, trademarks and patents are considered intellectual property. People who develop their creative ideas and innovations into a film or a*

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- song or a logo have the right to ownership of that idea. Ensure that students understand this important concept: property comes in different forms—physical, which a person can see and hold, and intellectual. Although a person cannot hold an idea, the courts treat IP the same as physical property and protect it under copyright laws.
3. Who is the author of a movie? In U.S. law, generally the studio that produces the movie is considered the author. Many European countries consider the director, writer, and composer as the authors. However, in the U.S., the artists who contribute to creating a movie (directors, actors, cinematographers, designers, etc.) do not own the movie, except for independent and documentary filmmakers. Nevertheless, copyright that protects the studio also protects the collaborative work that filmmakers do for the studio and protects their name or “brand.”
 4. Copyright laws protect artists’ rights. For example, a person cannot copy a work without the artist’s permission. Name three additional rights protected under copyright laws. *Distribution is one right, meaning how and when to distribute the work to an audience is subject to the artist’s permission. Creating a new work from the original, such as a sequel, is another right. Public performance or display of the work is another right.*
 5. What is meant by the term fair use? *Fair use is the permitted use of a limited portion of a copyrighted work, generally for non-commercial use, such as classroom teaching.*
 6. What are the four points, or factors, that one must question in order to determine fair use? *For what purpose will the portion be used—educational or commercial? How much of the work will be used? Will this use in some way deprive the author of money? What kind of materials will be used?*
 7. What is meant by the term public domain? *A realm in which a work, such as a government document, fact, or slogan, is not protected by copyright, or where its copyright has expired. A work “in the public domain” means the work is available to the public for use without a fee. However, some teachers may wish to stress this important point: Just because a work is in the public domain does not mean a person can use the material without crediting it. Attribution, or giving credit, is still needed when using materials in the public domain.*
 8. What is copyright infringement? *Infringement means violation of the law. A person found guilty of copyright infringement may face fines and/or imprisonment.*
 9. Situation A: If a movie is posted on the Internet, does this mean the movie is automatically in the public domain? Explain your answer. *No. Just because information is posted online does not mean it is free for use by all. On the other hand, if the author states, “This work is in the public domain” or “You may download this file for free,” then it is legal to download the file.*
 10. Situation B: A teacher rents a DVD copy of the movie *Romeo and Juliet* to show in the classroom. Has this teacher broken copyright law? Explain your answer. *No. Renting a DVD is a legitimate way of securing a movie for viewing. Also, using the film for educational purposes is considered fair use.*
 11. Situation C: An Internet user uploads a copy of the movie *Romeo and Juliet* so that his or her friends can download their own copy for private viewing in their homes. The Internet user does not charge his or her friends to download the file. Has this person broken any copyright law? Explain your answer. *Yes. Uploading or downloading copyrighted movies violates the owner’s right to control who copies and distributes his or her material.*
 12. Situation D: An Internet user uploads a copy of the movie *Romeo and Juliet* so that his or her friends can download their own copy for private viewing in their homes. However, the Internet user charges his or her friends to download the file. Has this person broken any copyright law? Explain your answer. *Yes. Whether the person charges or not, if the Internet user does not have permission to copy the film in the first place, that is copyright infringement.*

Answer Key for Research Activity 2-B: The Business Assistant—Essential Questions

1. Read the graph below, then answer the questions that follow. A. The chart identifies three sources of income, or revenue, from a movie. What are they? *Box office ticket sales, DVD sales and rentals, and sales to cable television networks.* B. Which source of revenue creates the greatest profit for the movie studios? *DVD sales and rentals.* C. In 2003, how much money did movie studios expect to earn from selling their movies to cable television networks? *The bar rests about halfway between 10 billion and 15 billion. The actual figure is 12.6 billion dollars.*
2. Which source or sources of revenue are likely to decrease if illegal movie prints are distributed free over the Internet? *All three may decrease somewhat, but the largest impact will likely be on DVD sales and rentals.*
3. Movie industry profits benefit more than just the movie studios. Who in your local community depends upon income generated by people going to see movies or buying/renting movie videos? *Answers will vary depending on sources cited. The sources of revenue on the chart suggest local movie theaters (box office), local video-rental stores, and people who work in both of those types of establishments.*
4. The Motion Picture Association of America provides these statistics on its Web site: In 2002, the average price of a home DVD recorder was approximately \$750. In 2003, the average price dropped to approximately \$440, and the average price is expected to get lower and lower through the years. . What connection can you make, if any, between the price of home DVD recorders and the film piracy problem? *Downloading and uploading of illegal movie files requires a computer that can burn blank DVDs. As equipment becomes more affordable, more Internet users with DVD recording equipment will have the means to download files and then burn blank DVDs or to just buy pre-made pirate DVDs. While this does not mean that everyone with a computer that can burn DVDs will download illegal files, it does suggest that the market for potential users of illegal files or pirate DVDs grows yearly.*

Answer Key for Research Activity 2-C: The Technology Specialist—Essential Questions

1. What is a P2P network? *A peer-to-peer network is a computing technology in which one person can share a file with another—or thousands of others—without a middleman or server. The P2P network uploads the files so users can download and upload at will, often without paying a fee.*
2. Compare two different P2P network home pages. How do they promote their services or otherwise encourage Internet users to access their services? *Answers will vary. Most network sites stress convenience of downloading favorite files (documents and images and software, as well as music and movies), fast searches to find the desired file, no fees or low fees.*
3. What information, if any, do these P2P networks provide about copyright law? *Most networks do provide copyright information and the warning that making copies is a violation of U.S. copyright laws.*
4. What steps are involved in order for an Internet user to download a file—either music or film—from a P2P network? *Answers will vary depending on the network researched. However, in general, the first step is submitting an online registration form or some other entry into the illegal network. Some networks charge a yearly membership fee with this registration.*
5. Read the paragraph below, taken from www.pro-music.org regarding P2P software. Then answer the questions that follow. A. What warning about file sharing does [pro-music.org](http://www.pro-music.org) provide in this passage? *That people who register to use a P2P network may not realize it but they agree to let the network use their computer as a distribution source of music files, which is illegal. Most people do not realize this because they do not read carefully the registration agreements.* B. What recommendation does [pro-music.org](http://www.pro-music.org) make for Internet users to avoid becoming illegal distributors of copyrighted materials? *To disable your computer's uploading capabilities so as not to be guilty of illegally making copies for others to use.*
6. What cause-and-effect links can you make between the invention of P2P technology and the current film piracy problem? *P2P technology was not necessarily invented for illegal purposes, but the technology*

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makes file sharing easy and relatively quick. Some companies, in the nature of their business, encourage peer to peer sharing.

7. What is iTunes? *Launched in 2003 by Apple Computer, iTunes is a legal Internet jukebox where people pay a low price (approximately 99¢ per song) to download songs from a music library. The money goes to pay record labels, artists and composers—all legally.*
8. What actions used to combat music piracy might the film industry consider using to solve its piracy problem? *Answers will vary but may include launching a service similar to iTunes, from which people can conveniently download movies for a reasonable price. Others who research the music-piracy problem more thoroughly may suggest taking legal action against Internet users who illegally copy and distribute files.*

Answer Key for Research Activity 2-D: The Film-Industry Spokesperson—Essential Questions

1. What are *residuals*, and who in the filmmaking industry receives residuals? *Residuals are payments made to creative artists—including directors, actors, and writers—involved in the making of a movie after the film is released. Sometimes called “re-use fees,” residuals are paid when a movie is broadcast or when a movie is distributed via a new medium, such as DVD, video sales, or cable television.*
2. What is a cause-and-effect relationship between online film piracy and residual payments to the artists who helped make the movie? *Consumers who download a movie from the Internet do not generally purchase the DVD. The decrease in DVD sales means lower residual payments to the artists who collaborated in making the movie.*
3. Read the statement below based on information provided by the Motion Picture Association of America on their Web site, then answer the questions that follow. A. What is a myth about movie making? *All movies earn huge profits.* B. What is meant by “sequential release” of movies? *It is a strategy for controlling how and when movies are distributed to the public for viewing. The first release is in theaters; the second, in home-use format (videotape and DVD sales); and finally, in cable television broadcasts.* C. How does sequential release help the movie studio earn greater profits? *Each window of distribution generates new income. If the studios only released movies in the theaters, box office sales might increase. But by marketing and distributing movies in three different venues, the studios generate three waves of income.* D. Explain what might happen if the sequence were reversed, that is, if a movie studio released a movie for broadcast over television or in video format before releasing it in the movie theaters. *If movies played on cable television first and then were released in DVD format, it is likely that fewer people would purchase the DVD.* E. How does film piracy hurt or prevent a movie studio from earning back the money it invested to make a movie? *Online piracy of a movie often occurs before it is released in theaters and thereby cuts into box office ticket sales, DVD sales, and cable or network television broadcasts.*
4. Aside from money concerns, what are some other viewpoints filmmakers express about film piracy and protection of artists’ rights? *Answers will vary depending on the sources cited. Some students may choose to review the 60 Minutes interview with director M. Night Shyamalan and incorporate his viewpoint into their research. Others may find comments from actors or cinematographers.*

Answer Key for Research Activity 2-E: The Movie Consumer—Essential Questions

1. What is the average price a consumer pays to purchase (a) a movie theater ticket? (b) a VHS or DVD copy of a movie in a video store? *Answers will vary. In general, 2004 box office prices ranged from \$5 to \$10, depending on the movie, the theater, the time of day, and the age of the moviegoer. The cost of buying VHS or DVD copies will also vary, depending on whether the copy is a new release or if it has additional features. In general, costs may range from \$10 to \$20.*
2. Read the comments below from movie consumers. The article was published in June 2003 on the Washingtonpost.com Web site as part of the “Live Online” discussion of online music and film piracy. Then answer the questions that follow. A. What important issue about film piracy do both consumer comments mention? *Money or the cost of seeing or purchasing movies.* B. Which comment—the first or the second—identifies a cause of online piracy, and which identifies a possible solution to online piracy?

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The first comment identifies one of the causes of film piracy—high cost; the second offers a solution—ability to download movies from a provider for a low, reasonable fee.

3. Has any consumer ever been arrested for music or film piracy? If so, what were the circumstances of the arrest and the punishment? *Yes. Numerous articles have appeared on arrests made for copyright infringement in both industries. Circumstances will vary depending on the source cited. Some teachers may wish to share this additional information with students: Most music pirates using P2P are being sued in civil cases and most are settling with record labels for \$2,500 to \$3,000.*
4. Identify three or more viewpoints consumers have about movie studio profits and/or downloading and uploading pirated copies of movies. Try to find specific quotes made by consumers about this subject. *One viewpoint is that purchasing box office tickets or videos is expensive, while downloading is free. Additional viewpoints include: Downloading doesn't hurt video sales because people will continue to purchase DVDs for the special "behind-the-scenes" features offered on them, which are not available online; money lost to piracy is really just pennies compared to the huge profits the studios make on each movie; posting a movie online means it is in the public domain and therefore free to download and upload.*

- **Begin Stage 3.** Distribute **Group Activity 3: Brainstorming Solutions** and **Group Activity 4: Best Solution Presentation Sheet**. Allow time for the teams to complete each task. Encourage students to share and listen to the viewpoints of each member of their team. In deciding on a "best solution," team members will incorporate information from all team members. In addition, students should agree upon a creative way to make their presentations, using visuals, such as posters, charts, or even a computerized presentation of images. Some students may also consider presenting their best solutions in video format, similar to a *60 Minutes* segment or a talk show.
- Conclude with team presentations. Some teachers may consider videotaping the team presentations for class evaluation and discussion later.

Close

Now that students have a better understanding of what copyright is and how film piracy relates to copyright issues, ask students to explain why they think copyright is important. Encourage discussion of cultural and artistic issues—copyright promotes art, culture and artists' visions of who we are as a society. Extend the discussion to explore how copyright helps the economy. You may wish to share with students this information, provided by the International Intellectual Property Alliance (IIPA): Copyright industries employ workers; sales of copyright materials both in America and in foreign markets help to boost the economy.

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Glossary of Key Terms

attribution—a legal concept that means identifying or giving credit to the owner or creative artist of a copyrighted work, such as a novel or a film, etc. In a film, the creative artist may include the director, the screenwriter, the cinematographer, etc.

copyright—a legal concept that grants exclusive rights to the originator or holder to restrict the copying and use of an original, creative work, such as a novel, computer program, painting, photograph, film, musical composition or recording, etc.

copyright infringement—the unauthorized use of copyrighted material. Examples include copying material without permission or quoting without permission passages from a copyrighted work or uploading or downloading P2P files.

digital—relating to the processing, storing, or transferring of data as numerical digits

download—to receive information from another computer or from the Internet. See also *upload*.

fair use—the permitted use of a limited portion of a copyrighted work mostly for non-commercial uses, as an exception to copyright owner's rights.

film piracy—the illegal theft, transfer, and/or use of copyrighted film

intellectual property—patented, trademarked, and copyrighted ideas and concepts for creative works, such as written material, moving images, and designs, including those that comprise product appearances, such as lines, shapes, and colors in logos; also known as IP.

licensing—granting permission. In the film industry, a license is a document that allows a movie theater, cable, or television network to use copyrighted materials, such as playing or broadcasting a film. The user frequently pays a licensing fee in order to secure this permission.

P2P network— a peer-to-peer computer networking technology that allows computers to share information

public domain—the realm in which some works, such as government documents, facts, or slogans, are not protected by copyright and can be used without a permission fee, or when a copyright term ends for older works. People who use works in the public domain, however, should provide attribution, or credit the work or creator.

residual—a payment or source of income from the use or sale of a product or service after its release. In the film industry, directors and performers often receive residuals whenever their filmed work is shown.

revenue—income or profits

upload—to make information available to others on a computer network or the Internet. See also *download*.

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National Film Study Standards

2.0 Historical and Cultural Contexts. Students understand that a film is both a historical/social document and a cultural artifact. Students analyze social issues presented in film and form conclusions about the ways in which film influences and is influenced by the society in which it is produced

3.0 Production and Creative Expression. Students understand that film is an expression of a director's personal vision produced through a collaborative process. Students understand and distinguish the various filmmaking roles that contribute to the final work of art.

5.0 Cross-Curricular Connections. Students first tap their knowledge of other disciplines to study a film. They apply what they have learned about film to other disciplines, making connections between film and literature/language arts, film and history/social studies, film and other arts, and film and sciences.

Cross-Curricular Connections

This problem-solving activity focuses on the illegal copying and distribution of film, primarily via the Internet. In completing their team tasks, students develop critical-thinking skills and a conceptual understanding of their subject. Because devising a solution requires application of knowledge from multiple subject areas, including math and social studies, the lessons and activities for this film study unit have applications across the curriculum. Cross-curricular connections include but are not limited to the following:

Language Arts

- Applies a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts
- Analyzes information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, summarizing, making generalizations and predictions, and drawing inferences and conclusions
- Gathers and uses relevant information, both print and Internet, for research purposes
- Uses viewing skills and strategies to understand and interpret visual media for research information on a topic
- Uses listening and communication skills in working with team members to create a solution to a problem and to plan a presentation of that solution
- Uses spoken, written, and visual language to accomplish a purpose; adjusts use of spoken, written, and visual language for a variety of audiences and purposes

Math

- Understands and applies basic concepts of statistics and data analysis to interpret research-topic information
- Understands and applies basic properties of the concepts of numbers in research

Social Studies

- Understands the impact of scientific discoveries and technological innovations in daily life
- Analyzes information by sequencing, categorizing, identifying cause-and-effect relationships, comparing, contrasting, summarizing, making generalizations and predictions, and drawing inferences and conclusions
- Organizes and interprets information from outlines, reports, databases, and visuals, including graphs and charts
- Understands how goods and services are produced, distributed, and consumed

Technology

- Uses technology to locate, evaluate, and collect information for research purposes
- Explores ethical, cultural, and societal issues related to technology
- Uses technology resources for solving problems and making informed decisions
- Employs technology in the development of strategies for solving problems in the real world

Critical-Thinking and Visual Literacy

- Compares similar situations and transfers insights to new contexts
- Clarifies issues and analyzes arguments, interpretations, or beliefs
- Explores implications and consequences