NEATH PORT TALBOT COLLEGE
COLEG CASTELL NEDD PORT TALBOT

School of Maths & Science
Science Practical

Fingerprint Classification

◆ Aim

At the end of this experiment you should be able to:

1. Examine different fingerprint types and classify them according to pattern type.

2. Analyse the results and assess their value as evidence in court.

♦ Introduction

Sir Edward Henry is credited with the discovery of a fingerprint classification system on which our modern system is based.
Fingerprints are often reproduced (taken) to provide a permanent record of identification based on two premises:
  i) Fingerprints of an individual stay unchanged throughout life.
  ii) No two fingerprints are identical

Sir Edward Henry's system is for fingerprint classification only. It is used to eliminate suspects and is not used for identification alone.

◆ Safety

Control Measures
- The wearing of safety **glasses** and **a laboratory coat at** all **times** will be sufficient to take account of most hazards and significant risks
- All waste is to be placed in the labeled container immediately after use
- You are reminded of the need of good laboratory practice in order to maintain a safe   working environment.

Hazards

◆ Procedure

1. Select either the ink pad or the inkless system.
2. Work in pairs or groups.
3. Line the 'ink' up on the edge of the bench and place alongside it a 'ten card' folded so that only the print boxes for the right hand can be seen.
4. Stand with the donor alongside and place the donors arm under your own for more control of the hand.
5. Fold back all of the fingers and hold the thumb so that the pad of the thumb can be rolled onto the ink.
6. Roll thumbs inwards and fingers outward to allow for a freer movement of the wrist.
7. Roll the digit onto the 'ink' from side to side ensuring the ink coats the digit from side to side.
8. Roll the digit in the same way onto the specified block of the 'ten card'.
9. Repeat with the remaining digits.
10. Carefully fold the ten card to expose the blocks for the left hand and repeat with the donor standing on the opposite side.
11. Make sure the wrist is relaxed and that the digit is not rolled back and forth or lifted to early as this may result in a smudged print.
12. It is important to ensure that all ridge detail can be seen clearly for proper analysis.
13. Once the card is filled, examine the basic pattern to establish the presence of arches, loops or whorls.
14. Follow the classification system outlined below.

Primary Classification

The following values are given to the ten fingers:
Fingers 1 and 2 (R thumb, R index)   16
Fingers 3 and 4 (R middle, R ring)   8
Fingers 5 and 6 (R little, L thumb)   4
Fingers 7 and 8 (L index, L middle) 2
Fingers 9 and 10 (L ring, L little)   1

These values are only given to fingers containing Whorls.

Add all the even fingers (2,4,6 etc) and add 1.

Add all the odd fingers (1,3,5 etc) and add 1.

Put the total of even fingers over the total of odd numbers so that the final classification looks like a fraction.

If the pattern is an arch or loop it gets a value of zero.

If every finger on both hands contains a whorl the total should be $(16 + 8 + 4 + 2 + 1) = 31 + 1 = 32$ for the even fingers and the same for the odd fingers giving a final classification of: 32/32.

If no whorls are found on either hand the classification will be $(0) + 1 = 1$ for each hand giving 1/1.

Secondary Classification

This time the individual patterns are used and instead of even and odd fingers, left and right hands are used.

So the **Right hand goes above the line** and the **Left hand below the line**.

Index fingers are given a capital letter

Letters are used depending on the type of pattern.
Arch – A or a
Radial Loop – R or r
Ulna Loop – U or u
Whorl – W or w
Tented Arch – T or t

So a Primary and secondary classification may be shown as:

1rRrta
1aAura

◆ Results

Attach ten card to show fingerprints with both primary and secondary classification.

◆ Conclusions