THE LEARNING JOURNEY FOR COMPUTING

Unit / Block of work	Key Episodes / Questions	Additional Details	Colour Code	Length of time.	Learner Attribute(s)
System Fundamentals	Can you explain the planning a new computer system and system installation requirements? Are you able to describe the role of users and methods of user engagement? Can you explain backing up systems and software deployment? Can you list the different components of computer systems? Can you list the steps of designing a new system and the procedures of analysing a new system? Can you explain the user interaction with a new system?	Planning and system installation User focus System backup Software deployment Components of a computer system System design and analysis Human interaction with the system		20 hours	Open Minded Knowledgeable Inquirer
Computer organization	Can you describe different parts of computers parts which make up the architecture of a computer? Can you explain secondary memory and the purpose? Can you explain the differences of Operating system and types of Application software? Can you provide data representation using different systems? Can you use logic gates to solve complex problems?	Computer Architecture Secondary memory Operating systems and application systems Binary representation		12 hours	Knowledgeable Thinker Open Minded
Networking	Can you explain network architecture and the protocol used? Can you describe the steps required in data transmission over a network? Can you explain how wireless networking works?	Network Architecture Data Transmission Wireless Networking		9 hours	Knowledgeable Inquirer
Computational thinking, problem-solving and programming	Can you identify the procedure appropriate to solving a problem? Can you explain the role of sub-procedures in solving a problem? Can you identify When decision-making is required in a specified situation? Can you identify the condition associated with a given decision in a specified problem? Can you explain the relationship between the decisions and conditions of a system? Can you identify the inputs and outputs required in a solution? Can you explain the need for pre-conditions when executing an algorithm? Can you identify exceptions that need to be considered in a specified problem solution? Can you describe how concurrent processing can be used to solve a problem? Can you evaluate the decision to use concurrent processing in solving a problem? Can you explain why abstraction is required in the derivation of computational solutions for a specified situation? Can you distinguish between a real-world entity and its abstraction.? Can you outline the standard operations of collections? Can you analyse an algorithm presented as a flow chart? Can you construct pseudocode to represent an algorithm? Can you deduce the efficiency of an algorithm in the context of its use? Can you distinguish between fundamental and compound operations of a computer? Can you explain the need for higher level languages? Can you construct algorithms using loops, branching? Can you construct algorithms using the access methods of a collection? Can you construct algorithms using pre-defined sub-programmes, one-dimensional arrays and/or collections?	Thinking procedurally Thinking logically Thinking ahead Thinking concurrently Thinking abstractly Standard algorithms and problem solving Nature of programming languages Use of programming languages		45 hours	Thinker Open Minded Knowledgeable