

Unit 4: Fingerprints



Unit Vocabulary

- Fingerprint: _____
- Microns: _____
- Dactyloscopy: _____
- Anthropometry: _____
- Loop: _____
- Delta: _____
- Core: _____
- Whorl: _____
- Arch: _____
- Minutiae: _____
- Plastic print: _____
- Visible print: _____
- Latent print: _____
- Ninhydrin: _____

Fingerprint Principles

- According to criminal investigators, fingerprints follow 3 fundamental principles:
 - A fingerprint is an _____ characteristic; no two people have been found with the _____ same fingerprint pattern.
 - A fingerprint _____ will remain _____ for the _____ of an individual; however, the print itself may change due to permanent scars and skin diseases.
 - Fingerprints have general characteristic _____ patterns that allow them to be systematically identified.

Fingerprint Classes

- There are 3 specific classes for all fingerprints based upon their visual pattern: - _____.
- Each group is divided into smaller groups as seen in the lists below.
 - _____
 - Plain arch
 - Tented arch
 - _____
 - Radial loop
 - Ulnar loop
 - _____
 - Plain whorl
 - Central pocket whorl
 - Double loop whorl
 - Accidental

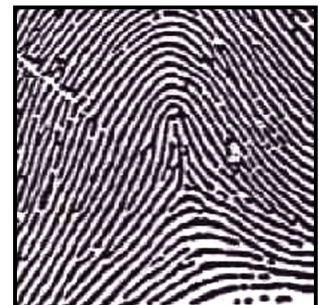
Fingerprint Fun Fact

- _____ of people have loops, _____ have whorls, and _____ have arches
- _____ is the study of fingerprint identification. Police investigators are experts in collecting _____, otherwise known as fingerprints

Arches

- Arches are the _____ type of fingerprints that are formed by ridges that enter on one side of the print and exit on the other. No deltas are present

- _____
 - Ridges enter on one side and exit on the other side
- _____
 - Similar to the plain arch, but has a spike in the center



Loops

- Loops must have one delta and one or more ridges that center and leave on the same side. These patterns are named for their portions related to the radius and ulna bones

- _____
(Right thumb)
 - Loop opens toward right or the ulna bone



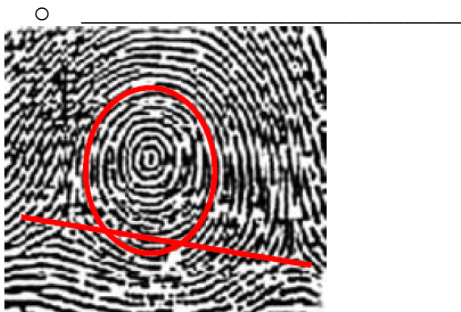
- _____
Radial Loops (Right thumb)
 - Loop opens forward toward the left or the radial bone



- NOTE: On the left hand, a loop that opens to the left would be an ulnar loop, while one that opens to the right would be a radial loop

Whorls

- Whorls have at least one ridge that makes (or tends to make) a complete circuit. They also have at least two deltas. If a print has more than two deltas, it is most likely an accidental.



- Draw a line between the two deltas in the plain and central pocket whorls. If some of the curved ridges touch the line, it is a plain whorl. If none of the central core touches the line, it is a central pocket whorl.

- _____
▪ Double loop whorls are made up of any two loops combined into one print



- _____
▪ Accidental whorls contain two or more patterns (not including the plain arch), or does not clearly fall under any of the other categories



Name: _____ Per. _____ Date: _____

My Prints

Using the supplies given, create your own finger prints. Be sure to specify whether your prints are from your left hand or your right hand

R/L Thumb	R/L Pointer	R/L Middle	R/L Ring	R/L Pinky

Ridgeology – A Closer Look at Fingerprints

- _____: the study of the _____ of friction ridge structures and their use for personal identification.
- A fingerprint is made of a series of _____ on the surface of the finger. The uniqueness of a fingerprint can be determined by the pattern of ridges and valleys as well as the minutiae points, which are points where the ridge structure changes.

Fingerprint Fun Fact

- The koala is one of the few mammals (other than primates) that has fingerprints. In fact, koala fingerprints are remarkably similar to human fingerprints; even with an electron microscope, it can be quite difficult to distinguish between the two.



Fingerprint Identification

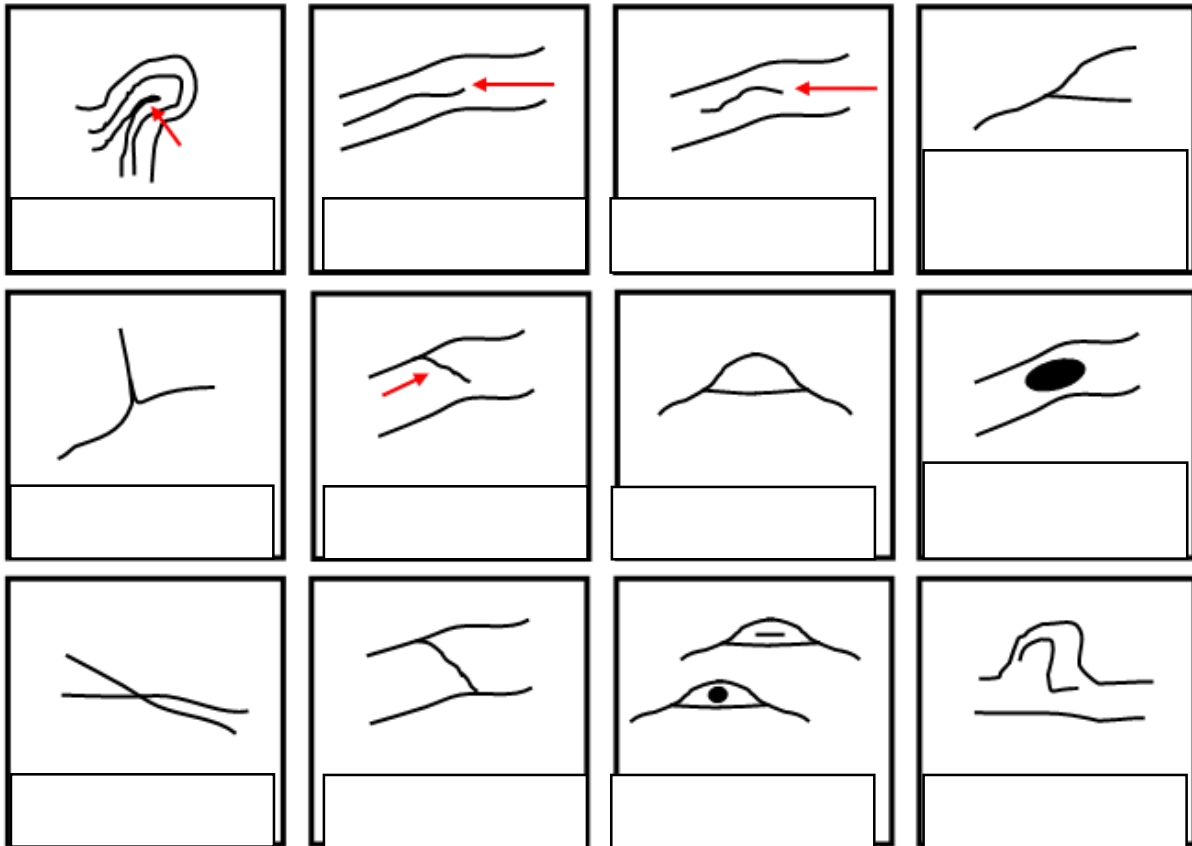
- When _____ on two different prints match, these are called points of _____ or points of _____. At this point, there is _____ international standard for the number of points of identification required for a match between two fingerprints. However, the United Kingdom requires a minimum _____ points while Australia requires _____.

Automated Fingerprint Identification System (AFIS)

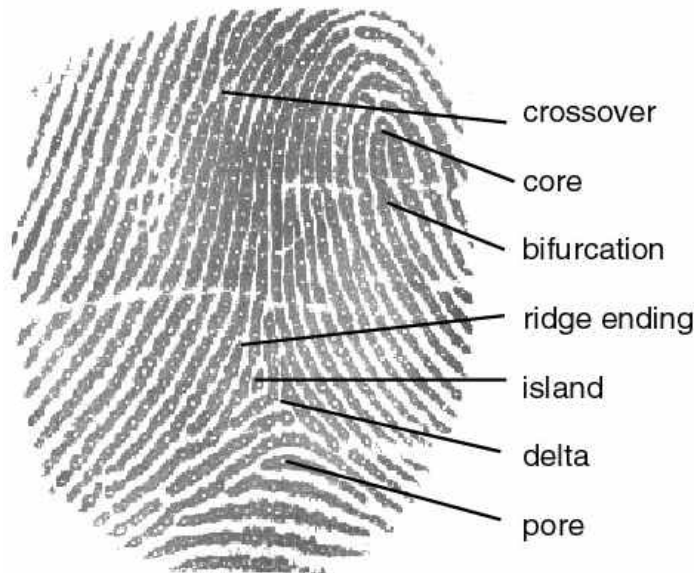
- AFIS is a _____ capable of reading, classifying, matching, and storing fingerprints for criminal justice agencies. _____ latent fingerprints are entered into the AFIS for a search for possible matches against the _____ maintained databases for fingerprint records to help establish the _____ of unknown deceased persons or suspects in a criminal case.



Ridge Characteristics



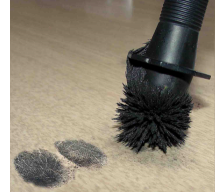
- Use these characteristics as points of identification when comparing fingerprint samples. The more points you can find in common, the better the match!



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Latent Prints

- _____ are impressions left by _____ on a surface, such as a tool handle, glass, door, etc.
- Prints may be collected by revealing them with a dusting of _____ and then lifted with a piece of _____
- Some investigators use _____ powder and _____ to help them find latent prints on _____
- _____ can also be used to reveal latent prints. This type of powder works better on shiny surfaces or _____
- The _____ fuming method (often called the _____ method) is a procedure that is used to develop latent fingerprints on a variety of objects.



- _____ is a chemical that bonds with the _____ in fingerprints and will produce a blue or purple color. It is used to left prints from surfaces such as _____

Fingerprint Fun Fact

- Camel hair is the most common animal hair used to make fingerprint brushes. Now many brushes, are made out of fiberglass