

All twins are clones, but not all clones are twins. (From Clone age Video)

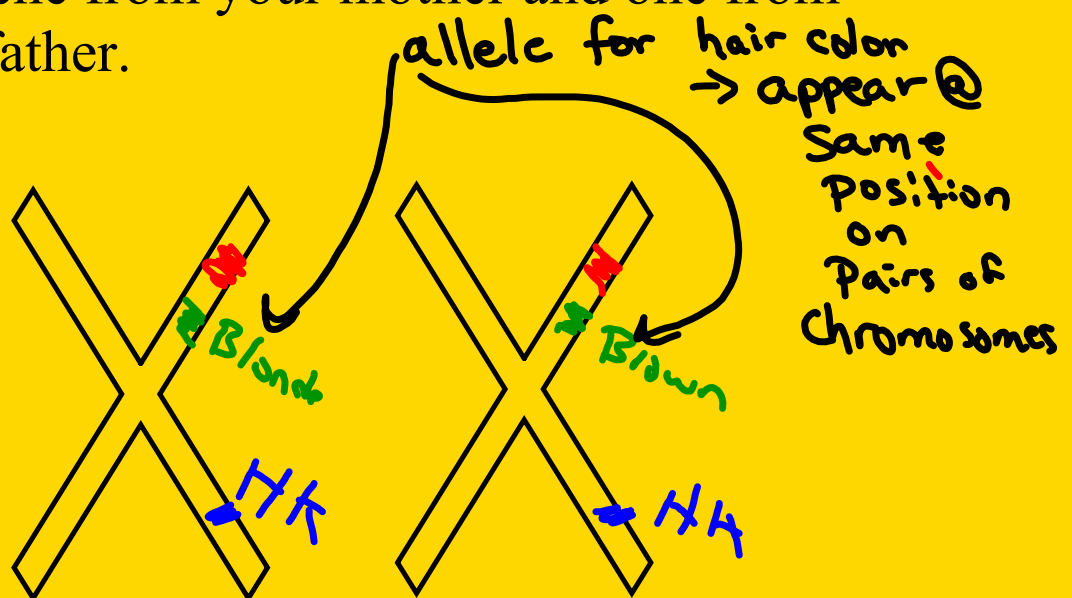
-Clones are genetically identical, meaning they have the exact same DNA (So does Twins) (Genetic replication of an organism)

- Twins are born at the same time and live through similar situations so this in turn effects their behavior and in most cases they act very similar.

- Clones can be born 10-20 years apart and can act very different since they are brought up in different decades. Different environmental factors can change their behaviors.

## Gene:

A part on the chromosomes that holds the information for a trait. Remember, you get one gene from your mother and one from your father.





**Each chromosome in the pair contains genes for the same biological features, such as eye color, at the same locations on the chromosome. However, each can contain either the same allele (e.g., both alleles for blue eyes) or different alleles (e.g., one allele for blue eyes and one allele for brown eyes) for each feature**

**DOMINANT:**

**When a DOMINANT gene is present, it is expressed.**

**Recessive:**

**Can only be expressed when there is no DOMINANT gene.**



	<b>DOMINANT TRAITS</b>	<b>RECESSIVE TRAITS</b>
eye coloring	brown eyes	grey, green, hazel, blue eyes
vision	farsightedness normal vision normal vision normal vision	normal vision nearsightedness night blindness color blindness*
hair	dark hair non-red hair curly hair full head of hair widow's peak	blonde, light, red hair red hair straight hair baldness* normal hairline
facial features	dimples unattached earlobes freckles broad lips	no dimples attached earlobes no freckles thin lips
appendages	extra digits fused digits short digits fingers lack 1 joint limb dwarfing clubbed thumb double-jointedness	normal number normal digits normal digits normal joints normal proportion normal thumb normal joints
other	immunity to poison ivy normal pigmented skin normal blood clotting normal hearing normal hearing and speaking normal- no PKU	susceptibility to poison ivy albinism hemophilia* congenital deafness deaf mutism phenylketonuria (PKU)

Mom → Brown eyes

$Bb$   ~~$BB$~~

Dad → Brown

$Bb$ ,  ~~$BB$~~

	$B$	$b$
$B$	$BB$	$Bb$
$b$	$bB$	$bb$

other

75% Brown

25% No brow

Heterozygous Pair: (Hh)  $\rightarrow$  H  
 A DOMINANT and Recessive gene.  $\rightarrow$  d.fferent

H  $\rightarrow$  Brown eyes  
 h = Blue eyes

Br                      Bl  
 $\uparrow$                        $\uparrow$

Homozygous: (HH) or (hh)

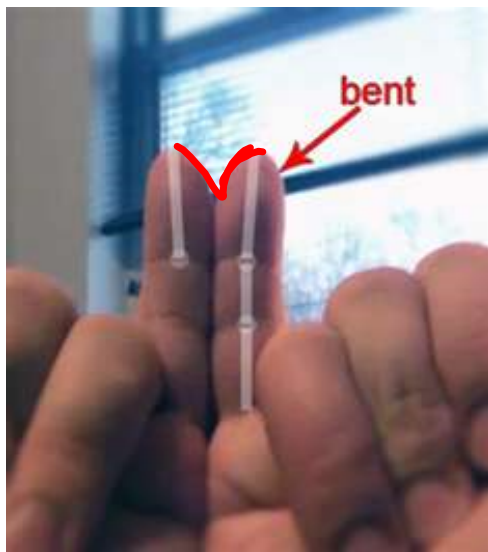
Either two DOMINANT genes or two recessive genes.

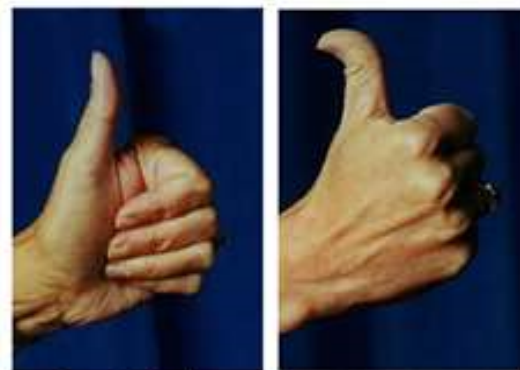
Homozygous Dominant  $\rightarrow$  HH

Hom ozygous Recessive  $\rightarrow$  hh

Trait	Type	Your Trait	Number in class
Bent Pinky	(Dominant)		
Dimples	(Dominant)		
Blue Eyes	(Recessive)		
Mid-Digital Hair	(Dominant)		
Tongue-rolling	(Dominant)		
Widow's Peak	(Recessive)		
Thumb Crossing	(Dominant)		
Free Ear Lobes	(Dominant)		
Hitchhiker's Thumb	(Dominant)		

<http://tami-port.suite101.com/dominant-human-genetic-traits-a38351>





Regular thumb

Hitchhiker's thumb

Size and shape



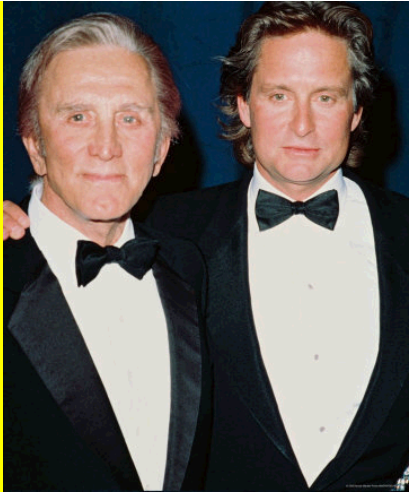
Diagram showing free (left) and attached (right) earlobes.

## *Genes and Heredity*

**Have you ever been able to identify a stranger as a member of a particular family ?**

**Red hair, high cheekbones, or a prominent nose can often be traced through family lineages. The observation that a young child resembles her grandmother suggest that physical characteristics are inherited. Similar observation can be made in the world of plants and animals.**

**ie. Flowers with white petals usually produce offsprings with whit petals**





## *Genes and Heredity*

**Characteristics appear to be repeated from generation to generation.**

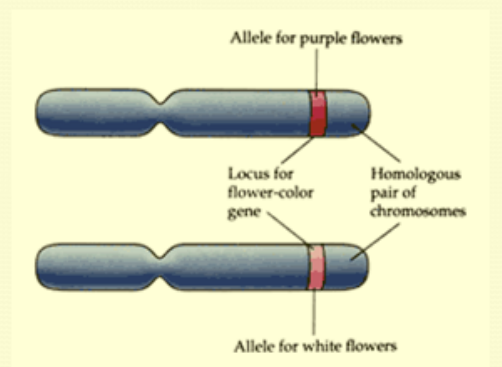
**Heredity - the passing of traits from parents to offspring .**

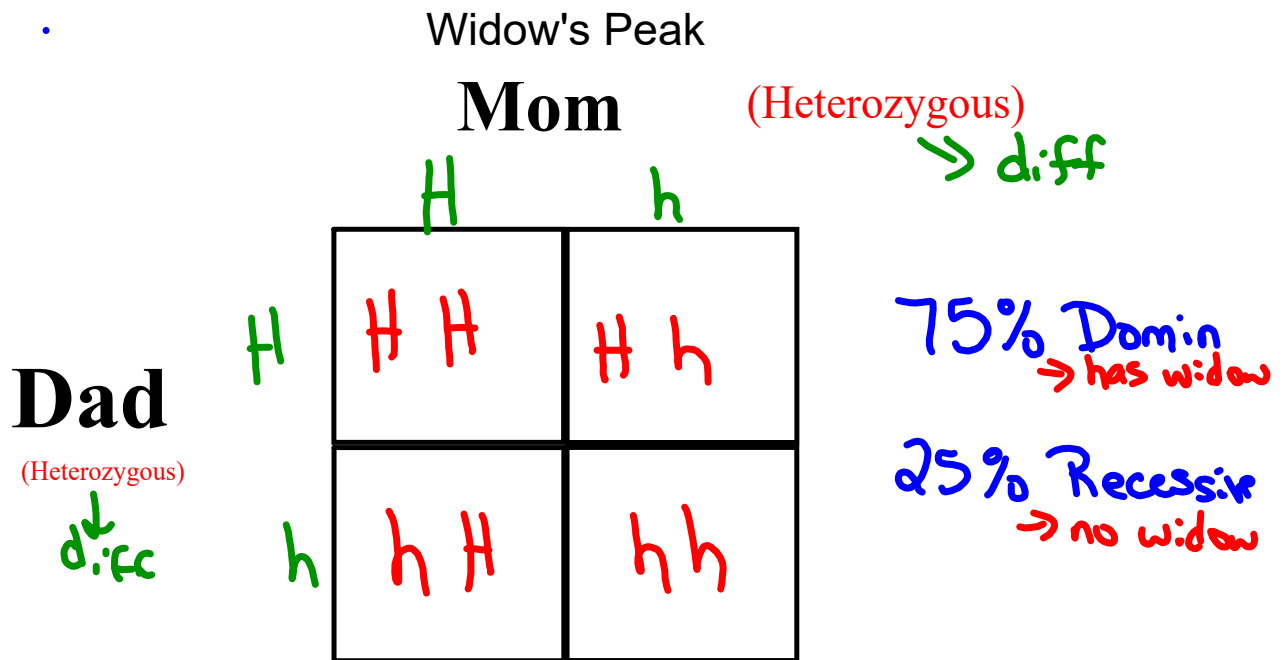
**How is it possible for two parents with black hair to have a child with red hair?**

**Since you inherited half of your chromosomes from your mother and the other half from your father, your traits are a result of interactions of genes of both parents.**

## Alleles

- The different versions of genes are called alleles.
- For each gene, one allele is passed on from the father in the sperm.
- The other allele is passed from the mother in the egg.
- A chromosome contains many genes, and they occupy specific places on the chromosome.





W → have widow's peak

w → straight hairline

Widow's Peak

**Mom** (Homozygous dominant)

H H

**Dad**  
(Heterozygous)

H

	H	HH	Hh
h		hH	hh

100% Dominant

Widow's Peak •

**Mom** (Homozygous recessive)

h h

**Dad** H  
(Heterozygous)

	h	h
H	Hh	Hh
h	hh	hh

→ 50% Dominant

→ 50% recessive

Widow's Peak

**Mom**

(Homozygous recessive)

h h

**Dad**  
(homozygous recessive)

h

h	hh	hh
h	hh	hh

100%  
Recessive

 Video

16 min



## Attachments

---

Biologically\_Speaking\_\_Genetics\_and\_Hereditiy.asf