ALMOND HILL JUNIOR SCHOOL MEDIUM TERM PLAN

TOPIC TITLE/SUBJECT: Computing Programming A – Variables in games **YEAR GROUP: 6** **TERM: Autumn**

Vocabulary	**Skills**	**What we already know**
Algorithm Code Program Block code Repetition Loop condition Variable Value Placeholder Events	• To define a 'variable' as something that is changeable (identify examples of information that is variable/ explain that the way a variable changes can be defined/ identify that variables can hold numbers or letters) • To explain why a variable is used in a program (identify a program variable as a placeholder in memory for a single value/ explain that a variable has a name and a value/ recognise that the value of a variable can be changed) • To choose how to improve a game by using variables (decide where in a program to change a variable/ make use of an event in a program to set a variable/ recognise that the value of a variable can be used by a program) • To design a project that builds on a given example (choose the artwork for my project/ create algorithms for my project/ explain my design choices) • To use my design to create a project (create the artwork for my project/ choose a name that identifies the role of a variable/ test the code that I have written) • To evaluate my project (identify ways that my game could be improved/ use variables to extend my game/ share my game with others)	This unit assumes that learners have some prior experience of programming in Scratch. Specifically, they should be familiar with the programming constructs of sequence, repetition, and selection. These constructs are covered in the Year 3, 4, and 5 National Centre for Computing Education programming units respectively. Each year group includes at least one unit that focuses on Scratch.

Application/Outcomes

1 Introducing variables: Introduced to variables. See examples of real-world variables (score and time in a football match) before they explore them in a Scratch project. Design and make their own project that includes variables. Identify that variables are named and that they can be letters (strings) as well as numbers.

2 Variables in programming: Understand that variables are used in programs, and that they can only hold a single value at a time. Complete an unplugged task that demonstrates the process of changing variables. Explore why it is important to name variables and apply their learning in a Scratch project in which they make, name, and update variables.

3 Improving a game Apply the concept of variables to enhance an existing game in Scratch. Predict the outcome of changing the same change score block in different parts of a program, then they test their predictions in Scratch. Experiment with using different values in variables, and with using a variable elsewhere in a program. Add comments to their project to explain how they have met the objectives of the lesson.

4 Designing a game: Work at the 'design' level of abstraction, where they create their artwork and algorithms. Design the sprites and backgrounds for their project, then their algorithms to create their program flow.

5 Design to code: Implement the algorithms that they created in Lesson 4. In doing this, they identify variables in an unfamiliar project & learn the importance of naming variables. They also have the opportunity to add another variable to enhance their project. *6 Improving and sharing:* build on the L5 project. Consider how they could improve their own projects and make small changes to achieve this. Have the opportunity to add a variable independently. Evaluate each other's projects; identify features that they liked & improvements.

Other/Cross Curricular Links	**Adaptation for SEND**
Art ∉ Choose designs and artwork that fit with their game idea	• Adapted tasks • Adapted resources • Additional support