

Database Detectives: Organising Information

Learning objective: To understand how databases are structured, how to perform complex searches, and the importance of precise data entry.

Use this writing scaffold to explain how a database works. Imagine you are helping Kit the Fox organise his collection of woodland treasures. Use the word bank to ensure your explanation is clear and professional.

A database is a structured collection of information, acting much like a digital library that allows us to store, retrieve, and manage data with incredible efficiency.

Word bank: record · field · query · attribute · data integrity · categorise · specifically · consequently · furthermore · in contrast

1. Defining the Structure: Explain the relationship between a record and a field. How does this structure help a computer find information quickly? Start with: 'A field represents a single piece of information, while a record...' (3 marks)

2. The Power of Queries: Describe what happens when a user performs a query. Why is it important to use specific criteria when searching? Start with: 'When a user inputs a query, the database searches through...' (3 marks)

3. Data Integrity: Justify why accurate data entry is essential. What might happen if a user enters a number into a field meant for text? Start with: 'Maintaining data integrity is crucial because...' (3 marks)

4. Comparing Systems: Compare and contrast a physical filing cabinet with a digital database. Which is more efficient for large amounts of data and why? Start with: 'While a filing cabinet is useful for physical documents, a digital database is superior because...' (4 marks)

5. Problem Solving: If you were designing a database for a school library, what fields would you need to include? Justify your choices. Start with: 'To effectively manage a library collection, the necessary fields would include...' (4 marks)

6. Creative Extension: Imagine a database that stores information about the stars Nova observes. What unique challenges might occur when tracking data that changes over time? Start with: 'Tracking celestial data presents a unique challenge because...' (3 marks)

Extension challenge: Design a 'flat-file' database table layout for a shop that sells stationery. Include at least five columns (fields) and three rows (records), ensuring you include the price of items in £. Explain why you chose these specific headers for your columns.