Newquay Junior Academy – Spring 1 Sequence – Computing

	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	Prior knowledge... Pupils will begin to understand what the term data means and how data can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will then progress onto presenting data in the form of pictograms and finally block diagrams. Pupils will use the data presented to answer questions.	**Prior knowledge...** Programming A—This unit explores the concept of **sequencing in programming through Scratch**. It begins with an **introduction to the programming environment**. They are introduced to a **selection of motion, sound, and event blocks** which they use **to create their own programs, featuring sequences**. The final project is to make a representation of a piano. The unit is paced to focus on all aspects of sequences, and make sure that knowledge is built in a structured manner. Pupils also apply stages of program design through this unit.	**Prior knowledge...** In this unit, pupils will consider how and why data is collected over time. Pupils 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. Pupils 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. Pupils will spend time using a computer to review and analyse data. Towards the end of the unit, pupils will pose questions and then use data loggers to automatically collect the data needed to answer those questions.	**Prior knowledge...** This unit looks 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.
INTENT	Pupils will develop their understanding of what a branching database is and how to create one. They will gain an understanding of what attributes are and how to use them to sort groups of objects by using yes/no questions. The pupils will create physical and on-screen branching databases. Finally, they will evaluate the effectiveness of branching databases and will decide what types of data should be presented as a branching database.	Pupils will look at **repetition and loops** within programming. They use **Logo**, a text-based programming language.	Pupils will 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.	Pupils will be introduced to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Pupils will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Pupils will be taught how to apply formulas that include a range of cells, and apply formulas to multiple cells by duplicating them. Pupils will use spreadsheets to plan an event and answer questions. Finally, pupils will create graphs and charts, and evaluate their results in comparison to questions asked.
VOCABULARY / STICKY KNOWLEDGE	Data, database, data organisation, categories, groups, branching database	Logo, repetition, loops, planning, modifying, testing commands, text based programming.	Dataset, records, fields, record view, table view, data search, charts	**Spreadsheet, dataset, table, cells, formula, duplication. Charts,**

SEQUENCE OF LESSONS	1. To explain the difference between a 'belief', an 'opinion' and a 'fact. and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc. 2. To create questions with yes/no answers 3. To identify the object attributes needed to collect relevant data 4. To create a branching database 5. To explain why it is helpful for a database to be well structured 6. To identify objects using a branching database 7. To compare the information shown in a pictogram with a branching database 8. To explain that not all opinions shared may be accepted as true or fair by others	1.To describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them. 2. To identify that accuracy in programming is important 3. To create a program in a text-based language 4. To explain what 'repeat' means 5. To modify a count-controlled loop to produce a given outcome 6. To decompose a task into small steps 7. To create a program that uses count-controlled loops to produce a given outcome	1.To explain what is meant by the term 'stereotype', how 'stereotypes' are amplified and reinforced online, and why accepting 'stereotypes' may influence how people think about others. 2.To use a form to record information 3. To compare paper and computer-based databases 4. To outline how grouping and then sorting data allows us to answer questions 5.To explain that tools can be used to select specific data 6.To explain that computer programs can be used to compare data visually 7. To apply my knowledge of a database to ask and answer real-world questions	1.To describe the difference between online misinformation and dis-information 2. To identify questions which can be answered using data 3. To explain that objects can be described using data 4. To explain that formulas can be used to produce calculated data 5. To apply formulas to data, including duplicating 6. To create a spreadsheet to plan an event 7. To choose suitable ways to present data
OUTCOME / COMPOSITE	This unit progresses pupils knowledge and understanding of presenting information. It builds on their knowledge of data and information from key stage 1. They continue to develop their understanding of attributes and begin to construct and interrogate branching databases as a means of displaying and retrieving information.	Pupils will create programs by **planning, modifying, and testing commands to create shapes and patterns**.	This unit progresses pupils' 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 pupils create a presentation showing understanding and application of all the tools used within the unit.	This unit progresses pupils' knowledge and understanding of data, and teaches them how to organise and modify data within spreadsheets.