

# Basic Fingerprinting

TEACHER'S MANUAL  
AND STUDENT GUIDE



courtesy of Sirchie

# Basic Fingerprinting

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\*Photocopy the Student Guide as needed for use in your classroom.

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# Basic Fingerprinting

## Overview

During these activities, students learn about basic fingerprint patterns, minutiae, and the Henry system of fingerprint classification. Students take and then analyze their own fingerprints; they identify the basic patterns of each of their fingers and identify at least 10 ridge characteristics of their own fingerprints. This kit includes materials for 30 students. The activities require approximately 45 minutes to complete.

## Objectives

Students will

- create a readable inked print for each of their fingers.
- identify the general classification of their fingerprints.
- compare friction ridge characteristics of fingerprints.
- determine the distribution of fingerprint patterns across the classroom.
- use mathematics to calculate statistics and probability of print individuality.

## Correlation to Science Standards

To view the national and local standards met by this kit, visit [www.carolina.com/correlations](http://www.carolina.com/correlations).

### Science and Engineering Practices

- Analyzing and interpreting data
- Obtaining, evaluating, and communicating information

### Crosscutting Concepts

- Patterns
- Structure and function

## Time Requirements

Preparation .....	5 minutes
Preparing prints .....	15 minutes
Analyzing prints .....	30 minutes

## NOTES

### Materials

*Included in the kit:*

- ink pad
- 50 Student Fingerprint Cards
- 50 ink-removing towelettes
- Teacher's Manual and reproducible Student Guide

*Needed, but not supplied:*

- blank scrap paper for each student
- document camera or overhead projector (optional)

### Safety

Use this kit only in accordance with established laboratory safety practices. Students should not eat, drink, or chew gum in the lab. Students should wash their hands after entering and before exiting the lab.

Fingerprint ink will stain clothing; avoid ink contact with eyes and clothing.

### Background

Evidence suggests that fingerprints have been used for identification purposes as far back as 3,000 years ago, when citizens in what is now China used their prints to sign legal documents. The use of fingerprints to identify the perpetrators of crimes began in the late nineteenth century. In 1892, Francis Galton published *Finger Prints*, a textbook that described the anatomy of fingerprints and a method of classifying them on the basis of patterns of loops, arches, and whorls. In his book, Galton asserted that fingerprints are unique to each individual and do not change throughout a person's life. The British government began using fingerprints for identification soon after Galton's book was published. In 1897, Sir Edward Richard Henry developed a fingerprint classification system that was used for the next century in most English-speaking countries. At about the same time, an Argentinean police officer named Dr. Juan Vucetich devised a classification system widely used in most Spanish-speaking countries.

In 1999, the Integrated Automated Fingerprint Identification System (IAFIS) went online; this national fingerprint and criminal history database contains information on more than 70 million people. The IAFIS, which uses computer algorithms to compare prints, has reduced the manual processing time of fingerprint submissions from weeks or months to two hours. Since 2011, the Next Generation Identification (NGI) program has been replacing the IAFIS. This fully automated system is even more accurate than the IAFIS, and processing can be performed in as little as 10 minutes for the highest priority submissions.