

IDST-1720 How Things Work
Spring 2006
Fingerprint Analysis

Name _____

I. Preparation of “Exhibits”

“Exhibit A”

1. Using a pencil, label a piece of filter paper “Exhibit A” at the top of the paper.
2. Place a good, RIGHT thumbprint in the middle of the paper.

“Exhibit B”

1. Wash and rinse the spoon in DI water. Wipe it dry, making sure to leave no fingerprints.
2. Hold the spoon in a paper towel and place a right thumb print on the back of the spoon.

“Exhibit C”

1. Have students take a piece of bond paper and cut it up in 20 1½” squares.
2. Using a pencil, label a piece of bond paper “Exhibit C” at the top of the paper.
3. Place a good, RIGHT thumbprint on the bottom 2/3 of the paper

“Exhibit D”

1. You will be given a microscope slide. *Handle it only by the edge.* If it is not clean or print free, wash and rinse it with distilled water. Wipe it dry, making sure that no unwanted fingerprints appear on the glass surface.
2. Hold the microscope slide in a paper towel and place a distinct RIGHT thumbprint on the surface of the glass. If the print is smudged, is not clear, or is barely visible, wipe off the slide and try again. To get extra oil for your thumbprint, wipe your thumb of the oily portion of your face, blot the thumb, and then place the print on the slide.
3. Label the slide “Exhibit D.”

“Exhibit E”

1. With a pencil, label the top of a piece of bond paper “Exhibit E.”
2. Place your RIGHT thumb on the black inkpad and then space the thumbprint in the middle of the paper.

Give the evidence to your instructor with a list identifying the person’s prints for each exhibit. **Note:** This is a confidential list; do not share it with other groups.

II. Preparation of direct prints for class file

1. Each group member will fill out a Modus Operandi (MO) sheet using a fictitious name (some examples are Barb Wyre, Mike R. Fone, Polly Merz, etc.) and then write your real name on the BACK of the sheet. One person will act as the “officer on duty” and take the fingerprints of one of the other members of the group. Group members should change roles so that everyone’s prints will have been taken.

2. To take the prints, the “officer” takes the thumb of the right hand of another group member and rolls it across the proper space on the MO sheet. This process is repeated for the remaining fingers on the right hand and then for the left hand.
Note: You may want to practice first using an index card.
3. The “officer” dates and signs the MO sheet.
4. Compare your prints with those on the FBI classifications. Under each print, write in the type of the print – loop, arch, etc.
5. Place the MO sheets from all members of your group with the “evidence” prepared at the beginning of the lab period.

III. Analysis of the “Evidence”

Each group will exchange their “evidence” and MO sheets with another group with the instructor’s guidance. Your group should work together to analyze the fingerprints and determine the identity of the person who made them. For each piece of evidence, you should place the lifted print or the paper containing the developed print on the student data sheet and write down your final conclusions. Check your results with the instructor at the conclusion of all lab work.

Exhibit A:

Materials:

- Exhibit A
- Ninhydrin solution
- Tweezers
- Plastic gloves
- Brush or cotton wads
- MO sheets
- Magnifying glass

Safety Instructions: Wear plastic gloves when working with the ninhydrin solution, as it will react with amino acids on your hands and burn them blue!

Directions:

1. Tape the top of Exhibit A to a paper towel.
2. Dab the cotton pads (held with tweezers) into the ninhydrin solution and carefully dab this liquid over the fingerprint area. Do not use too much pressure since that will destroy the print.
3. Allow the paper to dry. It may take 2-3 hours to develop. Tape the dry paper to the data sheet. Observe the print under the magnifying glass and determine the identity of the person who left the print. Record your conclusion.

Exhibit B:

Materials:

- Large jar
- Foil
- Super-glue
- String
- Exhibit D

Safety Instructions: Caution: Super glue will adhere to your skin and possibly ruin the object being examined.

Directions:

1. Make a small aluminum bowl from the foil and center it in the bottom of a large jar.
2. Add 10-15 drops of super glue and spread evenly across the bottom.
3. Suspend Exhibit B by a string into the jar. It should not touch the bottom or the sides of the jar. Cover the top of the jar tightly with foil and place a heavy object such as a book over the jar to make it airtight.
4. In 2-3 hours, a permanent print should appear. Identify the print and record the results on the Student Data Sheet.

Exhibit C:

Materials:

- Exhibit C
- Iodine crystals in a screw-top jar
- MO sheets
- Tweezers
- Tape
- Gloves

Safety Instructions: Wear gloves to carry out the following steps.

Directions:

1. Cut a piece of tape about 1” long and place half of it on the top of Exhibit C. Open the jar containing the iodine crystals and quickly tape the paper to the lid so that the paper hangs down in the jar. Replace the lid and allow the print to come in contact with the iodine vapor until the print is visible.
2. Once you can see the developed print, use tweezers to remove the paper from the jar. Be sure to quickly replace the lid on the jar.
3. Observe the print under the magnifying glass. Determine the identity of the person who left the print and record your conclusion on the data sheet.
4. To “save” the print, completely immerse the paper in the solution provided. This will “fix” the print for a few weeks.

Exhibit D:

Materials:

- Exhibit D
- Dusting brush
- Dusting powder
- Newspaper
- Tape
- Index card
- Magnifying glass
- MO sheets

Safety Instructions: Metallic dust can be harmful to the lungs if inhaled!!!

Directions:

1. Make sure that your brush bristles are clean the separated from one another.
2. Dip the brush in the dusting powder and lightly dust the area of Exhibit D containing the print.
3. Distribute the powder evenly over the surface that contains the print and tap the edge of the slide to uniformly distribute the dusting powder.
4. After the print is developed, remove the excess powder by gently blowing the dust from the surface. Be careful not to inhale the dust (or blow it in your classmates' faces).
5. To lift the print from the slide to the index card, unroll about 5" to 6" of tape and place the end to the right of the thumbprint on the slide and allow the tape to cover the whole print. Slide a thumb over the tape and smooth it down over the print to force out air bubbles.
6. Pull up on the roll end of the tape and place it on the fingerprint card in the same manner as the tape was placed over the latent print. Make sure the tape is secure and then cut it from the roll.
7. Observe it under the magnifying glass and compare it to the right thumbprints on the MO's. Identify the owner of the print and record this on the student data sheet.

Exhibit E:

Materials:

- Exhibit E
- Magnifying glass
- MO sheets

Directions:

1. Use a magnifying glass to observe the inked print on Exhibit E. Compare this print to the ones on the MO sheets.
2. Determine the identity of the print and record on the data sheet.