

ACTIVITY 10-1 HANDWRITING ANALYSIS

Objectives:

By the end of this activity, you will be able to:

1. Describe the 12 different exemplars used in handwriting analysis.
2. Provide an example of the 12 different characteristics used in handwriting analysis.
3. Identify examples of the 12 different characteristics found in handwriting samples.
4. Analyze your own handwriting sample using the 12 exemplars.
5. Analyze the handwriting sample of a classmate's handwriting using the 12 different characteristics.

Time Required to Complete Activity: 40 minutes

Materials:

(per student)

pens or pencils and lined paper

colored pencils or highlighters

ruler (mm) or calipers

two handwriting samples of the Fourth Amendment provided by your partner

Safety Precautions:

None

Procedure 1: Analysis of Your Own Handwriting

1. Copy the Fourth Amendment from the overhead projector onto a lined sheet of notebook paper. Prepare two copies on separate sheets of paper. (Note this sample should be taken prior to the exercise. Students should not be aware that this sample will be used for handwriting analysis.)
2. Review the descriptions and examples of the 12 exemplars of handwriting traits.
3. Use Figure 10-3 to perform a handwriting analysis of your own handwriting (Fourth Amendment) by completing Data Table 1.
 - a. Begin by examining the handwriting for line quality. Answer the question, yes or no, on the Data Table. Include a description to qualify your answer.
 - b. Use highlighters or colored pencils to circle letters, words, or lines that demonstrate unusual characteristics or traits.
 - c. For some of the exemplars, it is important that you use a ruler or a caliper to measure the letters or spacing. For example, in exemplar 2, you will need to measure the spacing between words. Note if it is consistent. Note the size of the distance between words. Include your measurements under the description heading.
 - d. You will need to complete the entire Data Table 1 as you analyze the handwriting using the different exemplars.

ACTIVITY 10-1 HANDWRITING ANALYSIS

Objectives: By the end of this activity, you will be able to:

1. Describe the 12 different exemplars used in handwriting analysis. 2. Provide an example of the 12 different characteristics used in handwriting analysis. 3. Identify examples of the 12 different characteristics found in handwriting samples. 4. Analyze your own handwriting sample using the 12 exemplars. 5. Analyze the handwriting sample of a classmate's handwriting using the 12 different characteristics.

Time Required to Complete Activity:

40 minutes

Materials: (per student) pens or pencils and lined paper colored pencils or highlighters ruler (mm) or calipers two handwriting samples of the Fourth Amendment provided by your partner

Safety Precautions:

None

Procedure 1: Analysis of Your Own Handwriting

1. Copy the Fourth Amendment from the overhead projector onto a lined sheet of notebook paper. Prepare two copies on separate sheets of paper. (Note this sample should be taken prior to the exercise. Students should not be aware that this sample will be used for handwriting analysis.) 2. Review the descriptions and examples of the 12 exemplars of handwriting traits. 3. Use Figure 10-3 to perform a handwriting analysis of your own handwriting (Fourth Amendment) by completing Data Table 1. a. Begin by examining the handwriting for line quality. Answer the question, yes or no, on the Data Table. Include a description to qualify your answer. b. Use highlighters or colored pencils to circle letters, words, or lines that demonstrate unusual characteristics or traits. c. For some of the exemplars, it is important that you use a ruler or a caliper to measure the letters or spacing. For example, in exemplar 2, you will need to measure the spacing between words. Note if it is consistent. Note the size of the distance between words. Include your measurements under the description heading. d. You will need to complete the entire Data Table 1 as you analyze the handwriting using the different exemplars.

Data Table 1: Analysis of Your Own Handwriting

Characteristic #	Yes	No	Comments (and measurements in mm) if required
1. Is line quality smooth?			
2. Are words and margins evenly spaced?			Margins: Words:
3. Is the ratio of small letters to capital letters consistent? What is the ratio?			
4. Is the writing continuous?			
5. Are letters connected between capitals and lowercase letters?			
6. Are letter formations complete?			(Be specific, which letters?)
7. Is all of the writing cursive?			(Be specific, which words?)
8. Is the pen pressure the same throughout?			
9. Do all letters slant to the right?			
10. Are all letters written on the line?			
11. Are there fancy curls or loops?			(which letters?)
12. Are all i's and t's dotted and crossed? (top, middle, or not)			i's t's

Procedure 2: Analysis of a Classmate's Handwriting

1. After completing the analysis of your own handwriting, exchange a handwriting sample with a classmate. (Be sure to give them a clean copy of your handwriting, not the copy that you just marked.)
2. Analyze a classmate's handwriting by completing Data Table 2. Be sure to use highlighters or colored pencils to mark any unusual traits. Include measurements where necessary.
3. After completing the analysis, answer the questions on the next page.

1. Is line quality smooth?

spaced?

Words:

3. Is the ratio of small letters to capital letters consistent? What is the ratio?

4. Is the writing continuous?

5. Are letters connected between capitals and lowercase letters?

6. Are letter formations complete? (Be specific, which letters?)

7. Is all of the writing cursive? (Be specific, which words?)

8. Is the pen pressure the same throughout?

9. Do all letters slant to the right?

10. Are all letters written on the line?

11. Are there fancy curls or loops? (which letters?)

12. Are all i's and t's dotted and crossed?

Margins: 2. Are words and margins evenly

i's (top, middle, or not)

t's

Procedure 2: Analysis of a Classmate's Handwriting

1. After completing the analysis of your own handwriting, exchange a handwriting sample with a classmate. (Be sure to give them a clean copy of your handwriting, not the copy that you just marked.) 2. Analyze a classmate's handwriting by completing Data Table 2. Be sure to use highlighters or colored pencils to mark any unusual traits. Include measurements where necessary. 3. After completing the analysis, answer the questions on the next page.

Data Table 2: Analysis of Your Partner's Handwriting

Characteristic #	Yes	No	Comments (and measurements in mm) if required
1. Is line quality smooth?			
2. Are words and margins evenly spaced?			Margins: Words:
3. Is the ratio of small letters to capital letters consistent? What is the ratio?			
4. Is the writing continuous?			
5. Are letters connected between capitals and lowercase letters?			
6. Are letter formations complete?			(Be specific, which letters?)
7. Is all of the writing cursive?			(Be specific, which words?)
8. Is the pen pressure the same throughout?			
9. Do all letters slant to the right?			
10. Are all letters written on the line?			
11. Are there fancy curls or loops?			(which letters?)
12. Are all i's and t's dotted and crossed? (top, middle, or not)			i's t's

Questions:

1. Were the handwritings samples of you and your partner similar, or could you easily tell that the two samples of handwriting were not from the same person by simply glancing at them? Explain your answer.
2. Review your Data Tables of the two handwriting analyses. Did the two handwriting samples have any characteristics that were the same? Explain your answer.
3. Review your Data Tables and state what characteristics of your own handwriting were very different from your partner's handwriting.
4. Reviewing your Data Tables, did any handwriting traits found in either of the two handwriting samples seem to be unique and could easily be used to help identify any other handwriting samples written by either you or your classmate? If so, describe the trait below:
5. Unique letter combinations is another characteristic that could be added to this list of the 12 exemplars used for handwriting analysis. For example, many people may have very distinctive ways of writing double Ls, such as in the word galloping. Other people may have a unique way of writing the letters "th," such as in the words *the*, *them*, or *their*. Describe a different example of an exemplar that you would like to see added to the 12 characteristics of handwriting used in handwriting analyses.
6. Why was it important to have your handwriting samples prepared in advance of this activity?

1. Is line quality smooth?

Margins: 2. Are words and margins evenly

spaced?

Words:

3. Is the ratio of small letters to capital letters consistent? What is the ratio?

4. Is the writing continuous?

5. Are letters connected between capitals and lowercase letters?

6. Are letter formations complete? (Be specific, which letters?)

7. Is all of the writing cursive? (Be specific, which words?)

8. Is the pen pressure the same throughout?

9. Do all letters slant to the right?

10. Are all letters written on the line?

11. Are there fancy curls or loops? (which letters?)

12. Are all i's and t's dotted and crossed?

i's (top, middle, or not)

t's

Questions:

1. Were the handwritings samples of you and your partner similar, or could you easily tell that the two samples of handwriting were not from the same person by simply glancing at them? Explain your answer. 2. Review your Data Tables of the two handwriting analyses. Did the two handwriting samples have any characteristics that were the same? Explain your answer. 3. Review your Data Tables and state what characteristics of your own

handwriting were very different from your partner's handwriting. 4. Reviewing your Data Tables, did any handwriting traits found in either of the two handwriting samples seem to be unique and could easily be used to help identify any other handwriting samples written by either you or your classmate? If so, describe the trait below: 5. Unique letter combinations is another characteristic that could be added to this list of the 12 exemplars used for handwriting analysis. For example, many people may have very distinctive ways of writing double Ls, such as in the word galloping. Other people may have a unique way of writing the letters "th," such as in the words the, them, or their. Describe a different example of an exemplar that you would like to see added to the 12 characteristics of handwriting used in handwriting analyses. 6. Why was it important to have your handwriting samples prepared in advance of this activity?

ACTIVITY 10-2

ANALYSIS OF RANSOM NOTE AND EXPERT TESTIMONY



Scenario:

Someone abducted a 10-year-old child from a well-to-do, private, residential school. His wealthy and famous parents received a ransom note requesting a large sum of money in exchange for the safe return of their son. They immediately contacted the police and gave them the ransom note.

The police got a lead implicating six members of a group, and all six young men were taken to the police station for questioning. The six young men were separated from each other so that they could not collaborate on their story. The first thing the police asked them to do was to write down their whereabouts for the past 48 hours. The police actually wanted a handwriting sample from each of the men. It was important not to tell them that a handwriting sample was being collected, because then the men might not write normally or spontaneously.

When the police obtained all six handwriting samples and the ransom note, they called in a renowned handwriting expert (you!) to analyze the ransom notes and the six suspect notes. Did any of the handwriting samples from the six men match the handwriting sample found in the ransom note?

Objectives:

By the end of this activity, you will be able to:

1. Act as the expert handwriting witness requested to testify that at least one of the suspect's handwriting samples matches the handwriting sample found in the ransom note.
2. Present your findings in a written report that will be submitted to the jury before your testimony at the trial.

Time Required to Complete Activity:

Two 40-minute periods are required to analyze the ransom note and the six suspect handwriting samples. Additional time is required to prepare the written report.

Materials:

- (2 students/group)
- 6 different handwriting samples
- 1 ransom note in the handwriting of one of the above writers
- 1 six-inch mm ruler or calipers
- several colored pencils or highlighters

Safety Precautions:

None

TESTIMONY

Scenario: Someone abducted a 10-year-old child from a well-to-do, private, residential school. His wealthy and famous parents received a ransom note requesting a large sum of money in exchange for the safe return of their son. They immediately contacted the police and gave them the ransom note.

The police got a lead implicating six members of a group, and all six young men were taken to the police station for questioning. The six young men were separated from each other so that they could not collaborate on their story. The first thing the police asked them to do was to write down their whereabouts for the past 48 hours. The police actually wanted a handwriting sample from each of the men. It was important not to tell them that a handwriting sample was being collected, because then the men might not write normally or spontaneously.

When the police obtained all six handwriting samples and the ransom note, they called in a renowned handwriting expert (you!) to analyze the ransom notes and the six suspect notes. Did any of the handwriting samples from the six men match the handwriting sample found in the ransom note?

Objectives: By the end of this activity, you will be able to:

1. Act as the expert handwriting witness requested to testify that at least one of the suspect's handwriting samples matches the handwriting sample found in the ransom note. 2. Present your findings in a written report that will be submitted to the jury before your testimony at the trial.

Time Required to Complete Activity: Two 40-minute periods are required to analyze the ransom note and the six suspect handwriting samples. Additional time is required to prepare the written report.

Materials: (2 students/group) 6 different handwriting samples 1 ransom note in the handwriting of one of the above writers 1 six-inch mm ruler or calipers several colored pencils or highlighters

Safety Precautions: None

Procedure:

1. Study the ransom note provided by your instructor. Perform an analysis of the handwriting sample using the 12 exemplars (see Figure 10-3). Record your findings in Data Table 1.
2. Analyze the six suspects' handwriting samples.
 - a. If possible, visually eliminate some of the samples without using the list itemizing the characteristics. If you can eliminate any handwriting samples without performing the 12-exemplar handwriting analysis, you will need to write a statement showing evidence that the handwriting samples are obviously very different. Record this information on a separate sheet of paper using the Visual Elimination Format provided. If you eliminate the suspect by this visual inspection, you will not need to complete the 12-exemplar section of the Data Table.
 - b. For those samples that appear to be similar to the ransom note, perform a handwriting analysis using the 12 different handwriting characteristics. Record your results in separate Data Tables for each suspect's handwriting sample.
3. After analyzing both the ransom note and the six suspects' handwriting samples, determine which of the suspect's handwriting matches the handwriting of the ransom note. You will need to prepare your findings in a written report to be submitted to the jury. You will also need to testify at the hearing.

Written Lab Report

1. The purpose of the written report is to convince the members of a jury that you are an expert in the area of handwriting analysis.
 2. You are able to analyze handwriting samples and show the jury evidence of how the samples are similar or dissimilar. Through your investigation, you have been able to conclude that one or more of the handwriting samples matches the handwriting of the ransom note.
 3. Keep in mind that most juries have no knowledge of handwriting analysis. They may be highly educated, or they may have very little formal education. Therefore, any terms you use must be clearly defined.
 4. Your report should be typed and spell-checked.
 5. Print out a rough draft. Ask a partner to proofread your rough draft and help you edit your first copy. Your editor needs to sign the bottom of your rough draft after editing.
 6. You should submit both the edited rough draft and your final copy.
- The format for your written report to the jury is outlined as follows:
- I. Introduction (10 points)
 - a. State the purpose of your report.
 - b. No factual or detailed information should be in the introduction.
 - c. State how you analyzed the handwriting.
 - State how many different characteristics you used.
 - State if it was possible to prove someone wrote the note, or merely that the handwriting was similar.
 - II. Several Body Paragraphs (at least six) (60 points)
 - a. One main idea or exemplar in each paragraph (at least six)
 - b. For each trait, you need to:
 - Describe the trait.

Procedure:

1. Study the ransom note provided by your instructor. Perform an analysis of the handwriting

sample using the 12 exemplars (see Figure 10-3). Record your findings in Data Table 1. 2. Analyze the six suspects' handwriting samples.

a. If possible, visually eliminate some of the samples without using

the list itemizing the characteristics. If you can eliminate any handwriting samples without performing the 12-exemplar handwriting analysis, you will need to write a statement showing evidence that the handwriting samples are obviously very different. Record this information on a separate sheet of paper using the Visual Elimination Format provided. If you eliminate the suspect by this visual inspection, you will not need to complete the 12-exemplar section of the Data Table.

b. For those samples that appear to be similar to the ransom note, perform a handwriting analysis using the 12 different handwriting characteristics. Record your results in separate Data Tables for each suspect's handwriting sample. 3. After analyzing both the ransom note and the six suspects' handwriting samples, determine which of the suspect's handwriting matches the handwriting of the ransom note. You will need to prepare your findings in a written report to be submitted to the jury. You will also need to testify at the hearing.

Written Lab Report

1. The purpose of the written report is to convince the members of a jury

that you are an expert in the area of handwriting analysis. 2. You are able to analyze handwriting samples and show the jury evidence of how the samples are similar or dissimilar. Through your investigation, you have been able to conclude that one or more of the handwriting samples matches the handwriting of the ransom note. 3. Keep in mind that most juries have no knowledge of handwriting analysis. They may be highly educated, or they may have very little formal education. Therefore, any terms you use must be clearly defined. 4. Your report should be typed and spell-checked. 5. Print out a rough draft. Ask a partner to proofread your rough draft and help you edit your first copy. Your editor needs to sign the bottom of your rough draft after editing. 6. You should submit both the edited rough draft and your final copy. The format for your written report to the jury is outlined as follows:

I. Introduction (10 points)

a. State the purpose of your report. b. No factual or detailed information should be in the introduction. c. State how you analyzed the handwriting.

- State how many different characteristics you used.
- State if it was possible to prove someone wrote the note, or merely that the handwriting was similar.

II. Several Body Paragraphs (at least six) (60 points)

a. One main idea or exemplar in each paragraph (at least six) b. For each trait, you need to:

- Describe the trait.

- Explain how the ransom note writer's handwriting matched or didn't match the trait you are describing.
- Remember that you need to explain these terms to the jury and convince them that your comparisons are correct.



Example: Exemplar 2

- Did you look at the spacing?
- Did you measure the spacing with a ruler?
- If so, what was the spacing?
- What is the ratio of lowercase letters to uppercase (capital) letters?
- Is the ratio consistent?
- Is the ratio the same in both the ransom note and the suspect's handwriting sample?

III. Conclusion (10 points)

- Summarize your findings.
- Do not repeat detailed information.
- How reliable is your conclusion?
- Is handwriting evidence enough to convict someone?
- Is this an important piece of evidence?

Data Table 1: Ransom Note Analysis

Characteristic #	Yes	No	Comments (and measurements in mm) if required
1. Is line quality smooth?			
2. Are words and margins evenly spaced?			Margins: Words:
3. Is the ratio of small letters to capital letters consistent?			
4. Is the writing continuous?			
5. Are letters connected between capitals and lowercase letters?			
6. Are letter formations complete?			(Be specific, which letters?)
7. Is all of the writing cursive?			(Be specific, which words?)
8. Is the pen pressure the same throughout?			
9. Do all letters slant to the right?			
10. Are all letters written on the line?			
11. Are there fancy curls or loops?			(Which letters?)
12. Are all i's and t's dotted and crossed?			i's t's

- Explain how the ransom note writer's handwriting matched or didn't match the trait you are describing.

• Remember that you need to explain these terms to the jury and convince them that your comparisons are correct.

Example: Exemplar 2

- Did you look at the spacing?
- Did you measure the spacing with a ruler?
- If so, what was the spacing?
- What is the ratio of lowercase letters to uppercase (capital) letters?
- Is the ratio consistent?
- Is the ratio the same in both the ransom note and the suspect's handwriting sample?

III. Conclusion (10 points)

a. Summarize your findings. b. Do not repeat detailed information. c. How reliable is your conclusion? d. Is handwriting evidence enough to convict someone? e. Is this an important piece of evidence?

Data Table 1: Ransom Note Analysis

1. Is line quality smooth?

spaced?

Words:

3. Is the ratio of small letters to capital letters consistent?

4. Is the writing continuous?

5. Are letters connected between capitals and lowercase letters?

6. Are letter formations complete? (Be specific, which letters?)

7. Is all of the writing cursive? (Be specific, which words?)

8. Is the pen pressure the same throughout?

9. Do all letters slant to the right?

10. Are all letters written on the line?

11. Are there fancy curls or loops? (Which letters?)

crossed?

t's

Margins: 2. Are words and margins evenly

i's 12. Are all i's and t's dotted and

Data Table 2: Suspect # ____ Note Analysis

Characteristic #	Yes	No	Comments (and measurements in mm) if required
1. Is line quality smooth?			
2. Are words and margins evenly spaced?			Margins: Words:
3. Is the ratio of small letters to capital letters consistent?			
4. Is the writing continuous?			
5. Are letters connected between capitals and lowercase letters?			
6. Are letter formations complete?			(Be specific, which letters?)
7. Is all of the writing cursive?			(Be specific, which words?)
8. Is the pen pressure the same throughout?			
9. Do all letters slant to the right?			
10. Are all letters written on the line?			
11. Are there fancy curls or loops?			(Which letters?)
12. Are all i's and t's dotted and crossed?			i's t's

Visual Elimination Format:

If any of the suspects' handwriting can be quickly eliminated without performing a 12-character analysis, you will need to justify your elimination with a brief statement explaining why the handwriting is obviously not the same as the handwriting found in the ransom note. Use the following format:

Suspect # _____

Reasons for quickly eliminating this suspect:

1. _____
2. _____
3. _____
4. _____
5. _____

Data Table 2: Suspect # ____ Note Analysis

1. Is line quality smooth?

Margins: 2. Are words and margins evenly

spaced?

Words:

3. Is the ratio of small letters to capital letters consistent?

4. Is the writing continuous?

5. Are letters connected between capitals and lowercase letters?

6. Are letter formations complete? (Be specific, which letters?)

7. Is all of the writing cursive? (Be specific, which words?)

8. Is the pen pressure the same throughout?

9. Do all letters slant to the right?

10. Are all letters written on the line?

11. Are there fancy curls or loops? (Which letters?)

i's 12. Are all i's and t's dotted and

crossed?

t's

Visual Elimination Format: If any of the suspects' handwriting can be quickly eliminated without performing a 12-character analysis, you will need to justify your elimination with a brief statement explaining why the handwriting is obviously not the same as the handwriting found in the ransom note. Use the following format:

Suspect # _____

Reasons for quickly eliminating this suspect:

- 1.
- 2.
- 3.
- 4.
- 5.

ACTIVITY 10-3

EXAMINATION OF U.S. CURRENCY: IS IT REAL OR A FORGERY?



Scenario:

Camille handed the cashier her \$50 bill. The cashier held it up against the light and looked at it. Perplexed, Camille asked the cashier why he held the \$50 bill up to the light. He told her that cashiers were required to examine all \$50 bills to be sure that they were legitimate and not counterfeit bills. Camille couldn't imagine how holding the bill up against the light could help him determine if it was a genuine-issue bill or a counterfeit bill. What was he looking for?

Objectives:

By the end of this activity, you will be able to:

1. Identify who is on the front of \$1, \$5, \$10, and \$20 bills.
2. Describe what images appear on the back of the bills.
3. Describe the seals, signatures, and images that appear on American currency bills.
4. Given a counterfeit-detecting pen, determine if a bill is genuine or a forgery.
5. Given U.S. paper currency, describe methods used to determine if the currency is counterfeit or legitimate.
6. Explain why it is difficult to counterfeit U.S. currency.

Time Required to Complete Activity:

Part A: Pre-test (5 minutes)
Part B: \$1 examination (30 minutes)
Part C: Hidden feature exploration (30 minutes)
Part D: \$10 bill analysis (30 minutes)
Part E: Internet tutorial (30 minutes)

Materials:

(students should work in pairs)
stereo or compound microscopes or hand lens
counterfeit-detecting pen (to share with other groups)
an assortment of various denominations of U.S. currency (\$1, \$10, \$20, \$50) to share
computers (optional)
digital camera (optional)

Safety Precautions:

None

REAL OR A FORGERY?

Scenario: Camille handed the cashier her \$50 bill. The cashier held it up against the light and looked at it. Perplexed, Camille asked the cashier why he held the \$50 bill up to the light. He told her that cashiers were required to examine all \$50 bills to be sure that they were legitimate and not counterfeit bills. Camille couldn't imagine how holding the bill up against the light could help him determine if it was a genuine-issue bill or a counterfeit bill. What was he looking for?

Objectives: By the end of this activity, you will be able to:

1. Identify who is on the front of \$1, \$5, \$10, and \$20 bills.
2. Describe what images appear on the back of the bills.
3. Describe the seals, signatures, and images that appear on American currency bills.
4. Given a counterfeit-detecting pen, determine if a bill is genuine or a forgery.
5. Given U.S. paper currency, describe methods used to determine if the currency is counterfeit or legitimate.
6. Explain why it is difficult to counterfeit U.S. currency.

Time Required to Complete Activity: Part A: Pre-test (5 minutes) Part B: \$1 examination (30 minutes) Part C: Hidden feature exploration (30 minutes) Part D: \$10 bill analysis (30 minutes) Part E: Internet tutorial (30 minutes)

Materials: (students should work in pairs) stereo or compound microscopes or hand lens counterfeit-detecting pen (to share with other groups) an assortment of various denominations of U.S. currency (\$1, \$10, \$20,

\$50) to share computers (optional) digital camera (optional)

Safety Precautions: None



Procedure:

1. Complete the pre-test questions in Part A
2. Complete Part B: \$1 bill examination
3. Complete Part C: Hidden feature exploration
4. Complete Part D: \$10 bill analysis
5. Complete Part E: Internet tutorial

If computers are available, examine the following web site:

<http://moneyfactory.gov/newmoney/main.cfm/learning/download>

Part A

Take the pre-test before starting the lab to determine how much you know about our paper currency. For this part of the lab, you should not be looking at any money but answering the questions from memory. Record your answers on Data Table 1.

Procedure:

Take the pre-test before starting the lab.

Pre-test:

1. Whose face appears on the front of a \$1 bill?
2. Whose face appears on the front of a \$5 bill?
3. Whose face appears on the front of a \$20 bill?
4. What building is pictured on the back of a \$5 bill?
5. What building is pictured on the back of a \$10 bill?
6. What building is pictured on the back of a \$20 bill?
7. What pictures appear on the back of a \$1 bill?
8. On the front of \$1, \$5, and \$10 bills, what words are written?
9. On the back of the \$1, \$5, and \$10 bills, what words are written?
10. Is the date the bill was issued printed on the front or back of the bill?
11. What seals appear on the front of a bill?

True/False:

12. The Secretary of the Treasury and the U.S. Treasurer are the same.
13. The serial number is printed in two places on the front of a bill.
14. Newer bills contain more colors than the older bills.
15. There is only one signature located on the front of a bill.
16. There is a picture of a building located on the back of \$1, \$5, \$10, and \$20 bills.
17. The White House appears on the back of the \$20 bill.
18. Because of the separation of church and state, no mention of a higher being or deity can be printed on the bills.
19. There are "hidden images" on the front side of a bill that can only be seen if you hold the bill up to the light.
20. On the back of \$10 and \$20 bills, small yellow numbers indicating their denominations is stamped in the area surrounding the picture.

Procedure:

1. Complete the pre-test questions in Part A
2. Complete Part B: \$1 bill examination
- 3.

Complete Part C: Hidden feature exploration 4. Complete Part D: \$10 bill analysis 5. Complete Part E: Internet tutorial If computers are available, examine the following web site:
<http://moneyfactory.gov/newmoney/main.cfm/learning/download>

Part A Take the pre-test before starting the lab to determine how much you know about our paper currency. For this part of the lab, you should not be looking at any money but answering the questions from memory. Record your answers on Data Table 1.

Procedure: Take the pre-test before starting the lab.

Pre-test:

1. Whose face appears on the front of a \$1 bill? 2. Whose face appears on the front of a \$5 bill? 3. Whose face appears on the front of a \$20 bill? 4. What building is pictured on the back of a \$5 bill? 5. What building is pictured on the back of a \$10 bill? 6. What building is pictured on the back of a \$20 bill? 7. What pictures appear on the back of a \$1 bill? 8. On the front of \$1, \$5, and \$10 bills, what words are written? 9. On the back of the \$1, \$5, and \$10 bills, what words are written? 10. Is the date the bill was issued printed on the front or back of the bill? 11. What seals appear on the front of a bill?

True/False:

12. The Secretary of the Treasury and the U.S. Treasurer are the same. 13. The serial number is printed in two places on the front of a bill. 14. Newer bills contain more colors than the older bills. 15. There is only one signature located on the front of a bill. 16. There is a picture of a building located on the back of \$1, \$5, \$10,

and \$20 bills. 17. The White House appears on the back of the \$20 bill. 18. Because of the separation of church and state, no mention of a higher

being or deity can be printed on the bills. 19. There are "hidden images" on the front side of a bill that can only be

seen if you hold the bill up to the light. 20. On the back of \$10 and \$20 bills, small yellow numbers indicating

their denominations is stamped in the area surrounding the picture.

Data Table 1: Pre-test

Question	Answer
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Part B: Observation of \$1 Bills

After reviewing your answers to the pre-test, you will be given some time to study a \$1 bill. To help guide you in your observations, answer the following questions and place your answer in Data Table 2. You will need to look at the bill using a hand lens or a stereomicroscope.

Front of the \$1 bill

1. Whose picture is on the front of the \$1 bill?
2. What is written across the very top of the front of the \$1 bill?
3. What is printed on the very bottom of the front of the \$1 bill?
4. What seal appears on the front, left-hand side?
5. What seal appears on the front, right-hand side?
6. Find the date on the \$1 bill. Record its date in Data Table 1.
7. Who was the Secretary of Treasury at the time this bill was issued?
8. Who was the U.S. Treasurer at the time the bill was issued?
9. Record the serial number for this bill.
10. How many places on the check is the serial number printed?

Back of the \$1 bill

11. What words are printed on the top line?
12. What words are printed on the bottom line?
13. What image appears on the back on the left side?
14. What image appears on the right side?
15. What reference to God appears on the back of the bill?

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- 17
- 18
- 19
- 20

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