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**Knowledge Rich Curriculum Plan**

Year 7 - Topic 3: Algorithms



| **Lesson/Learning Sequence** | **Intended Knowledge:**  *Students will know that… Students will know how to…* | **Tiered Vocabulary** | **Prior Knowledge:**  *In order to know this… Students need to already know that…* | **Assessment** |
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| **1** | * Students will know that an algorithm is a set of rules or instructions that we give to a computer system. * Students will know that a flowchart is a diagram which represents an algorithm.   Students will know there are different symbols that get used in a flowchart for terminator, output, process and decision. | Instructions  Symbols  Inputs  Outputs  Flowchart  Algorithm  Terminator | * Students need to already know that there is a certain order for computer systems with inputs first, followed by processes and then outputs. * Students need to already know basic skills using a mouse and keyboard. | Questioning  Worksheet |
| **2** | * Students will know that an algorithm can have a number of different outputs which can be switched on or off. * Students will know that a delay process can decide how long each part of the algorithm lasts for before moving on.   Students will know the delay number affects the speed that the algorithm runs. E.g. delay 2 is faster than delay 5. | Situation  Modelling  Delay  Process  Algorithm  Mimic | * Students need to already know that there are different symbols that get used in a flowchart for terminator, output and process.   Students need to know the importance of having the correct order with algorithms for real world situations. E.g. the correct order for traffic lights. | Retrieval Task  Questioning  Worksheet |
| **3** | * Students will know that a decision symbols uses yes and no arrows and gives different outputs. * Students will know that a decision symbol is used as an input for the algorithm. * Students will know that the term iteration is when an algorithm loops or repeats itself. | Decision  Purpose  Outputs  Scenario  Terminator  Iteration | * Students need to already know the purpose of a lighthouse as this is the example for the algorithm. * Students need to already know the terminator, output and process symbols and what they are used for. | Knowledge Check Quiz  Retrieval Task  Worksheet |
| **4** | * Students will know that a variable is a value that can change. * Students will know that a sub-routine is a routine (flowchart) within a routine. * Students will know that Flowol can use speech as an output as well as lights. | Speech  Real-World  Value  Variable  Sub-Routine | * Students need to already know the symbols and their meanings that get used for Terminator, Process, Output and Decision.   Students need to know that flowcharts can be designed to solve real-world situations. | Retrieval Task  Questioning  Worksheet |
| **5** | * Students will know how to answer the end of unit assessment using their prior knowledge. * Students will know how to improve on their work from previous lessons in the unit. | Students will need to use all of the vocabulary from the previous lessons. | * Students need to know all of the intended knowledge from the previous lessons in the unit. | End of Unit Assessment  Student Response Task |