

Mendel's hypotheses:

1. For each inherited trait, an individual has two copies of the gene- one from each parent.

2. There are alternative versions of genes called alleles

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3. When two different alleles occur together, one of them may be completely expressed, while the other may have no observable effect on the organism's appearance.

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Dominant-

expressed  
trait

Recessive-

over powered  
by dominant

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4. When gametes are formed, the alleles for each gene in an individual separate independently of each other. Thus, gametes carry only one allele for each inherited trait. When gametes unite during fertilization, each gamete gives one allele.

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## Writing the traits

homozygous dominant -  $RR$

heterozygous -  $Rr$

homozygous recessive -  $rr$

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Genotype-

genetic trait  
(alleles)

Phenotype-

physical  
appearance

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| Characteristic | Dominant             | Recessive        |
|----------------|----------------------|------------------|
| Dimpled cheeks | Dimples<br>DD or Dd  | No dimples<br>dd |
| Tongue Roller  | Roller<br>RR or Rr   | Non-roller<br>rr |
| Free Earlobes  | Free<br>EE or Ee     | Attached<br>ee   |
| Freckles       | Freckles<br>FF or Ff | Absent<br>ff     |
| Hair form      | Curly<br>HH or Hh    | Straight<br>hh   |
| Widow's peak   | Present<br>WW or Ww  | Absent<br>ww     |

phenotype of this child?

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What is the phenotype of this child?

| Characteristic | Dominant             | Recessive        |
|----------------|----------------------|------------------|
| Dimpled cheeks | Dimples<br>DD or Dd  | No dimples<br>dd |
| Tongue Roller  | Roller<br>RR or Rr   | Non-roller<br>rr |
| Free Earlobes  | Free<br>EE or Ee     | Attached<br>ee   |
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