Newquay Junior Academy – Autumn 2 Sequence – Computing

YEAR 3

Prior knowledge...

Year 1 Digital Writing - progresses the pupils' knowledge and understanding of using computers to create and manipulate digital content, focussing on using a word processor. The pupils will develop their ability to find and use the keys on a keyboard in order to create digital content. The pupils are then introduced to manipulating the resulting text, making cosmetic changes, and justifying their reason for making these changes.

YEAR 4

Prior knowledge...

Pupils should have knowledge and understanding of using digital devices to create media, exploring how they can create stop-frame animations. Following this unit, pupils will further develop their video editing skills in Year 5

YEAR 5

Prior knowledge...

Programming A—This unit looks at **repetition and loops** within programming. Pupils create programs by **planning, modifying, and testing commands to create shapes and patterns**. They use **Logo**, a text-based programming language.

YEAR 6

Prior knowledge...

Programming A—Pupils use **physical computing** to explore the concept of selection in programming using the **Crumble** programming environment. Pupils are introduced to a **microcontroller** (Crumble controller) and learn how to **connect and program components**. Pupils are introduced to **conditions as a means of controlling the flow of actions** and explore how these can be used in **algorithms and programs with an input device** (push switch). Pupils make use of their knowledge **of repetition and conditions** when **introduced to the concept of selection** (through the 'if... then...' structure) and **write algorithms and programs** that utilise this concept. Pupils design and **make a working model of a Mars Rover** that incorporates their understanding of how the microcontroller and its components are connected, and how selection can be used to control the operation of the model.

INTENT

Year 3: Pupils will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software and consider careful choices of font size, colour and type to edit and improve premade documents. Pupils will be introduced to the terms 'templates', 'orientation', and 'placeholders' and begin to understand how these can support them in making their own template for a magazine front cover. They will start to add text and images to create their own pieces of work using desktop publishing software. Pupils will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.

Year 4: Pupils will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have, and evaluate the effectiveness of their choices.

Year 5: Pupils will use **physical computing** to explore the concept of selection in programming using the **Crumble** programming environment. Pupils are introduced to a **microcontroller** (Crumble controller) and learn how to **connect and program components**. Pupils are introduced to **conditions as a means of controlling the flow of actions** and explore how these can be used in **algorithms and programs with an input device** (push switch). Pupils make use of their knowledge **of repetition and conditions** when **introduced to the concept of selection** (through the 'if... then...' structure) and **write algorithms and programs** that utilise this concept.

Year 6: Pupils will explore the concept of **variables** in programming through games in Scratch. Pupils learn what variables are and relate them to real-world examples of values that can be set and changed. Pupils use variables to **create a simulation of a scoreboard**. In Lessons 2, 3, and 5, which follow the Use-Modify-Create model, **experiment with variables in an existing project,** then modify them, then they **create their own project**. In Lesson 4, pupils **focus on design**. In Lesson 6, pupils apply **their knowledge of variables and design to improve their game** in Scratch.

VOCABULARY / STICKY KNOWLEDGE	Templates, images, text, orientation, placeholders	Online editor, crop, copyright, filters, retouch, re-touching tools, fake images, publication(s)	Crumble, micro-controller, components, conditions, algorithm, selection, programs	Variables, use-modify-create, Scratch
SEQUENCE OF LESSONS	1. To describe ways people who have similar likes and interests can get together online. 2. To recognise how text and images convey information 3. To recognise that text and layout can be edited 4. To choose appropriate page settings 5. To add content to a desktop publishing publication 6. To consider how different layouts can suit different purposes 7. To consider the benefits of desktop publishing 8. To explain the importance of giving and gaining permission before sharing things online; how the principles of sharing online is the same as sharing offline e.g. sharing images and videos.	1.To recognise when someone is upset, hurt or angry online. 2.To explain that digital images can be changed 3.To change the composition of an image 4.To describe how images can be changed for different uses 5. To make good choices when selecting different tools 6.To recognise that not all images are real 7. To evaluate how changes can improve an image	1.To identify ways the internet can draw us to information for different agendas, e.g. website notifications, pop-ups, targeted ads. 2.To control a simple circuit connected to a computer 3. To write a program that includes count-controlled loops 4. To explain that a loop can stop when a condition is met 5. To explain that a loop can be used to repeatedly check whether a condition has been met 6. To design a physical project that includes selection 7.To create a program that controls a physical computing project	1.To define the terms 'influence', 'manipulation' and 'persuasion' and explain how someone might encounter these online (e.g. advertising and 'ad targeting' and targeting for fake news). 2. To define a 'variable' as something that is changeable 3. To explain why a variable is used in a program 4. To choose how to improve a game by using variables 5. To design a project that builds on a given example 6 .To use my design to create a project 7. To evaluate my project
OUTCOME / COMPOSITE	This unit progresses pupils' knowledge and understanding of using digital devices to combine text and images building on work from the following units; Digital Writing Year 1, Digital painting Year 1, and Digital Photography Year 2.	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.	Pupils will design and **make a working model of a Mars Rover** that incorporates their understanding of how the microcontroller and its components are connected, and how selection can be used to control the operation of the model.	Pupils will design and improve a game of their own design in Scratch.