Year 5 – Data and information – Flat-file databases

Unit introduction

This unit looks at how a flat-file database can be used to organise data in records. Learners will use tools within a database to order and answer questions about data. They will create graphs and charts from their data to help solve problems. They will also use a real-life database to answer a question, and present their work to others.

Overview of lessons

Lesson	Brief overview	Learning objectives
1. Creating a paper-based database	In this lesson, learners will create a paper version of a record card database. Using a card template, they will create a data set, with each learner creating eight to ten cards linked to a theme, e.g. animals. They will complete records for each of the animals in their database and then they will physically sort the cards to answer questions about the data.	To use a form to record information • I can create a database using cards • I can explain how information can be recorded • I can order, sort, and group my data cards
2. Computer databases	In this lesson, learners will use a computer-based database to examine how data can be recorded and viewed. They will learn that a database consists of 'records', and that each record contains 'fields'. In addition, they will order records in different ways and compare this database to the paper database they created in Lesson 1.	To compare paper and computer-based databases • I can explain what a field and a record is in a database • I can navigate a flat-file database to compare different views of information • I can choose which field to sort data by to answer a given question

3. Using a database	In this lesson, learners will investigate how records can be grouped, using both the paper record cards created in Lesson 1 and a computer-based database from J2E. They will use ‘grouping’ and ‘sorting’ to answer questions about the data.	To outline how you can answer questions by grouping and then sorting data • I can explain that data can be grouped using chosen values • I can group information using a database • I can combine grouping and sorting to answer specific questions
4. Using search tools	In this lesson, learners will develop their search techniques to answer questions about the data. They will use advanced techniques to search for more than one field, and will practise doing this through both unplugged methods (without using computers), and using a computer database.	To explain that tools can be used to select specific data • I can choose which field and value are required to answer a given question • I can outline how ‘AND’ and ‘OR’ can be used to refine data selection • I can choose multiple criteria to answer a given question
5. Comparing data visually	In this lesson, learners will consider what makes a useful chart, and how charts can be used to compare data. They will create charts from their data in order to answer questions about it.	To explain that computer programs can be used to compare data visually • I can select an appropriate chart to visually compare data • I can refine a chart by selecting a particular filter • I can explain the benefits of using a computer to create charts
6. Databases in real life	The final lesson requires learners to use a real-life database to ask questions and find answers in the context of a flight search based on set parameters. They will take on the role of a travel agent and present their findings, showing how they arrived at their chosen options.	To use a real-world database to answer questions • I can ask questions that will need more than one field to answer • I can refine a search in a real-world context • I can present my findings to a group

Progression

This unit progresses learners' knowledge and understanding of why and how information might be stored in a database, and looks at how tools within a database can help us to answer questions about our data. It moves on to demonstrate how a database can help us display data visually, and how real-life databases can be used to help us solve problems. Finally, the learners create a presentation showing understanding and application of all the tools used within the unit.

Curriculum links

National curriculum links

- Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- Select, use, and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems, and content that accomplish given goals, including collecting, analysing, evaluating, and presenting data and information