

22-BY9 Mutation and variation

We think it happens when the best variant of the species survives and others don't. Now we feel that also mutation affects it as well and stuff to do with.... natural selection, chooses which sort of species should survive and which shouldn't over a long period of time. And the ones that shouldn't survive don't and therefore the best ones carry on evolving.

Claim(s)

The best variant of the species survives.

Natural selection chooses which variant of a species should or shouldn't survive.

The best variants carry on surviving.

Any challenges to the expressed claim?

Anything to disagree with?

Any clarification needed?

Question(s).

What does 'best' mean in the context of natural selection?

Is natural selection a matter of 'choosing the best' or instead, 'trial and error'?

Why do very *small* populations of animals become less viable and genetically at greater risk of extinction?

Note: See the Primary Science article on [Variation](#).

Natural selection depends on variation within a species in order to happen. Advantageous traits confer survival and reproductive value so tend to increase within a population. Mutations are 'blind': they occur randomly and only have an impact on reproduction when they occur within the germ cells, the egg and the sperm, that come together in reproduction. Not all mutations are advantageous; most are neutral and are likely to be repaired by the body. Some mutations may be lethal. Whether a mutation confers advantage or not is a matter of trial and error that depends on particular external circumstances at any point in time. The more variation there is in a population of living things, the greater the chance of the gene pool including traits that might 'come in handy' in the face of environmental change.