24-BY9 Helpful genes

Evolution is the changes within a species over a long time, like millions of years.

It could be like where there's two adults and you have a kid and the genes in that child, they're slightly altered a bit and give the baby of the two adult things, and if the baby … it turns out to help them, that kid will go on to pass on that genetic mutation so the rest of the species will change like that. If it's not a helpful change, then the child wouldn't be able to live on long enough to pass on the genes, but if it is helpful, then it will help it to survive where it lives and then it will pass on the genes to its kids and then it will carry on.

Claim(s) **Genetic mutations are passed on to offspring and eventually result in change in the whole population.**

Mutations that are not positively helpful cause early death.

Any challenges to the expressed claim?

Anything to disagree with?

Any clarification needed?

Question(s). **What is the scale of time from the evolution of the earliest simple cells to the present?**

How long have modern humans, Homo sapiens, been around?

Note: The Primary Science article on DeepTime may be helpful in approaching pupils' ideas about the scale of evolutionary time. Cladograms having a time scale also help to make clear the extent of evolutionary time.

It is generally considered that the Earth formed a little over 4.5 billion years ago and the first life emerged about 3.8 billion years ago.

This response is generally accurate though there may be a need for awareness that mutations can be positive, neutral or negative; most are likely to be neutral.