

INTRODUCTION TO FINGERPRINTS

History of Fingerprints

1. In ancient _____ (1750 B.C.), fingerprints pressed into clay tablets marked contracts.
2. The documents showing fingerprints date from third century B.C. _____.
3. In 1788, Johann Mayer noted that the arrangement of skin ridges is never _____ in two persons. *He was probably the _____ scientist to recognize this fact.*

What Are Fingerprints?

- All fingers, toes, feet, and palms are covered in small _____.
- These ridges are arranged in connected units called *dermal*, or *friction*, *ridges*.
- These ridges help us get or keep our _____ on objects.
- Natural _____ plus dirt on these surfaces leave behind an impression (a print) on those objects with which we come in contact.

3 Principles of Fingerprints

There are 3 fundamental principles:

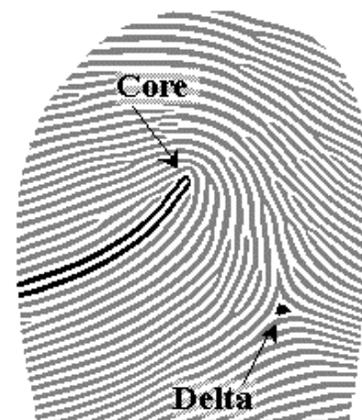
- 1) A fingerprint is an _____ characteristic; no two people have been found with the ____ same fingerprint pattern.
- 2) A fingerprint _____ will remain _____ for the _____ of an individual; however, the print itself may change due to permanent scars and skin diseases.
- 3) Fingerprints have general characteristic _____ patterns that allow them to be systematically identified.

Fingerprint Characteristics

- Forensic examiners look for the presence of a _____ (the center of a whorl or loop) and _____ (triangular regions near a loop).

Types of Fingerprints

- There are 3 general fingerprint distinctions:
 - A _____
 - L _____
 - W _____



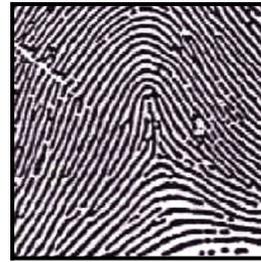
Arches

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 _____ are present.

2 types: _____ & _____



Plain Arch



Tented Arch

Ridges enter on one side and exit on the other side center

Similar to the plain arch, but has a spike in the

Loops

- Loops must have ____ delta and one or more _____ that enter and leave on the same side.
- These patterns are named for their positions related to the radius and _____ bones, i.e. the bone the loop opening is facing towards.
- *Types*
 - **Radial**—opens toward the _____
 - **Ulnar**—opens toward the “_____”



**L – Radial Loop
R - Ulnar Loop**



**L – Ulnar Loop
R - Radial Loop**

Whorl

- A plain or central pocket whorl has at least one ridge that makes a _____ circuit.
- A _____ loop is made of _____ loops.
- An _____ is a pattern _____ covered by other categories.
- Whorls have at least _____ deltas and _____ core.
- *Types*
 - P _____
 - C _____ P _____
 - D _____ L _____
 - A _____

Figure 6-5 Three basic fingerprint ridge patterns occur at different frequencies in humans.



Arches 5%



Whorls 30%



Loops 65%

Plain Whorl

- T _____ Deltas
- O _____ Core
- Displays a degree of _____



Central Pocket Loop

- T _____ Deltas
- O _____ Core
- Lacks _____
- A _____ is often observed near the _____



Double Loop

- Two _____
- Two _____
- Appears to have an “_____” in the print



Accidental

- All _____ prints

