TRAINING LAB - CLASSIFYING FINGERPRINTS

Name________________________

Background: You have some things that are yours and yours alone - and NO ONE else on earth has anything exactly like it! They are your fingerprints. Everyone’s fingerprints are so unique (even identical twin's prints are different) that a single print can be used as direct evidence to prove that a person was present at a crime scene. Are your fingerprints really that different from everyone else on earth? Let’s find out!

1. You will be trained to make an ink print of your fingerprint ridges.
2. You will be trained to recognize the different fingerprint classifications and special ridge characteristics of fingerprints.

Fingerprint Reference Information:
*your fingerprint ridges are formed during fetal development and NEVER change.
*each of your fingers has it’s own unique fingerprint ridge pattern that belongs only to you.
*Why fingerprints? – to make your fingertips rough, which makes it easier to pick up objects.
*sweat glands on your fingertips naturally coat your fingerprint ridges with an oily liquid.
Every time you touch an object some of these oily liquids are left behind in the shape of your unique fingerprint ridges.
*the oily fingerprints you leave behind when you touch objects are called LATENT PRINTS.
Latent fingerprints are usually invisible because the oils you leave behind are mostly clear.
*latent fingerprints can be made visible by dusting and other methods you will practice in later Training Labs.
*latent fingerprints are very important evidence to help identify who was present at a crime scene.
*fingerprints are considered an example of INDIVIDUAL EVIDENCE because they are unique to one person or individual. A fingerprint left at a crime scene proves that the fingerprint owner was there. CLASS EVIDENCE is the other kind of evidence that can be found at a crime scene. A shoeprint might be an example of Class Evidence. A size 9 ½ shoe print left at a crime scene can help establish that a suspect was there, but it doesn’t prove it. Many people wear size 9 ½ shoes.

Procedures:
Part 1 - Making A Record Of Your Prints
1. Recording your prints is easy. All you need is an ink pad and a piece of paper. What’s difficult is leaving a good record of your prints. Let’s practice!
2. Get a piece of blank, white paper and ink pad from the front of the room. Press your right thumb down on the ink pad, then press it on the paper. Make sure you make a print of the CENTER AREA of your thumb – not just the very tip. The center area of the thumb contains the part of your print that allows you to identify it.
Not getting a CLEAN/PERFECT print? Here are some helpful hints:
• too much ink on your finger smears the fingerprint ridges on the print
• too little ink on your finger leaves an incomplete print
• pushing too hard on the paper smears the fingerprint ridges on the print
• pushing too light on the paper leaves an incomplete print
• rolling your finger around on the paper smears the fingerprint ridges on the print
3. Pick up a blank Note Card and make several perfect right thumbprints on one side (right thumbprints only). DO NOT write your name on this card!
4. Next, pick up a Right Thumbprint Record Form and place FIVE perfect right thumbprints (right thumbprints only) in the boxes along the bottom of the page.
5. Immediately turn in your Right Thumbprint Record Form (with your name) and Note Card (without your name) to your supervisor.
6. Finally, pick up a Fingerprint Record Form and fill out the top of the form. Practice making prints of ALL the fingers on your right hand using blank paper. When you feel you're good enough it's time to move on and make a permanent record of your prints.
7. Place the Fingerprint Record Form on the table so the row of right fingerprint boxes is next to the table edge and the bottom half of the form is hanging over the edge of the table out of the way. Place a perfect right thumbprint in the “Right Thumb” box, a perfect right index fingerprint in the “Right Index” box, etc..
8. Re-adjust the position of the form so the “Right Fingers Together” box is next to the table edge. Place perfect prints of your four right fingers together at the same time in the “Right Fingers Together” box.
9. Now place one more perfect right thumbprint in the single, lower “Right Thumb” box.
10. Repeat Steps 4-6, but this time place perfect prints of your left fingers in the appropriate boxes of your Fingerprint Record Form.
11. Keep your Fingerprint Record Form for Part 2 and 3 of the Training Lab.
12. You should now be finished making prints and can wash your fingers.

Part 2 - Classifying Fingerprints/Fingerprint Patterns

1. Fingerprints are classified into LOOPS, WHORLS, or ARCHES based upon the pattern of the fingerprint ridges that are present. LOOPS are further divided into ULNAR LOOPS or RADIAL LOOPS; WHORLS are further divided into PLAIN WHORLS, CENTRAL POCKET WHORLS, ACCIDENTAL WHORLS, or DOUBLE LOOPS; ARCHES are further divided into PLAIN ARCHES or TENTED ARCHES. The appearances of these different patterns can be seen in the “Classifications Of Fingerprints” pages that follow.
2. Observe the right and left hand fingerprints you placed on your Fingerprint Record Form (use a magnifying glass if necessary) and classify each of your ten fingerprints as a plain arch, tented arch, ulnar loop, radial loop, plain whorl, central pocket whorl, double whorl, or accidental whorl (see the “Classifications Of Fingerprints” pages that follow for help). Record each print’s correct classification in the “Fingerprint Classifications” boxes found near the bottom of your Fingerprint Record Form.

Part 3 - Identifying Special Ridge Characteristics

1. There are also SPECIAL RIDGE CHARACTERISTICS that can be found on our fingerprints. No two fingerprints have the same ridge characteristics located in the same positions. For this reason, identifying Special Ridge Characteristics are very important when matching up fingerprints. Courts usually require ten or more Special Ridge Characteristic matches to prove that a fingerprint found at a crime scene belongs to a suspect.
2. The five most common Special Ridge Characteristics are: ISLAND, SHORT RIDGE, RIDGE ENDING, BIFURCATION, and ENCLOSURE. The appearance of these Special Ridge Characteristics can be seen in the “Special Ridge Characteristics” page that follows.
3. Observe your prints and find examples of the five different Special Ridge Characteristics.
CLASSIFICATIONS OF FINGERPRINTS

LOOP PATTERNS- Several ridges enter from one side of the fingerprint then fold or curve back and exit from the same side forming a loop. There are two kinds of loops.

**ULNAR LOOP** - if the loop opens toward the little finger it is an ulnar loop. An ulnar loop fingerprint taken from a right finger will open to the right side of the print, an ulnar loop fingerprint taken from a left finger will open to the left side of the print.

**RADIAL LOOP** - if the loop opens away from the little finger (toward the thumb side of the hand) it is a radial loop. An ulnar loop fingerprint taken from a right finger will open to the left side of the print, an ulnar loop fingerprint taken from a left finger will open to the right side of the print.
WHORL PATTERNS – These fingerprint patterns have ridges that form circles or are a combination of two patterns. There are four kinds of whorls.

**PLAIN WHORL** - ridges form a series of complete circular rings or ovals in the center of the print.

**CENTRAL POCKET WHORL** – looks like an ulnar or radial loop, but some of the ridges in the center form complete circles.

**DOUBLE LOOP** - ridges form two loops turning around each other.

**ACCIDENTAL WHORL** - ridges form a combination of several patterns. The most common is a double loop with a complete circle or two in the center.
ARCH PATTERNS - All ridges move across the fingerprint from one side to the other side and rise in the center like a wave. There are two kinds of arches.

**PLAIN ARCH** - a smooth, slightly raised arch.

**TENTED ARCH** - a spike-like ridge pushes the arch up abruptly (like a tent pole holding up a tent).

**SPECIAL RIDGE CHARACTERISTICS**

- **Ridge Ending** – a long ridge comes to an end
- **Enclosure** – ridge splits, then comes back together
- **Bifurcation** – one ridge splits to become two
- **Island** – a dot-like ridge by itself
- **Short Ridge** – a short ridge by itself
# Fingerprint Record Form

<table>
<thead>
<tr>
<th>Last Name,</th>
<th>First Name</th>
<th>Middle Name</th>
<th>Alias(es)</th>
<th>FBI use only</th>
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</table>

## Fingerprint Classifications

<table>
<thead>
<tr>
<th>Right Thumb</th>
<th>Right Index</th>
<th>Right Middle</th>
<th>Right Ring</th>
<th>Right Little</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Left Thumb</th>
<th>Left Index</th>
<th>Left Middle</th>
<th>Left Ring</th>
<th>Left Little</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Left Four Fingers Together</th>
<th>Right Four Fingers Together</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Left Thumb</th>
<th>Right Thumb</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Right Thumb</th>
<th>Right Index</th>
<th>Right Middle</th>
<th>Right Ring</th>
<th>Right Little</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Left Thumb</th>
<th>Left Index</th>
<th>Left Middle</th>
<th>Left Ring</th>
<th>Left Little</th>
</tr>
</thead>
</table>
Name __________________________________________________

Place five good Right Thumbprints in the boxes below.

Give this page to your supervisor along with several right thumbprints placed on a note card (DO NOT write your name on the note card).

Name __________________________________________________

Place five good Right Thumbprints in the boxes below.

Give this page to your supervisor along with several right thumbprints placed on a note card (DO NOT write your name on the note card).
Questions – Classifying Fingerprints

1. What is the classification of the large RIGHT thumbprint below?

2. Find a bifurcation on the large print below (see “Special Ridge Characteristics” in your Training Lab for help) and color it with a red colored pencil to make it visible. Also find and color an enclosure, short ridge, island, and ridge ending. Neatly label each of your colored Special Ridge Characteristics.

3. Identify the classifications of the following RIGHT fingerprints.
4. Why do humans have fingerprints?? (it is not to help with identification!)

5. Get together with several other students and compare your fingerprints. Which fingerprint classification appears to be the most common?

_________________________________

Which fingerprint classification appears to be the second most common?

_________________________________

Which fingerprint classification appears to be the least common?

_________________________________

6. The fingerprint below has been divided into four sections. Color (with a red colored pencil) one obvious Special Ridge Characteristic in each section. Neatly and accurately sketch (in the provided circles) an enlarged view of the Special Ridge Characteristic you colored in each section. You DO NOT need to include all the surrounding ridges in your sketches. Identify the Special Ridge Characteristic you sketched in each circle.
ENTRY EXAM - SCHOOL OF FORENSIC SCIENCE

NAME____________________________

Instructions:
1. Pick up a Fingerprint Evidence Card from your supervisor - DO NOT WRITE ON
   THIS CARD. These prints were recently left behind at a crime scene and came
   from the right thumb of the criminal.
2. Write the Evidence Number for the card on the Police Report Form below.
3. Identify the Classification of the evidence print (plain arch, ulnar loop, etc.) and
   record this Classification in the Police Report Form.
4. Identify who the evidence fingerprint belongs to by looking through the
   suspect’s Right Thumbprint Record Forms currently on file. Always make sure you
   locate matching Special Ridge Characteristics to be sure you have identified the
   correct suspect.
5. Write the name of the matching suspect on your Police Report Form.
6. Return the Fingerprint Evidence Card and have your supervisor check your Police
   Report Form to see if you arrested the correct suspect.
7. Repeat the above procedures with a second and third Fingerprint Evidence Card.
8. GOOD LUCK!

POLICE REPORT FORM

<table>
<thead>
<tr>
<th>Evidence #</th>
<th>Classification of Print</th>
<th>Suspect To Arrest</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Print 3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>