

KESTEVEN AND SLEAFORD HIGH SCHOOL

Computer Science Scheme of Learning

Year 10 – Term 3



Intent – Rationale

This term continues to develop students' programming skills, focusing on modularity, robust design and error handling

Sequencing – what prior learning does this topic build upon?	Sequencing – what subsequent learning does this topic feed into?
<ul style="list-style-type: none">Year 8 Topic 3Year 9 Topic 3	<ul style="list-style-type: none">A-Level Computer Science Programming
What are the links with other subjects in the curriculum?	What are the links to SMSC, British Values and Careers?
<ul style="list-style-type: none">N/A	<ul style="list-style-type: none">GB4e, GB4f
What are the opportunities for developing literacy skills and developing learner confidence and enjoyment in reading?	What are the opportunities for developing mathematical skills?
<ul style="list-style-type: none">Python Programming (Third Edition) (For the Absolute Beginner) by Mike Dawson	<ul style="list-style-type: none">N/A

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Intent – Concepts



What knowledge will students gain and what skills will they develop as a consequence of this topic?

Know

- **Programming fundamentals:** the use of variables, linear data structures, constants, operators, inputs, outputs and, assignments, the use of the three basic programming constructs used to control the flow of a program: sequence, selection and iteration (count- and condition-controlled loops), the common arithmetic operators the common Boolean operators and, or and not.
- **Defensive design:** Anticipating misuse, authentication, sanitisation, check digits and input validation/verification
- **Maintainability:** Use of sub programs, naming conventions, indentation and commenting

Apply

- Be able to design and create coded solutions making use of the basic programming constructs
- Be able to design and code robust programs that cater for all likely input values, understanding when and how to deal with invalid data and other likely failure points such as file access methods
- Be able to produce maintainable code making good use of modularity, commenting, naming conventions and indenting/structure

Extend

- Develop their programming skills further by researching and using an object-oriented approach to programming

What subject specific language will be used and developed in this topic?

- Decomposition
- Sequence
- Selection
- Iteration
- Sub-Routine
- Function
- Procedure
- Parameter
- Scope

- Robust
- Authentication
- Sanitisation
- Validation
- Verification
- Check digit
- Maintainability
- Naming Convention

What opportunities are available for assessing the progress of stu

- Class Notes and in-lesson observation
- Coded solutions
- Teams homework assignments/quizzes
- Kahoot starters/plenaries and verbal questioning



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Intent – Concepts

Lesson title	Learning challenge	Higher level challenge	Suggested activities and resources
			See P drive for lesson presentations/resources