Seamer and Irton CP School – Computing (H.Griffiths)

Topic – Flat File Databases	Year 5 - Spring 2	Strand – Data and Information

Prior Learning	Key Knowledge I need to understand
In Year 4 – Spring 2 - Data Logging learners considered how and why data is collected over time. They considered the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Pupils collected data as well as access data captured over long periods of time. They looked at data points, data sets, and logging intervals. Pupils spent time using a computer to review and analyse data. Towards the end of the unit, pupils posed questions and then used data loggers to automatically collect the data needed to answer those questions.	**I need to understand that:** **Data is raw numbers and figures.** **Information is what we can understand from analysing data.** **There are lots of different ways that we can collect, log and interpret data, including by using databases.** **Databases organise data so that it can be easily added to, amended, stored and accessed.** **Computer databases can allow large amounts of data to be sorted, filtered and edited more easily.** Learners look at how a flat-file database can be used to organise data in records. Pupils use tools within a database to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question and present their work to others.

How I will show what I have learned	
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
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
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
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
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
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

What vocabulary I need to know	What's next
Database, data, information, record, field, sort, order, group, value, search, criteria, graph, chart, axis, compare, filter, presentation	In **Year 6 – Spring 2 - Introduction to Spreadsheets** learners will be introduced to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. They will be taught the importance of formatting data to support calculations, while also being introduced to formulas. Learners will be taught how to apply formulas that include a range of cell and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create graphs and charts, and evaluate their results in comparison to questions asked.

Please access resources at Teach Computing Curriculum - https://teachcomputing.org/curriculum

Assessment

National Curriculum Computing 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

Assessment

Formative assessment opportunities are highlighted in each of the lesson plan documents. The learning objective and success criteria will be introduced at the beginning of each lesson and then reviewed at the end. Learners should assess how well they feel they have met the learning objective using the teacher's chosen method.

Summative assessment document included - multiple choice questions. This should be used, alongside teacher judgement, to complete summative assessment on ScholarPack
https://teachcomputing.org/curriculum/key-stage-2/data-and-information-flat-file-databases

Teacher Subject Knowledge
Teachers will need to know that a flat-file database is a collection of data organised in a single table. The term 'database' means 'a collection of organised data that is stored on a computer'. Databases allow people to search and sort large quantities of data to find information. Data can be letters, words, numbers, dates, images, sounds, etc. In addition, teachers will need to be familiar with the basic structure of a database, and the concept of 'grouping' and 'sorting' data records based on different fields. For example, grouping objects by colour, or sorting into alphabetical order.

A database is composed of 'records', which are sets of data on a particular object. Records are formed from one or more 'fields' of data. A field is one specific piece of data in a database record. For example, a record all about a country could have fields such as 'country name' and 'country population'. The value within the record is the 'answer' to each field, e.g. Mexico is the value in the 'country name' field and '126.2 million' is the value in the 'country population' field.

Teachers will also need to be aware that all objects have attributes. An attribute includes its 'name' and a 'value'. For example, a ball will have a 'colour', which might be 'red'. 'Colour' is the attribute 'name'; 'red' is the attribute 'value'. In a flat-file database the attribute names become the fields when the data about the object is stored as a record. The values of the attributes become the values that are saved in the database fields.

Teachers will need to be familiar with using J2Data sample databases. Support with navigating the databases can be found at http://www.j2e.com/help/videos/datags4. Knowledge of how to carry out a flight search using https://www.expedia.co.uk/Flights, and the ability to screenshot flight details from a web browser would also be beneficial.