NHSG Key Stage 3 Unit Overview for 8S2: Data Analysis

Scheme of Learning	**8:S2 – Data Analysis** **Databases and SQL Queries**		**Summer Term**
Learning outcomes	By the end of this unit, students should have knowledge of the basic structure of a flat file database and have the skills to use basic SQL queries to interrogate the data for answers.		
Key Question	What is a database and why would we use it? How are SQL queries used to find sets of data?		
Knowledge **What key concepts are covered?** **What key skills are developed?** **What key terminology is learned (i.e. glossary)?**	**Key Concepts** 1. Impact of databases on accuracy and efficiency 2. Data Organisation in a flat file database 3. How to interrogate data in a database	**Key Skills** 1. Find information quickly in a large data set 2. SQL queries a. Select b. From c. Where d. And, or e. LIKE, wildcards f. Relational operators g. Table.field	**Key Terminology** 1. Database 2. Flat file 3. Table 4. Field 5. Record 6. Data Type 7. Query

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<table>
<tr>
<td>Ongoing Assessment</td>
<td>Lessons will consist of some discussion and practice which will be monitored by the teacher and verbal or written assistance given as needed. As the lessons progress, students should be building on previous skills so these will be monitored in terms of progress and supported where needed in lessons.

Misconceptions will be tackled as needed, particularly:
• What is a field and what is a record
• The sequence of commands needed in a SQL query
• Use of incorrect field names
• When to use quote marks and when not to
• > vs <
• Not using an = as well as BETWEEN x AND y</td>
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<tr>
<td>Key Assessment</td>
<td>This unit ends with a 40 -minute paper-based written test in the final lesson. It is a common assessment that the whole year group will be taking. The assessment has different levels of understanding and grasp of the skills. These sections are focused on knowledge (multiple choice questions), Skills and Application (short answer questions) and understanding (long answers with context).

The gradings will be calculated once all results are in. The gradings follow the report ratios:

<table>
<tr><th>Percentage of students</th><th>Number of students (out of 210)</th><th>Grading colour</th></tr>
<tr><td>Top 5-10%</td><td>10-21</td><td>Purple</td></tr>
<tr><td>Higher 20-30%</td><td>42-63</td><td>Blue</td></tr>
<tr><td>Middle 45-50%</td><td>94-105</td><td>Green</td></tr>
<tr><td>Lower 8-12%</td><td>16-25</td><td>Yellow</td></tr>
<tr><td>Lowest 3-6%</td><td>6-12</td><td>Orange</td></tr>
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The assessment marks are combined with other unit grades to form each student’s Best Fit grade in report seasons.</td>
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Clear sequencing of content	This unit develops the use of: • functions to automatically work with a selection of data within a database • functions to interrogate the data being given to form a decision This unit lead into 9S2: Spreadsheets, then GCSE Unit 7 – Databases and SQL, and then A-Level
Links to Careers	Data Scientists, business management, crime control, medical research
Diversity and Inclusion	Discussions on how to use databases to see if there are any relationships between different preferences or characteristics of people. Discussion on how the size of the set of data will impact the result but what could be considered a considerable return that would warrant doing more research with more data.
Support	• SharePoint pages (text based, images and videos) • Knowledge organisers or handouts • Step by step tick sheet guides are provided where we determine that the Cognitive load is too high due to working with more than two windows open • Weekly drop-in lunchtime peer mentor help sessions – please ask your teacher for more information. We have a set of Year 9 and 10 mentors who volunteer to help students out. They have either been through the unit previously themselves or have been brought up to date to be able to help explain and demonstrate the unit content.
Challenge	Create your own database to store your friends' details. Can you make it tell you who has a birthday next month? We've been learning with MS Access but take a look at mySQL online.