Handwriting is unique to each individual. Although some peoples’ handwriting may have similar styles and characteristics in common, acquired when these people learned to write by copying letters and words, they tend to take on individual styles with age. Also, as a person ages, their handwriting will show additional changes.

Generally, one cannot determine the age or sex of a suspect or whether they are left-handed or right-handed from a normal writing sample. Certain types of flourishes and embellishments in writing styles and detailed examination of an original document my give hints at some of some of these characteristics.

In handwriting analysis, one should look for similarities in the shapes, styles, alignment, and spacing of letters.


Materials:
Documents to be examined
Ruler
Protractor
Magnifying lenses

Safety Precautions
There are no safety hazards with this procedure.
**Procedure**

Never work with original documents. Always make copies to work with.

Original documents must be maintained for evidence. Handle original documents as little as possible. Keep them protected in archival sleeves or folders. Any testing for fingerprints must be done after the handwriting and document analysis.

When requesting writings by a subject, they should be given voluntarily. Dictate the text, never show the subject the original document. Make sure that the subject is comfortable and is using the same type of paper and writing instrument. If other samples of the suspect’s handwriting are available use them for additional comparison.

**Characteristics of Handwriting**

Examine the spacing between letters and words. Use a ruler to measure typical spacing.

Examine the relative height, width, and size of letters. Use a ruler to measure these for comparison.

Examine pen lifts and separations. Some letters and combinations will be continuous while others may not be connected. Look at the beginning and ending strokes of words and letters and any connecting strokes.

Are there any unusual letter formations such as loops and curls or a mixture of cursive and printing of letters?

Is there any shading of letters due to uneven pressure applied in writing?

Examine the slant of the letters. Do they slant left, right, or not at all? Are the slants consistent throughout the writing sample? Measure the angles of slant using a protractor.

Examine the baseline habits. Are the words and letters on the baseline or are they above and below. A ruler will be helpful in determining this.

Look for flourishes and embellishments. Using small circles to dot i’s or for periods, loops on capital letters or ending letters, etc. Are there any unusual letter formations?

Look at the placement of diacritics. Are the i’s dotted and t’s crossed? Individuals tend to dot i’s and cross t’s in unique fashions.

Study the ransom note in Figure H-1. Note some of the unique characteristics of the individual’s handwriting.
To the President of the Super Cola Company:

I am in possession of the secret formula for Super Cola. Unless you pay a ransom of $1,000,000 within one week, I will sell the formula to the highest bidder from your rival companies.

I will send you further instructions on payment in 3 days.

Figure H-1. A ransom note.

Figure H-2 contains samples of handwriting from 5 suspects. Can you determine who wrote the ransom note shown in Figure H-1? Write your results on the data pages.
Figure H-2. Handwriting samples from five suspects.
Characteristics of Forged Documents

Writing in forged documents tends to be slowly written and will show a lack of individuality. Letters tend to have an unnatural appearance as if the forger was drawing the letters. This makes letters inconsistent in the document, shows unnatural starts and stops and a general lack of rhythm to the writing. Any mistakes will show a careful correction. Signatures will be identical.

Try this:

Write your signature five times in the spaces below:

________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________

Now, try to write your signature exactly as you did in the 5th sample, above.

________________________________________________________________

Ask your lab partner to write your signature exactly as you did in the 5th sample, above.

________________________________________________________________

Complete the information on the data pages.
Disguised Writing

If a suspect attempts to disguise their writing, they will generally exhibit inconsistent slant and letter formations with a major change in the size of their letters. Capital letters will be different and they often will use block lettering. As they write, there will be a lack of rhythm, irregular spacing, and unnatural starts and stops. Occasionally they will add excessive ornamentation. Some individuals will try to write with the wrong hand.

If an independent writing sample is available, it should be used for comparison.

Try this:

Look at Figure H-2. Write the sentence in the space below. Use your normal writing.

________________________________________________________________________

Write the sentence again. This time try to make it look different from your normal writing, but try to write at a reasonable rate of speed.

______________________________________________________________________

Can you write with your other hand? If so, write the sentence again.

______________________________________________________________________

Complete the information on the data pages.
In addition to normal handwriting analysis, as discussed previously, methods can be used to
detect handwriting, even when the writing has been obliterated. For example, using infrared film
or infrared microscopy, some obliterated writing can be deciphered.

Bleaching ink on a document is a method that can be used to alter it, as in the bank check shown below. Ultraviolet light can be used to detect this if the paper, ink, or bleach has any fluorescent properties.

Analysis of papers can also be used to compare documents, such as a ransom note. Papers can be compared to those in a home or business to ascertain the source and, in some cases, the manufacturer. The following chart shows the elemental analysis of different colored papers.

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>CONCN RANGE, ppm</th>
<th>PERCENT OCCURRENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>White</td>
</tr>
<tr>
<td>Tantalum</td>
<td>0.1–200</td>
<td>9.6</td>
</tr>
<tr>
<td>Copper</td>
<td>0.1–110</td>
<td>72.4</td>
</tr>
<tr>
<td>Arsenic</td>
<td>1.0–9.0</td>
<td>3.5</td>
</tr>
<tr>
<td>Manganese</td>
<td>0.2–510</td>
<td>100</td>
</tr>
<tr>
<td>Samarium</td>
<td>0.01–150</td>
<td>75.0</td>
</tr>
<tr>
<td>Sodium</td>
<td>50.0–1840</td>
<td>100</td>
</tr>
<tr>
<td>Lanthanum</td>
<td>0.3–570</td>
<td>73.2</td>
</tr>
<tr>
<td>Gold</td>
<td>0.01–90</td>
<td>82.3</td>
</tr>
<tr>
<td>Chromium</td>
<td>1.0–330</td>
<td>76.8</td>
</tr>
<tr>
<td>Antimony</td>
<td>0.2–245</td>
<td>66.7</td>
</tr>
<tr>
<td>Bromine</td>
<td>0.01–160</td>
<td>24.7</td>
</tr>
<tr>
<td>Mercury</td>
<td>0.1–90</td>
<td>14.3</td>
</tr>
<tr>
<td>Rubidium</td>
<td>9.0–60</td>
<td>ND</td>
</tr>
<tr>
<td>Iron</td>
<td>100.0–620</td>
<td>0.5</td>
</tr>
<tr>
<td>Barium</td>
<td>37.0–10,200</td>
<td>13.6</td>
</tr>
<tr>
<td>Zinc</td>
<td>22.0–90.0</td>
<td>9.4</td>
</tr>
<tr>
<td>Titanium</td>
<td>ND</td>
<td>39.2</td>
</tr>
<tr>
<td>Scandium</td>
<td>0.1–18.0</td>
<td>90.5</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>8.0–330</td>
<td>1.5</td>
</tr>
<tr>
<td>Tungsten</td>
<td>134</td>
<td>ND</td>
</tr>
<tr>
<td>Cobalt</td>
<td>1.0–4.1</td>
<td>ND</td>
</tr>
<tr>
<td>Chlorine</td>
<td>470–2400</td>
<td>ND</td>
</tr>
<tr>
<td>Cesium</td>
<td>5.6</td>
<td>0.2</td>
</tr>
</tbody>
</table>

HANDWRITING ANALYSIS

Data and Results

Name _______________________________________     Course and Section _______________
Partner(s) ________________________________     Date _________________________

List your observations and measurements of the handwriting sample:

Spacing of words and letters

Relative height, width, and size of letters

Are there any pen lifts and separations?

Are there any unusual letter formations?
Is there any shading of letters?

Describe the slant of the writing.

Describe the baseline habit of the writer.

Are there any flourishes or embellishments?

Describe placements of diacritics.

Who wrote the ransom note? Explain.
Characteristics of Forged Documents

Are your five signatures the same? Explain.

Is your 6th signature identical to the signature you tried to copy? Explain.

Was your lab partner able to copy your signature? Explain similarities and differences.

If you examined any forged documents, describe your findings.
Disguised Writing

How good are you at disguising your writing?

If you examined any disguised writing, describe your findings.