#NOSMCampMedEMNO

Crime Scene Investigation (CSI):
Fingerprint Analysis

Activity: Fingerprint dusting

Have you ever wondered how detectives find people's fingerprints at a crime scene? It's actually not as hard as you may think.

Fingerprint powder is a very fine powder that is either white or black. White powder is used to dust prints on dark surfaces, and dark powder is used if the print is left on light colored surfaces. Officials use either **talcum-based powders** for white, or **graphite-based powders** for black. They also sometimes use special fluorescent powders that glow under black light, if the prints may be especially hard to dust for or are on multi-colored or multi-textured surfaces.

Part 1 – Gathering Supplies

1. **Find some fine powder.** Gather either baby powder, corn starch or cocoa powder as your fine powder.

2. **Get a small brush**. You'll want to find a brush with very fine, very soft bristles. A makeup brush or a very small paintbrush will work well. Just be sure that the bristles are soft and not stiff from rinsed in water and reused.

3. **Find some clear tape**. You can use scotch tape or any other clear tape like packaging tape. Just don't use duct tape or another colored tape. The tape is for picking up the print after it has been powdered.

4. **Gather some paper.** If you are going to use white powder, get black construction paper so the print contrasts with the paper and is easy to see when you put it down. If you're using a dark powder (cocoa powder or black fingerprint powder), then plain white paper is fine.

5. **Use a smooth, flat surface.** If you have microscope slides, these are perfect to use for putting a fingerprint on. If not, any smooth table, chair, appliance, wall, floor, doorknob, or faucet will do.

Part 2 – Gathering the Prints

1. **Press your finger (or fingers) hard on the smooth surface.** If you want to make sure your print is even easier to see after dusting it, apply some lotion to your hands before pressing down.

2. **Sprinkle a small amount of powder on the print.** You'll want to take just a small pinch between your thumb and forefinger and sprinkle it over the whole print, trying to get some on the whole space that you think was covered by your print. You can also blow the powder around a bit to get the print covered as well.

3. **Gently brush the excess powder off the print with the brush.** You'll want to be very gentle, so you leave the fingerprint intact. It's best to gently lower the brush in a circular dabbing motion than to just swipe it, because swiping may smear the print. If your print gets smeared, you may have brushed too roughly, or your brush may not be soft enough. This may take some practice to get it right. You should be able to see the fingerprint clearly in the powder when you're done.

4. **Place a piece of clear tape down on the powdered print.** Use a big enough piece that you can leave room on the corner of the tape to keep holding it (this will make it easier to pull up). Then very carefully pull the tape up. When you lift the tape, the powdered print should be stuck to it.

5. **Place the tape on the contrasting piece of paper.** Remember, if you used white powder, use a black piece of paper to capture the print with the tape. If you used dark or black powder, use a white piece of paper.

Reference: https://www.wikihow.com/Dust-for-Fingerprints

SHOW US YOUR RESULTS!

Send us a picture of your fingerprint after dusting it, as well as any other pictures you may have taken during the process.

You can email your photos to campmed@nosm.ca, or post them to Instagram using **#CampMed**, **#NOSMCampMed**, and **#NOSMCampMedEMNO**.

#NOSMCampMedEMNO

Principles of Fingerprint Analysis

Using the image below, identify the loops, whorls and arches of your fingerprint. Use this opportunity to get familiar with these, as it will facilitate identifying the unknown victim's fingerprint.

Fingerprints are unique patterns, made by friction ridges (raised) and furrows (recessed), which appear on the pads of the fingers and thumbs. The fingerprint pattern, such as the print left when an inked finger is pressed onto paper, is that of the friction ridges on that particular finger. Friction ridge patterns are grouped into three distinct types—loops, whorls, and arches—each with unique variations, depending on the shape and relationship of the ridges:

1. **Loops**: prints that recurve back on themselves to form a loop shape. Divided into radial loops (pointing toward the radius bone, or thumb) and ulnar loops (pointing toward the ulna bone, or pinky), loops account for approximately 60 percent of pattern types.

2. **Whorls**: form circular or spiral patterns, like tiny whirlpools. There are four groups of whorls: plain (concentric circles), central pocket loop (a loop with a whorl at the end), double loop (two loops that create an S-like pattern) and accidental loop (irregular shaped). Whorls make up about 35 percent of pattern types.

3. **Arches**: create a wave-like pattern and include plain arches and tented arches. Tented arches rise to a sharper point than plain arches. Arches make up about five percent of all pattern types.

Reference: http://www.forensicsciencesimplified.org/prints/principles.html

How was the victim identified?

Match up the fingerprint taken from the unknown victim at the crime scene with the known fingerprints of potential victims. This will help you understand how **Caleb** was identified as the victim.

Analysts use the general pattern type (loop, whorl or arch) to make initial comparisons and include or exclude a known fingerprint from further analysis. To match a print, the analyst uses ridge characteristics, to identify specific points on a suspect fingerprint with the same information in a known fingerprint. For example, an analyst comparing a crime scene print to a print on file would first gather known prints with the same general pattern type, then using a loupe, compare the prints side-by-side to identify specific information within the minutiae that match. If enough details correlate, the fingerprints are determined to be from the same person.

Recovered fingerprint


Options of known fingerprints

| 1 | 2 | 3 | 4 | 5 |
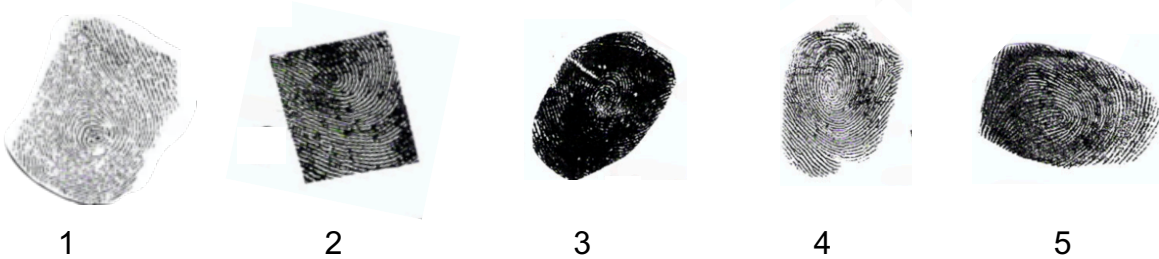
Based on my knowledge of fingerprint analysis, I believe the matching fingerprint is #_____.

Submit your answer by voting in the Doodle Poll: https://doodle.com/poll/92wykf56tm8xefmc

Make it your career: Fingerprint Analyst

A fingerprint analyst is a scientist who studies, evaluates, and preserves fingerprints (and sometimes handprints and footprints) as part of an investigation into a crime. Fingerprint analysis remains an important career within forensic science, which is the application of science to criminal and civil law. A fingerprint analyst falls under the broader category of forensic science technician. The job is also known as a fingerprint examiner, forensic print analyst, and latent fingerprint analyst
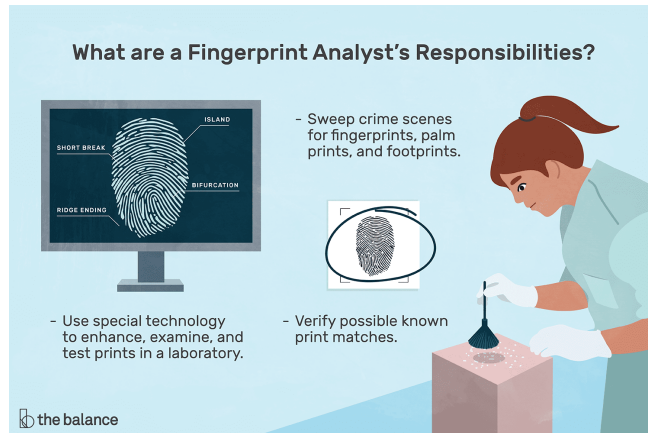
Fingerprint Analyst
Duties & Responsibilities

- Sweep crime scenes for fingerprints, palm prints, and footprints.
- Preserve collected print specimens for analysis.
- Identify and label collected prints.
- Use special technology to enhance, examine, and test prints in a laboratory.
- Etc.

Fingerprint analysts are typically government employees, working for organizations such as law enforcement agencies, to collect, preserve, and analyze fingerprint evidence left at a crime scene. Fingerprint analysts may also be called upon to provide expert court testimony if a case goes to trial where identity is in question.

Reference: https://www.thebalancecareers.com/fingerprint-analyst-career-profile-974654

#NOSMCampMedEMNO