

# ID

## Identity

Each human being has characteristics that make them who they are. These characteristics include physical appearance, personality, beliefs and opinions, likes and dislikes and hobbies. The different characteristics that a person has make up their identity. All people are unique.



No two people are the same

## Genes and DNA

Some characteristics that make up a person's identity, such as their eye colour, are inherited from their parents. These characteristics are passed on by genes. Genes are made up of a chemical called DNA, which carries information that controls how living things look and develop. Genes are inherited from both parents, half from the mother and half from the father.

## Inherited characteristics

Inherited characteristics include eye colour, hair colour, skin colour, freckles, dimples, earlobe attachment, tongue rolling and height. By inheriting characteristics from their parents, children usually look a little like their mother and father but are never identical to either parent. Condition such as colour blindness or diabetes can also be inherited.



freckles



widow's peak



earlobe attachment



tongue rolling



dimples



cleft chin

## Nature vs nurture debate

The nature vs nurture debate revolves around whether a person's behaviour is inherited through their genes (nature) or developed through their life experiences (nurture).

### Nature

inherited characteristics

### Nurture

childhood experiences  
family relationships  
friendships  
culture  
surroundings

Scientists and psychologists are still researching and debating whether nature or nurture has the greatest effect on human behaviour.

## Fingerprints

Fingerprints are the marks made by the lines, known as friction ridges, on the underside tip of a finger or thumb. Fingerprints are unique to every person, even identical twins. There are three main fingerprint patterns: the loop, arch and whorl.



loop



arch



whorl

Fingerprints are left on every surface a person touches. The police collect fingerprints to identify criminals. Officers dust powder onto objects to reveal any fingerprints and compare them to the fingerprints of suspects.

### Biometrics timeline

- 1686

Professor Marcello Malpighi discovers that fingerprints have whorl, loop and arch patterns.
- 1858

William Herschel discovers that different people have different fingerprints.
- 1879

Alphonse Bertillon creates a system of identification using body measurements, photographs and physical descriptions.
- 1880

Dr Henry Faulds describes how fingerprints could be used to identify criminals.
- 1892

An Argentine police officer makes the first fingerprint identification at a crime scene.
- 1901

The UK's Fingerprint Bureau is founded to hold a database of criminals' fingerprints.
- 1903

The Bertillon system of identification collapses when two criminals are found to have the same measurements.
- 1953

FH Adler writes that the markings of the iris in the eye are unique and could be used like fingerprints for identification.
- 1984

Scientist Alec Jeffreys invents DNA fingerprinting when he discovers that each person has a unique pattern of DNA.
- 1986

DNA fingerprinting is used as evidence in a criminal investigation for the first time.
- 2013

Apple include fingerprint scanners into their mobile phones.
- 2016

Iris recognition is added to some smartphones as a security measure.

### Solving a crime

When a crime has been committed, the police use many different techniques to identify the criminal.

**Physical evidence**

Officers gather items such as belongings and clothing and seal them in plastic bags and boxes. The items are tested for fingerprints and DNA linked directly to the criminal.

**Electrical Facial Identification Technique**

An operator asks a witness to describe the criminal's face, hair, features and clothes. The operator makes an image of the criminal on a computer screen to use on posters and during TV appeals.

**DNA fingerprinting**

Officers collect human material such as hair, blood or saliva from a crime scene. Scientists analyse the DNA from the sample and compare it to the DNA of suspects.

**Identity parade**

The police place a suspect in a line-up with other people of a similar height, build and skin tone. Witnesses to the crime look at each person to identify the criminal.

**Fingerprints**

The police collect fingerprints from the crime scene and compare them to the fingerprints of suspects.



### Glossary

|                                 |   |
|---------------------------------|---|
| <b>biometrics</b>               | The use of information about someone's body such as fingerprints, iris patterns or DNA profile to prove who they are. |
| <b>characteristic</b>           | A quality or feature of a person that makes them identifiable.  |
| <b>DNA</b>                      | Deoxyribonucleic acid. The chemical at the centre of the cells of living things that carry genetic information.       |
| <b>DNA fingerprinting</b>       | A technique used to identify a person using a sample of their DNA.  |
| <b>experience</b>               | An event that has happened that affects how a person feels and behaves.   |
| <b>identical</b>                | Refers to two things or people that are exactly the same.   |
| <b>inherit</b>                  | To be born with a characteristic that has been passed on from a parent.   |
| <b>nature vs nurture debate</b> | The debate about whether aspects of behaviour are inherited (nature) or learned (nurture).                            |
| <b>opinion</b>                  | A belief or thought about someone or something.   |
| <b>personality</b>              | A combination of thoughts, feelings and behaviours that make a person different to others.                            |
| <b>suspect</b>                  | A person who is believed to have committed a crime.   |
| <b>witness</b>                  | A person who sees an event happening, such as a crime.  |
| <b>unique</b>                   | The only one of its kind.   |