

Questioned Documents

Forensic Science



Objective

- SWBAT describe and perform the process of recognizing and collecting documents.

Questioned Document

- Any document about which some issue has been raised, or that is the subject of an investigation



Examples of Questioned Documents

- Checks
- Licenses and Certificates
- Passports
- (Counterfeit) Money
- Receipts
- Lottery tickets
- Historical documents
- Ransom and suicide notes
- Forgeries of Art



Introduction

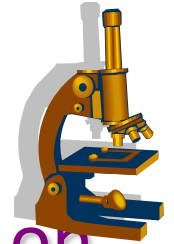
- Experts in the field investigate such things as handwriting, computer printouts, commercial printing, paper, and ink.
 - Questioned documents can include: checks, certificates, wills, passports, licenses, money, letters, contracts, suicide notes, receipts, lottery tickets, etc.
- Their work can help identify a document's **author**.



Document Examiners



- Mostly examine handwriting to originate its source or its authenticity
- Will also examine typed writings, computer printings, photocopies, inks, papers, and forgeries, and decode altered and charred documents
- May need to use microscopes, photographs, chromatography, and other lab examinations on the questioned documents
- Many work in federal, local, and state crime labs, but they may also work in private practices



- **Document Experts** may investigate threatening, ransom, or suicide notes.
 - What do you think they are specifically looking for when they analyze the questioned document against a known sample?
 - Changes in: letter size, shape or appearance, line spacing, letter slant, style, etc.

Prison letters

A letter apparently written by gang member Willie Clark indicates he shot Denver Bronco Darrent Williams. *The Rocky Mountain News* obtained a copy of the letter and hired a certified document examiner to compare it to letters Clark wrote to Rocky reporter Sara Burnett in 2007 and to U.S. District Judge Wiley Daniel earlier this month. The same person wrote all of the letters, the expert concluded.

2007 LETTER TO THE ROCKY	LETTER OBTAINED FROM SOURCE
DO NOT	IT IT DO?
<p>■ In the word "Do" the letter shapes are the same and the letters touch each other each time they are written.</p>	
BUT I	BUT AINT
<p>■ In the word "But," the B touches the U and the U has no return stroke on the right side.</p>	
AGU, Q-1 NICA EXT	
<p>■ The letter G is made in two strokes, like a C with the number 7 for the second part.</p>	
2008 LETTER TO JUDGE	LETTER OBTAINED FROM SOURCE
GREGORY Willie D. Clark	Willie D. Clark
<p>■ The K in his signature is consistently written like an R.</p>	

ROCKY MOUNTAIN NEWS

Graphologist VS QD Examiner

- Graphologist
 - Profiles character or personality by drawing conclusions from certain types of characteristics in the handwriting sample.
 - Does not compare handwriting to determine authenticity or origin. Remember, most of graphology lacks scientific proof.
 - However, some principles of graphology are correct:
 - Handwriting can be affected by illness, old age, etc.
- There are many different “systems of graphology”.

Graphology Examples



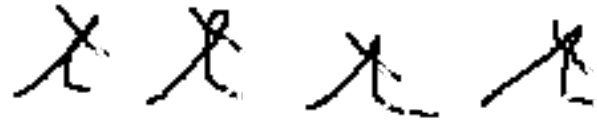
AGGRESSIVENESS: Hard right ending upstrokes that replace a lower loop; the higher the t-cross, the more self-esteem and competitiveness



ANTISOCIAL: Slanted writing >110 degrees, Word crowding, gaps between letters, large lower case letter anywhere (the i in it)



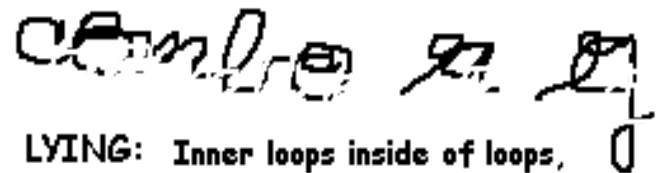
ANGRY/FRUSTRATED: Sharp beginning strokes and incomplete lower loops (frustration)



DOMINEERING/SARCASTIC: Downward slanted t's (a controlling, unpleasant person), inverted V-shaped t's equals stubborn



UNTRUSTWORTHY Undeveloped lower loops or retracted lower loops



LYING: Inner loops inside of loops, extra loops, retouching, retracing

History of Forensic Handwriting Analysis

- In the 1930s, handwriting analysis played a role in the famous Lindbergh case.
 - It was used in the trial of Richard Hauptman for the kidnapping & murder of the son Charles Lindbergh.



Note

Letter

History of Forensic Handwriting Analysis

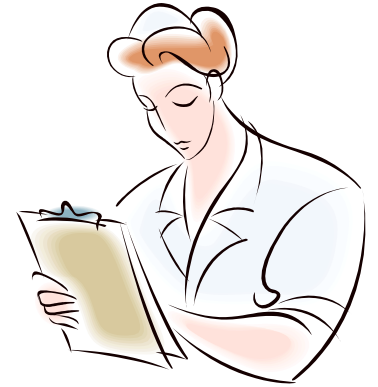
- In 1999, the United States Court of Appeals determined that handwriting analysis qualified as a form of **expert** testimony.
 - To be admissible in court, however, scientifically accepted guidelines must be followed.
- Handwriting analysis has been used by Scotland Yard, the FBI, and the Secret Service.

Introduction to Handwriting

- Everyone's handwriting shows natural **variations**.
 - What are some factors that affect our handwriting and cause these variations?
 - Writing instrument (pen, pencil, marker, crayon) our mood, age, time restraints, audience being written to.
- Despite these variations, each person has a unique **handwriting style**.

Handwriting

- Two individuals cannot have exactly identical handwriting
- Since handwriting is associated with mechanical, physical, and mental functions, it is almost impossible to reproduce exactly
- Handwriting can be *almost* as individual as a person's fingerprint



John Hancock
Th. Jefferson
Benj. Franklin
John Adams
Phil. Livingston
Charles Carroll of Carrollton
Richard Henry Lee
Robt. Morris
Step. Hopkins

Handwriting (continued)



- **Examining and Comparing**

- A positive comparison must be based on an ample number of common characteristics between known and questioned writings
- Collecting a lot of **exemplars** (known writings) is critical in order to make a comparison
- Exemplars should contain some of the same words or combinations of letters that are present in the questioned document(s)

A. Lincoln

Handwriting (continued)



- **Forensic Information System of Handwriting database (FISH)**
 - High profile case documents or those suspected to be written by a repeat offender may be scanned into the **FISH** database
 - This database is maintained by the U.S. Secret Service
 - It can provide a list of “hits” based on mathematical values calculated from the scanned images, but a document examiner makes the final confirmation or elimination

Example

- What do you notice about the two samples of handwriting to the right?

The quick brown fox
jumped over the
lazy dog.

THE QUICK BROWN FOX
JUMPED OVER THE
LAZY DOG.

The Handwriting Learning Process

1. A child learns a model of the alphabet.
2. They progress to drawing block letters (also called “print” or “manuscript”) based on guides.
3. Then typically on to cursive writing guides.
 - Child does not yet have handwriting of their own because they are consciously creating an artistic representation.
4. Child gets better at remembering letter formations and now draws them from memory.
 - This is where variations and deviations come from and he/she begins developing their own handwriting style.

The Learning Process

- Its not until individual characteristics become habitual and repetitious that handwriting has become mature. The person can then write as a sub-conscious act.
- This is the level where we can make the comparison between fingerprints and handwriting.
 - Just as there are no 2 fingerprints the same, handwriting is also unique.

Class Characteristics in Handwriting

- Class Characteristics are similarities between individuals who learned the same type of writing systems.
- Serve to narrow down the search when comparing a questioned document to standard writing systems.
 - Common handwriting systems: Palmer, Zaner-Bloser, and Spencerian.

Individual Characteristics

- These are characteristics that are true only to a specific writer.
- It is a combination of individual characteristics that make handwriting unique to him/her.

Types of Individual Characteristics

- Skill Level
- Slant
- Form
- Movement
- Proportions
- Height
- “l” Dot
- “t” Crossing
- Loops
- Pressure

- Baseline Alignment
- Pen Lifts
- Speed
- Embellishments
- Entry/Exit Strokes
- Retracing
- Spelling/Spacing
- Format
- Case

Skill level

- General gauge of the precision and complexity in a document.
- Important characteristic of identification or non-identification.
- Judged on a continuum of high skill level to low skill level.

High Skill Level

Duckwood Corner North
South Duckwood Boulevard
Miami, Fla. 33156

Low Skill Level

This is an example of a rather low skill level. It is not pleasing to the beholder.

Slant

- Slant is the angle of writing and can be forward or backward.
- This alone is not a good basis for judgment.
- Forwards and backward slants are not indicative to handedness.

forward slant
backward slant

Form

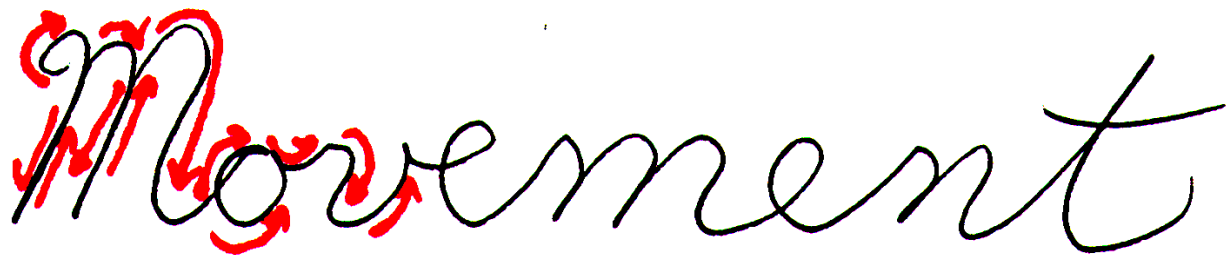
- Most basic individual characteristic and is very important to QDE.
- Form is the way a writer makes a letter or movement of letters.



The image shows three distinct handwritten forms of the letter 'a' on a white background. The first 'a' is a simple, rounded cursive form. The second 'a' is a more elongated, narrow cursive form. The third 'a' is a highly stylized, looped cursive form with a prominent vertical stroke on the right side.

Movement and Pressure

- Movement is the way a pen moves in order to make a mark or form a letter
- This can help distinguish the difference in form. 2 letters can be the same, but made in a different way.
- Pressure is the difference in ink or pencil in width or shade. Helps show direction of movement.



Movement

The image shows the word "Movement" written in a cursive script. Red arrows are overlaid on the letters to indicate the direction of the pen strokes. The 'M' has a large loop at the top with arrows showing the path. The 'o' has a counter-clockwise arrow. The 'v' has a downward arrow. The 'e' has a counter-clockwise arrow. The 'm' has a downward arrow. The 'e' has a counter-clockwise arrow. The 'n' has a downward arrow. The 't' has a downward arrow. The 'e' has a counter-clockwise arrow. The 'n' has a downward arrow. The 't' has a downward arrow.

Proportions, Height, & Loops

- Proportion is the symmetry of an individual letter.
- Loops also have proportions.
- Height comparison between one letter to another.
- Specific height and proportion tendencies are usually habitual in a specific writer.

B B B

Height Ratio
Height Ratio

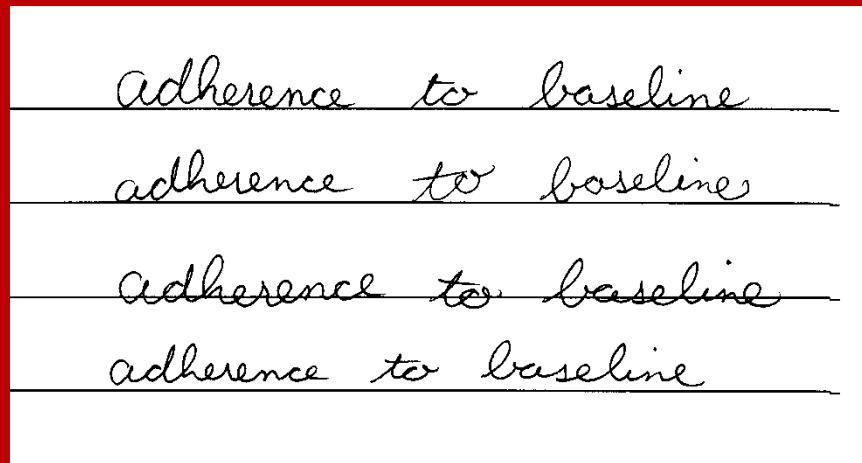
The “l” dot and “t” crossing

- Highly varied between individuals.



Baseline Alignment

- One significant way QD examiners determine whether suspect writing has been altered or is consistent with the rest of the writing or other examples.



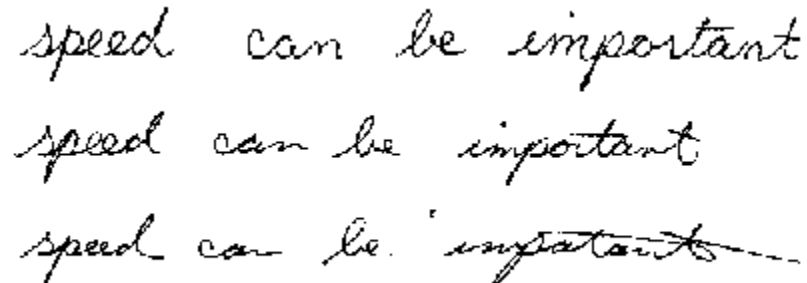
Pen Lifts and Embellishments

- Pen lifts are when the pen or pencil is lifted from the paper and reapplied to finish a word or sentence.
- Most people have pen lifts in their writing.

- Embellishments decorate writing.
- Usually found at the beginning of words, but can be seen other places.

Speed

- The speed of a writer is a key indicator for QDEs in the examination process.
- Fast and slow speeds are difficult to duplicate leaving behind inconsistencies in the writing.



speed can be important
speed can be important
speed can be. ~~important~~

Entry/Exit/Connecting Strokes

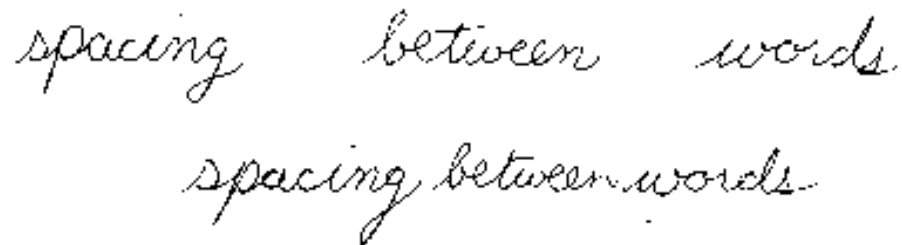
- Entry/Exit Strokes are the ways a writer begins and ends certain letter or words and can be very specific to an individual.
- Connecting strokes between letters are subject to similar analysis.

Retracing

- Retracing is fixing a portion of writing that is not readable or pleasing to the writer.
- In some cases this can indicate forgery, but it is very common in normal handwriting to retrace letters or words.

Spelling/Spacing

- Spelling is an individual characteristic because of education or habits and can be an easy way to eliminate or pin point suspects.
- Spacing is the area between letters or words and can vary greatly between writers.



The image shows two lines of handwritten text in cursive script. The first line is "spacing between words" with wide, consistent gaps between the words. The second line is also "spacing between words", but the gaps between the words are significantly narrower and more irregular, illustrating a different spacing style.

spacing between words
spacing between words

Format and Case

- Writers often have very specific formatting habits when depicting things like dates, numbers, abbreviations, and punctuation.
 - Checks include many formatting examples
- Case usage commonly varies, such as when a writer uses upper case letters where lower case letters should be present.

Handwriting Examination

- What is the goal of handwriting examination?
 - To determine authorship and authentication.
 - To identify *forgeries*: documents created with the intention to deceive...
- Two writings are the product of one person if their similarities are unique and no unexplainable differences are found.

Collecting Questioned Documents

- Original document is preferred.
 - QDE would rather not have copies, but can still use them.
- All evidence should be marked by the QDE.
 - Usually initials and date.
 - If document cannot be marked it should be placed in an envelope and sealed with initials and date.
- Maintain chain of custody.
- And of course, DOCUMENT EVERYTHING.

Character of Handwriting

- No single handwriting characteristic can in itself be taken as the basis for a positive comparison.
- The final conclusion must be based on a sufficient number of common characteristics between the known and questioned writing samples.
- There are no hard and fast rules for a sufficient number of personal characteristics; it is a judgment call made by the expert examiner in the context of each case.

Handwriting Examination

- Step of handwriting analysis:
 1. Examine the questionable document for detectable **traits** and RECORD them.
 2. Obtain some writing of the Suspect (an *exemplar*) and compare the traits found in the questionable document with it.
 3. Draw conclusions about the Authorship of the questionable document based on the comparison.

Collecting Samples or Exemplars

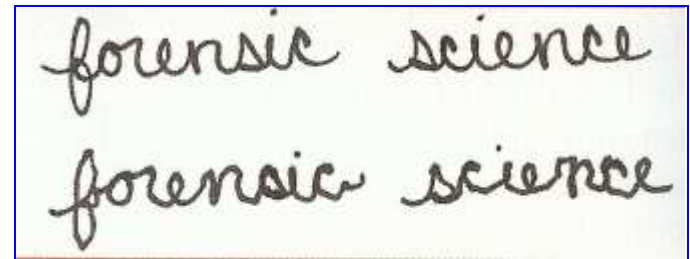
- Exemplar – Handwriting used as a standard for comparison with the document in question.
- 2 types of exemplars:
 - Dictated or requested
 - Undictated or collected

12 Handwriting Characteristics

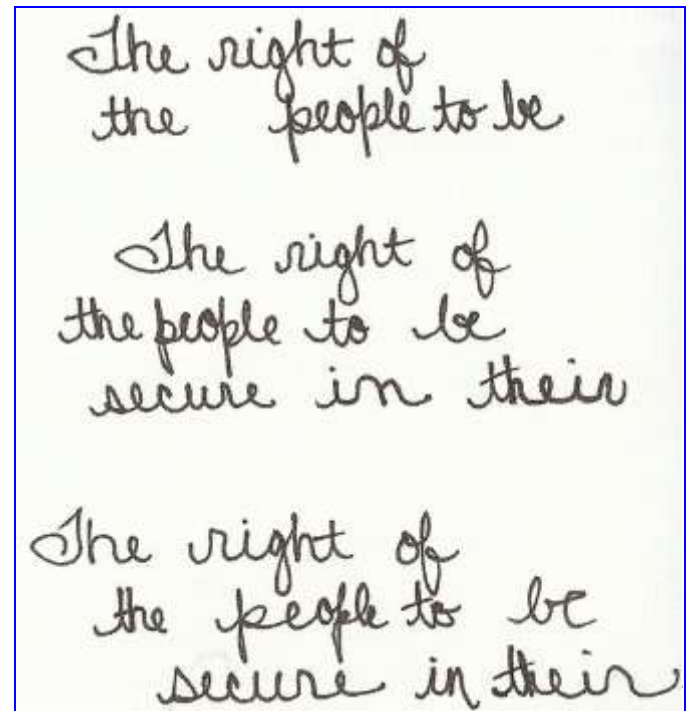


Examiners use 12 factors to determine authenticity:

1) **Line quality**: Are the lines smooth, free-flowing? Or shaky and wavering?



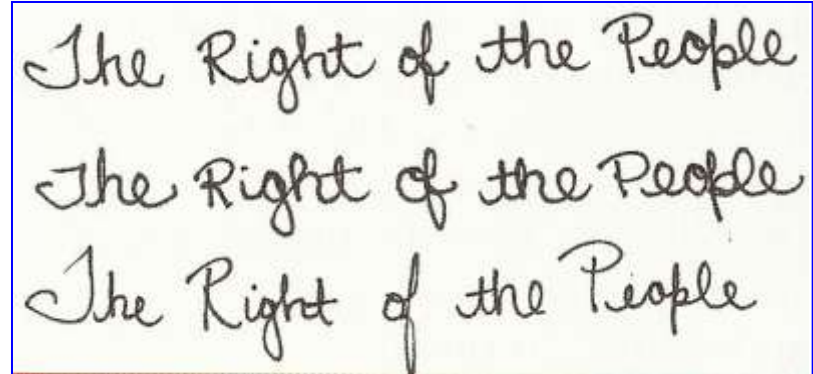
2) **Spacing**: Are the letters and words equally spaced or crowded?



12 Handwriting Characteristics

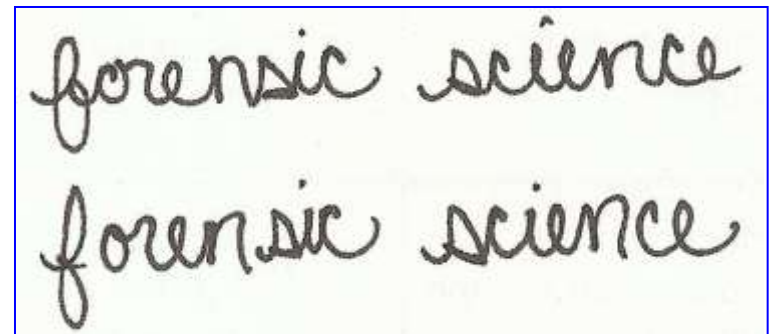


3) **Size consistency:** Examine the relative height, width and size of letters. Is it consistent?



4) **Continuous:** Is the writing continuous or does the writer lift the pen?

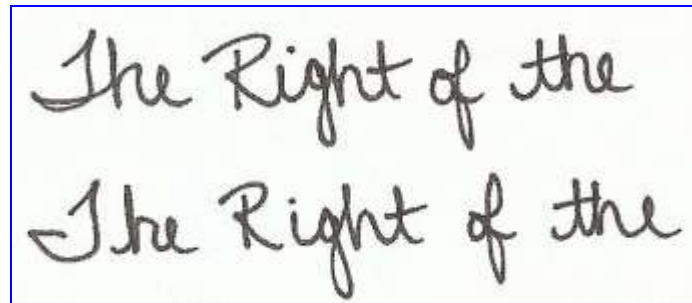
- Forgeries may have lifts or separations in unusual places, such as within a letter



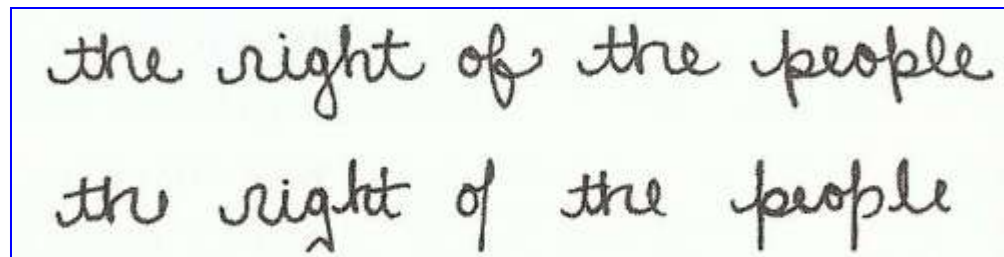
12 Handwriting Characteristics



- 5) **Connecting letters:** Compare the strokes between upper and lower case letters. Are they connected?



- 6) **Letters complete:** Look at beginning and ending strokes. Are letters completely formed? Are parts missing?

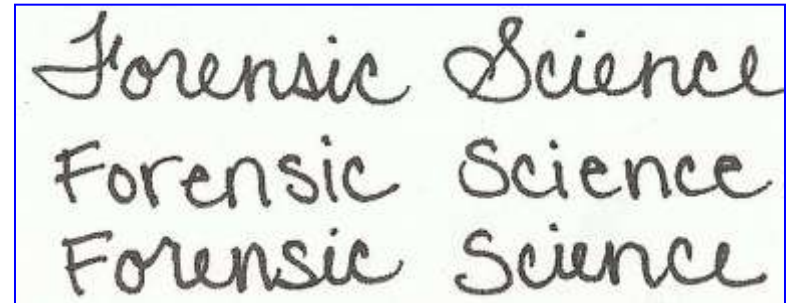


12 Handwriting Characteristics

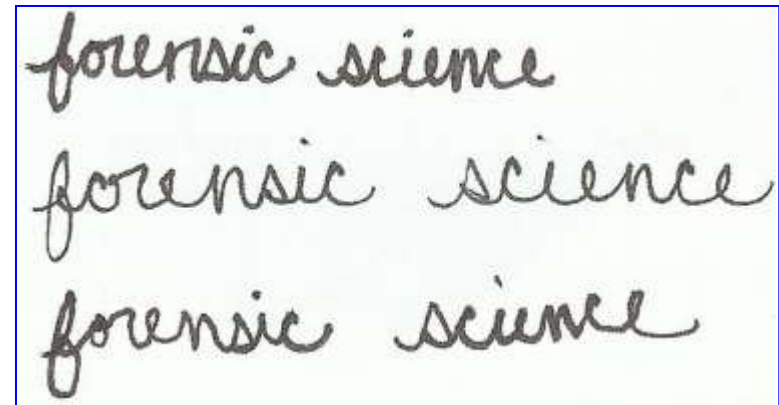


7) Cursive and printed letters:

Are there printed letters, cursive letters, or both?



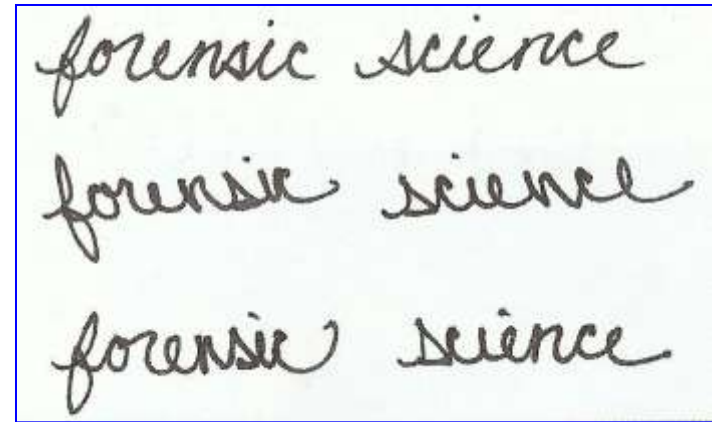
8) Pen pressure: Differing amounts of pressure used by the writer can make lines light or dark, narrow or wide. Is pressure equal when applied to upward and downward strokes?



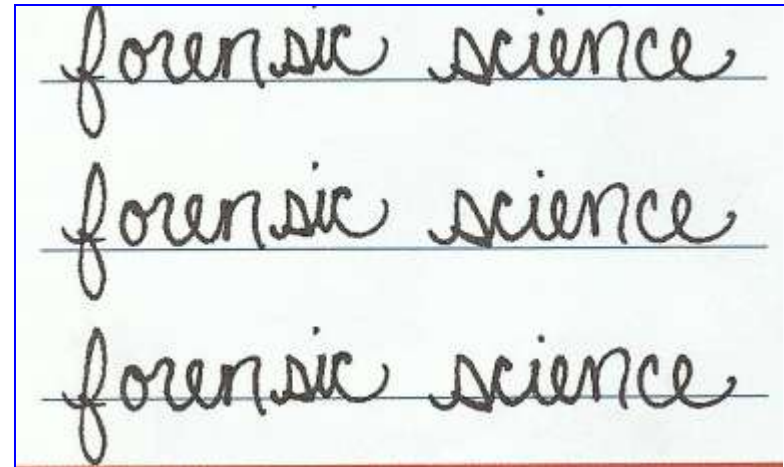
12 Handwriting Characteristics



- 9) **Slant**: analyzing the writing slant- left, right, straight, or variable?



- 10) **Line habits**: are the writer's letters on, above, or below the baseline?



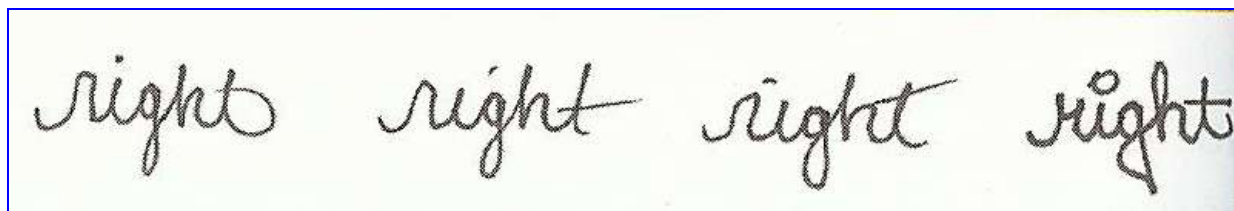
12 Handwriting Characteristics



11) Fancy curls or loops: Are there any fancy letters, curls, loops, circles, or other embellishments?



12) Letter characteristics: Are t's crossed in the middle, towards the top, or bottom? Where is the placement of the dot (or circle, heart, etc.) above lowercase i's?



Handwriting (continued)



- Factors that can affect handwriting samples
 - Writing instrument (pens, pencils, crayons, etc.)
 - Writing surface (paper, wall, napkin, etc.)
 - Underlying surface (smooth or rough)
 - Mood of the writer (happy, depressed, angry, etc.)
 - Age of the writer (undeveloped or shaky handwriting)
 - Writing speed (slow or quick)



Handwriting (continued)



- Factors that can affect handwriting samples
 - Position of the writer (sitting or standing)
 - Position of the document (flat, vertical, or horizontal surface)
 - Environmental exposure (temperature, humidity, etc.)
 - Other factors
 - Consumption of alcohol and/or drugs
 - Injuries and/or illnesses

