

Table 1

aa	aa
Condition	
Description	
Evidence	
Variation	
Individuals in a population or group differ in some trait of interest.	
<ul style="list-style-type: none">• Melaninism is a common mutation across many animals• Larger populations probably have some dark colored mice due to the common-ness of melaninism• Black mice likely exist in the population	
Inheritance	
The variation in the trait of interest is at least partially inherited (passed from parents to	

offspring).
The
variation
stems from
random
mutations
and the
recombinat
ion that
accompa
ni
es sexual
reproducti
on. The
genetic
variation
may have
arisen
many
generation
s in the
past.

- Melanism is
a genetic
mutation,
meaning it is
genetically
inheritable
- Fur color is
governed by
genetics
- Mutations in
genetics are
inheritable

Difference
ntial
survival
and
reproduction

More
offspring
are born
than can
survive,
resulting in
competition
among
individuals
within a
population.
Some
individuals
with a
particular
trait are
more likely
to survive
and/or
have
relatively
more
offspring
compared

to individuals that do not have that trait. Selection depends on the specific context of a species. Traits that are beneficial in one environment may cause problems in another environment.

- Mice likely do not have a sexual preference when it comes to fur color
- Dark mice are more likely to survive in a dark environment as they blend in to their environment, making it hard to predate on them
- Dark mice have a natural environmental pressure favoring them

Adaptation

The frequency of the trait that helps individuals survive or leave more offspring will increase in the population over time, as will the alleles that affect the trait. This

process
can take
many
generation
s and
extend
over very
long
periods of
time.

- Dark mice are more likely to survive in dark areas
- Since dark fur is inheritable, its increased fitness will be more likely to pass on to the next generation
- Over time, more mice will be dark furred as they are more fit for the environment