

Kit's Computing Challenge: Mastering Databases

Learning objective: To understand, create, and interrogate databases by organising data into fields and records.

Use your knowledge of data organisation to help Kit the fox categorise information for his woodland library. Read each question carefully and provide detailed explanations to demonstrate your understanding.

Kit the fox is building a digital database to organise all the books in the forest library. Each book has a specific entry. The title, author, and publication year are stored in separate columns, while each row represents one single book.

Word bank: Database · Record · Field · Query · Data · Sort · Filter · Category

1. Explain the difference between a 'field' and a 'record' in a database. Why is it important to define these clearly before inputting information? (2 marks)

2. Kit wants to find all books published before 2010. Describe the steps he should take using a database tool and name the specific function he would use. (2 marks)

3. Compare and contrast 'sorting' data and 'filtering' data. In what scenario would you choose to use one over the other? (2 marks)

4. If you were creating a database for a local shop, what four 'fields' would you include to track inventory items, and why did you choose these specific categories? (2 marks)

5. Justify why a computerised database is more efficient for managing large amounts of information compared to a handwritten paper list. (2 marks)

6. What might happen if the data entered into a 'price' field included non-numeric characters, such as '£' symbols or letters? Explain the consequence for performing calculations. (2 marks)

Draw: Draw a visual representation of a simple database table. Label the 'fields' across the top and show at least three 'records' below them, clearly illustrating how the information is structured.

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Extension challenge: Design a 'Query' flowchart for Kit. Imagine a user wants to find a book that is: 1) A mystery genre, 2) Published after 2015, and 3) Costs less than £8.00. Write a brief explanation of how the database would process these three conditions to return the correct result.