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

Topic – Data Logging	Year 4 Spring 2	Strand – Data and Information

Prior Learning

In Year 3 – Spring 2 - Branching Database learners developed their understanding of what a branching database was and how to create one. They gained an understanding of what attributes are and how to use them to sort groups of objects by using yes/no questions. The learners created physical and on-screen branching databases. Finally, they evaluated the effectiveness of branching databases and decided what types of data should be presented as a branching database.

Key Knowledge I need to understand

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 data loggers.

Data loggers and logging software can be used to automatically capture data.

We can then draw conclusions in answer to our research questions.

Learners will consider how and why data is collected over time. Learners will consider the senses that humans use to experience the environment and how computers can use special input devices called sensors to monitor the environment. Learners will collect data as well as access data captured over long periods of time. They will look at data points, data sets, and logging intervals. Learners will spend time using a computer to review and analyse data. Towards the end of the unit, learners will pose questions and then use data loggers to automatically collect the data needed to answer those questions.

How I will show what I have learned

To explain that data gathered over time can be used to answer questions	- I can choose a data set to answer a given question - I can suggest questions that can be answered using a given data set - I can identify data that can be gathered over time
To use a digital device to collect data automatically	- I can explain what data can be collected using sensors - I can use data from a sensor to answer a given question - I can identify that data from sensors can be recorded
To explain that a data logger collects 'data points' from sensors over time	- I can recognise that a data logger collects data at given points - I can identify the intervals used to collect data - I can talk about the data that I have captured
To recognise how a computer can help us analyse data	- I can view data at different levels of detail - I can sort data to find information - I can explain that there are different ways to view data
To identify the data needed to answer questions	- I can propose a question that can be answered using logged data - I can plan how to collect data using a data logger - I can use a data logger to collect data
To use data from sensors to answer questions	- I can interpret data that has been collected using a data logger - I can draw conclusions from the data that I have collected - I can explain the benefits of using a data logger

What vocabulary I need to know

Data, table (layout), input device, sensor, data logger, logging, data point, interval, analyse, data set, import, export, collection, review, conclusion

What's next

In **Year 5 – Spring 2 - Flat-File Databases** 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.

Assessment

National Curriculum Computing links

- ...work with various forms of input
- 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

Cross Curricular links

Science – Lower key stage 2/Year 4

- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- They should learn how to use new equipment, such as data loggers, appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.

Assessment

Formative assessment opportunities are provided throughout each of the lesson plan documents. The learning objectives and success criteria are introduced in the slide decks at the beginning of each lesson and then reviewed at the end.

Summative assessment – the assessment rubric document should be used to assess student's work. The rubric should be completed digitally and stored in individual pupil folders and then used alongside teacher judgement to complete ScholarPack.
https://teachcomputing.org/curriculum/key-stage-2/data-and-information-data-logging

Teacher Subject Knowledge

This unit is designed around the use of the school's TTS data logger. If you are unable to use the data loggers, or wish to use an alternative, a lot of the activities can be completed using tablet computers and apps such as Arduino Science Journal.

This unit focuses on using technology to automatically gather environmental data over time. It refers to data points and logging intervals.
A data logger is a digital device that can collect data over time and store it. Data loggers designed for education will usually have built-in sensors for light, temperature, and sound, as well as the option to connect external sensors.
You should be aware that input devices allow data to be entered into a computer. Keyboards, mice, and microphones are all input devices.
A sensor is a type of input designed to allow computers to capture data from the physical environment. Sensors can be connected to a computer to capture data about temperature, light, sound, humidity, pressure, etc. A microphone can be used to record audio into a computer, or it can be used as a sound sensor.
You should also be aware that data loggers capture data at given time intervals. The interval is a regular time period between each data capture and can vary according to the experiment. For example, if data is being logged for a week, the interval might be every hour.