

National 5 Computing – Success Criteria

Skills, knowledge and understanding for the course:

- ✓ Using of computational thinking across a range of contexts.
- ✓ Analysing problems within computing science across a range of contexts including:
 - designing
 - implementing
 - testing
 - evaluating
- ✓ Developing skills in computer programming and the ability to read and interpret code
- ✓ Using appropriate terminology for computing concepts
- ✓ Show an understanding of legal implications and environmental impact of computers
- ✓ Applying computing science concepts and techniques to create digital solutions

Skills, knowledge and understanding for the assessment:

Topic	I can...
Computer Systems	
Data Representation	<ul style="list-style-type: none"> <input type="checkbox"/> write decimal numbers in binary <input type="checkbox"/> convert decimal numbers to binary, and binary numbers to decimal <input type="checkbox"/> explain what floating point is used for in data representation. <input type="checkbox"/> explain the differences between the <input type="checkbox"/> mantissa and exponent <input type="checkbox"/> explain the use of extended ASCII in a computer system <input type="checkbox"/> explain the vector object rectangle and its associated properties <input type="checkbox"/> explain the vector object ellipse and its associated properties <input type="checkbox"/> explain the vector object line and its associated properties <input type="checkbox"/> explain the vector object polygon and its associated properties <input type="checkbox"/> compare a vector graphic with a bitmapped graphic <input type="checkbox"/> explain how a computer stores a bit-mapped graphics. <input type="checkbox"/> explain the differences between a black and white, and a colour bit mapped graphic
Computer Systems	<ul style="list-style-type: none"> <input type="checkbox"/> explain the structure of a basic computer system, and explain how the parts work together. <input type="checkbox"/> explain the purpose of the processor, and the parts that are used within it (registers, ALU, control unit) <input type="checkbox"/> explain why memory locations have unique addresses <input type="checkbox"/> explain the purpose of buses with relation to the movement of information (data and address) <input type="checkbox"/> explain why we need translator in a computer. the difference between interpreters and compilers to translate <input type="checkbox"/> explain the difference between machine code and binary
Environmental Impact	<ul style="list-style-type: none"> <input type="checkbox"/> explain the energy use of computer systems <input type="checkbox"/> describe the impact of computer systems on the environment <input type="checkbox"/> describe why changing settings on the monitors can reduce the impact on the environment. <input type="checkbox"/> describe why changing power down settings can reduce the impact on the environment.

	<input type="checkbox"/> describe why changing the computers' standby settings can reduce the impact on the environment.
Security	<input type="checkbox"/> describe the role of firewalls and explain how they operate. <input type="checkbox"/> describe why encryption is important for communication and how encryption keys work
Assessment 1	
Database Design and Development	
Analysis	<input type="checkbox"/> identify the end-user requirements of a database <input type="checkbox"/> identify the functional requirements of a database
Design	<input type="checkbox"/> explain what the General Data Protection Regulation (GDPR) <input type="checkbox"/> explain how data should be processed under GDPR <input type="checkbox"/> explain what is meant by "intended purpose" of data under GDPR <input type="checkbox"/> explain what is meant by limit data for the declared purpose under GDPR <input type="checkbox"/> explain what is meant by the data being accurate under GDPR <input type="checkbox"/> explain what is meant by data not being kept for longer than necessary under GDPR <input type="checkbox"/> explain how to hold data securely under GDPR <input type="checkbox"/> explain why we need to use Entity Relationship Diagrams (ERD) <input type="checkbox"/> draw an ERD <input type="checkbox"/> explain what is meant by an entity/table <input type="checkbox"/> explain what is meant by an attribute/field <input type="checkbox"/> explain what is meant by a record <input type="checkbox"/> explain what is meant by the term cardinality <input type="checkbox"/> identify the different types of relationships between two entities. <input type="checkbox"/> explain why we use a data dictionary <input type="checkbox"/> make a data dictionary, with the appropriate table headings <input type="checkbox"/> explain the term primary key <input type="checkbox"/> explain the term foreign key <input type="checkbox"/> identify and explain the different data types <input type="checkbox"/> explain what is meant by validation <input type="checkbox"/> explain the validation term presence check <input type="checkbox"/> explain the validation term restricted choice <input type="checkbox"/> explain the validation term field length <input type="checkbox"/> explain the validation term range check <input type="checkbox"/> explain why I would use SQL <input type="checkbox"/> identify the correct order for SQL <input type="checkbox"/> explain select queries, and identify their purpose <input type="checkbox"/> explain insert queries, and identify their purpose <input type="checkbox"/> explain update queries, and identify their purpose <input type="checkbox"/> explain delete queries, and identify their purpose <input type="checkbox"/> explain the purpose of fields in a query <input type="checkbox"/> explain the purpose of tables in a query <input type="checkbox"/> explain the purpose of search criteria in a query <input type="checkbox"/> identify the different types of sort orders <input type="checkbox"/> design a query to meet a criteria and sort
Implementation	<input type="checkbox"/> explain what is meant by referential integrity <input type="checkbox"/> describe the impact of not having referential integrity in a database <input type="checkbox"/> create tables in a database <input type="checkbox"/> link tables within a database, using primary and foreign keys

	<input type="checkbox"/> enforce referential integrity in my tables <input type="checkbox"/> create an SQL query to match a design <input type="checkbox"/> explain what an insert anomaly is, and the impact of these on data <input type="checkbox"/> create SQL for an insert query <input type="checkbox"/> Explain what an update anomaly is and the impact of these on data <input type="checkbox"/> create SQL for an update query <input type="checkbox"/> Explain what a delete anomaly is and the impact of these on data <input type="checkbox"/> create SQL for a delete query <input type="checkbox"/> create SQL for a select query, to gather data from one table <input type="checkbox"/> explain what is meant by an equi-join <input type="checkbox"/> create an equi-join between two tables <input type="checkbox"/> create SQL for a select query, to gather data from two table
Testing	<input type="checkbox"/> explain how to check a query returns correct results
Evaluation	<input type="checkbox"/> explain what is meant by fitness for purpose <input type="checkbox"/> explain what is meant by accuracy of output

Assessment 2

Website Design and Development

Analysis	<input type="checkbox"/> identify the end-user requirements of a website <input type="checkbox"/> identify the functional requirements of a website
Design	<input type="checkbox"/> create a website structure included a homepage and have a minimum of 4 extra pages <input type="checkbox"/> create a website structure with both internal and external links <input type="checkbox"/> explain the term wireframe <input type="checkbox"/> create a suitable user interface using a wireframe <input type="checkbox"/> create a low fidelity prototype <input type="checkbox"/> create a wireframe with consistent use of links <input type="checkbox"/> create a wireframe with consistent layout <input type="checkbox"/> create a wireframe with a variety of media types <input type="checkbox"/> explain the impact of breaking the Copyright Design and Patents Act 1988 <input type="checkbox"/> compare standard file formats <input type="checkbox"/> explain the term compression <input type="checkbox"/> explain why we need to compress files <input type="checkbox"/> explain the impact of compression <input type="checkbox"/> explain the term transparency <input type="checkbox"/> explain the term sampling rate
Implementation (HTML)	<input type="checkbox"/> explain the term "Hyper Text Mark-up Language" <input type="checkbox"/> explain the difference between internal and external HTML <input type="checkbox"/> identify the different tags used in HTML <input type="checkbox"/> explain the term "absolute referencing" <input type="checkbox"/> explain the term "relative referencing"
Implementation (CSS)	<input type="checkbox"/> explain the term "Cascading Style Sheet" <input type="checkbox"/> explain the difference between internal and external CSS <input type="checkbox"/> explain the term selectors <input type="checkbox"/> explain the term classes within CSS <input type="checkbox"/> explain the term IDs within CSS <input type="checkbox"/> create CSS rules to alter text <input type="checkbox"/> create CSS rules to alter background colours

Implementation (JavaScript)	<input type="checkbox"/> explain the impact of Onmouseover <input type="checkbox"/> create JS to implement onmouseover <input type="checkbox"/> explain the impact of Onmouseout <input type="checkbox"/> create JS to implement Onmouseout
Testing	<input type="checkbox"/> explain what is meant by accuracy of output <input type="checkbox"/> explain how to test a website is accurate
Evaluation	<input type="checkbox"/> explain what is meant by fitness for purpose

FAB 1

Software Design and Development

Development Methodologies	<input type="checkbox"/> explain what is meant by an iterative design process <input type="checkbox"/> explain what is meant by the waterfall model
Analysis	<input type="checkbox"/> identify the functional requirements of a program <input type="checkbox"/> identify the inputs, processes and outputs.
Design	<input type="checkbox"/> explain what is meant by a structured diagram <input type="checkbox"/> create a structured diagram <input type="checkbox"/> explain what is meant by a flowchart <input type="checkbox"/> create a flowchart <input type="checkbox"/> explain what is meant by pseudocode <input type="checkbox"/> create pseudocode <input type="checkbox"/> explain what is meant by a wireframe <input type="checkbox"/> create a wireframe
Implementation (Data Types and Structures)	<input type="checkbox"/> identify the different data types <input type="checkbox"/> identify the different data structures <input type="checkbox"/> create code to use the different data types <input type="checkbox"/> create code to use the different data structures
Implementation (Computational Constructs)	<input type="checkbox"/> create code to store values in a variable <input type="checkbox"/> create code to do mathematical operations <input type="checkbox"/> create code to do logical comparisons <input type="checkbox"/> create code to join strings together <input type="checkbox"/> explain the term concatenation <input type="checkbox"/> create code to do simple and complex conditional statements <input type="checkbox"/> create code to implement iteration using a fixed loop <input type="checkbox"/> create code to implement iteration using a conditional loop <input type="checkbox"/> create code to use predefined functions
Implementation (Algorithm Specification)	<input type="checkbox"/> explain the "input validation" algorithm <input type="checkbox"/> create code to implement the "input validation" algorithm <input type="checkbox"/> explain the "running total within a loop" algorithm <input type="checkbox"/> create code to implement the "running total within a loop" algorithm <input type="checkbox"/> explain the "traversing a 1-D array" algorithm <input type="checkbox"/> create code to implement the "traversing a 1-D array" algorithm
Testing	<input type="checkbox"/> explain the difference between a syntax, logic and execution error <input type="checkbox"/> explain the difference between the terms normal, extreme and exceptional test data
Evaluation	<input type="checkbox"/> explain what is meant by fitness for purpose <input type="checkbox"/> explain what is meant by robustness <input type="checkbox"/> explain what is meant by readability <input type="checkbox"/> explain what is meant by efficient use of coding

FAB 2

What will be taken into consideration when deciding on a teacher-estimated grade for National 5 Computing Science?

- 4 x Internal Assessments each assessing individual units.
- FAB 1 Assessment (Dec) assessing 60% of the course.
- FAB 2 Assessment (Feb/March) assessing 100% of the course.
- Assignment Work – worth 31% of final grade.
- Commitment and Quality in class/homework.
- Attendance at Supported Study.