Table 1

Condition	Description	Evidence
Variation	Individuals in a population or group differ in some trait of interest.	• 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 recombination that accompanies sexual reproduction. The genetic variation may have arisen many generations in the past.

- Melaninism is a genetic mutation, meaning it is

genetically inheritable
- Fur color is governed by genetics
- Mutations in genetics are inheritable

Differential 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 generations 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