How to Analyze a Fingerprint

Directions

1. Identify the core and delta(s), if present, for the primary types of fingerprint patterns. Check answers at bottom of page.
2. Complete a 10-card of your fingerprints.
3. Identify the general and specific patterns for each of your digits.
4. Identify minutiae in your prints. Why are minutiae more valuable than patterns for matching prints?

Core: Where ridges form a loop or the center of a loop.

Delta: A triangular ridge pattern with ridges that run in different directions.

This whorl has 1 core and 2 deltas.

Three Primary Types of Fingerprint Patterns

Loops	Arches	Whorls

Circular ridge arrangement forms a pattern that spirals inward. Includes 2 prominent triangular ridge formations on both edges.

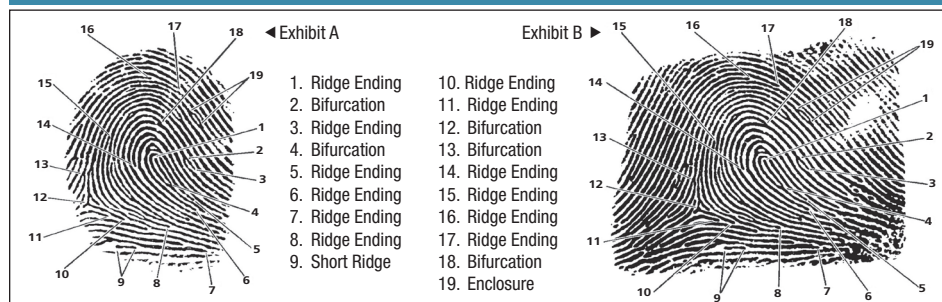**Loops:** One or more ridges enter from one side, curve, and then exit on the same side.

Arches: Ridges enter from one side, rise slightly, and exit on the opposite side.

Specific Loops:

Radial Loop
Loop opens towards thumb

Ulnar Loop
Loop opens towards pinky

Specific Arches:

Plain Arch
Gentle ridges

Tented Arch
Steep ridges forming triangle

Specific Whorls:

Plain Whorl
A line between deltas does cross through whorl

Central Pocket Whorl
A line between deltas does not cross through whorl

Double Loop Whorl
Made of 2 loops

Accidental Whorl
Made of 2 different patterns

Minutiae Patterns

◄ Exhibit A

Exhibit B ►

1. Ridge Ending
2. Bifurcation
3. Ridge Ending
4. Bifurcation
5. Ridge Ending
6. Ridge Ending
7. Ridge Ending
8. Ridge Ending
9. Short Ridge
10. Ridge Ending
11. Ridge Ending
12. Bifurcation
13. Bifurcation
14. Ridge Ending
15. Ridge Ending
16. Ridge Ending
17. Ridge Ending
18. Bifurcation
19. Enclosure

courtesy of Sirchie

To confirm a fingerprint match:

1. Patterns must match
2. 10–15 minutiae must match

Answers for activity 1: 1. Loop has 1 core and 1 delta. Arches have no delta or core. 2. Whorls have 1 core and 2 deltas.

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