

Classification Conundrums with Nova the Owl

Learning objective: To be able to construct and use classification keys to group, identify, and name a variety of living things based on their physical characteristics.

Use your knowledge of biological classification to help Nova the Owl categorise the creatures she has spotted in the forest. Read each question carefully and ensure your keys are logical and easy to follow.

Nova the Owl has been observing creatures in the ancient woodland. To help her fellow BookFlik friends identify these animals, she needs to create a dichotomous key. Remember: a classification key works by asking a series of 'yes' or 'no' questions about the physical features of an organism until only one choice remains.

Word bank: Vertebrate · Invertebrate · Mammal · Amphibian · Reptile · Characteristic · Classification · Habitat · Species · Dichotomous

1. Nova has found a spider, a beetle, and a frog. Create a simple classification key that identifies these three animals. Explain your choice of the first 'yes/no' question. (4 marks)

2. Justify why it is more effective to use physical characteristics (such as 'does it have fur?') rather than behaviour (such as 'does it sleep at night?') when building a scientific classification key. (3 marks)

3. Compare and contrast the characteristics of a mammal and a reptile. How would you phrase a question in a classification key to distinguish between these two groups? (3 marks)

4. If you discovered an organism that had both feathers and scales, why might current classification keys fail to identify it? How would you adapt your key to account for such an anomaly? (3 marks)

5. Explain why scientists use a hierarchical system to classify living things, moving from broad groups like 'Vertebrate' down to specific species. (2 marks)

Draw: Draw your own dichotomous key for four different garden insects. Use clear boxes for your questions and arrows pointing to the final outcome for each insect.

Extension challenge: What might happen to the accuracy of a classification key if a species evolves and develops a new physical feature, such as a new limb or a change in skin texture? Write a short paragraph justifying how we would need to update our scientific records.