Subject: Computing	Year: 2 – Summer 2 – **Programming B – Introduction to Quizzes**
National Curriculum objectives • Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions; • Create and debug simple programs; • Use logical reasoning to predict the behaviour of simple programs; • Use technology purposefully to create, organise, store, manipulate and retrieve digital content.	
To begin this unit, the children should have already learnt: This unit builds on the 'Programming B – Introduction to Animation' unit in Year 1: Programming is when we make a set of instructions for computers to follow. *ScratchJr* is a program that we can use in order to code our own stories and animations.	**The learning in this unit will prepare the children to learn these things in the future:** Year 3 We can use event and action command blocks in order to make sprites carry out actions when certain prompts take place. Algorithms (a set of instructions to perform a task) allow us to sequence movements, actions and sounds in order to program effective animations. Year 4 Count-controlled and infinite loops can be used to create different examples of repetition in games: using repeat and loop operator blocks in *ScratchJr* can make our programs more logical and efficient by running code continuously or for a set number of times. Year 5 'Conditions' can be used in programming: the 'if… then… else...' structure can be used to select different outcomes depending on whether a condition is 'true' or 'false'. Issues with programs can arise when answers similar to those in the condition are given as inputs. We must predict such issues and identify ways to avoid such problems. Year 6 Micro:bits are small computers that perform different actions based on programs written on computer software. Programs are then downloaded to the micro:bit. Micro:bits have a range of input sensors that can be used as input triggers for different codes to run. Output devices on Micro:bits (e.g. LED displays) can be programmed to display words, pictures and numbers.
Key Enquiry Question What do sequences begin with in *ScratchJr?* What do you sequences of commands produce? Can different sequences lead to the same outcome? What could you change about a design in *ScratchJr?* Why are sequences useful when creating quizzes? How does your project compare to your design?	**The Big Idea:** Programming is when we make a set of instructions for computers to follow. *ScratchJr* is a program that we can use in order to code our own stories and animations. We can create simple quizzes in *ScratchJr* where the user can select an answer by clicking on a sprite. An outcome occurs when the sprite is clicked.

To achieve ARE, pupils will need to be secure in the following knowledge:	
By the end of this unit, children will know: • A series of instructions as a 'sequence; • A series of instructions can be issued before they are enacted; • Logical reasoning to predict the outcome of a program.	**Vocabulary:** Programming; *Scratch Jr.*; command; algorithm; sprite; home; block; stage; background; app (introduced in Y1). **Sequence; quiz; debugging.**
By the end of this unit, children will be able to do: • Choose a series of words that can be enacted as a sequence; • Explain what happens when you change the order of a sequence; • Choose a series of commands that can be run as a program; • Create and debug a program; • Trace a sequence to make a prediction; • Test a prediction by running a sequence; • Run a program on a device.	**Useful Resources:** **Online training courses** Raspberry Pi online training courses *ScratchJr* for iPads and/or computers.

COMPUTING: PROGRAMMING

Y2

KNOWLEDGE ORGANISER

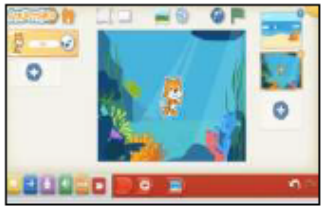
Overview

Quizzes in Scratch Jr.

- Programming is when we make a set of instructions for computers to follow.

-Scratch jr. is a program that we can use to code programs using a series of command blocks. This can be used to design quizzes.

-We use algorithms (a set of instructions to perform a task) to program the sprite to do different things.



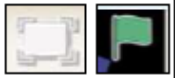
The Basics of Scratch Jr.

-**What is Scratch Jr?** Scratch is a website/ app that lets us code our own stories, games and animations.
-**Sprites**: Scratch Jr. uses characters called sprites. The main sprite is a cat called Scratch.
-**Home:** Clicking on the house takes you 'home' to your project screen.

-These (right) are the **programming blocks.** We drag them into the **programming area** (right). Clicking the block in the area makes the sprite perform on the stage.

-**Background**: Backgrounds are added by clicking this icon (right).

-Running the Code: Run your animation by tapping the full screen icon, and then the green flag.



-Sequences: -A sequence is a pattern or process in which one thing follows another. In Scratch Jr. we can stack blocks together side by side in order to create sequences.

-Start Blocks: Start blocks are yellow & are used to start/ run programs. The second block on the right starts the program when the sprite is clicked on.

-End Blocks: End blocks are red. These are used to end your program.

Creating Quizzes

-Outcomes: An outcome is something that happens as a result of us doing something. E.g. in cookery, we can mix and cook ingredients to make an outcome of food! In Scratch Jr. a sequence of commands is followed and this results in an outcome.

-Quizzes in Scratch: We can create simple quizzes in Scratch jr. where the user can select an answer by clicking on a sprite. An outcome occurs when the sprite is clicked.

-Adding and Programming Sprites: We need multiple sprites for the user to select from. To add new sprites, we choose the + option (see right). We can program multiple sprites. The sprite we are programming is the picture in the programming area.

-Programming Sequences: Consider what question to ask your users, e.g. Who lives here? Program each sprite with a command sequence, so that they know if they are right or not when clicking on the sprite.

Algorithms and Programming

-An **algorithm** is a set of instructions for performing a task. Designing an algorithm can help us to make the quiz work in the way that we want it to.

-**Programming** is when we move the blocks into the position (based on our algorithm design). Programming uses a code that the computer can understand. In Scratch jr. this makes our quiz animation do the things we want it to.

Debugging

-Sometimes, things don't work exactly how we want them to the first time. This may be a problem with our algorithm, or we could have made a mistake in our programming.

-If the animation does not work correctly the first time, remember to **debug** it. This means finding and fixing the problems.

Important Vocabulary

Programming	Scratch Jr.	Sprite	Quiz	Command	Block	Debugging	Sequence	Algorithm	Outcome