

Post-visit teacher notes

KS5 Evolution and adaptation

We hope that the teaching session at Kew assisted in developing the skills and knowledge of your pupils and provided them with an insight into the amazing plants and world-leading plant science at Kew.

Following your visit, you can use the post-visit activity to further support your pupil's learning.

Pupils can have a go at the exam-style question on the following page, and then use the mark scheme to check their answers.



KS5 Evolution and adaptation



Erythranthe lewisii and *Erythranthe cardinalis* are two different-coloured species of Monkeyflower in North America that have likely arisen via sympatric speciation. *E. lewisii* is almost exclusively pollinated by bees, whilst *E. cardinalis* is pollinated by hummingbirds.



The purple coloured *Erythranthe lewisii*, which is pollinated by bees.



A hummingbird; the main pollinator of the red-coloured *Erythranthe cardinalis*.

Suggest how the two species might have arisen by sympatric speciation.

[6 marks]



Question	Marking Guidance	Mark	AO	Comments
1.	<ol style="list-style-type: none"> 1. This occurs in one habitat 2. Mutation caused different coloured flowers to be produced. 3. One colour flower was only pollinated by bees, and the other one by hummingbirds - reproductive isolation occurred. 4. Different <u>alleles</u> are passed on. 5. <u>Disruptive selection</u> occurred. 6. Two separate species are formed - cannot interbreed to produce fertile offspring. 	6	A03	<p>Accept: environment/population/place for habitat. Accept: not geographically isolated.</p> <p>For point 3 accept: no gene flow OR gene pools remain separate.</p>

