

Fingerprints

by Iona McNaughton

Imagine that someone breaks into the school office and steals a laptop. What if no one sees it happen? How can the police find the thief?

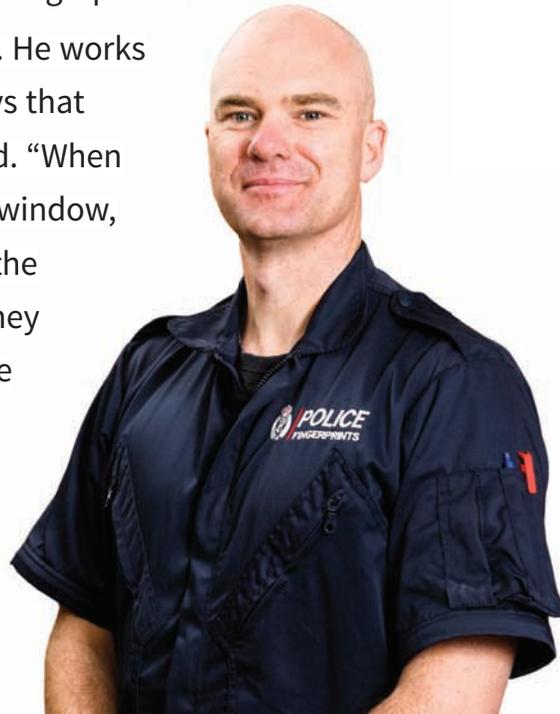
Looking for evidence

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That evidence might be footprints, hair, or something that the thief has dropped, or it might be fingerprints.

Julian Atkins is a fingerprint expert. He works for the New Zealand Police. Julian says that thieves often leave fingerprints behind. “When someone enters a building through a window, they might leave fingerprints around the window or on the glass. Sometimes they might touch a wall or a door and leave their fingerprints on those.”

Julian Atkins



Ridges on a finger



What are fingerprints?

If you look very closely at the palms of your hands and the tips of your fingers, you will see a lot of very thin lines. These lines are called ridges. We all have a small amount of sweat and natural oil on our skin. Whenever we touch something with our fingers, the sweat and oil leaves impressions (marks showing the ridges). These impressions are called fingerprints.

Even though there are more than 7 billion people in the world, no two people have the same fingerprints. Not even twins! Every pattern of ridges on every finger and thumb is different.

There is another amazing thing about fingerprints, too. The ridges are formed on your hands before you are born, and they never change. Whether you are seven, seventeen, or seventy-seven years old, your fingerprints stay the same.

How do the police find fingerprints?

“Fingerprints can be hard to find,” Julian says.

One way police find fingerprints is by using a very fine powder. They put the powder on surfaces at the crime scene with a special brush. The powder sticks to the sweat and oil that is left behind when someone touches a surface.

If they find a fingerprint, police cover it with a transparent (see-through) sticky sheet. When they lift off the sheet, it lifts the fingerprint too.



Matching a fingerprint

The police take a photograph of the fingerprint they have lifted from the crime scene. Then they scan the photograph and put it into a computer database. This database is a huge collection of fingerprints taken from people who have committed crimes.

The fingerprints in the database are sorted into groups, based on their patterns. The three most common patterns are loops, whorls, and arches. When Julian puts a fingerprint into the computer, the database searches for fingerprints that have a similar ridge pattern.



loop



whorl



arch

“The database might find twenty fingerprints that are almost the same as the one from the crime scene,” Julian says. “This usually takes just a few minutes. Then it’s my job to try to find an identical match – a fingerprint that’s *exactly* the same.”

Julian magnifies the fingerprint from the crime scene to make it bigger, and then he compares it with each similar fingerprint from the database. He compares every pattern and every ridge in those patterns. It's a long, careful job. If he finds a match, it has to be double-checked by another fingerprint officer. "We have to be certain there are no mistakes," he says.

Julian says he has studied "hundreds of thousands" of fingerprints. "If we can match fingerprints from the crime scene with the fingerprints of someone on our database, we can help solve the crime."



The easiest way to take your fingerprint is to use a stamp pad and a white sheet of paper. Press your finger on the stamp pad and then press it lightly on the paper. Lift your finger up without wiggling it.



You can also take a fingerprint the way that fingerprint experts do. You will need:

- a soft paintbrush
- some talcum powder
- some transparent sticky tape.

1 Rub your fingers over your scalp or skin to collect some sweat or oil.



2 Press your fingers lightly on a clean, dark surface and then gently lift them off again.



3 Put a small amount of talcum powder on the paintbrush.



4 Brush it lightly over the surface until you see white fingerprint ridges appear.



5 Place the sticky tape over the white fingerprint ridges.



6 Carefully lift the tape (and fingerprint) off the surface.



7 Look through a magnifying glass at the evidence you have found.



Which pattern do you have? Is it a loop, a whorl, or an arch?

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