

B

Natural Selection

Learning Outcome:

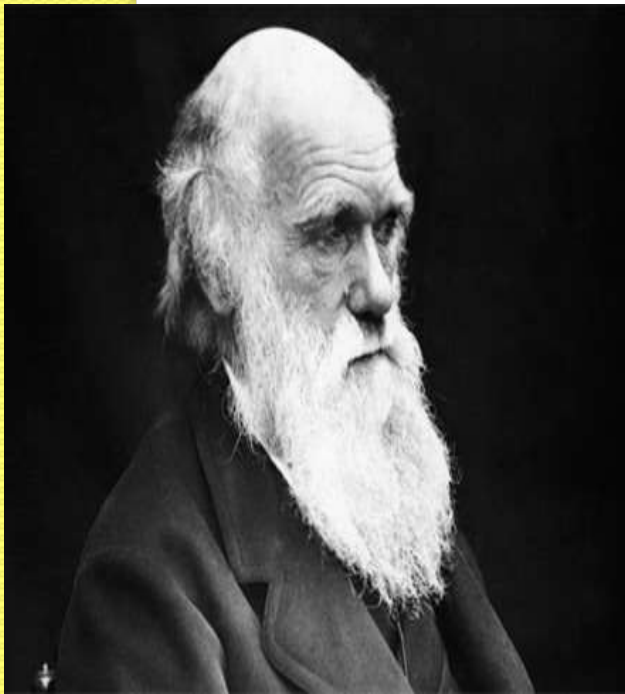
1. Variation within a population makes it possible for a population to evolve over time.
2. Natural selection (survival of the fittest) occurs when more offspring are produced than the environment can support.
3. Only the best adapted individuals survive to reproduce, passing on the genes that give them a selective advantage.

Watch
mec



Natural Selection

In 1858 Charles Darwin and Alfred Russell Wallace published a joint paper suggesting that "natural selection" fuels evolution. Later Darwin produced his book "The Origin of Species".



Charles Darwin

Darwin's theory



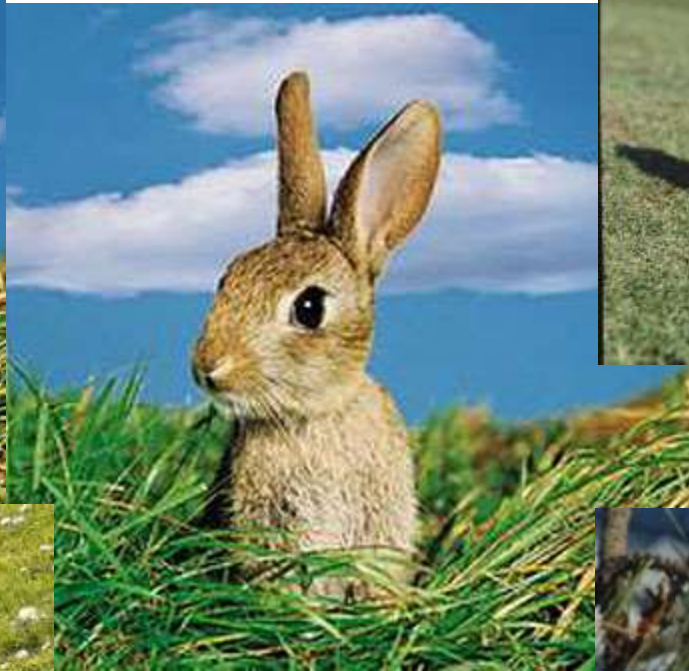
Alfred Russell Wallace



Natural Selection

Natural selection is the survival of those organisms best adapted to their environment. Those with a favourable characteristic will have a selective advantage and survive (i.e. the survival of the fittest.)

Rabbits for example struggle to survive what?

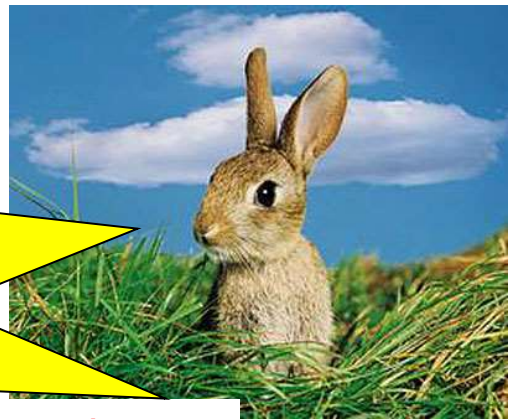


Which offspring survive?

...ing struggle to
...ive.

etc

THE FITTEST!



Natural selection

More offspring are produced than the environment can support



Inherited **variation** means that organisms are **different** from each other

Struggle for survival.

Death from **disease**.

Death due to inability to survive **abiotic** environmental conditions.

Death due to inability to **compete** for scarce food or other resources.

Death from **predation**.

Only the fittest survive
-**Survival of fittest**.

The fittest offspring mate and pass on the **favoured** characteristics to their offspring.

More offspring are produced than the environment can support

B

Natural Selection

Natural Selection Simulation

- Activity 2, page 7



Natural Selection Extension Activity

- Collect show me board
 - Rearrange the numbers into the correct order
1. Inherited variation means that organisms are different from each other.
 2. Sexual reproduction produces more offspring than the environment can support.
 3. The fittest offspring reach reproductive age and pass on the 'favoured' characteristics.
 4. 'Survival of the fittest'- only the fittest offspring survive
 5. Sexual reproduction produces more offspring than the environment can support.
 6. Offspring struggle for survival

(2 or 5), 1, 6, 4, 3, (5 or 2)



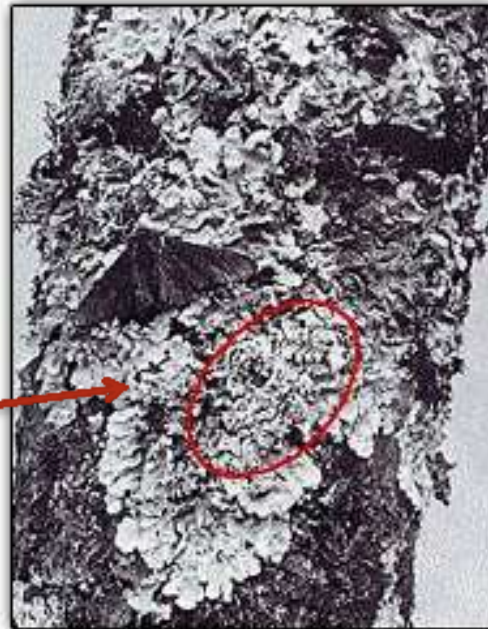
Natural Selection Extension Activity

1. Sexual reproduction produces more offspring than the environment can support
2. Inherited variation means that organisms are different from each other
3. Offspring struggle for survival
4. 'Survival of the fittest'- only the fittest offspring survive
5. The fittest reach reproductive age and pass on the 'favoured' characteristics.
6. Sexual reproduction produces more offspring than the environment can support.



An Example of Natural Selection

- You need to be able to give an example of Natural Selection in action



Mutant moth



Pre-Industrial
Revolution

Pre-Industrial
Revolution



Natural Selection Example

1. Sexual reproduction produces more offspring than the environment can support
 2. Inherited variation means that there are 2 forms of the peppered moth.
 3. The moths struggle for survival.
 4. 'Survival of the fittest'- only the moths best suited to the environment will survive
 5. These moths reach reproductive age and pass on the 'favoured' characteristics.
- **Pre Industrial revolution** - No pollution, lots of lichens on tree barks, environment favoured light peppered moth as they were camouflaged against the lichens. The dark moths were eaten by predators.
 - **Post Industrial revolution** - Lots of pollution, no lichens on the barks of trees, environment favoured dark peppered moth as they were now camouflaged. The light moths were eaten by predators.
 - **Clean Air Act** - Less pollution, lots of lichens on trees, environment favoured light peppered moth as they were camouflaged. The dark moths were eaten by predators.

