

Classification and Taxonomy Classroom activity pack

This pack contains a series of activities for you to complete with your class both before and after your visit to Kew.

You may choose to do all the activities or just select one. Post-visit activities are intended to build on the learning from the educational session at Kew. Many of the resources can be used on a whiteboard or can be printed.



Thank you for booking the Classification and Taxonomy education session at Kew.

You can use the pre-visit activity to support your pupils' learning.

Ahead of your visit, your pupils could answer the question below. They can tell us about their answers when they come to Kew.



Question:

The herbarium at Kew contains thousands of preserved plants that are stored and catalogued. When a new specimen is collected, how do the curators know if it represents a new species to science? Why is it important that each plant is classified and named correctly?

You can encourage your pupils to discuss:

Dichotomous keys, DNA sequencing, taxonomic hierarchy, binomial nomenclature, phylogenetic classification



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Post-visit teacher notes

KS5 Classification and Taxonomy

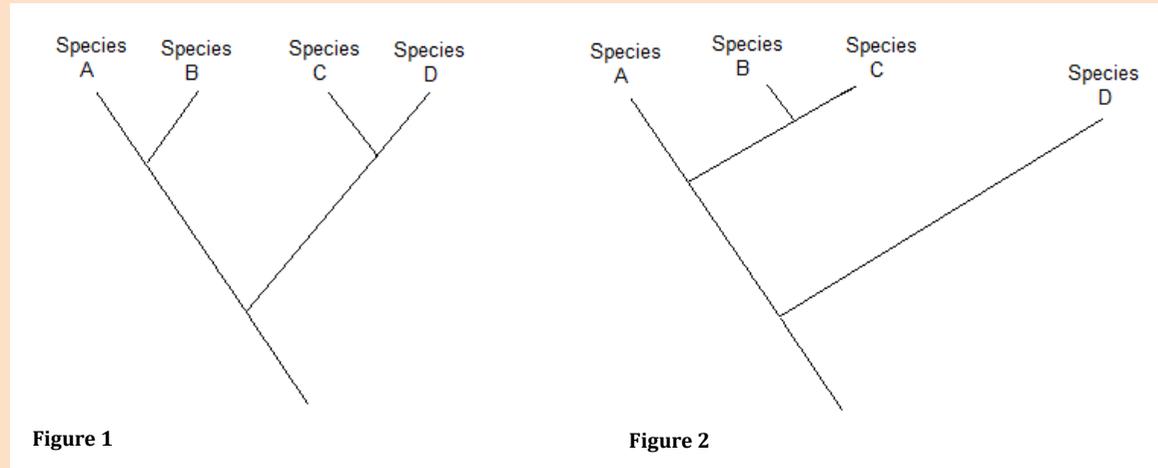
We hope that the teaching session at Kew assisted in developing the skills and knowledge of your pupils and provided them with an insight into the amazing plants and world-leading plant science at Kew.

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

Pupils could have a go at the exam-style questions, and then use the mark scheme to check their answers.



? Below are two classifications that scientists have produced for the same four plant species. Figure 1 is an old classification and figure 2 shows the current classification for the four species.



- Describe the difference between the two classifications, including the information they give about the evolutionary relationships between the species. **[2 marks]**
- Suggest what evidence scientists may have used to devise the two classifications. **[2 marks]**
- Explain the difference between 'artificial classification' and 'phylogenetic classification'. **[2 marks]**

Post-visit pupil activity

Question	Marking Guidance	Mark	AO	Comments
1. a)	<ol style="list-style-type: none"> In figure 1, Species A and Species B share a more recent common ancestor with each other (than with species C and D); and vice versa In figure 2, Species A, B and C have a share a more recent common ancestor with each other (than with species D); 	2	A02	Accept 'more closely related to' for 'more recent common ancestor'.
b)	<p>Max 2 from:</p> <ol style="list-style-type: none"> Scientists may have originally used the plants' physical characteristics to classify them. Scientists may have sequenced the DNA of the species to determine their evolutionary relationships. Protein sequencing/enzyme assays 	2	A03	Accept: 'genes' and 'genome' instead of 'DNA'
c)	<ol style="list-style-type: none"> Artificial classification divides organisms according to their common features (analogous characteristics), Phylogenetic classification divides organisms based on their evolutionary relationships. Phylogenetic classification classifies species into groups based on shared features <u>from common ancestors</u>. Phylogenetic classification arranges species into a hierarchy. 	2	A01	<p>1 mark for correct explanation of artificial classification;</p> <p>1 mark for correct explanation of phylogenetic classification.</p>