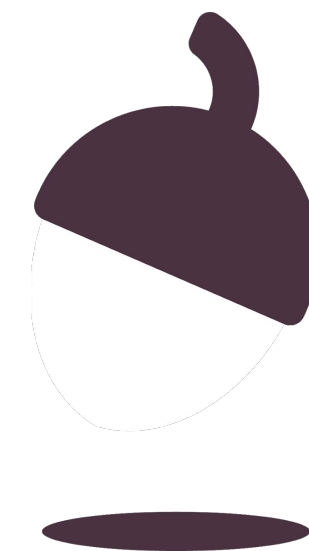


Biology - Key Stage 4

Speciation

Mrs Gibbs



OAK
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Independent task

- 1) What theory did Alfred Russel Wallace propose in 1858, at the same time as Charles Darwin?
- 2) What did Alfred Russel Wallace use as supporting evidence for his theory?
- 3) What other theory did Alfred Russel Wallace pioneer?



Put the stages of speciation into the correct order

- Mutations lead to new alleles
- Speciation (populations can no longer breed to produce fertile offspring)
- Best adapted in each area survive, breed and pass alleles onto offspring
- Geographical separation
- Different environmental conditions

1.

2.

3.

4.

5.



Exam-style question 2

It is thought that Madagascar used to be a part of Africa. Approximately 150 million years ago, Madagascar split from Africa and is now a separate island.

A species of rat only unique to Madagascar is believed to share a common ancestor with a similar species in Africa.

Suggest how a new species of rat has evolved on Madagascar. **(6)**

| Event | Explanation in relation to question |
|---|-------------------------------------|
| Geographical separation | |
| Different environmental conditions | |
| Mutations lead to new alleles | |
| Those best adapted in each area survive, breed and pass alleles onto offspring. | |
| Speciation (can no longer breed to produce fertile offspring) | |



Exam question 3

1) The process of evolution has produced many new species.

Explain how evolution produces new species. **(6)**

The quality of written communication will be assessed in your answer.



Exam question 3

2) A team of scientists are looking for new species in the Amazon jungle.

They discover an unusual beetle.

Explain what would prove that it was a new species. **(2)**

