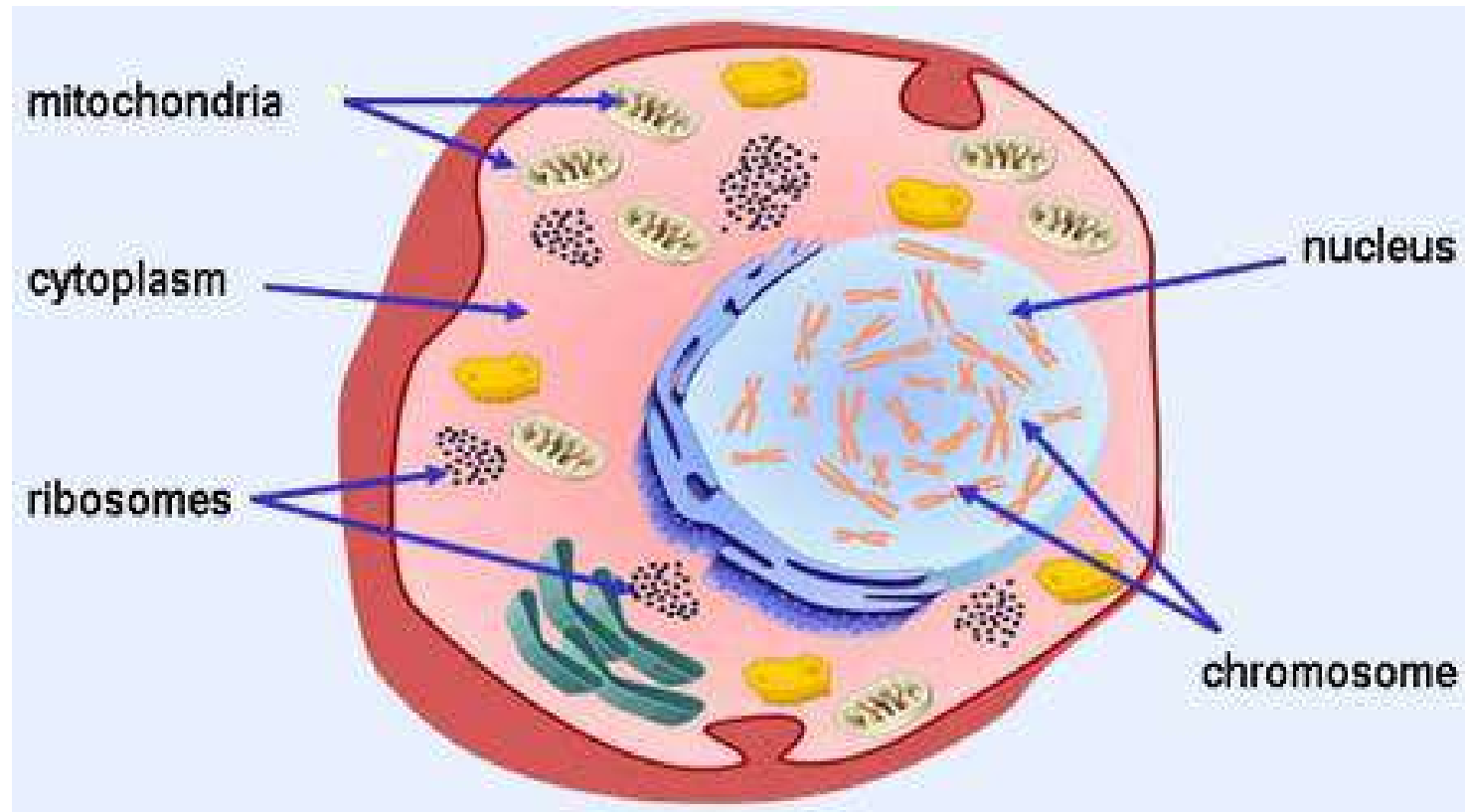




Discuss what a gene is and the role genes play in the transfer of traits.

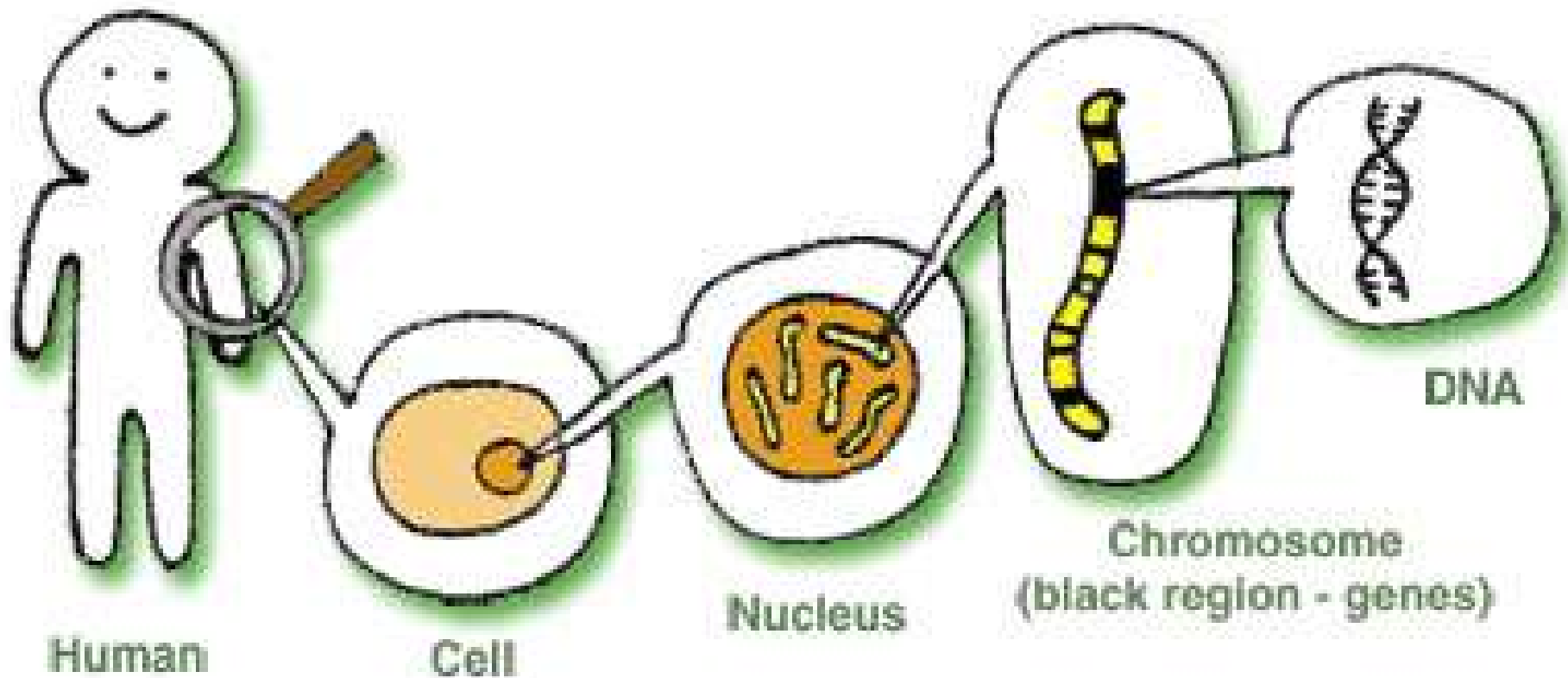
Genes are found on tiny spaghetti-like structures called chromosomes and chromosomes are found inside the cell nucleus.



In humans, a cell nucleus contains 46 individual chromosomes or 23 pairs of chromosomes (chromosomes come in pairs, remember? $23 \times 2 = 46$). Half of these chromosomes come from one parent and half come from the other parent.

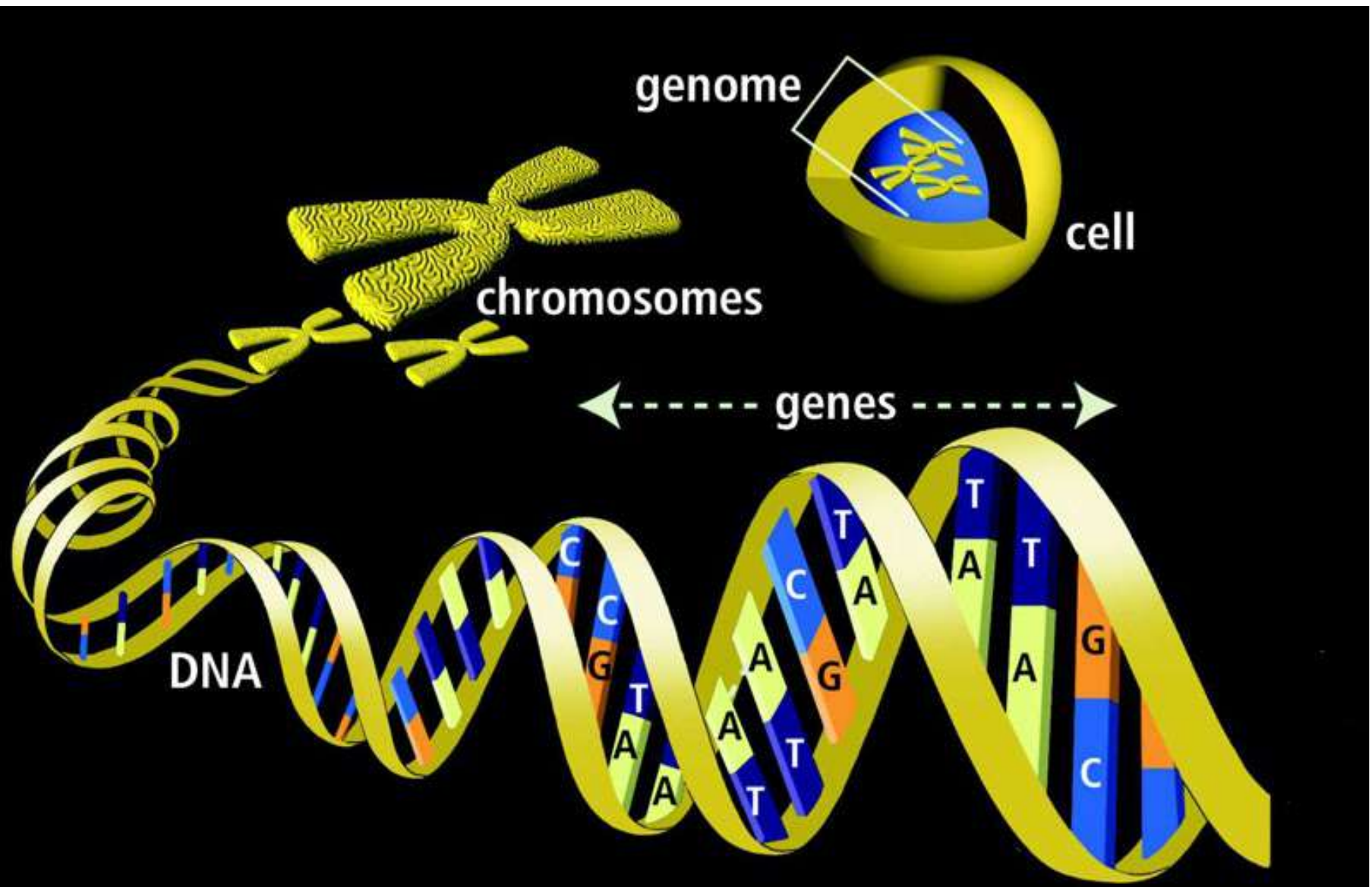
What Is a Gene?

Each cell in the human body contains about 25,000 to 35,000 genes. Genes carry the information that determines your traits, which are features or characteristics that are passed on to you — or inherited — from your parents.



Recognize that offspring can resemble parents in inherited traits and learned behaviors.

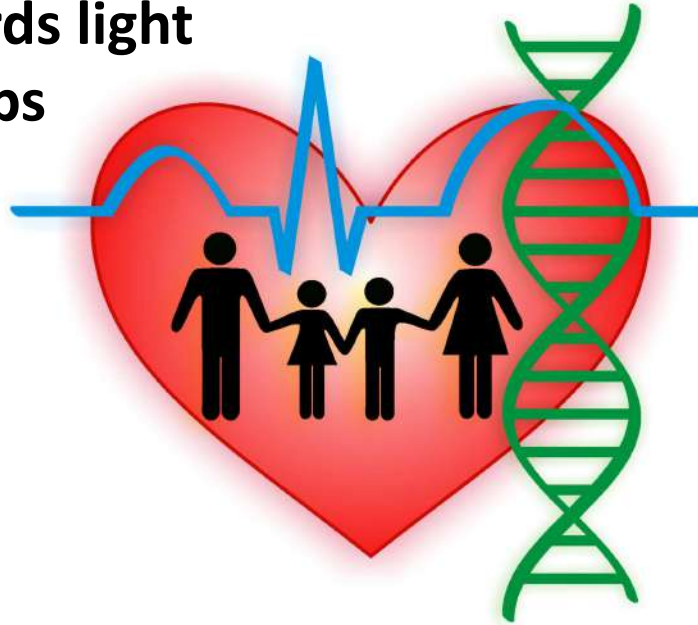
Genetics



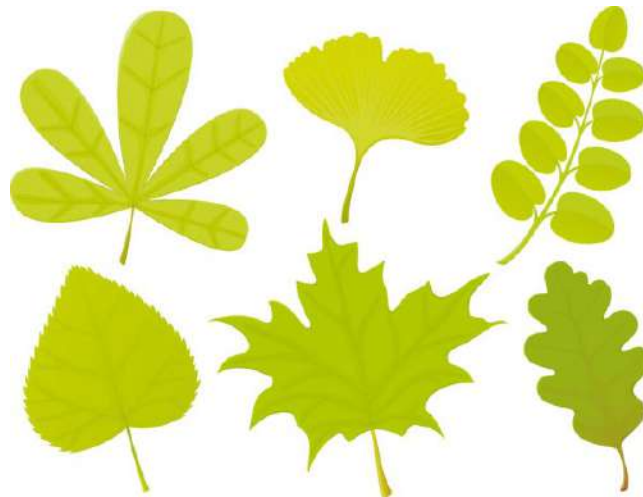
Compare and contrast the characteristics of learned behaviors and of inherited traits.

Inherited Traits

- ❖ Cat's arched back when scared
- ❖ Plants leaning towards light
- ❖ Spiders spinning webs
- ❖ Can roll your tongue
- ❖ Attached earlobes
- ❖ Long teeth
- ❖ Have big feet
- ❖ Shape of nose
- ❖ Dog barking
- ❖ Hair color
- ❖ Long fur



- ❖ Baby crying
- ❖ Long fingers
- ❖ Blushing
- ❖ Hibernation
- ❖ Speed
- ❖ Eating plants
- ❖ Eye Color
- ❖ Widow's Peak
- ❖ Height
- ❖ Shape of a leaf



1. Dark Hair
LL, Ll

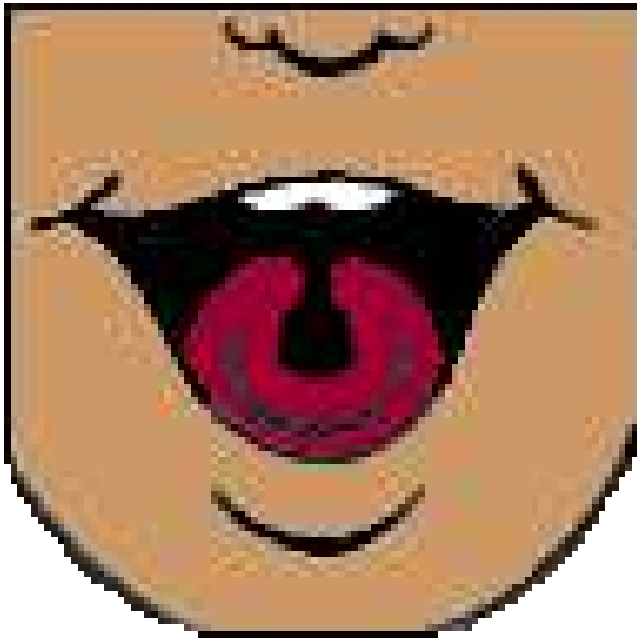


light hair
ll

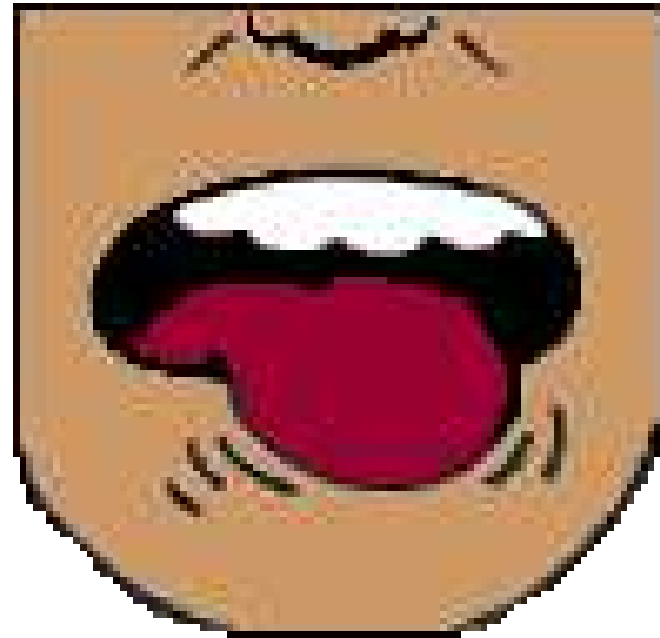
Roll Your Tongue

The ability to roll your tongue into a U-shape with the sides curled upwards is conferred by a dominant gene.

**Can
roll tongue**



**Can't
roll tongue**



Earlobe Attachment

Inheritance of a dominant gene produces unattached or 'free' earlobes. There is considerable variation in the size and shape of the lobes which is due to the influence of other genes.



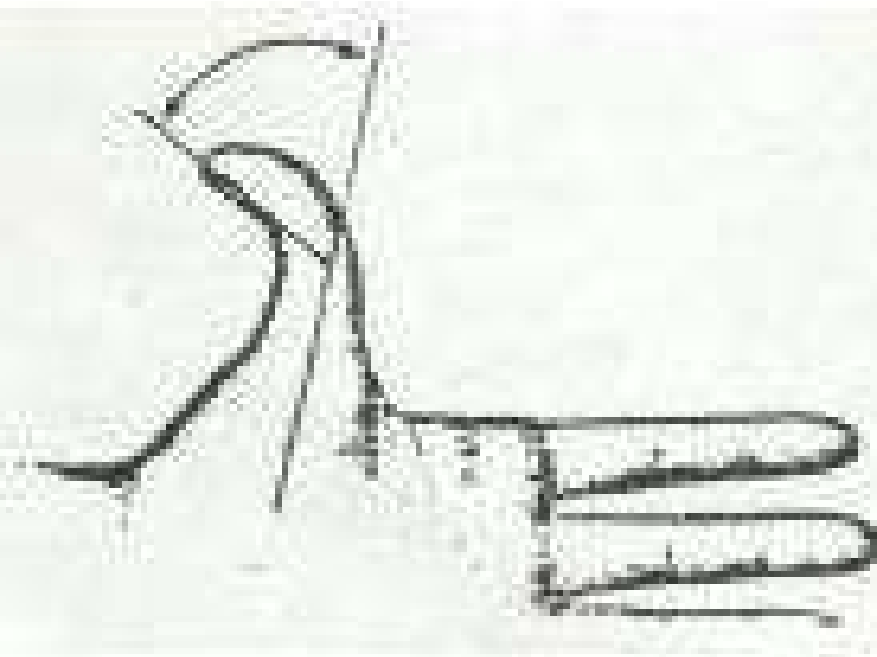
Detached



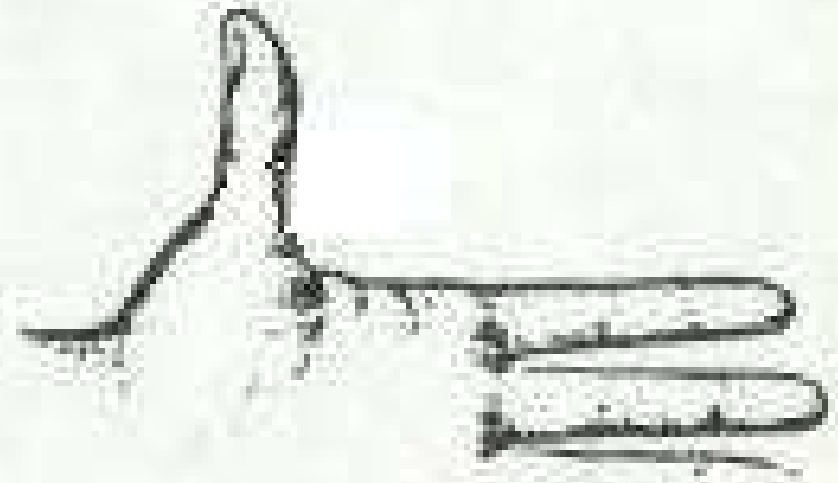
Attached

Hitch Hikers Thumb

The ability to bend either thumb backwards beyond 45 degrees reflects the absence of the dominant gene which prevents this ability. Also known as “distal hyper extensibility of the thumb.”



Hichhiker's Thumb



Straight Thumb

Widow's Peak

A dominant gene causes the hairline to form a distinct downward point in the center of the forehead. Baldness will mask this trait.



Hallux Length

The length of the big toe (hallux) is governed by the Ha gene. The big toe is longer than or equal to the second toe only in the homozygous recessive. A hallux shorter than this indicates the possession of a dominant Ha gene allele.



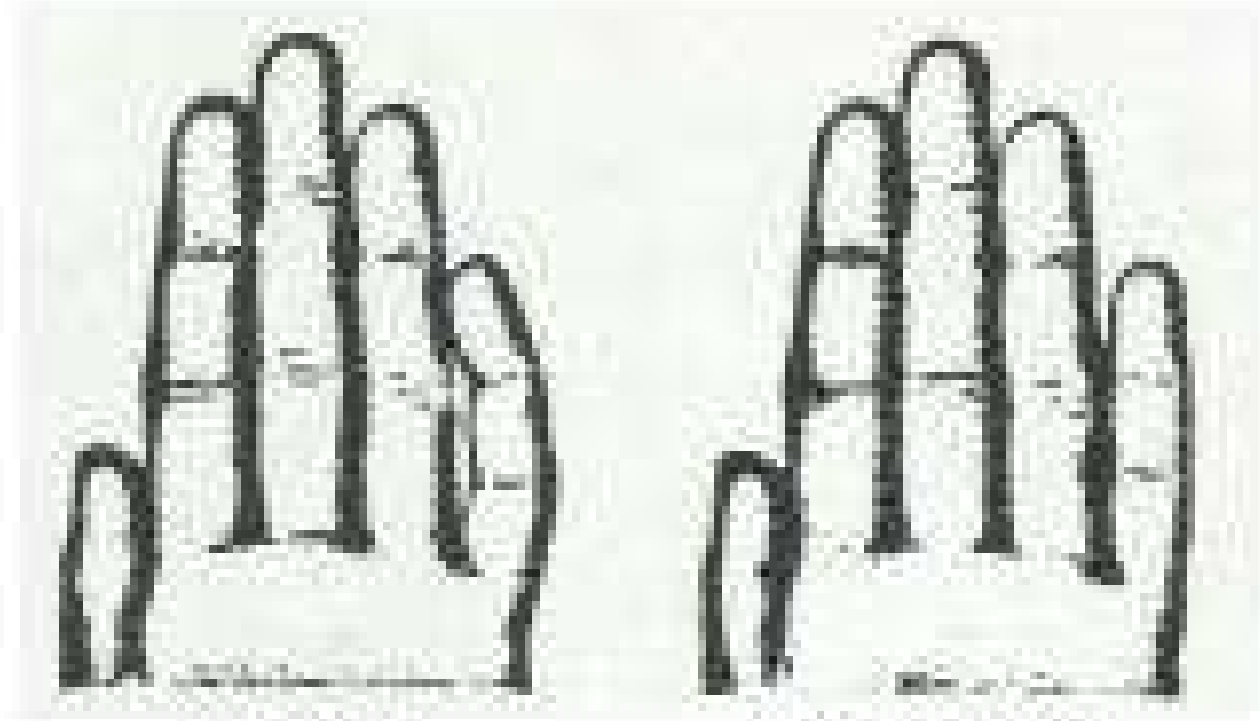
Facial Dimples

The inheritance of cheek dimples is controlled by a dominant gene D. The d/d genotype lacks the ability to express facial dimples



Bent Little Finger

A dominant gene causes the last joint of the little finger to bend inwards towards the fourth finger. Place hand on table and relax muscles to test.



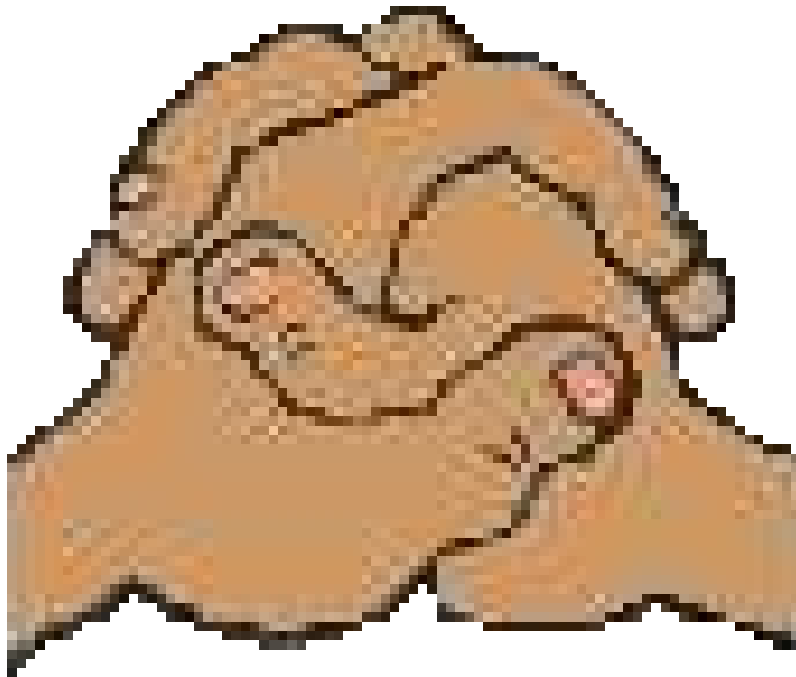
**Bent
Pinkie**

**Straight
Pinkie**

Interlocking Fingers

When the fingers are interlocked, some people will almost invariably place the left thumb on topand other people will place the right over the left. Studies have shown that the placing the left over the right is due to a dominant gene (F) while placing the right on top occurs only in the recessive (ff) genotype.

Left- Thumbed



Right- Thumbed



Learned Traits

- ❖ Animals staying away from something after a bad encounter
- ❖ Speaking more than one language
- ❖ Speak the same language
- ❖ Swimming in the pool
- ❖ Brushing your teeth
- ❖ Playing with friends
- ❖ Riding a bike
- ❖ Hunting
- ❖ Reading
- ❖ Favorite sport is basketball
- ❖ Animals finding food from humans
- ❖ Table Manners
- ❖ Understanding a language

