Computing Progression - Handling Data

EYFS and KS1		
FS1	**FS2**	**Year 1**
Data Handling -Introduction to data (Adult Supported)	**Data Handling** -Introduction to data (Adult Supported)	**Data Handling** Introduction to Data
-To sort and categories objects -Children to sort themselves into groups based on given categories -Children to interpret a basic pictogram	-To sort and categories objects -Children to sort themselves into groups based on given categories -Children to interpret a basic pictogram	**1.Zoo data - To represent data in different ways** -To know that data can be shown in different ways -To represent data in different ways -To answer questions about the data using my representation
		2.Picture data - To use technology to represent data in different ways -To navigate a computer using a mouse -To type using a keyboard -To understand that data can be shown in different ways -To represent data in different ways
		3.Minibeast hunt - To collect and record data -To identify different minibeasts -To record the number of different minibeasts I see -To represent this data digitally
		4.Animal branching databases - To sort data -To identify and categorise different animals -To click and drag objects -To identify questions to sort data in the most efficient way -To create a branching database
		5.Inventions - To design an invention to gather data -To understand that computers understand different types of input -To design a computerised invention to gather data -To explain how my invention works

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KS2				
Year 3	**Year 4**	**Year 5**	**Year 6**	**Year 6**
Data Handling Comparison cards databases - Microsoft Office 365	**Data Handling** Creating Data	**Data Handling** Mars Rover 1	**Data Handling** Big Data 1	**Data Handling** Big Data 2
1. Records, fields and data **- To understand the terminology around databases** -To know what field, record and data mean -To compare numbers -To scan a record for relevant information	**1. To enter data and formulas into a spreadsheet** **-Number operations** -To identify cells using rows and columns. -To type text and numbers into cells. -To use the SUM function to add numbers together. -To use the SUM function to perform further calculations	**1.Mars Rover - To identify how and why data is collected from space** -To identify a type of data which the Mars Rover may transmit back to Earth -To know the meaning of 'data' and 'transmit' -To understand the challenges of transmitting data over large distances -To give a reason why data is being collected from the Mars Rover	**1.Barcodes - To identify how barcodes and QR codes work** -To identify and distinguish between barcodes and QR codes -To know some of the advantages and disadvantages of barcodes and QR codes -To understand how computers can use data from barcodes and QR codes	**1.Transferring Data - To explain how data can be safely transferred** - To recognise that data can become corrupted within a network -To explain how data sent in 'packets' is more robust -To identify the need to update devices and software
2. Race against the computer **- To compare paper and computerised databases** -To understand what a paper database is and can name examples -To understand what a computerised database is -To compare the advantages and disadvantages of paper and computerised databases	**2. To present data in an appropriate way** **-Ordering and presenting data** -To enter a formula for a specific purpose. -To use the fill tool to copy formulas. -To insert a bar/column graph. -To format aspects of a bar/column graph	**2.Binary code - To identify how messages can be sent using binary code** To read and calculate numbers using binary code -To identify binary as the most basic way computers communicate -To know how to read binary up to eight characters -To understand each one or zero is referred to as a bit -To calculate binary numbers, knowing each digit is worth double the one that precedes it	**2.Transmitting data - To explore how infrared waves transmit data** -To know infrared light is part of the electromagnetic spectrum -To understand infrared light can be used for a variety of purposes -To understand infrared light can be easily blocked	**2.Data Usage - To investigate the data usage of online activities** -To compare methods of wireless data transfer -To recognise differences between WiFi and mobile data -To use a spreadsheet to compare the data-usage of various online activities

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3. Sorting and filtering - To sort, filter and interpret data -To input data into a database -To know how to sort data -To filter data by a particular value -To create questions that can be answered using information from a database -To interpret information	**3. To add, edit and calculate data -Talk about mistakes in data and suggest how it could be checked.** -To use formulas to calculate totals and averages. -To sort data by different criteria. -To add extra data, including inserting rows or columns. -To edit existing data and be aware of the results.	**3.Computer architecture - To identify the computer architecture of the Mars Rovers** -To identify sensors -To know the difference between computer input and output -To explain how the size of random-access memory (RAM) affects the processing of data (CPU)	**3. First computers - To understand how computers have changed and the impact this has had on the modern world** -To identify how computers have evolved over time -To understand that computers are everywhere in modern life -To recognise some of the earliest computers and how they impacted the modern world	**3. Computer Aided Design (CAD) - To use CAD to design a product** -To understand the inputs and outputs needed for my product -To design appropriate housing for this -To use CAD software to create shapes
4. Representing data - To represent data in different ways -To create a graph and chart in Microsoft Excel -To name different types of charts -To understand the purpose of visual representations of data	**4. Data Base- Flow Chart PT 1 -Draw and interpret a flowchart with the correct symbols** -To follow a sequence of written instructions in a flowchart. -To draw a flowchart using the correct symbols. -To connect symbols in sequence.	**4.Using binary – numbers - To use simple operations to calculate bit patterns** -To recall how binary can be used to represent numbers up to 255 -To recognise that computers, use binary mathematically, to calculate -To carry out binary addition (and subtraction)	**4.Using RFID - To input and analyse real-world data** -To recognise further uses of RFID -To input and present data in a spreadsheet -To make conclusions from a data source	**4. Designing a Smart School - To design a system for turning a school into a smart school** -To recall methods of data transfer -To evaluate the methods of data transfer -To apply Big Data/IoT principles to solve a problem -To research the technology associated with solving the problem -To prepare a presentation
5. Planning a holiday - To sort data for a purpose -To understand that databases are used for different purposes -To know how to sort and filter data -To explain what information is useful in an online database	**5. Data Base- Flow Chart PT 2 -Draw and interpret a flowchart with the correct symbols** -To follow a sequence of written instructions in a flowchart. -To draw a flowchart using the correct symbols. -To connect symbols in sequence.	**5.Using binary – text - To represent binary as text** -To recall that binary is the main means of all data transfer -To read binary numbers to four bits -To know that data transfer needs a common language -To use binary to create a written message	**5.Transport data - To analyse and evaluate data** -To recall how RFID is used in data transfer -To understand how RFID helps to solve real-world data challenges -To sort and compare data within a spreadsheet	**5. Smart School Presentation - To present ideas for turning a school into a smart school** -To present my ideas for improving school through the application of Big Data and the Internet of Things -To listen to the ideas of my peers and provide effective feedback on their presentation -To ask and answer effective questions that deepen my understanding