

Assignment Discovery Online Curriculum

Lesson title:

Writing as Criminal Evidence

Grade level:

6-8

Duration:

Two class periods

Subject Area:

Forensic Science, Chemistry

Objectives:

Students will do the following:

1. Learn how handwriting and paper analyses can be used to detect forgeries
2. Explore the role of handwriting and paper analyses in solving crimes and mysteries
3. Learn about famous forgeries of the past

Materials:

- Internet access
- Newsprint and markers

Procedures:

1. Begin the lesson by telling students that law enforcement officials use many kinds of evidence when trying to solve a crime. Sometimes that evidence takes the form of a written document. By finding out who wrote a document and when, investigators can come closer to solving certain crimes. Analyzing documents is another aspect of *forensic science*, the scientific analysis of evidence that can be used in a court of law.
2. Discuss with students exactly how investigators analyze handwriting on a written document associated with a crime. Tell students that investigators look closely at the following characteristics when they are examining handwriting:
 - a. The form of the handwriting, such as the shapes of the letters and their slant, angles, connections, and curves
 - b. The line quality, or the thickness of the line as a result of the type of writing instrument used and the pressure exerted while writing
 - c. The arrangement on the page, including spacing, alignment, formatting, and unique punctuation
 - d. The content, including the spelling, phrasing, punctuation, and grammar

3. Tell students that in addition to analyzing the style of the handwriting, forensic scientists analyze the paper used. Scientists look at what the paper is made of, what additives have been used, whether watermarks are present, and whether surface treatments, such as heat or resins, have been used. By analyzing the paper, scientists can often tell how old a document is. Finally, scientists also analyze the ink to help figure out what kind of pen was used to write the document.
4. Explain to students that while there are many cases in which handwritten documents have played a role, a few are particularly famous. Here are two examples:
 - The ransom notes in the kidnapping of Charles Lindbergh, Jr., on March 1, 1932
 - Clifford Irving's forgery during the 1970s of letters and an autobiography he claimed Howard Hughes, the reclusive billionaire, had written

Tell students that during this lesson they will look more closely at one of these cases and discover the role that handwriting and paper analyses played in the solving of the crime.

5. Divide the class into two groups. Have one group explore the kidnapping of Charles Lindbergh, Jr., and the other, the Clifford Irving forgery. Questions for each group to research and Web sites that have relevant information are listed below:

Group 1: The Kidnapping of Charles Lindbergh, Jr.

- a. What role did the ransom notes play in the case?
- b. What did investigators look for when analyzing the notes?
- c. Were the notes helpful in determining the guilt of the suspect?
- d. What conclusions did investigators come to about the notes?

Web Sites

<http://www.crimelibrary.com/forensics/literary/3.htm>

<http://www.crimelibrary.com/lindbergh/lindcrime.htm>

Group 2: Clifford Irving's Forgery

- a. What exactly did Clifford Irving do?
- b. Why did people believe that his writings were those of Howard Hughes, the reclusive billionaire?
- c. How did investigators ultimately solve this case?

Web Sites

<http://www.crimelibrary.com/forensics/literary/2.htm>

<http://www.utlm.org/onlinebooks/trackingch5.htm> (Scroll down to page 3 of this book chapter, which makes reference to Irving's forgery.)

6. Give students time in class to complete their research and answer the questions. Have the members of each group prepare a skit to share their findings and explain the story. Make sure the skits include the facts surrounding the case, the role the written document played in the case, what analyses investigators performed, and how they reached their conclusions.
7. During the next class period, have each group perform its skit. Then conclude the lesson by discussing how the cases, as dramatized by the skits, were similar and how they were different. Was the document analysis conclusive in either of the cases? How did the analysis contribute to the solving of the case?

Discussion Questions:

1. Do you think that document analysis alone can lead to the solving of a case? Make sure you give reasons to support your ideas.
2. Of the two cases discussed in this lesson, in which do you think document analysis was the most useful? Give reasons to support your ideas.
3. Suppose you were a detective called to a crime scene. The only piece of evidence you found was a handwritten note. What kinds of tests would you perform on the note? What would this information tell you? *(You would want to determine the type of ink used, the kind of paper, and the characteristics of the handwriting. You would also want to check for fingerprints. If any handwriting samples were on file of other people convicted of crimes in the area, you would want to compare them with the handwriting in the note. You would also want to compare the fingerprints found on the note with any on file at the police station.)*

Evaluation:

Use the following three-point rubric to evaluate how well students conduct research, answer questions, and use that information to put on a creative, accurate skit on the topic.

Three points: exhibited strong research skills; gave well-thought-out answers to questions; presented a creative and effective skit on the topic.

Two points: exhibited on-grade research skills; gave competent answers to questions; presented a good skit on the topic.

One point: exhibited slightly below-average research skills; gave incomplete answers to questions; presented a skit with inaccuracies that did not convey the information effectively.

Extension:

Forgery in the Art World

Just as forgeries take place in the world of words, they take place in the art world. Have students find out about some famous art forgeries. Ask them to consider the following questions as they investigate art forgeries:

- Which individuals committed the most notorious art forgeries?
- Where did these individuals live?
- Why did they create the forgeries? Was their motivation money, fame, or more personal reasons?
- How did they create the forgeries? What painting techniques did they use?

The following Web sites provide information on famous art forgeries:

<http://www.syntac.net/hoax/artforg.php>

http://www.nyas.org/press/pr_000117.html

<http://www.mystudios.com/gallery/han/methods.html>

As part of students' research, have them print out copies of the forgeries, which are found on the Web sites. Then look for a photograph of the original painting in art books or an encyclopedia. As a class, compare the two paintings. Can you see the differences? Do you think the forgery was well done? Give reasons to support your ideas.

Suggested Reading:

“Artful Dodgers”

Walter C. McCrone. *The Sciences*, January 2001.

Usually detectives working with fine art try to prove that works of art are forgeries, but here's a case in which a chemist-detective was called upon to prove that the painting in question might be real. The author describes the techniques this specialist used to date and identify an unsigned painting that turned out to be the real thing. The remainder of the article describes the general processes used to evaluate artwork. Although rather technical at times, this is an informative and entertaining piece.

Crime Science: How Investigators Use Science to Track Down the Bad Guys

Vivien Bowers. Owl Books, 1997.

Using cartoonlike illustrations, this is a factual and diverting introduction to the world of crime investigation. Chapters cover topics ranging from counterfeiting to computer crime to identification of a crime victim. A short list describes the different kind of specialists used to solve crimes, such as forensic anthropologists, pathologists, coroners, and police artists.

Vocabulary:

forensic science

Definition: The scientific analysis of evidence that is ultimately used as part of a case in a court of law.

Context: **Forensic science** encompasses both fingerprint and handwriting analysis, as well as close scrutiny of fabrics, hair, and other evidence found at the scene of a crime.

forgery

Definition: The crime of falsely making or altering a document.

Context: Experts thought that Clifford Irving's **forgery** of Howard Hughes's letters was authentic to the extent that it is unclear whether it would have been detected if Hughes hadn't come forward to repudiate them.

handwriting analysis

Definition: The study of the form, spacing, content, and alignment on the page of a sample of handwriting.

Context: Examining the way a person shapes letters and spaces them on a page, as well as consistent spelling and punctuation errors—all part of **handwriting analysis**—gives investigators further information about the perpetrator of a crime.

paper analysis

Definition: The study of the materials used to make paper, whether additives have been used, and whether other identifying features, such as watermarks, are present.

Context: Performing a **paper analysis** of documents can often reveal when the document was written.

Academic Standards:

This lesson adheres to the National Science Education Standards for students in grades 5-8:

1. Physical Science
2. Science as Inquiry

Credit: Marilyn Fenichel, freelance writer and curriculum developer.

DiscoverySchool.com

<http://www.discoveryschool.com>

Copyright 2002 Discovery.com.

Teachers may reproduce copies of these materials for classroom use only.