Computer Science Year 9 Curriculum Map September 2020

Term/Focus	Autumn 1	Autumn 2
Key knowledge and skills	**Higher Tiers and Ability (9-5):** • Explain how abstraction is used in a given scenario • Explain how decomposition may be used in an algorithm for a given problem • Interpret, correct or complete a short algorithm	**Higher Tiers and Ability (9-5):** • Use pseudocode to define the steps in a complex algorithm • Correct or complete a complex algorithm • Write pseudocode solutions to simple problems involving sequence, selection and iteration • Use nested selection and iteration statements
	Foundation Tiers and Ability (1-4): • State what is meant by an algorithm • State what is meant by abstraction • State what is meant by decomposition • State what is meant by Algorithmic Thinking • Use a flowchart or pseudocode to define the steps in a simple algorithm • Trace through a simple flow diagram or pseudocode algorithm to determine the output	**Foundation Tiers and Ability (1-4):** • Identify and use variable types integer, real, Boolean, character and string • Identify variables and constants in a program • Use meaningful identifier names and know why it is important to use them
Homework – Knowledge organiser created and on website?	Yes - Homeworks to be set to consolidate learning from that week, responsive to needs of the class.	Yes – Homeworks to be set to consolidate learning from that week, responsive to needs of the class.
Responsive Teaching	Two weekly assessment of classwork to identify and correct misconceptions using Feedforward Book Look Record Sheet. Homework reviews to inform planning of next lesson. RAG Spreadsheet which covers the whole specification for students to keep up to date, which links to a Teacher Overview spreadsheet. This will help the students to identify their strengths and weaknesses independently, but also allow me to plan future lesson and interventions, as required. Regular use of Ten Minute Tests to identify strengths and weaknesses. End of unit tests and vocabulary quizzes.	
Termly assessment content	Assessment Week 1 – 19/10/20 – 06/11/20 Programming assessment of skills covered so far, along with written theory test of key concepts	

Computer Science Year 9 Curriculum Map September 2020

Term/Focus	Spring 1	Spring 2
Key knowledge and skills	**Higher Tiers and Ability (9-5):** • Use Boolean operations AND, OR and NOT within conditions for iterative and selection structures • Use basic string manipulation functions in pseudocode solutions • Give examples of data structures: arrays and records • Describe the use of SQL to search for data and records to store data • Use one-dimensional arrays in the design of solutions to simple problems	**Higher Tiers and Ability (9-5):** • Write simple functions and procedures using parameters • Read from and write to a text file • Explain the use of Casting within code • Explain what is meant by a data structure and why these are used • Use two-dimensional arrays in the design of solutions to simple problems • Explain why it is good practice to use local variables
	Foundation Tiers and Ability (1-4): • Use arithmetic operations including MOD and DIV • Use Boolean operators in pseudocode solutions • Show the results of basic string manipulation functions • Use random number generation • Follow through pseudocode solutions to simple problems involving sequence, selection and iteration	**Foundation Tiers and Ability (1-4):** • Explain why functions and procedures are used in creating solutions to problems • Use simple functions and procedures that return values to the calling program
Homework – Knowledge organiser created and on website?	Yes - Homeworks to be set to consolidate learning from that week, responsive to needs of the class.	Yes - Homeworks to be set to consolidate learning from that week, responsive to needs of the class.
Responsive Teaching	Two weekly assessment of classwork to identify and correct misconceptions using Feedforward Book Look Record Sheet. Homework reviews to inform planning of next lesson. RAG Spreadsheet which covers the whole specification for students to keep up to date, which links to a Teacher Overview spreadsheet. This will help the students to identify their strengths and weaknesses independently, but also allow me to plan future lesson and interventions, as required. Regular use of Ten Minute Tests to identify strengths and weaknesses. End of unit tests and vocabulary quizzes.	
Termly assessment content	Assessment Week 2 – 01/02/21 – 12/02/21 Programming assessment of skills covered so far, along with written theory test of key concepts	

Term/Focus	Summer 1	Summer 2
Key knowledge and skills	**Higher Tiers and Ability (9-5):** • Explain how to improve the maintainability of code using comments • Explain how to improve the maintainability of code using indentation • Explain how iterative testing works • Explain how final/terminal testing works • Explain how to identify syntax and logic errors within a block of code • Explain how to select and use suitable test data when carrying out tests on a block of code	**Higher Tiers and Ability (9-5):** • Consolidation and extension of learned programming skills in an extended Programming Project
	Foundation Tiers and Ability (1-4): • Describe what Defensive Design is, and how is it useful • Describe how input sanitisation/validation can be used as part of Defensive Design • Describe how planning for contingencies can be used as part of Defensive Design • Describe how anticipating misuse can be used as part of Defensive Design • Describe authentication can be used as part of Defensive Design • Describe the purpose of testing	**Foundation Tiers and Ability (1-4):** • Consolidation and extension of learned programming skills in an extended Programming Project
Homework – Knowledge organiser created and on website?	Yes - Homeworks to be set to consolidate learning from that week, responsive to needs of the class.	Yes - Homeworks to be set to consolidate learning from that week, responsive to needs of the class.
Responsive Teaching	Two weekly assessment of classwork to identify and correct misconceptions using Feedforward Book Look Record Sheet. Homework reviews to inform planning of next lesson. RAG Spreadsheet which covers the whole specification for students to keep up to date, which links to a Teacher Overview spreadsheet. This will help the students to identify their strengths and weaknesses independently, but also allow me to plan future lesson and interventions, as required. Regular use of Ten Minute Tests to identify strengths and weaknesses.	

Term/Focus	Summer 1	Summer 2
	End of unit tests and vocabulary quizzes.	
Termly assessment content	Assessment Week 3 – 17/05/21 – 28/05/21 Programming assessment of all skills covered in the year, along with written theory test of key concepts	