



The Hand book

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The
Hand book



Albatros



The Hand book

A stylized illustration of a hand with a light skin tone, wearing a dark blue sleeve, holding a thick, dark blue wavy line that extends to the left.

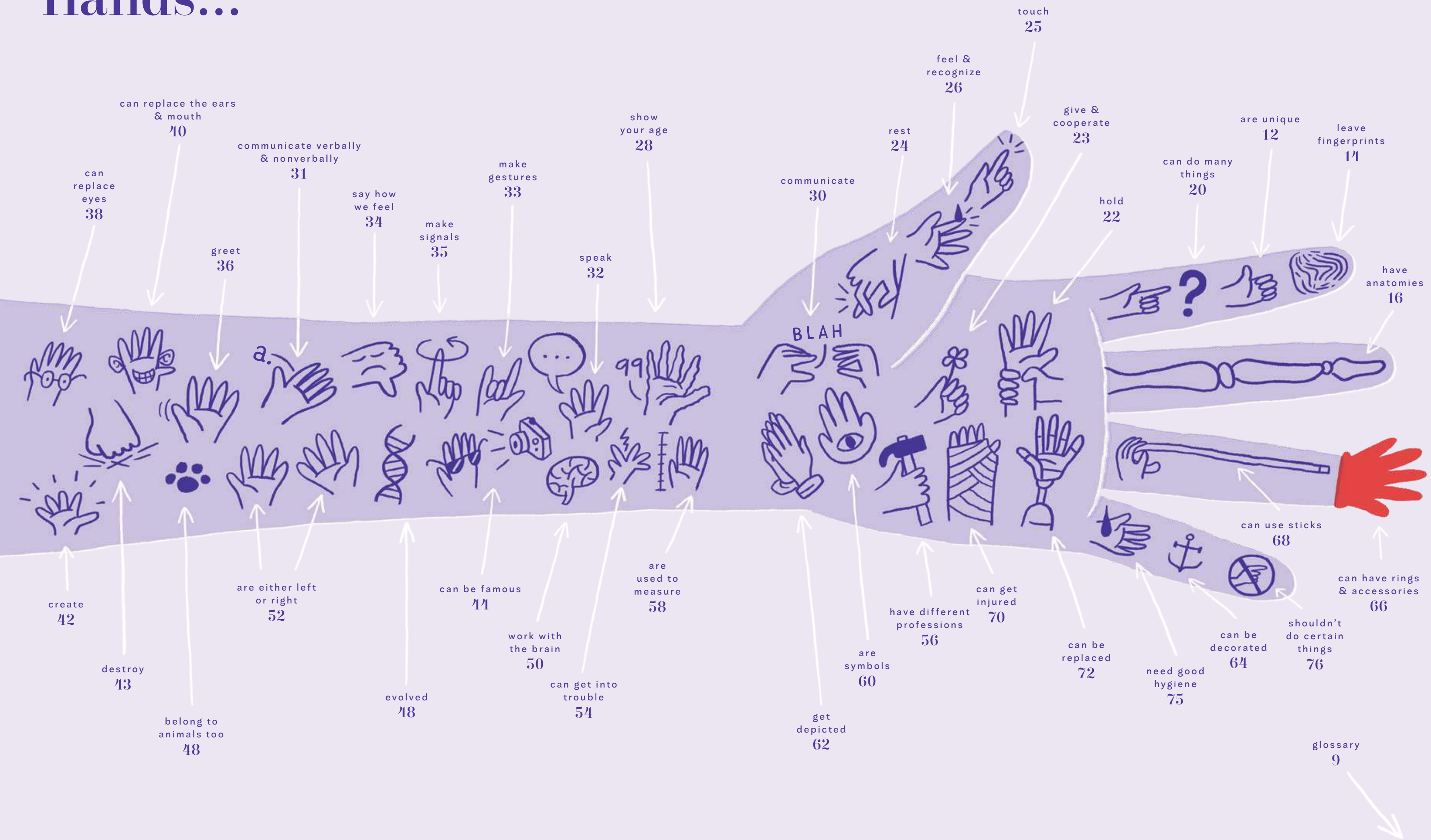
Albatros

The hand is
THE TOOL
of tools

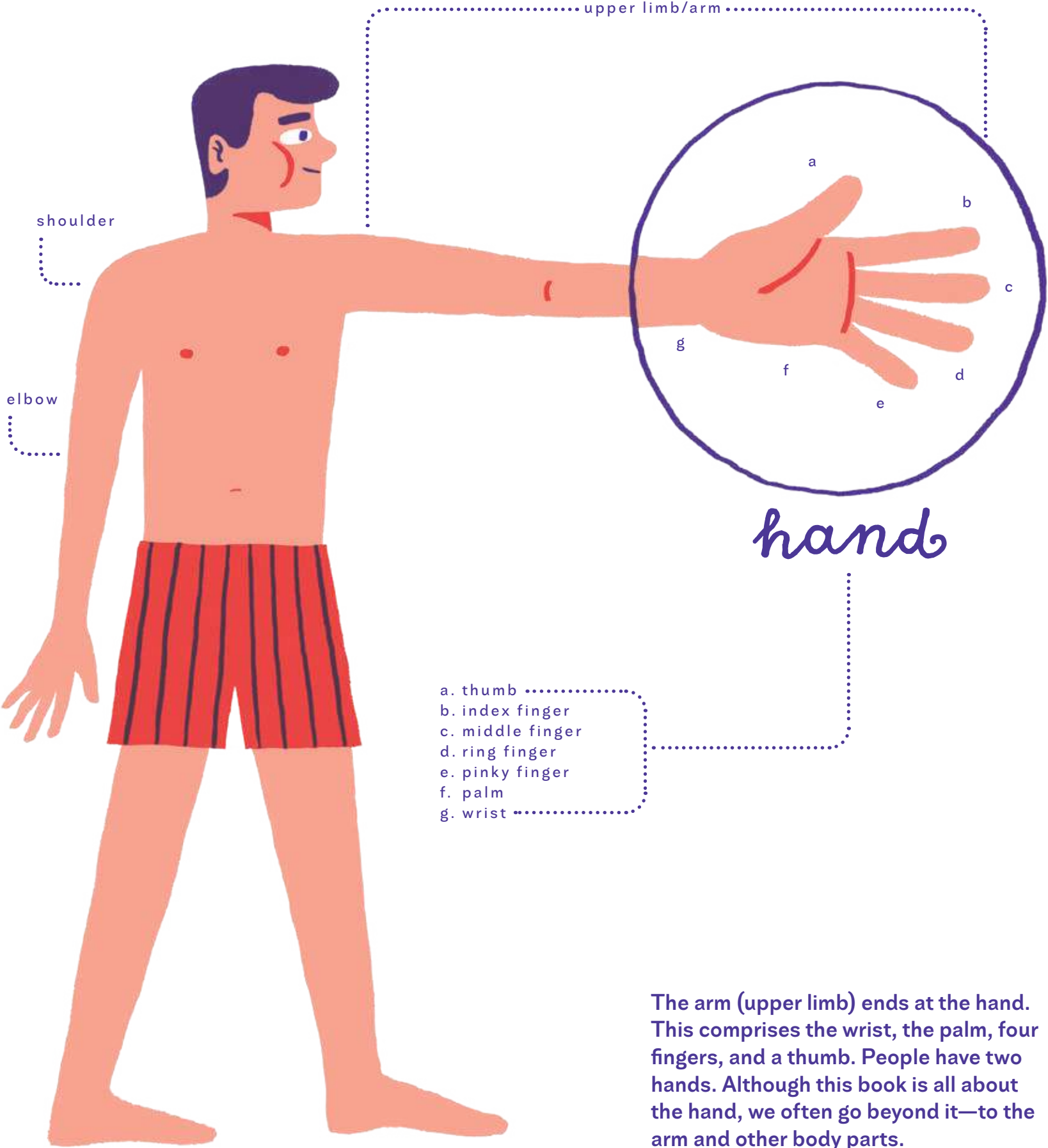


Aristotle (philosopher)

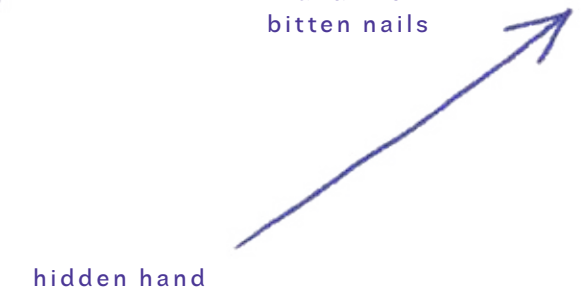
Hands...



Glossary



The arm (upper limb) ends at the hand. This comprises the wrist, the palm, four fingers, and a thumb. People have two hands. Although this book is all about the hand, we often go beyond it—to the arm and other body parts.



At first glance, all hands
look the same.

But are they really?



Hands are

hand	/
fingers	###
palm	/
wrist	/

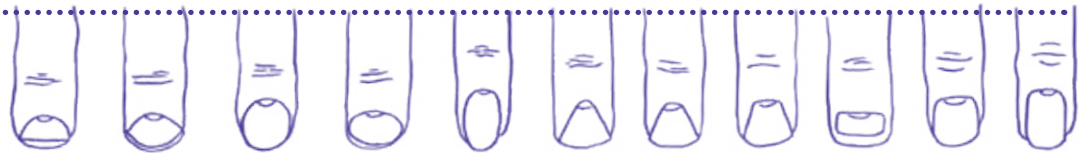
No two hands are the same! Hands come in all shapes, sizes, and colors, and their fingers are variously curved. Yet the most interesting things about them are small and easily missed. Take a good look and what do you see? That's right: lots of twisty lines and grooves—some larger, some smaller, some straight, some meandering. Known as papillary lines, these are extremely important, for they make each hand unique.

unique

NAILS

The end of each finger is protected by a hard nail, which grows at a rate of 2-3 millimeters per month. The older we get, the more slowly our nails grow, meaning we don't have to cut them so often.

Nail types according to D. M. Koerner



For decoration & care, see p. 64

Monkeys have papillary lines too.

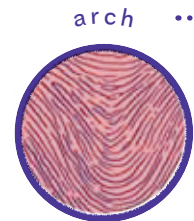
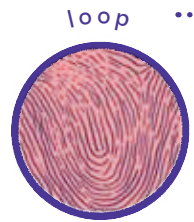


PAPILLARY LINES

Tiny papillary lines make intricate patterns on the palm and fingers of the hand and the soles of the feet. They are composed of variously intersecting arches and spirals that are very hard to see with the naked eye. No two people in the world have the same patterns. Known to experts as “markers,” these patterns remain forever unchanged, so that a person can be identified by them.

FINGERPRINTING

Otherwise known as fingerprint identification, or dactyloscopy, this science is mostly used in the investigation of crimes. It focuses on papillary lines, whose uniqueness and unchangeability can convict any criminal. If you want to know more about fingerprint identification (and even if you don't), turn the page.



BASIC FINGERPRINT TYPES



INTRIGUE AT A CRIME SCENE

Dactyloscopy



A certain British official was responsible for paying soldiers' pensions in India.

Weren't you here earlier?

1858

There are too many people to keep track of.

William J. Herschel

How can I protect against cheating?

Chinese merchants verify documents with a fingerprint.

Maybe I could try that.

Press your finger down here.

Twenty years later

After that, no one ever cheated me. No two sets of fingerprints are the same, and fingerprints never change.

Might this interest the police?

1877

Anyone who leaves fingerprints at the scene of a crime can be identified by them.

Nonsense.

In those days, police used a method of identification called anthropometry.

Keep measuring.

We measure criminals' bodily dimensions.

It's complicated and doesn't work well.

Several more people had to consider fingerprinting before the police started using it.

1880

Papillary lines can't be removed.

Clean fingers leave prints too.

1892

To summarize—arches, loops, and whorls.

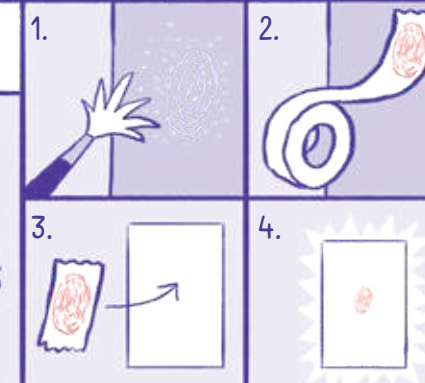
Could there be something in this?

Henry Faulds suggests cataloguing criminals' fingerprints.

Francis Galton publishes *Finger Prints*, a practical guide for assessing fingerprints.

We have a lovely print here, Watson.

Let's take it ...



... and compare it against criminals' prints in police files.

It's four-fingered Bill!

I always said it would work.

If 10 to 15 markers match, we've got our man.

In 1914, dactyloscopy became the main system of identification at crime scenes.

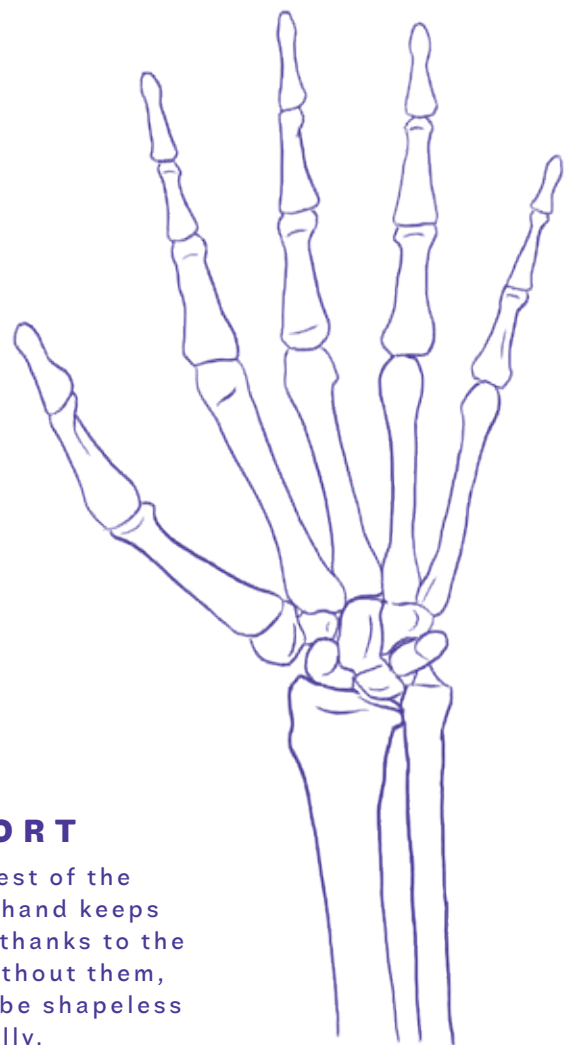
Inside the hand

The hand is a very complex, perfectly functioning mechanism. Each of its parts has its own clearly defined task. For a hand to work as it should, its components must work together. These components are:

bones

SUPPORT

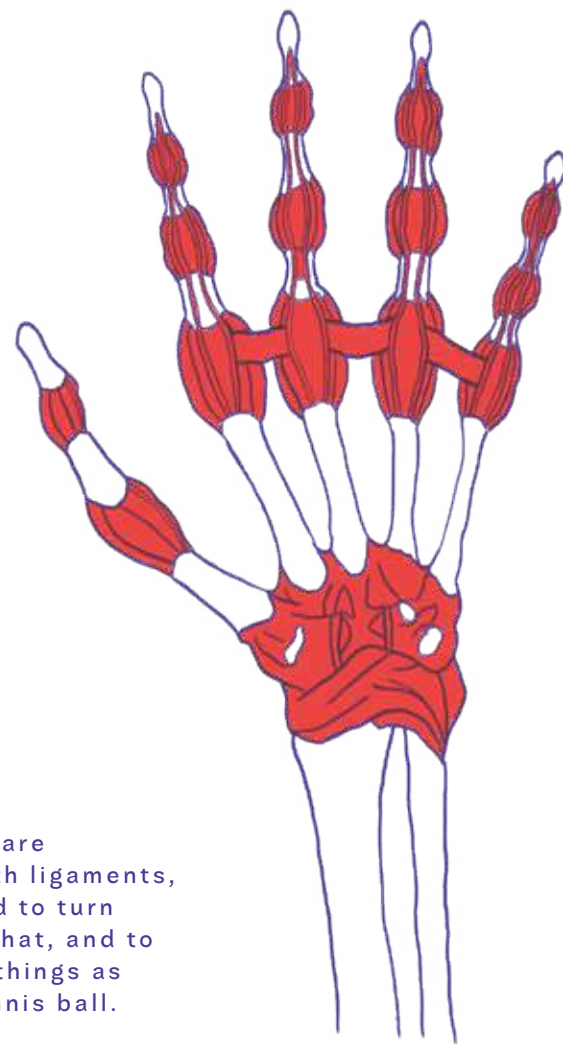
Like the rest of the body, the hand keeps its shape thanks to the bones. Without them, we would be shapeless piles of jelly.



joints & ligaments

FLEX

Joints, which are reinforced with ligaments, allow the hand to turn this way and that, and to manage such things as catching a tennis ball.



muscles & tendons

MOVE

Muscles are attached to bones by tendons. As they contract and relax, they cause the hand to move.



blood vessels

NOURISH

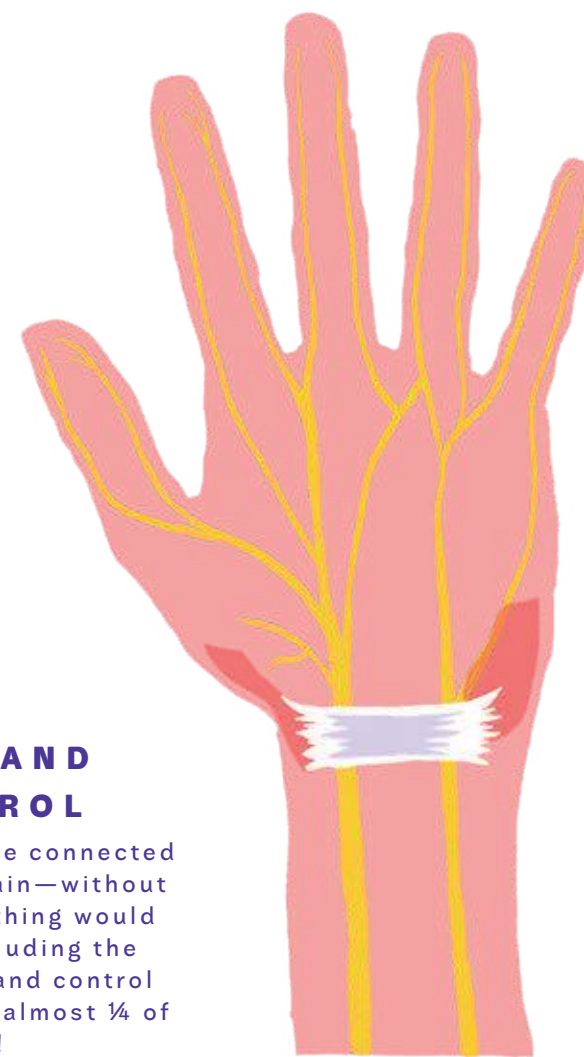
For the body to work, it needs energy and nutrition. This is a matter for blood vessels, which distribute oxygen through the blood, and with it the nutrition the body needs.



nerves

FEEL AND CONTROL

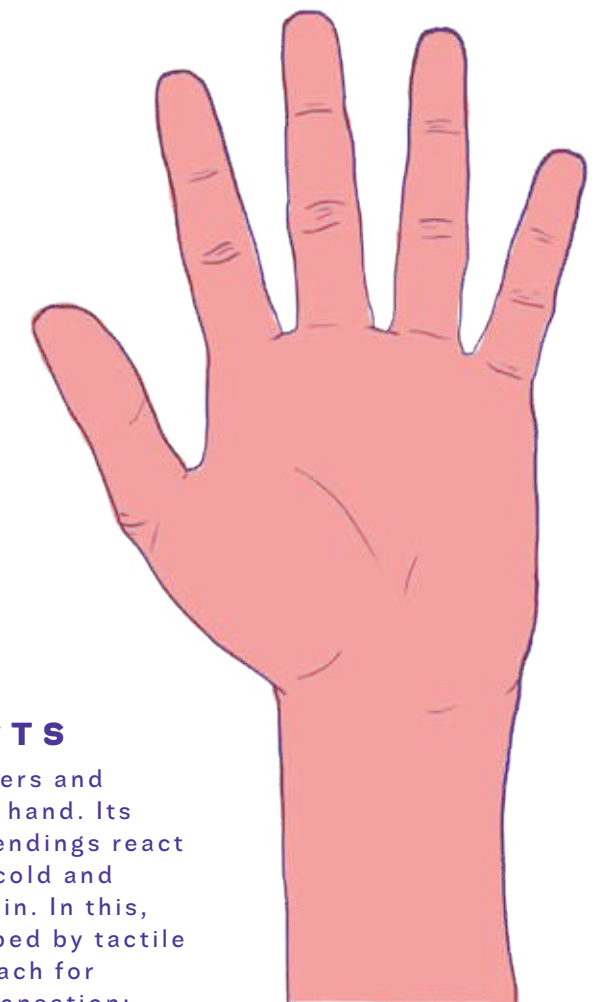
Nerves are connected to the brain—without which nothing would work, including the hands. Hand control occupies almost 1/4 of the brain!



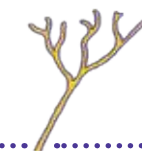
skin

PROTECTS

The skin covers and protects the hand. Its many nerve endings react to heat and cold and recognize pain. In this, they are helped by tactile receptors, each for a different sensation:



Free nerve endings



PAIN

Meissner corpuscle



TOUCH

Vater-Pacini corpuscle



PRESSURE

Ruffini corpuscle



HEAT

Krause corpuscle



COLD

What is the best thing
about hands?





hold a large mug of tea



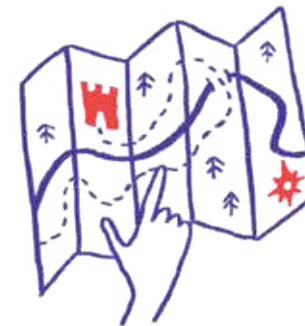
play rock, paper, scissors



comb hair



pet hair



follow a map



perform a play



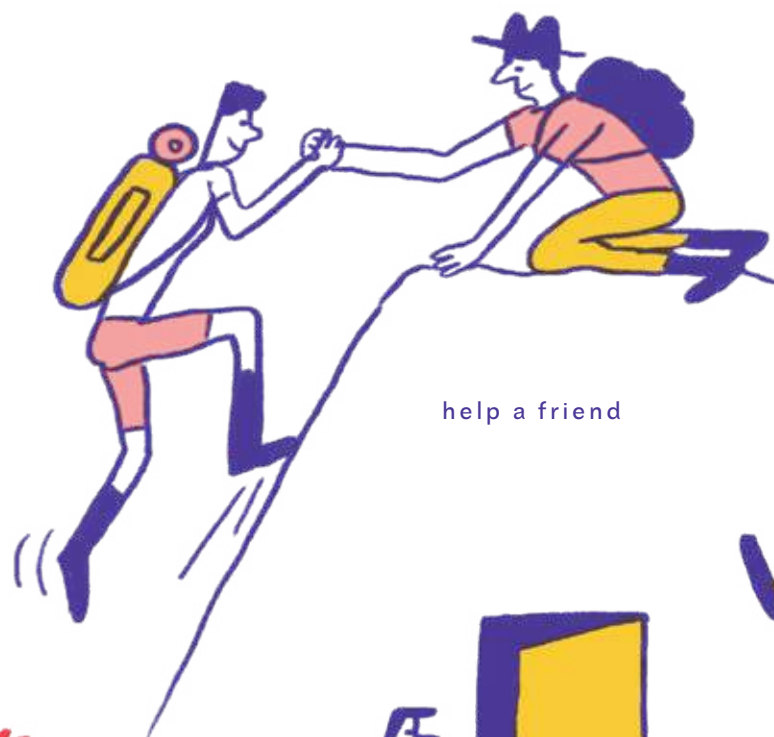
play the saxophone



morph into a wolf



make pizza dough



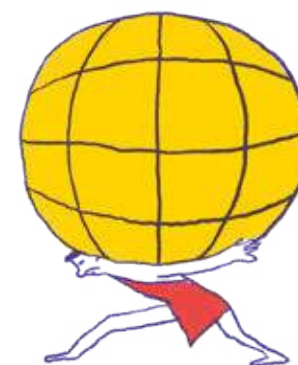
help a friend



snap



knit



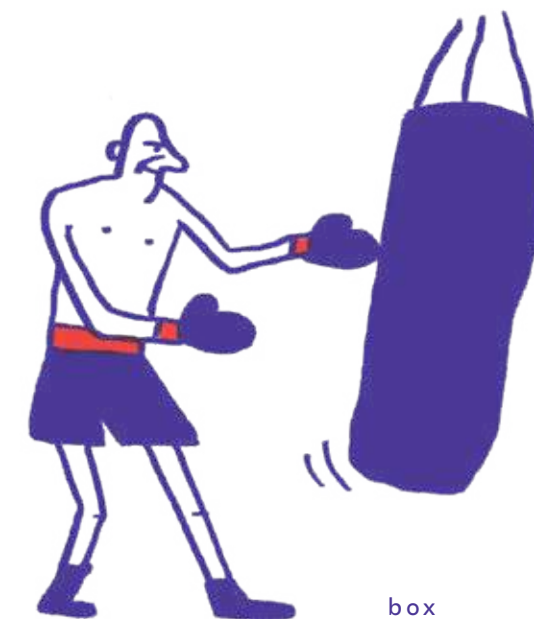
hold up the world



find the way in the dark



draw



box



catch a thief

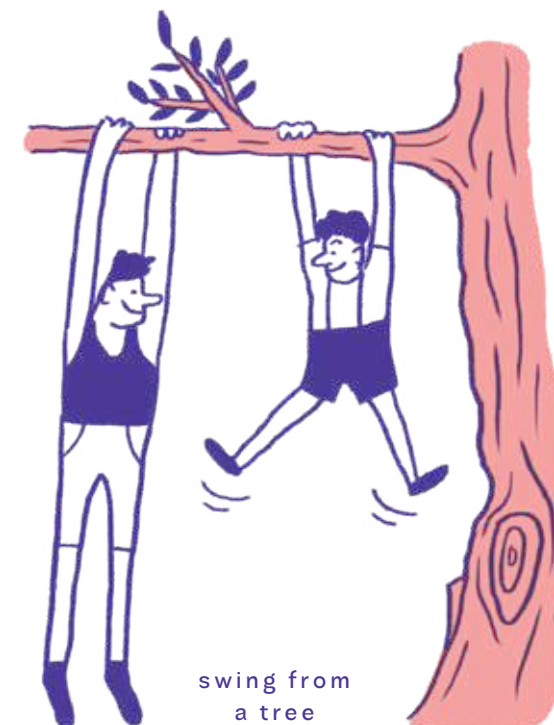
thieve



open a door



cup water



swing from a tree



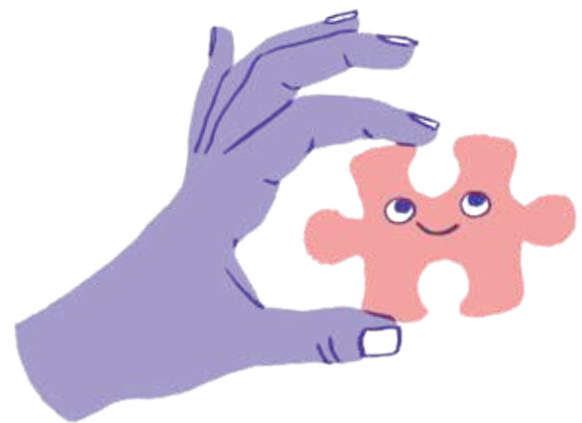
catch a ball



turn a page

What can

a human hand do?



Hands hold

The hand's main function is to handle objects. We use our hands all the time, without thinking. As well as giving us a firm, precise grip, hands allow us to work with tiny things.



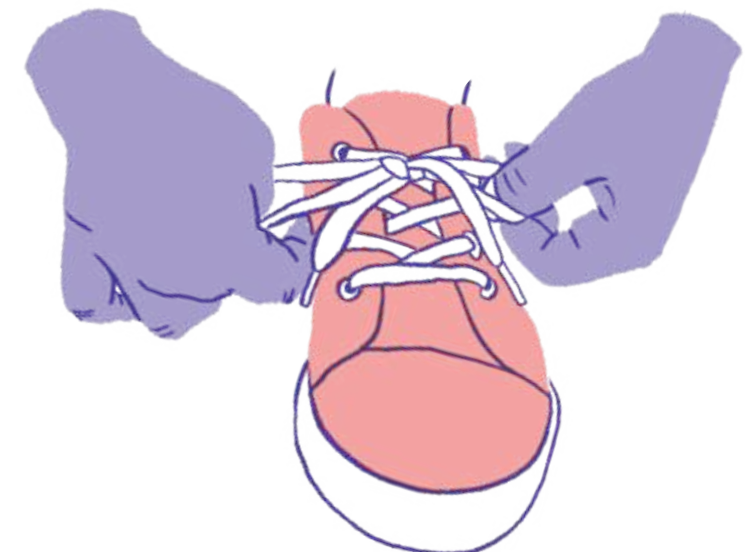
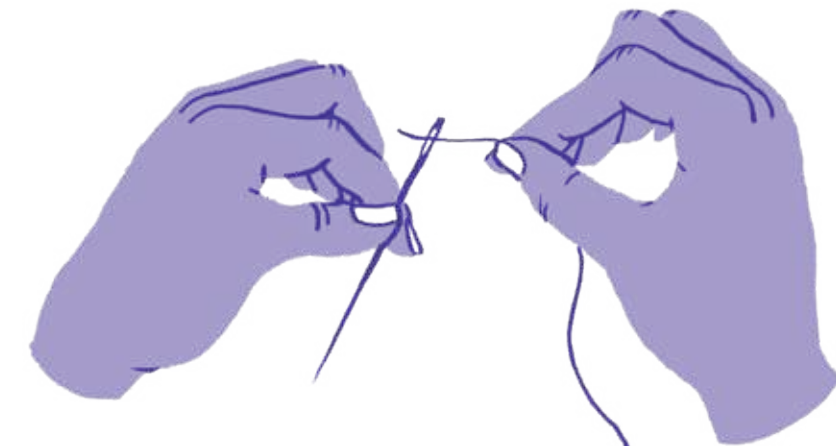
How we hold a thing depends on how heavy, big, or fragile it is, and also on its intended use.



give & cooperate



Hands sometimes need to cooperate. Why? Because one hand isn't always enough...





e-t-a-c-i-n-c-o-c

Communication is about sharing information and making ourselves understood. Without communication, the world would be in serious trouble. It may be a simple “hello”; it may be a long conversation with a friend.



VERBAL AND NONVERBAL COMMUNICATION

There are times when verbal communication (speech) isn't enough. Some things are hard to express in words. Sometimes we don't know what to say, so we search in vain for the right expression. Thank goodness for nonverbal communication! That's right: we can speak without words! A scratch of the forehead, a raising of the eyebrows, a smile, an outstretched tongue—all these are facial expressions. What can we express with the hands?

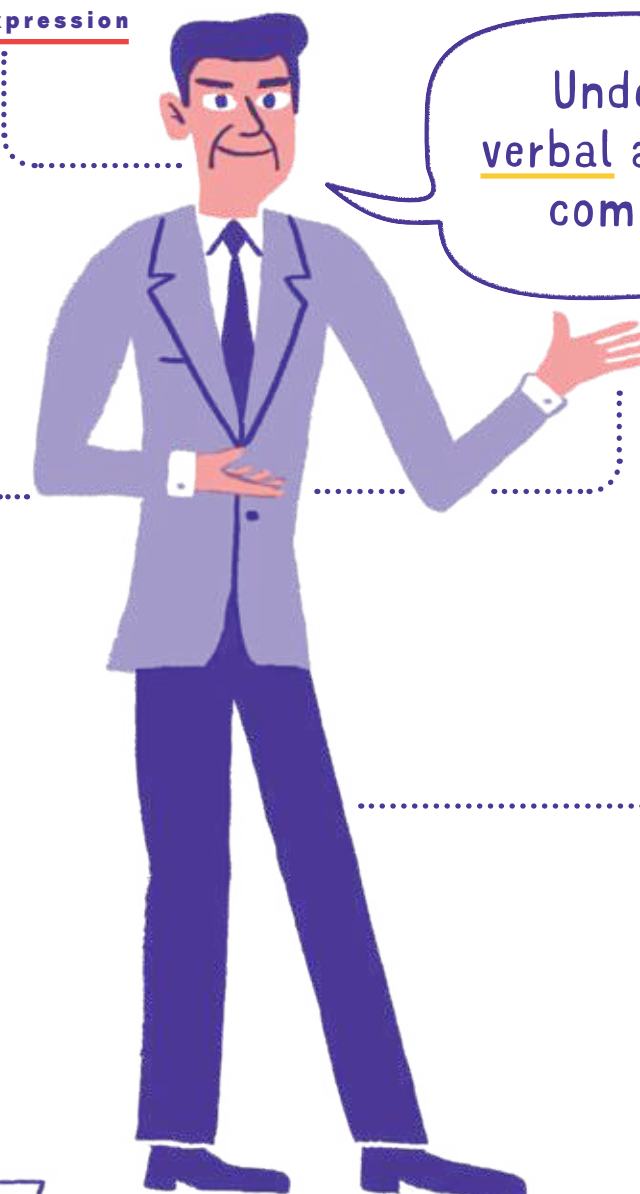
facial expression

Understanding verbal and nonverbal communication

words

gesture

stance



WHO SAYS MORE?

Which form of communication is best? To which do we pay most attention? Well, it depends on the situation. Sometimes words win out, sometimes a firm handshake does. Often, we communicate by a combination of the two.

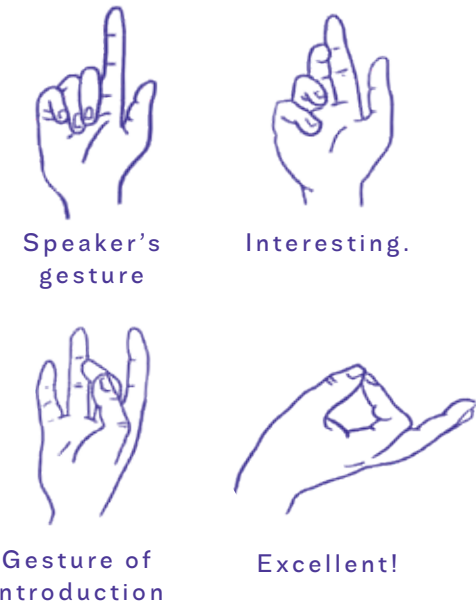
Want to know how to communicate with your hands? Read on to find out.



We can ball our hands into fists, give a thumbs-up, or point: the meaning is clear without words. We understand many gestures intuitively, especially when they are supported by facial expressions. The best thing about them is clarity and straightforwardness.

speak

Antiquity lived by gestures. It was one of the most important components of the art of rhetoric.



THE GREAT POWER OF GESTURES
Most gestures accompany speech. We often don't realize how much our hands are saying for us. As well as expressing emotion, they serve to emphasize and supplement our words. Sometimes they replace words entirely.



The legendary “V” for victory” sign received a new lease on life from **Winston Churchill** in World War II. We still use it today.

THE HISTORY OF THE GESTURE
The gesture is a tool of communication older than speech itself. We have been using it since prehistoric times. Gestures go through different phases. They get forgotten, then rediscovered.



Frequently used gestures

Many gestures that are considered ordinary and harmless by us are considered negative and vulgar by other cultures.

 I LIKE IT Thailand, Iraq	 I DON'T LIKE IT. YUCK!	 CALL ME, SURFERS' GESTURE	 STOP Greece	 FORGET YOU! whole world
 V – GESTURE FOR PEACE OR VICTORY	 with palm facing inward Britain, Australia, New Zealand, Greece	 COME HERE Japan, Philippines	 HOLDING YOUR THUMB Pakistan	 FINGERS CROSSED Vietnam
 O.K. indicates money in Japan Brazil, Turkey, France, Belgium, Tunisia	 ROCKERS' GESTURE Italy, Brazil, Cuba, Colombia, Portugal, Spain, Argentina	 This gesture originated in sign language. I LOVE YOU		

Many gestures work across cultures, all over the world. Like words, gestures can have multiple meanings, so we must use them with care.

say how we feel



Please, don't speak to me.



Nice to see you!



I'm super-happy!



I've done it at last!



How embarrassing!



What a fool!



This is deadly boring.



I feel great.



I'm terribly nervous.



So what if I don't know!



Take care, sweetie.

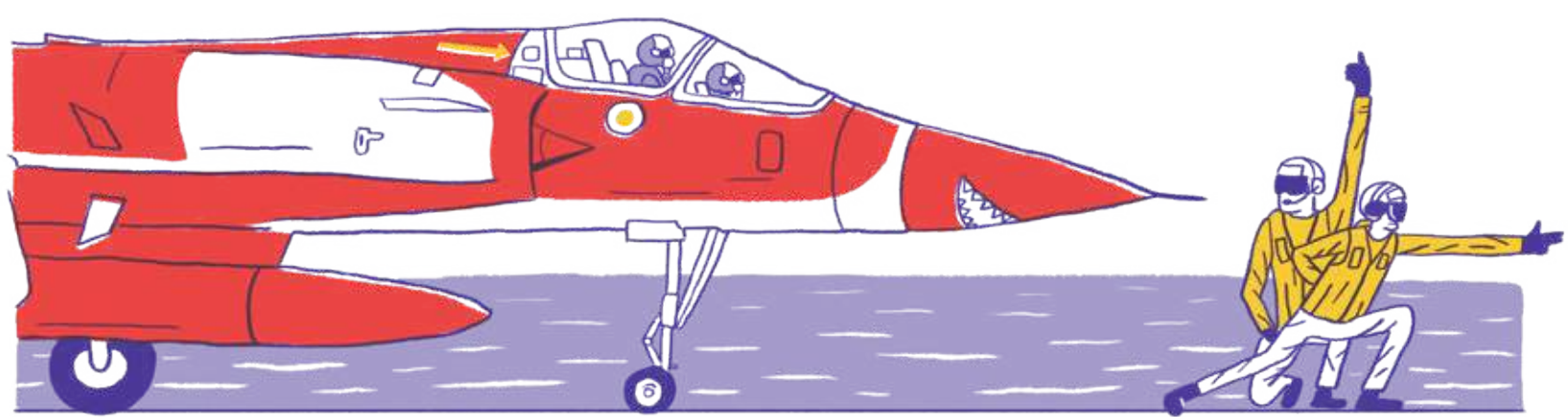


Don't make me angry.

make signals


What do we do if we find ourselves in a situation that demands that we keep our mouth zipped? Or if another person is too far away for our words to reach them?

Well, we use our hands. Apart from gesturing and fingerspelling, there are many codified signs for manual communication. They are used by professional and special groups where ordinary communication is impossible.




SEVERE CONDITIONS

When the recipient is far away or cannot speak



divers




signal flags – used at sea, in the mountains, and by scouts




sailors

STRATEGY

When you don't want to reveal my intentions, or you wish to go unnoticed



volleyball players



soldiers

baseball players

NAVIGATION AND ORGANIZATION

... in other situations



cyclists



soccer referees



traffic police



flight navigators



Pablo Picasso
painter



Clara Schumann
pianist and composer



Venus de Milo
statue



Václav Havel
Czech president



Tarzan
king of the jungle



Martina Navrátilová
tennis player

Famous hands

Makers of history, creators of supreme works, players in unforgettable events ... Happily, there are many inspirational, iconic figures. It's a pity so few of them can fit on one page.



Freddie Mercury
singer



Bruce Lee
martial arts master and actor



Diego Maradona
footballer



John Coltrane
jazz musician



Jane Goodall
scientist



Josef Sudek
photographer



Niccolò Paganini
violinist



Marina Abramović
artist



Amelia Earhart
pioneer of aviation



Herbert von Karajan
conductor



Agatha Christie
writer



Buddha
Enlightened One



Marie Curie
physicist and chemist

PROTECT HANDS IN WINTER



with gloves!

THE
END



The Hand book

© Designed by B4U Publishing for Albatros,
an imprint of Albatros Media Group, 2022
5. května 1746/22, Prague 4, Czech Republic
Author: Magda Garguláková, Illustrator: Vítězslav Mecner
Translator: Andrew Oakland, Editor: Scott Alexander Jones
Printed in China by Asia Pacific

ISBN: 978-80-00-06600-4

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Hands are so much a part of our bodies that we barely notice their presence. We use them to carry a mug of tea to our mouth, stroke a beloved pet, or bang on the table. Composed of a wrist, a palm, and five clever fingers, the hand is a reliable partner we would struggle to be without. Have you ever wondered how hands work? Or why some of us are left-handed and others right-handed? Or how the hands of a sculptor differs from those of a pianist or a bricklayer? Did you know that we can use our hands to talk with, by communicating thoughts where spoken words can't reach? We may think of hands as ordinary, but they are truly remarkable ... After reading this book, you will see your hands in a whole new way.



\$ 18.95
Printed in China by Asia Pacific
www.albatrosbooks.com

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