Newquay Junior Academy – Summer 1 Sequence – Computing

	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	Prior knowledge... Programming A— Pupils' develop understanding of **instructions in sequences** and the use of **logical reasoning to predict outcomes**. Pupils use given commands in different orders to **investigate how the order affects the outcome.** Pupils also learn about **design in programming**. They **develop artwork** and test it for use in a program. They **design algorithms, test those algorithms as programs and debug them**.	**Prior knowledge...** Data and Information – During this unit, 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.	**Prior knowledge...** Pupils should have experience of making choices on a tablet/computer. They should be able to navigate within an application. This unit progresses pupils' skills through editing digital images and considering the impact that editing can have on an image. Pupils will also consider how editing can be used appropriately for different scenarios, and create and evaluate 'fake' images, combining all of their new skills.	**Prior knowledge...** Pupils should have knowledge and understanding of creating media by guiding them systematically through the process involved in creating a video. The unit builds on the Year 4 unit 'Photo editing' where composition is introduced and the Year 3 unit 'Stop-frame animation' where pupils explored some of the features of video production. By the end of this unit, pupils will have developed the skills required to plan, record, edit, and share a video.
INTENT	Pupils will explore 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**.	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. **Note:** You may not have the same data loggers as those used in this unit, or may not have any data loggers at all. If you don't have access to data loggers, a lot of the activities can be completed using tablet computers and apps such as Google Science Journal. Whichever data logging solution you have available, you should be able to address the learning objectives in the unit.	In this unit, learners start to create vector drawings. They learn how to use different drawing tools to help them create images. Learners recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Learners layer their objects and begin grouping and duplicating them to support the creation of more complex pieces of work.	Learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, learners will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.
VOCABULARY / STICKY KNOWLEDGE	Programming, sequencing, motion, sound, event blocks	Data, sensor, data logger, software, collecting data, viewing data, findings	Vector drawing, drawing tools, objects, layers, grouping, duplicating	3D model, 3D space, placeholders, objects, duplicating, model, grouping, ungrouping

| SEQUENCE OF LESSONS | 1. To explain how to search for information about others online
2. To explore a new programming environment
3. To identify that commands have an outcome
4. To explain that a program has a start
5. To recognise that a sequence of commands can have an order
6. To change the appearance of my project
7. To create a project from a task description | 1.To explain how content shared online may feel unimportant to one person but may be important to other people's thoughts feelings and beliefs.
2. To explain that data gathered over time can be used to answer questions
3. To use a digital device to collect data automatically
4. To explain that a data logger collects 'data points' from sensors over time
5. To use data collected over a long duration to find information
6. To identify the data needed to answer question
7.To use collected data to answer questions | 1. To search for information about an individual online and summarise the information found.
2.To identify that drawing tools can be used to produce different outcomes
3. To create a vector drawing by combining shapes
4. To use tools to achieve a desired effect
5. To recognise that vector drawings consist of layers
6. To group objects to make them easier to work with
7. To apply what I have learned about vector drawings | 1.To explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.
2. To recognise that you can work in three dimensions on a computer
3. To identify that digital 3D objects can be modified
4. To recognise that objects can be combined in a 3D model
5. To create a 3D model for a given purpose
6. To plan my own 3D model
7. To create my own digital 3D model |
| OUTCOME / COMPOSITE | Pupils will 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. Learners also apply stages of program design through this unit. | This unit progresses pupils' knowledge and understanding of data and how it can be collected over time to answer questions. The unit also introduces the idea of automatic data collection. | This unit progresses learners' knowledge and understanding of digital painting and has some links to the Year 3 'Creating media – Desktop publishing' unit, in which learners used digital images. In this Year 5 unit, learners create images that could be used in desktop publishing documents. | This unit progresses students' knowledge and understanding of creating 3D graphics using a computer. Prior to undertaking this unit, learners should have worked with 2D graphics applications. |