Computing – Year 6

Autumn 2	Variables in Games					
Prior learning	This unit assumes that learners will have prior experience of programming using block-based construction (e.g. Scratch), understand the concepts of 'sequence' (Year 3), 'repetition' (Year 4) and 'selection' (Year 5). The constructs covered in the previous year groups will include at least one unit that develops the concept through the use of Scratch.					
Lesson objective	To define a 'variable' as something that is changeable	To explain why a variable is used in a program	To choose how to improve a game by using variables	To design a project that builds on a given example	To use my design to create a project	To evaluate my project
Key vocabulary	Variable, change, name, value	Variable, name, value, set, change	Variable, set, change, design, event	Design, algorithm, code	Task, algorithm, design, artwork, program, project, code, test, debug, prototype	Improve, evaluate, share
Creative context	Career link: Video game designer or programmer.					
Substantive knowledge	A variable can be set and changed throughout the running of a program.	A variable is a placeholder in the memory of a computer. It can hold one value at a time. Each variable in a program is named. If the value of a variable is changed, the new value replaces the previous value.	A program can use the value of a variable to perform different tasks. Operator blocks can be used of this.	**Games designers** come up with ideas, decide rules and work on the look and playability of a game. They control the setting, characters, and graphics and balance the rules for scoring or losing lives to make it more fun or challenging. An algorithm is a precise sequence of instructions, or set of rules, for performing a task.	The game design cycle includes Create (Implement your design in code), Run the code (Try your project), Debug (review your algorithms and fix and find errors in the code), Improve.	Debugging a program includes review the algorithms, finding and fixing errors in the code. Adding lives to a game can increase the challenge.

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Disciplinary knowledge	How to set a variable in scratch. How to program a sprite to add to the score (variable).	How to create a score board in scratch.	How to change a variable. How to use an operator block.		How to change the background in a project. How to code a game with falling sprites.	How to add "lives" to a game. How to peer evaluate a program.
Recorded learning	Design and create a project with three sprites which changes the score when clicked on (**Save this**).	Design and create a project with a scoreboard (**Save this**).	Change and set the value of the 'score' variable in a scratch project (**Save this**).	Design and plan the algorithm for their own game (to be created over the next two lessons). The algorithm should include a drawing and a description.	Create a 'catching' game that includes a score and at least three falling objects, each falling at a different speed (from their plans from last week) **(save this).**	Improve the games they created (last lesson) by debugging and adding "lives" (**Save this**).
Outcome for unit	The end project for this unit will be the game that the designed and created – This needs to be saved. End of unit evaluation – Please complete the teacher/self evaluation slide for this unit (the slide is in the folder), by writing their names in the correct boxes.					
Future learning	This programming unit should prepare them for programming units they will complete in KS3.					