

DETECTIVE NOTES

Case File: 09



Handwriting

Key Questions:

- How can handwriting samples lead to an arrest?

Desired Outcomes:

- Students can understand and explain the different characteristics and forms that are used to analyze handwriting.
- Students can understand how handwriting samples can lead to an arrest.

Activities and Timelines (30 minutes)

Introduction 10 minutes

How is Handwriting Analyzed?

Main Activities 15 minutes

Handwriting Analysis Challenge

Conclusion 5 minutes

Review and Exit Pass

Resources

- Resource 9-1: Exit Pass

Introduction

10 minutes



Teacher's note: Before the children arrive, write a generic sentence at the top of the board, such as: "A wild fox jumped over the stack of hay."

- ▶ Ask two staff members, known to the class, to write a sentence on the board before the children arrive and the lesson starts. Label them A and B. Sentence A and B must be identical, but different from the generic sentence above. Try to utilize similar letters in the new sentence and the generic sentence, such as: "Look at those kittens in the box."
 - ▶ Write the same sentence that your colleagues wrote. Label this sentence C. At this point there should be one generic sentence and three of the same sentences written by three different people.
- **Explain:** I had three staff members write a sentence on the board. One of the three sentences on the bottom (A, B, or C) was written by the same person who wrote the sentence at the top.
 - **Ask:** Can you figure out who wrote the sentence at the top of the board?
 - **Compile** a list of how students were able to distinguish between the different sentences. For example, messy vs. neat, darker writing, dots vs. circles on l's, small vs. big, slanted, symbols, etc.



- **Explain:** Every person in the world has a unique way of writing. We may have all learned to write using a certain style, but everyone will personalize this and develop their own characteristics. You will have between 20-30 individual characteristics of writing – so while you may share two or three with another person, it would be almost impossible to share all the characteristics.
- **Ask:** When you write an “S”, do you start at the bottom or the top? What about “b’s?” Do you do it in one stroke without lifting your pencil off the page, or do you draw a vertical line and the circle in a different stroke?
- **Look** for distinguishing letters- a vs *a* vs **a**
- **Explain:** In the Calgary Police Service, Forensic Document Examiners (FDE) are professionals who analyze handwriting samples in various documents. They can determine who wrote it and whether it is a real or forged document.
- **Describe:** What FDEs look for:



Teacher’s note: Feel free to just explain a few of the following characteristics, perhaps the ones you feel are the most relevant for your students.

▷ 12 different characteristics:

- **Line quality:** Does the author’s writing stay on the line, or does it curve up or down as the sentence progresses?
- **Spacing:** The spacing in between each word.
- **Ratio:** How does each author’s letter size compare to one another? Are the height, width and size consistent?
- **Pen lifts/separations:** Does the author lift their pen to stop writing one word before starting a new word?
- **Connecting strokes:** How are uppercase letters connected to lower case letters?
- **Beginning and ending strokes:** Unnecessary/unusual additions to the beginning and ending of each word/sentence. Are the strokes straight, curled or long?
- **Unusual letter formations:** Are any letters written with unusual slants or angles? Are some letters printed rather than written in cursive?
- **Shading or pen pressure:** How much pressure is applied on upward and downward strokes?
- **Slant:** The vertical orientation of each letter. Is the lettering perpendicular to the line or does it slant left or right?
- **Baseline Habits:** Does the author write on the line or does the writing go above or below the line?
- **Flourishes and embellishments:** Are there any unusual curls/loops or unique styles?
- **Diacritic placement:** The dotting of I’s and crossing of T’s

▷ The 12 characteristics are divided into 3 categories:

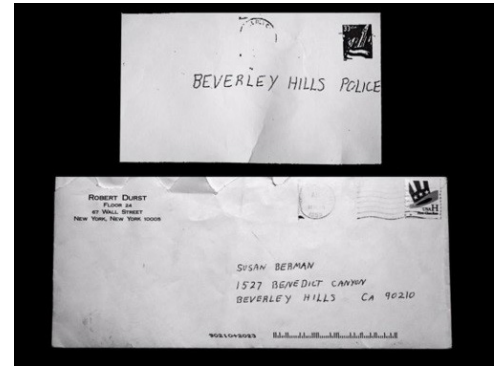
- **Letter Form:** This includes curves, slants and slope of the writing, size and the use of connecting lines between letters.
- **Line Form:** How smooth or dark are the lines? How much pressure has been applied?
- **Formatting:** Spacing between letters and words: how much space is left between margins and how much empty space is there on a page?

- **Explain:** Other than handwriting, FDEs can look at printed documents, such as those from a computer or typewriter, and analyze them in the same manner. Just like footprints, printers and typewriters also have class and accidental characteristics. FDEs can use those characteristics to determine whether a document was printed and from what printer/typewriter.



Handwriting in a Real Case

- **Fun fact:** some very high-profile criminal cases use handwriting analysis as key evidence. E.g.: Robert Durst will soon be facing a murder case, which will rely heavily on the handwriting comparison of an anonymous letter, written to police after a murder, and a signed letter, written to the victim (who was a close friend of Durst). He even spells “Beverly” wrong in both.



Main Activity

15 minutes

- **Materials:**
 - ▷ Blank or lined paper and pencils for each student
 - ▷ Tape
- **Teacher Prep:**
 - ▷ Collect writing sample from select student



Teacher’s note: Before this activity, secretly pick a student in your class to write out a simple sentence on a piece of paper.

- Give each student a piece of paper and ask them to write out the same sentence (*including the secret student you picked earlier*)
- When the students are done writing the note **make sure they include their name on the paper.** Then, invite the students one at a time to stick their notes on the white board with a small piece of tape.
- When everyone’s note is on the board, give each student 60 seconds to come up to the board and make an educated guess of who in the class made the original note by examining the letters and words, as if they are real Forensic Document Examiners! Remind them of the different characteristics of handwriting that they should be looking for.
- Ask the students to make a mental note of who they think wrote the sentence, but to not say it out loud.
- After each student has had a chance to examine the sentences, ask the students for some statements about who they think wrote the original note. Encourage them to use the terminology discussed earlier in the lesson to describe the different characteristics they used to come to their conclusion. For example: “The line spacing is the same”, or “the form of the way they write the letter A is the same”. Then, the student who actually wrote the note can reveal themselves.



Teacher’s note: You can pick several secret students to provide you a note before starting the activity if you wish to do multiple rounds of this activity.

Conclusion

5 minutes

- **Discuss** all the different points that students have noticed that could help officers with their investigations.
 - ▷ **Ask:** Are there any key characteristics that show how the letter forms? What about the line forms? Is there anything about the formatting that would label the handwriting as unique?
- **Discuss:** All the different possibilities linking handwriting analysis, graffiti, and handwriting on homework and other documents.



- **Hand out** Resource 9-1: Exit Pass to conclude the lesson.

Curriculum Links

Science: Evidence and Investigation

General Learner Expectations:

- 6-8: Apply observation and inference skills to recognize and interpret patterns and to distinguish a specific pattern from a group of similar patterns.
- 6-9: Apply knowledge of the properties and interactions of materials to the investigation and identification of a material sample.

Specific Learner Expectations:

- SLE 3: Recognize that evidence found at the scene of an activity may have unique characteristics that allow an investigator to make inferences about the participants and the nature of the activity and give examples of how specific evidence may be used.
- SLE 4: Investigate evidence and link it to a possible source:
 - ▷ Analysing handwriting samples to identify the handwriting of a specific person.

