



Year 8 Spring Term
'An ambitious curriculum that meets the needs of all'

Medium Term Planning – Python Programming

Curriculum Intent	In addition to working further on objectives from Year __, pupils will be taught, following National Curriculum guidelines, the following this term:
Skills/National Curriculum Links	<p>Computing – KS3</p> <p>Key stage 3 Pupils should be taught to:</p> <ul style="list-style-type: none">• design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems• understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem• use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions• understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]• understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems• understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits• undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users• create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability• understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognize inappropriate content, contact and conduct and know how to report concerns.
Numeracy	Arithmetic, BIDMAS
Literacy	<p>Vocabulary Tier 2: program, code, BIDMAS</p> <p>Vocabulary Tier 3: Integrated development, IDLE, interactive mode, Script mode, variable, string, syntax, assignment statement, augmented assignment operator, data type, integer, float, round, selection, sequence, iteration, module, function, syntax error, logic error, debug, binary search</p> <p>Reading: Presentations, worksheets, and homework</p> <p>Writing: Complete worksheets and skill task</p> <p>Oracy: Learn how to pronounce difficult or new keywords</p> <p>SMSC: Understand identity theft, how the online world can be fun but dangerous if not used sensibly</p> <p>PSHE: Understand how programming is being used in everyday life</p> <p>Careers: Data analysis, software programmers, E-commerce, working in banks etc..</p> <p>Literacy: literacy slide will provide a definition of the keyword, antonym and synonym</p>
Adaptation	Throughout this topic, quality first teaching will provide differentiation:
QFT/SEND Provision	<p>By product: Learning will produce work on a variety of different levels, a mix of individual, think pair share, designing original mats, Q&A with teacher, teacher marking and self-marking.</p> <p>By resource: presentations, worksheets with extension tasks</p> <p>By Intervention: by providing different levels of supervision/support, seating plan, use of TA</p> <p>By Progressive Questioning: exploring pupils' understanding through interactive dialogue.</p> <p>By Grouping: according to prior attainment, gender, social preference, preferred learning style.</p> <p>By Task: Pupils should be involved in the identification of targets which are meaningful to them and in the selection of an appropriate task from the given range.</p> <p>By Offering Optional Activities: In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>



Learning
Outcomes
(Knowledge)

To be able to:

Python Programming	Strings print function	Know what Python is and some of the applications it is used for Run a simple Python program in Interactive mode using the print function Write, save and run a program in Script mode Understand what a syntax error is
	Variables	Know the rules for variable names Use variables in a program Use + concatenation Use # to make comments Use index []
	Arithmetic	Perform arithmetic using the BIDMAS rule Write a program involving input, calculation and output
	Data Types	Understand the importance of using correct data types: string, integer or float Use the integer, float and round functions

Current
learning to be
developed in
the future
within:

This topic will be built on in year 9, looking into count and condition iteration and arrays. It will support pupils to make an informed option choice and is an essential skill for GCSE and A Level programming.

Assessment

- Refer to assessment maps for formative and summative assessment opportunities.

Impact

- Learning will be tested during **Summative Assessment 1 and 2**
- Assessment results will indicate pupils emerging, developing, securing or mastering.
- Data review documentation will indicate if pupils are underachieving, meeting or exceeding MEG grade.
- In line with the departmental marking policy, quality written feedback will be provided for the specified marked piece