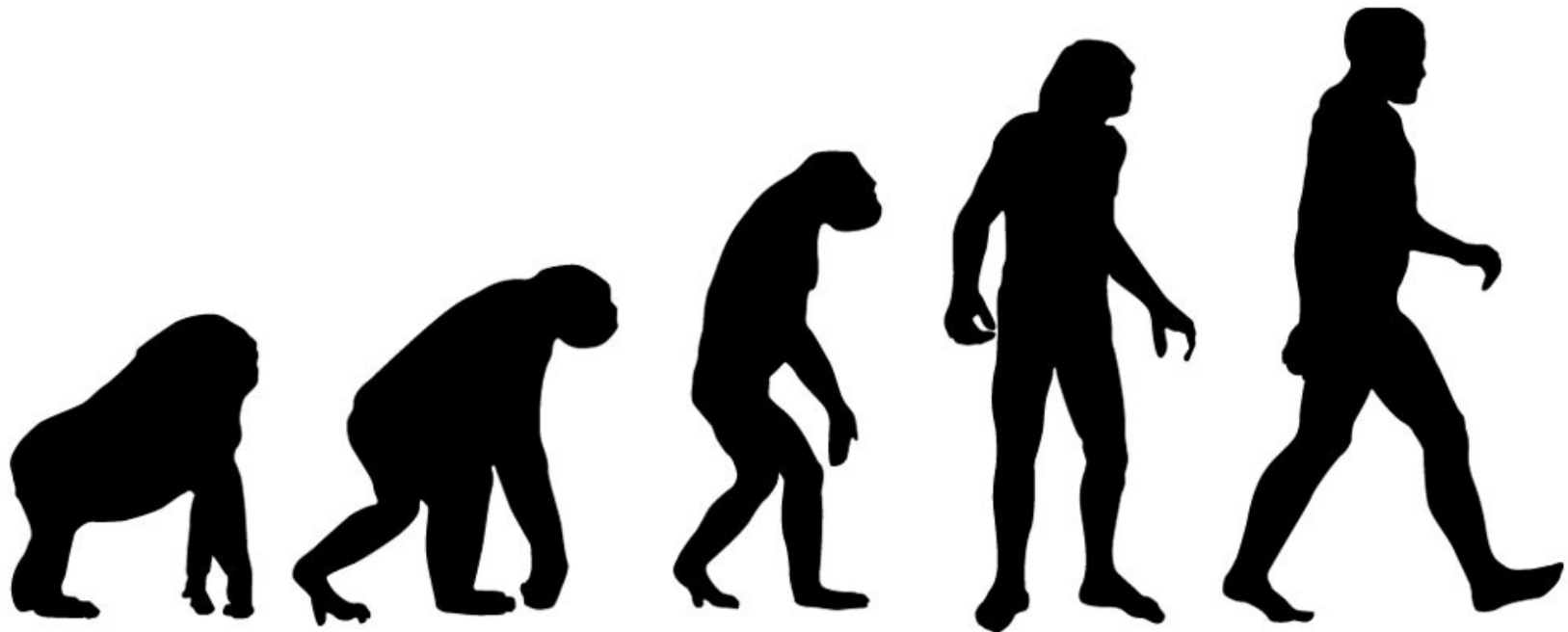


# Introduction to Evolution

by Ms Lea

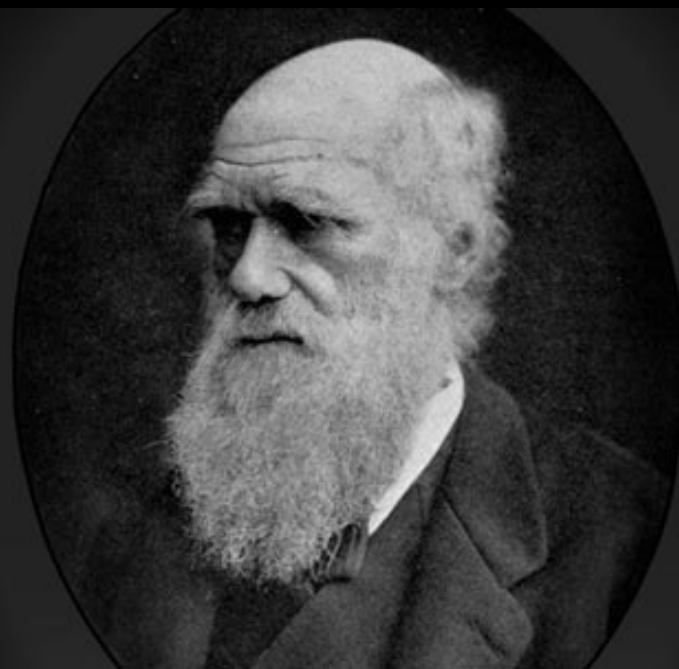


**Science** strives to provide the **best evidence-based explanations** we have at the time. When new evidence contradicts the current explanation, the explanation needs to change.



Science's current best-theory for how life formed on earth is the Theory of Evolution.

Charles



Darwin

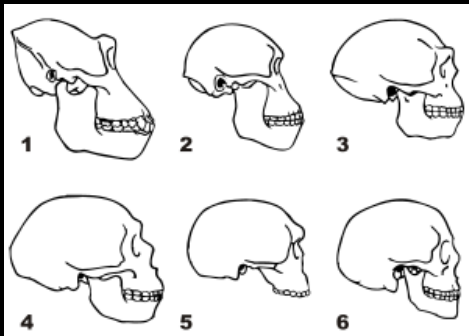
Science is not the only way to explain how and why things happen on Earth.

Some people reject the theory of evolution because it contradicts other religious or personal beliefs.



Regardless of what you believe, it is important that you are knowledgeable about the scientific theory of evolution. Like all scientific theories, it is :

- evidence-based
- supported by the findings of thousands of scientists
- supported by new evidence

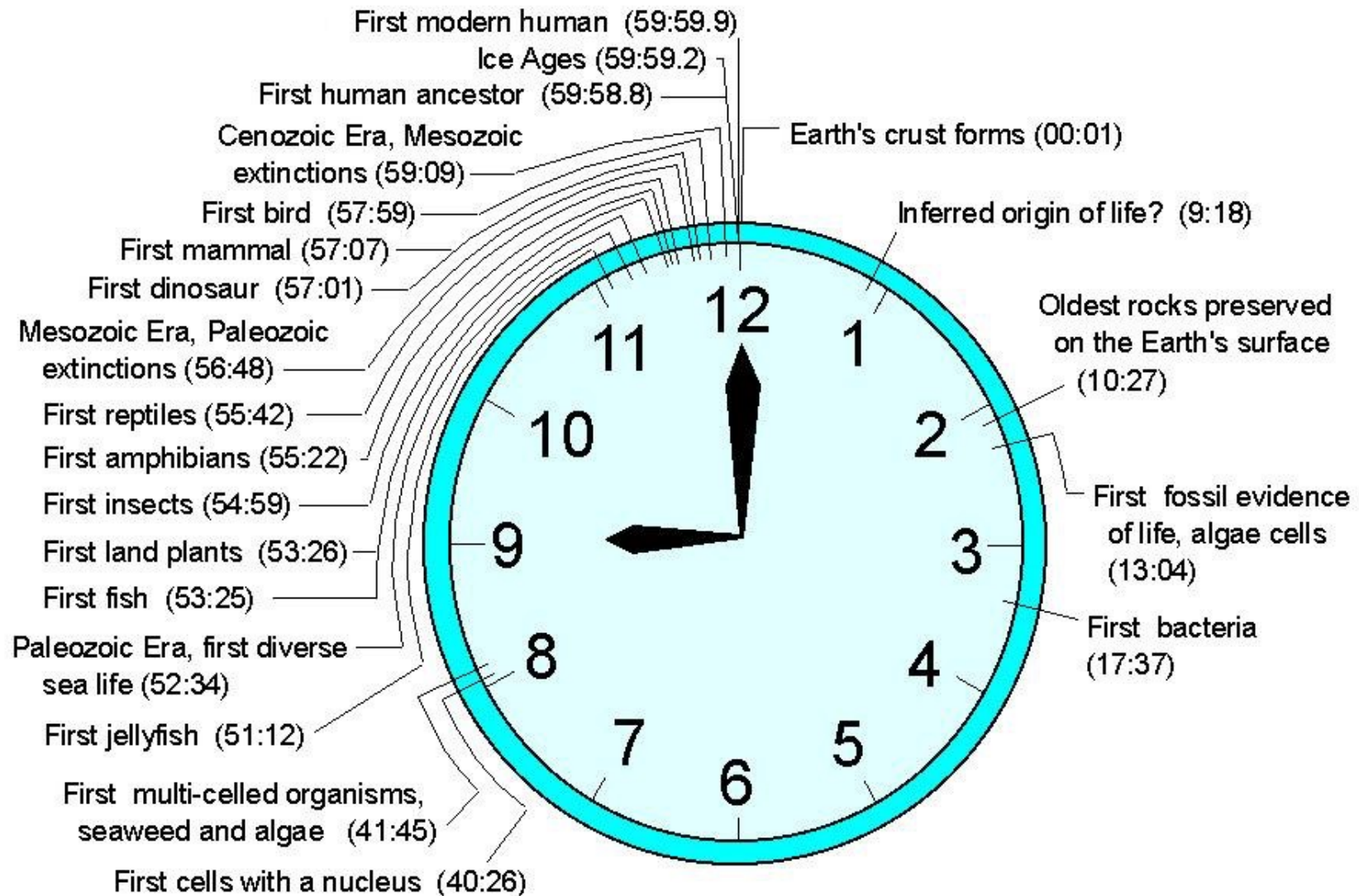


**Evolution** - a gradual process in which life forms *change* and develop *adaptations* that help them survive in their *environment*.

- gradual
- change/adapt
- environment

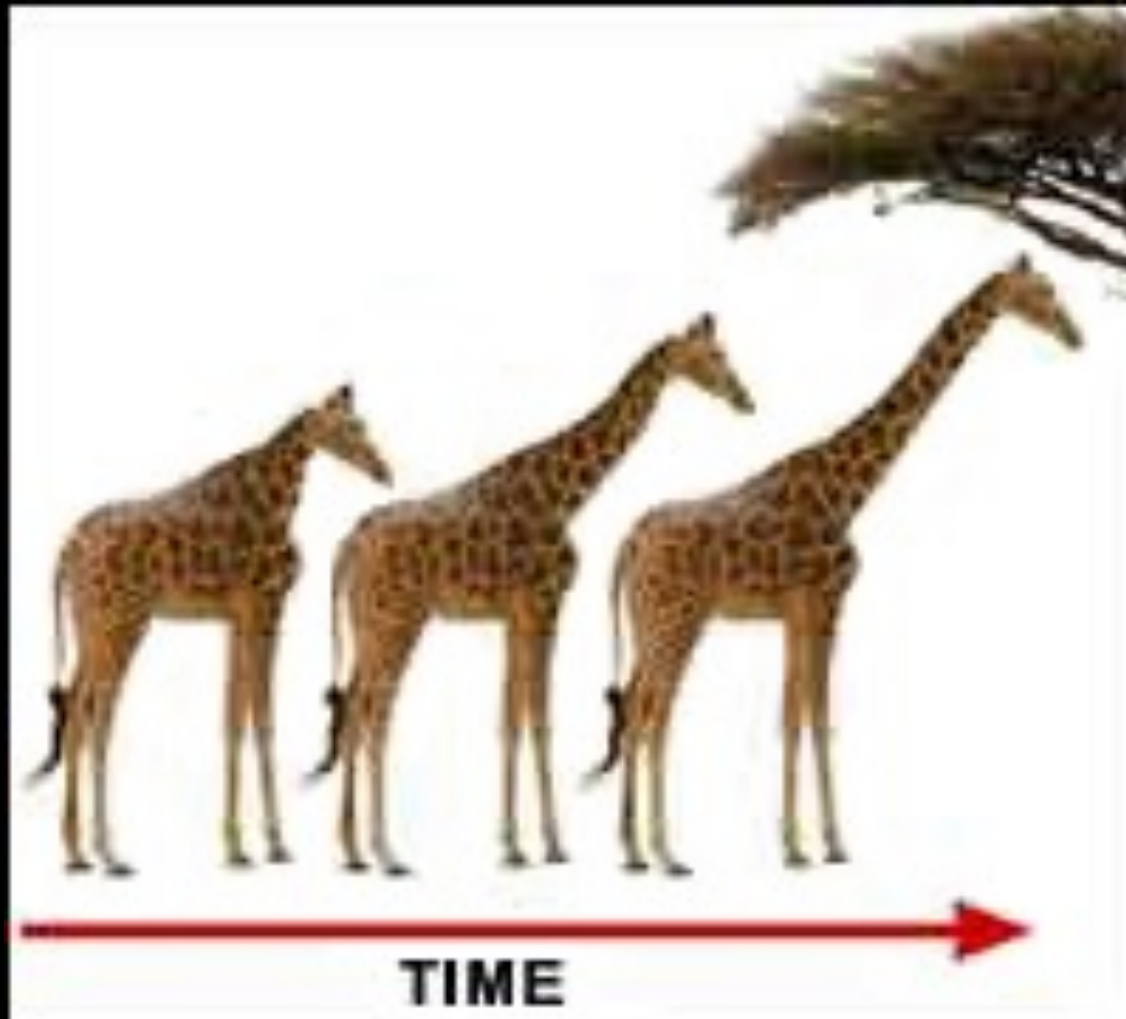


# Evolution is gradual.



4.6 billion years in one hour

**An organism does not evolve in its own lifetime!**



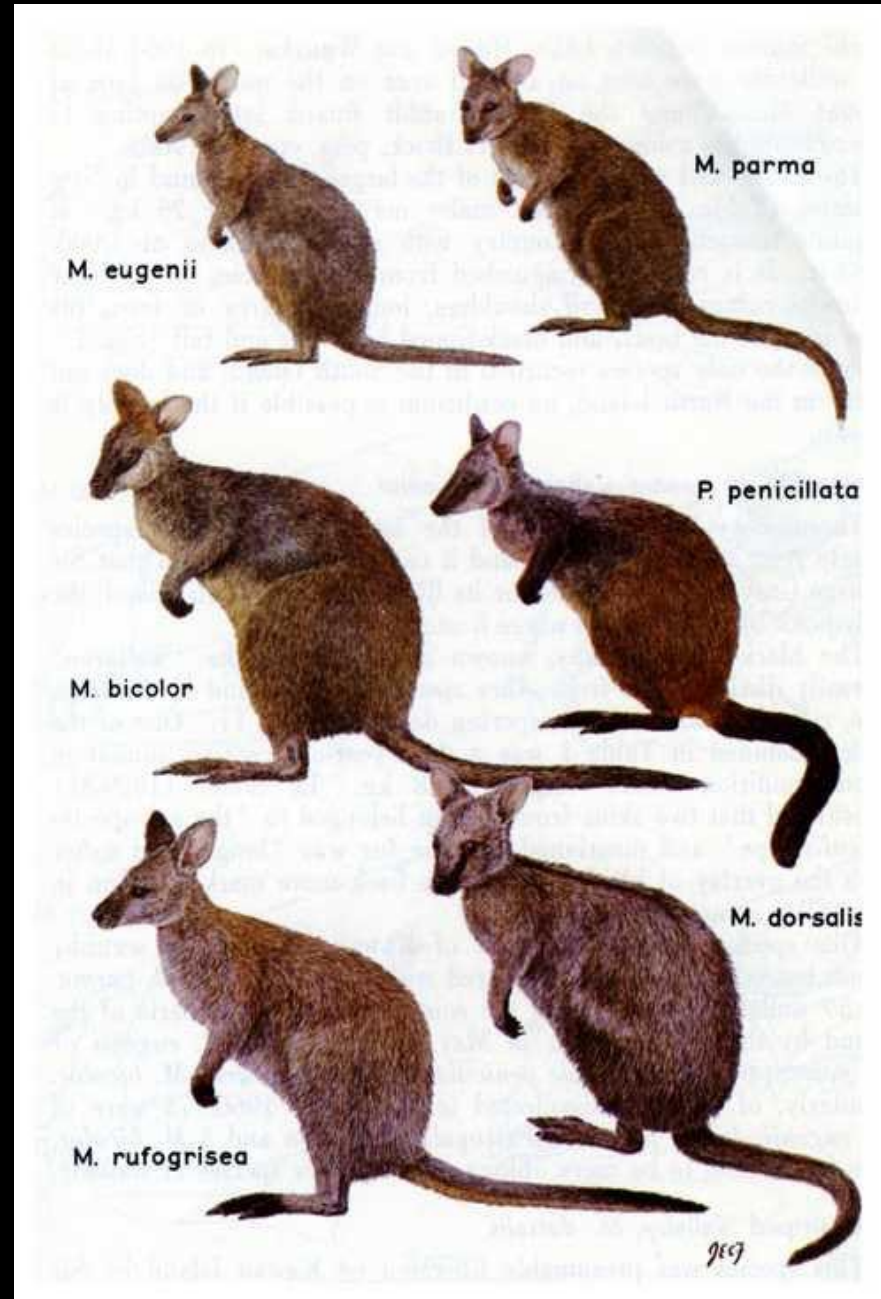
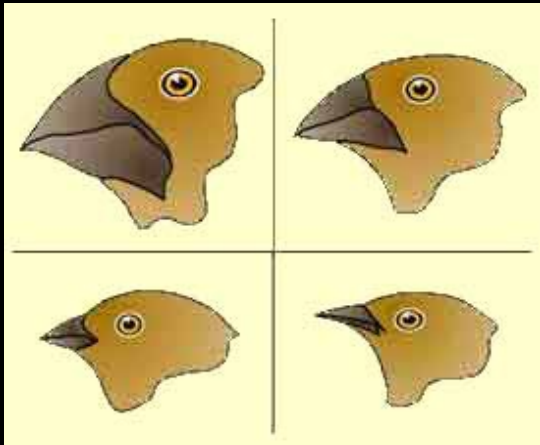




Cummings.

**A species evolves over many generations.**

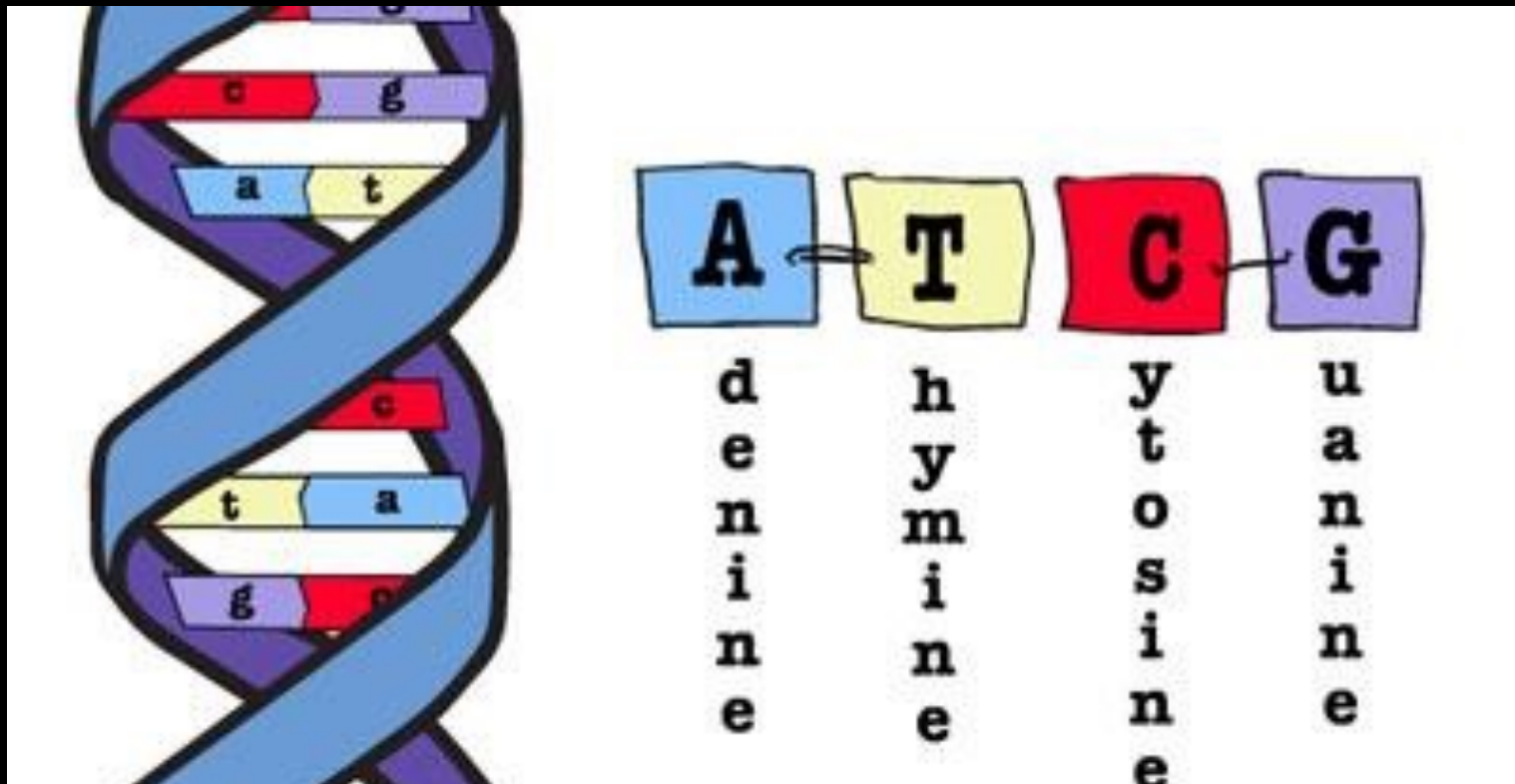
# Evolution results from changes in a species.



# How does a species change?

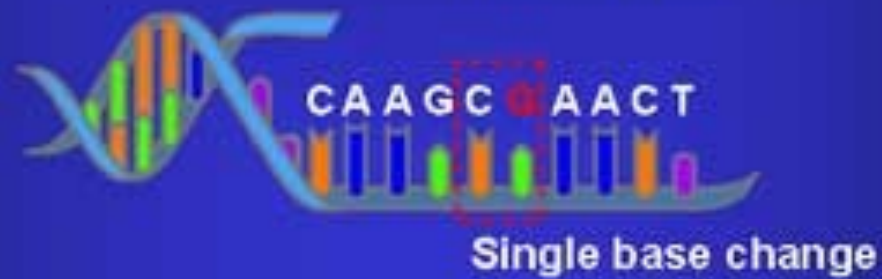
Remember when we learned about DNA?  
Sometimes when DNA copies itself, there is a “typo” - a mistake in the DNA.

We call this a **mutation**.





# DNA Mutation

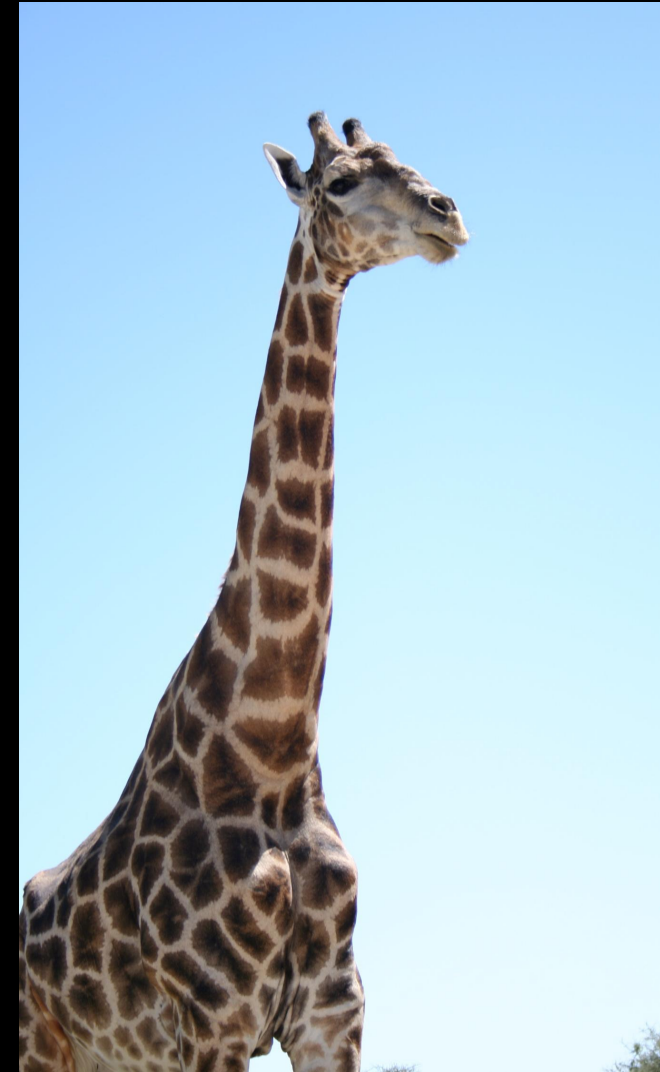


Adapted by Jennifer Kelly, © 2004

Most mutations have no effect on an organism.  
But sometimes a mutation can lead to a more significant change:

These changes may help an organism survive (for example, resulting in a slightly longer neck on a giraffe) ...

...or make it hard for an organism to survive (for example, a mutation that causes cancer).



**Some variations or mutations provide an advantage for survival.**

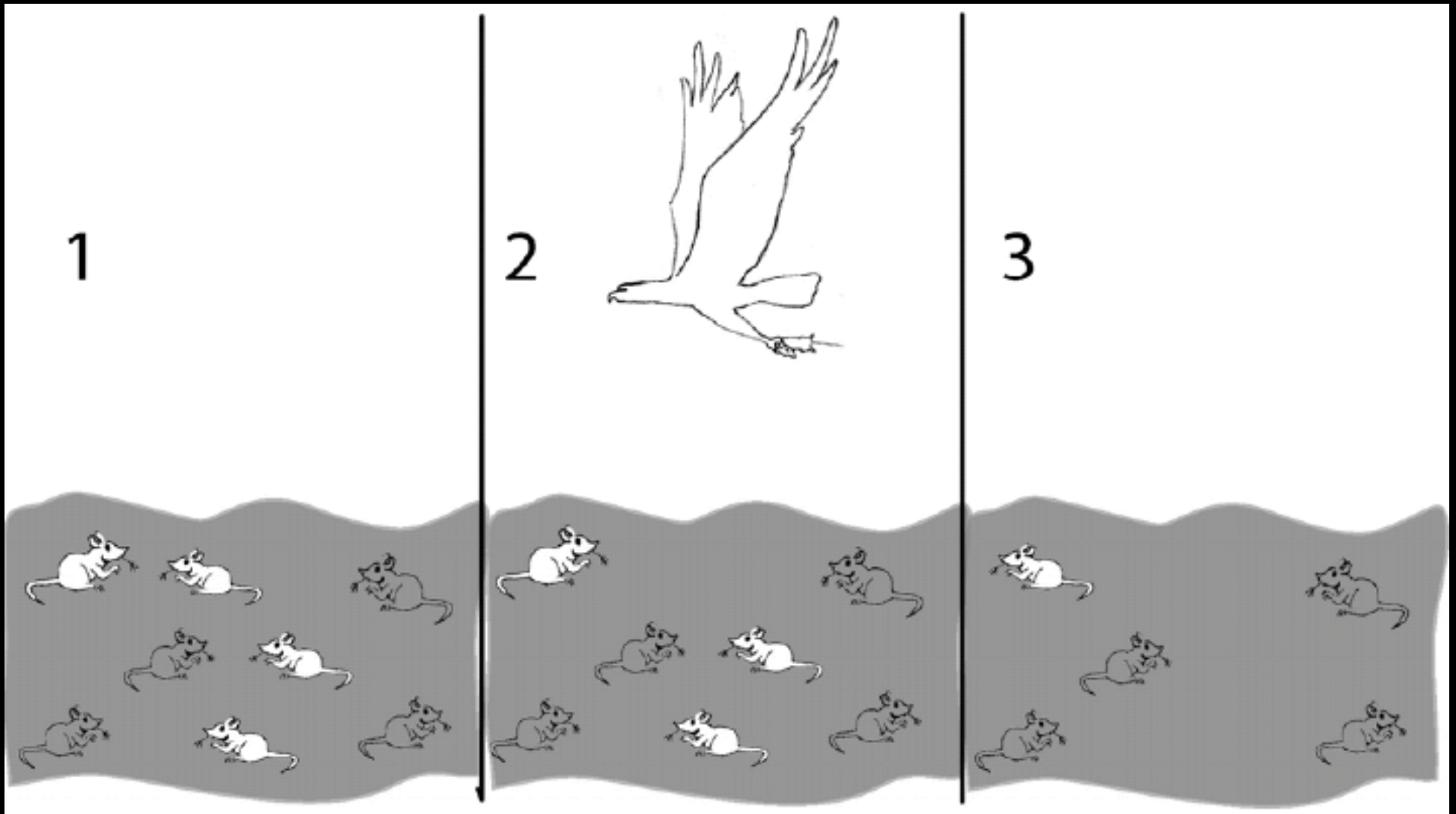




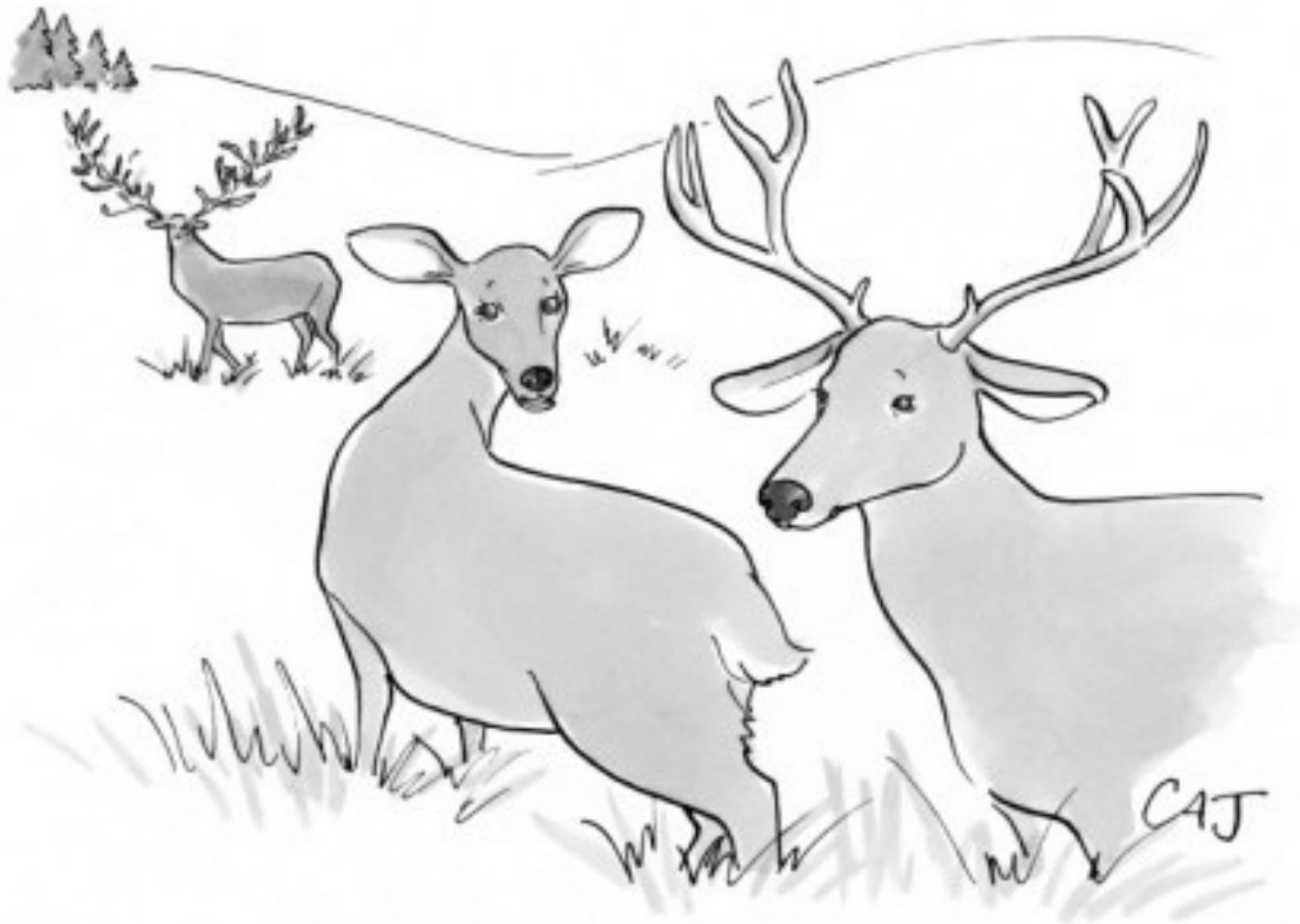
**Changes can help survival in response to environmental pressures.**



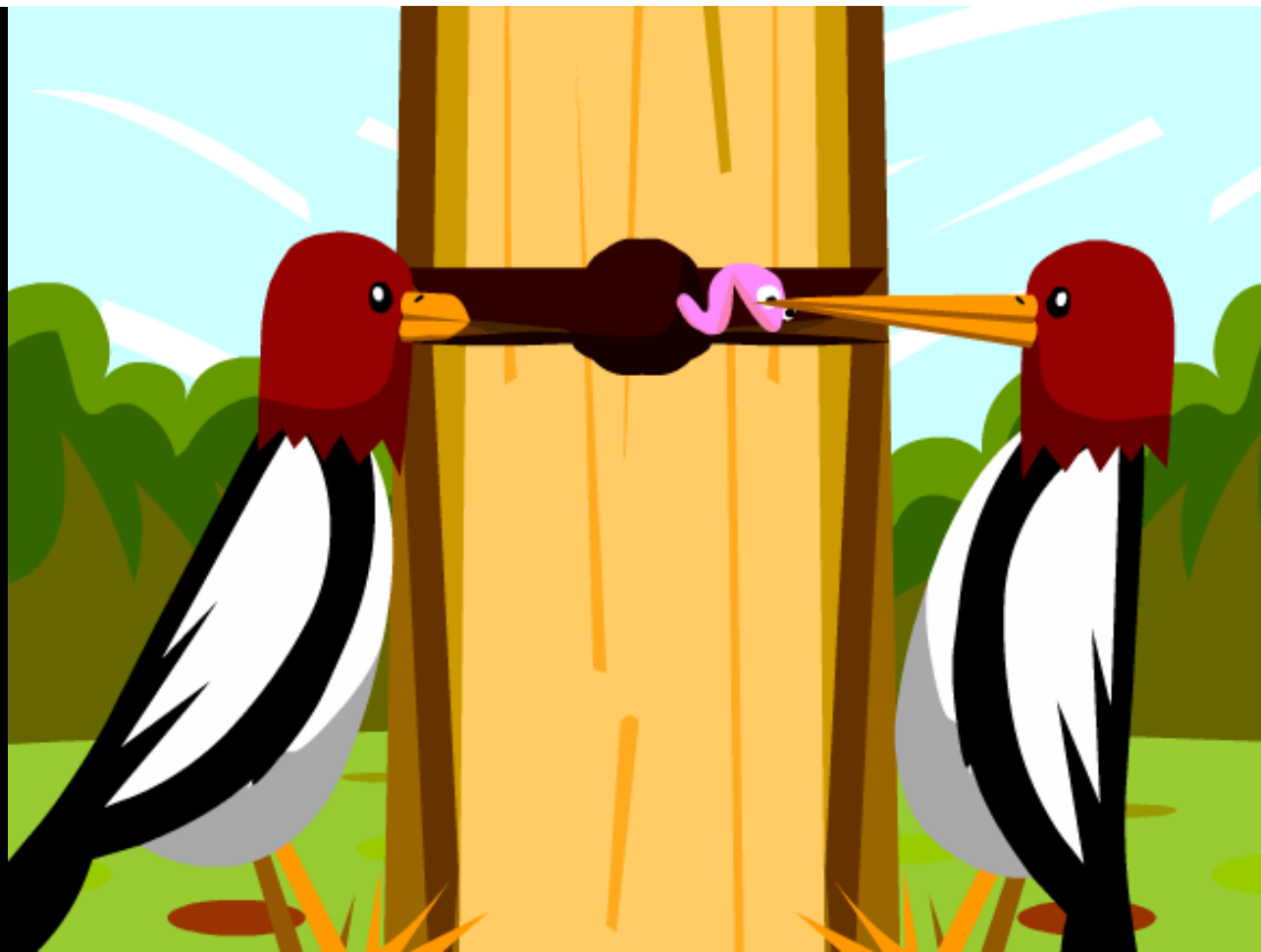
**The organisms that can survive will pass their traits onto their offspring.**



# This process is called Natural Selection.

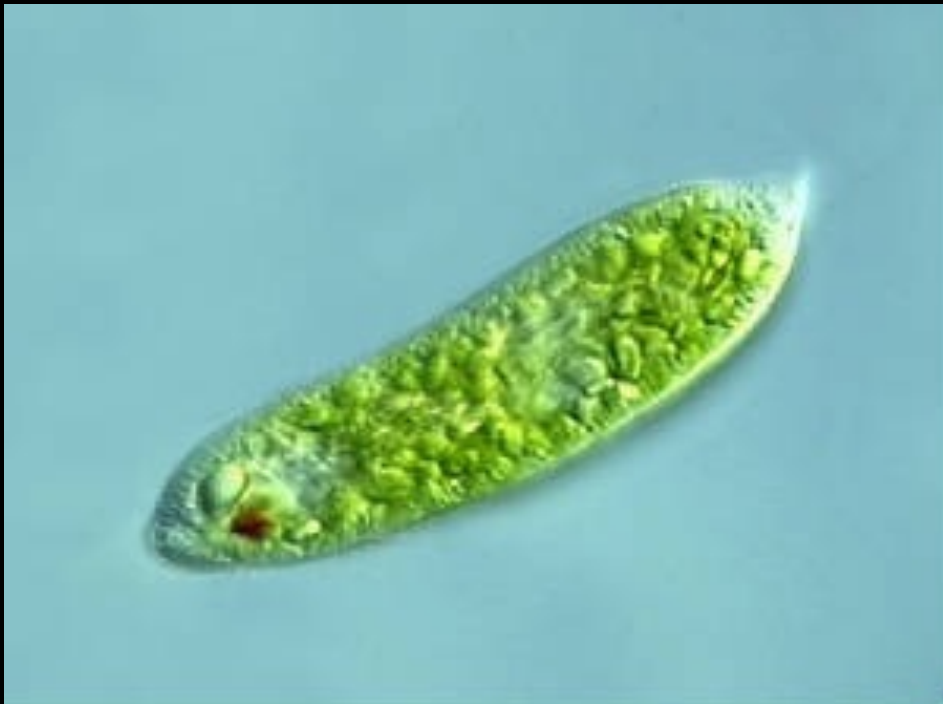


*"It's not you—it's natural selection."*



Check out this short Brainpop video about Natural Selection: <https://www.brainpop.com/science/ecologyandbehavior/naturalselection/>

**Through this process of natural selection, the theory of evolution states that life has evolved from a single protist into many different complex species adapted to their specific environments.**





**(A protist is a single-celled organism. It is the simplest form of life.)**





# The "Tree of Life" shows how all life is connected.

