

## AQA GCSE in Computer Science – Computer Science – Microsoft IT Academy Mapping

<b>3.1.1 Constants, variables and data types</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>Understand what is meant by terms data and information</li> <li>Be able to describe the difference between a constant and a variable</li> <li>Understand when to use constants and variables in problem solving scenarios</li> <li>Understand the different data types available to them. As a minimum, students should know about integer, Boolean, real, and character and string data types and how these are represented in the programming language(s) they are using.</li> <li>Be able to explain the purpose of data types within code</li> <li>Understand and be able to program with 1 and 2 dimensional arrays</li> <li>Be able to use NOT, AND and OR when creating Boolean expressions and have experience in using these operators within coded solutions.</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 3: Understanding General Software Development</li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>Module 2 “Core Programming”</li> </ul>
	<a href="#">Web Development Fundamentals – MTA EXAM 98-363</a> Web Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 3: Working with XML, Data Objects, and WCF</li> <li>Lesson 4: Working with Data</li> </ul>	<a href="#">C# Fundamentals: Development for Absolute Beginners</a> <ul style="list-style-type: none"> <li>Module 9 “Creating Arrays of Values”</li> <li>Module 12 “Working with Strings”</li> <li>Module 13 “Working with DateTime”</li> </ul>
	<a href="#">Microsoft.NET Fundamentals: MTA EXAM 98-372</a> Microsoft .NET Fundamentals <ul style="list-style-type: none"> <li>Lesson 1: Understanding Object-Oriented Programming</li> <li>Lesson 2: Understanding Data Types and Collections</li> </ul>	n/a

<b>3.1.2 Structures</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>• Be able to explain what a data structure is.</li> <li>• Be able to produce their own data types that go beyond the build in structures of the language(s) they're using, such as arrays or lists. These could include structs in C or classes in Python.</li> <li>• Understand and be able to explain why data structures can make coding a solution simpler.</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 3: Understanding General Software Development</li> <li>• Lesson 6: Understanding Databases</li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>• Module 3 “Object Oriented Programming”</li> </ul>
	<a href="#">Microsoft.NET Fundamentals: MTA EXAM 98-372</a> Microsoft .NET Fundamentals <ul style="list-style-type: none"> <li>• Lesson 1: Introduction to Object-Oriented Programming</li> <li>• Lesson 2: Understanding Data Types and Collections</li> <li>• Lesson 5: Understanding Input / Output Classes</li> </ul>	<a href="#">C# Fundamentals: Development for Absolute Beginners</a> <ul style="list-style-type: none"> <li>• Module 14 “Understanding and Creating Classes”</li> </ul>

<b>3.1.3 Program flow control</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>• Understand the need for structure when designing coded solutions to problems.</li> <li>• Understand how problems can be broken down into smaller problems and how these steps can be represented by the use of devices such as flowcharts and structure diagrams.</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 3: Understanding General Software Development</li> <li>• Lesson 2: Introduction to Object-Oriented Programming</li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>• Module 2 “Core Programming”</li> </ul>

<ul style="list-style-type: none"> <li>Understand and be able to describe the basic building blocks of coded solutions (ie sequencing, selection and iteration)</li> <li>Know when to use different flow control blocks (ie sequencing, selection and iteration) to solve a problem.</li> </ul>	<a href="#">Microsoft.NET Fundamentals: MTA EXAM 98-372</a> Microsoft .NET Fundamentals <ul style="list-style-type: none"> <li>Lesson 1: Understanding Object-Oriented Programming</li> <li>Lesson 2: Understanding Data Types and Collections</li> <li>Lesson 3: Understanding Events and Exceptions</li> <li>Lesson 4: Understanding Code Compilation and Deployment</li> <li>Lesson 5: Understanding Input/Output (I/O) Classes</li> </ul>	<a href="#">C# Fundamentals: Development for Absolute Beginners</a> <ul style="list-style-type: none"> <li>Module 6 “Branching with the if Decision Statement”</li> <li>Module 8 “for Iterations”</li> <li>Module 11 “while Iterations and Reading Data from a Text File”</li> <li>Module 19 “Enumerations and the switch Decision Statement”</li> </ul>
---	--	--

<b>3.1.4 Procedures and functions</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>Understand what procedures and functions are in programming terms</li> <li>Know when the use of a procedure or function would make sense and would simply the coded solution.</li> <li>Know how to write and use their own simple procedures and functions</li> <li>Know about and be able to describe common built in functions in their chosen language(s)</li> <li>Use common built-in functions in their chosen language(s) when coding solutions to problems</li> <li>Understand what a parameter is when working with procedures and functions.</li> <li>Know how to use parameters when</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 3: Understanding General Software Development</li> <li>Lesson 2: Introduction to Object-Oriented Programming</li> </ul> <a href="#">Microsoft.NET Fundamentals: MTA EXAM 98-372</a> Microsoft .NET Fundamentals <ul style="list-style-type: none"> <li>Lesson 1: Understanding Object-Oriented Programming</li> <li>Lesson 3: Understanding events and exceptions</li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>Module 3 “Object Oriented Programming”</li> </ul> <a href="#">C# Fundamentals: Development for Absolute Beginners</a> <ul style="list-style-type: none"> <li>Module 14 “Understanding and Creating Classes”</li> <li>Module 15 “More about Classes and Methods”</li> <li>Module 16 “Working with Classes and Inheritance in the .NET Framework Class Library”</li> </ul>

<p>creating efficient solutions to problems.</p> <ul style="list-style-type: none"> <li>Understand the concepts of parameters and return values when working with procedures and functions</li> </ul>		<ul style="list-style-type: none"> <li>Module 17 “Understanding Namespaces and Adding References to Assemblies”</li> <li>Module 18 “Understanding Scope and Utilizing Accessibility Modifiers”</li> </ul>
---	--	---

<b>3.1.5 Scope of variables, constants, functions and procedures</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>Know what is meant by the scope of a variable, constant, function or procedure</li> <li>Be able to identify what value a particular variable will hold at a given point in the code.</li> </ul>	<p><a href="#">Microsoft.NET Fundamentals: MTA EXAM 98-372</a> Microsoft .NET Fundamentals</p> <ul style="list-style-type: none"> <li>Lesson 2: Understanding data types and collections</li> </ul>	<p><a href="#">C# Fundamentals: Development for Absolute Beginners</a></p> <ul style="list-style-type: none"> <li>Module 18 “Understanding Scope and Utilizing Accessibility Modifiers”</li> </ul>

<b>3.1.6 Error handling</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>• Be able to discuss and identify the direct types of errors that can occur within code (ie syntax, run-time and logical)</li> <li>• Understand that some errors can be detected and corrected during the coding stage</li> <li>• Understand that some errors will occur during the execution of the code</li> <li>• Know how to detect errors at execution time and how to handle those errors to prevent the program from crashing where desirable</li> <li>• Be able to use trace tables to check their code for errors.</li> <li>• Understand that computer programs can be developed with tools to help the programmer detect and deal with errors (eg Watch, Breakpoint, Step)</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 2: Introduction to Object-Oriented Programming</li> <li>• Lesson 3: Understanding general software development</li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>• Module 1 “General Software Development”</li> <li>• Module 2 “Core Programming”</li> </ul>
	<a href="#">Microsoft.NET Fundamentals: MTA EXAM 98-372</a> Microsoft .NET Fundamentals <ul style="list-style-type: none"> <li>• Lesson 3: Understanding events and exceptions</li> <li>• Lesson 5: Understanding Input/Output (I/O) classes</li> </ul>	<a href="#">C# Fundamentals: Development for Absolute Beginners</a> <ul style="list-style-type: none"> <li>• Module 20 “Gracefully Handling Exceptions”</li> </ul>
	<a href="#">Windows Development Fundamentals: MTA Exam 98-362</a> Windows Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 5: Validating User Input</li> <li>• Lesson 4: Controlling Application Execution</li> </ul>	n/a
	<a href="#">Mobile Development Fundamentals: MTA Exam 98-373</a> Mobile Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 8: Testing, Debugging, and Deploying a Mobile App</li> </ul>	n/a
	<a href="#">Web Development Fundamentals – MTA EXAM 98-363</a> Web Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 6: Troubleshooting and Debugging Web applications</li> </ul>	n/a

<b>3.1.7 Handling external data</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>Know how to use an external text file to read and write data in a way that is appropriate for the programming language(s) used and the problem being solved</li> <li>Know how to read and write data from an external database in a way that is appropriate for the programming language(s) used and the problem being solved</li> </ul>	<a href="#">Web Development Fundamentals – MTA EXAM 98-363</a> Web Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 4: Working with Data</li> <li>Lesson 3: Working with XML, Data Objects and WCF</li> </ul>	<a href="#">C# Fundamentals: Development for Absolute Beginners</a> <ul style="list-style-type: none"> <li>Module 11 “while Iterations and Reading Data from a Text File”</li> </ul>
	<a href="#">Microsoft.NET Fundamentals: MTA EXAM 98-372</a> Microsoft .NET Fundamentals <ul style="list-style-type: none"> <li>Lesson 5: Understanding input/output(I/O) Classes</li> </ul>	n/a

<b>3.1.8 Computer Structure</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<b>3.1.8.1 Systems</b>		
<ul style="list-style-type: none"> <li>• Be able to define a computer system (ie hardware and software working together to create a working solution)</li> <li>• Understand and be able to discuss the importance of computer systems to the modern world</li> <li>• Understand that computer systems must be reliable and robust and be able to discuss the reasons why this is important</li> </ul>	Please see: <a href="#">Basic Digital Literacy</a> <a href="#">Standard Digital Literacy</a> <a href="#">Advanced Curriculum</a>	n/a
<b>3.1.8.2 Hardware</b>		
<ul style="list-style-type: none"> <li>• Be able to describe and explain the fundamental pieces of hardware required to make a functioning computer system</li> <li>• Be able to discuss how developments in different hardware technologies (including memory and processor) are leading to exciting innovative products being created, eg in the mobile and gaming industries</li> <li>• Be able to categorise devices as input or output depending on their function.</li> </ul>	Please see: <a href="#">Basic Digital Literacy</a> <a href="#">Standard Digital Literacy</a> <a href="#">Advanced Curriculum</a>	n/a
<b>3.1.8.3 CPU (Central Processing Unit)</b>		
<ul style="list-style-type: none"> <li>• Be able to describe the purpose of the processor (CPU)</li> <li>• Understand how different components link to a processor (ROM, RAM, I/O, storage etc)</li> <li>• Be able to explain the effect of common CPU characteristics on the performance of the processors. These should include clock speed, number of cores and cache</li> </ul>	Please see: <a href="#">Basic Digital Literacy</a> <a href="#">Standard Digital Literacy</a> <a href="#">Advanced Curriculum</a>	n/a

size/types		
<b>3.1.8.4 Memory</b>		
<ul style="list-style-type: none"> <li>• Know the differences between non-volatile and volatile memory</li> <li>• Understand the purpose of both types of memory and when each should be used</li> <li>• Be able to explain the purpose of virtual memory and cache memory</li> <li>• Be able to explain the concept that data and instructions are stored in memory and processed by the CPU</li> </ul>	Please see: <a href="#">Basic Digital Literacy</a> <a href="#">Standard Digital Literacy</a> <a href="#">Advanced Curriculum</a>	n/a
<b>3.1.8.5 Secondary Storage</b>		
<ul style="list-style-type: none"> <li>• Understand what secondary storage is and be able to explain why it is required</li> <li>• Be able to describe the most common types of secondary storage</li> <li>• Understand how optical media, magnetic media and solid state works</li> </ul>	Please see: <a href="#">Basic Digital Literacy</a> <a href="#">Standard Digital Literacy</a> <a href="#">Advanced Curriculum</a>	n/a



<b>3.1.9 Algorithms</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>Understand that algorithms are computational solutions and always finish and return an answer</li> <li>Be able to interpret simple algorithms to deduce their function</li> <li>Be able to create algorithms to solve simple problems</li> <li>Be able to detect and correct errors in simple algorithms.</li> </ul>	<a href="#">Web Development Fundamentals – MTA EXAM 98-363</a> Web Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 6: Trouble shooting and Debugging web applications</li> </ul>	n/a
	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 3: Understanding general software development</li> <li>Lesson 6: Understanding databases</li> <li>Lesson 2: Introduction to Object-oriented programming</li> <li></li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>Module 1 “General Software Development”</li> <li>Module 2 “Core Programming”</li> </ul>
	<a href="#">Windows Development Fundamentals: MTA Exam 98-362</a> Windows Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 2: Creating a windows application project in visual studio</li> <li>Lesson 5: Validating user input</li> </ul>	n/a

<b>3.1.10 Data representation</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>Understand that computers use the binary alphabet to represent all data and instructions</li> <li>Understand the terms, bit, nibble, byte, kilobyte, megabyte, gigabyte and terabyte</li> <li>Understand that a binary code could represent different types of data such as text, image, sound, integer, date, real number</li> <li>Understand how binary can be used to present positive whole numbers up to (255)</li> <li>Understand how sound and bitmap images can be represented in binary</li> <li>Understand how characters are represented in binary and be familiar with ASCII and its limitation</li> <li>Understand why hexadecimal number representation is often used and know how to convert between binary, denary and hexadecimal.</li> </ul>	<p><a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals</p> <ul style="list-style-type: none"> <li>Lesson 3: Understanding general software development</li> <li>Lesson 2: Introduction to Object-Oriented programming</li> </ul>	n/a

<b>3.1.11 Software development life cycle</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>• Understand the software development life cycle</li> <li>• Be able to explain what commonly occurs at each stage of the software development life cycle</li> <li>• Be able to identify at which stage of the software development life cycle a given step would occur</li> <li>• Understand there are several lifecycle models that can be used (eg cyclical, waterfall, spiral)</li> <li>• Be able to discuss the advantages and disadvantages of these lifecycle models.</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 2: Introduction to object-oriented programming</li> <li>• Lesson 3: Understanding general software development</li> <li>• Lesson 4: Understanding web applications</li> <li>• Lesson 5: Understanding desktop applications</li> <li>• Lesson 6: Understanding databases</li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>• Module 1 “General Software Development”</li> </ul>
<b>3.1.11.1 Prototyping</b>		
<ul style="list-style-type: none"> <li>• Understand what prototyping is</li> <li>• Be able to discuss the advantages and disadvantages of using prototyping when developing solutions</li> <li>• Have experience of using prototyping to create solutions to simple problems.</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 2: Introduction to object-oriented programming</li> <li>• Lesson 3: Understanding general software development</li> <li>• Lesson 4: Understanding web applications</li> <li>• Lesson 5: Understanding desktop applications</li> </ul>	n/a

<b>3.1.12 Application testing</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>Understand the need for rigorous testing of coded solutions</li> <li>Understand the different types of tests that can be used, including unit/modular testing</li> <li>Be able to create suitable test plans and carry out suitable testing to demonstrate their solutions work as intended</li> <li>Be able to hand test simple code designs/algorithms using trace tables</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 2: Introduction to object-oriented programming</li> <li>Lesson 3: Understanding general software development</li> </ul>	n/a
	<a href="#">Windows Development Fundamentals: MTA Exam 98-362</a> Windows Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 1: Introducing windows applications</li> <li>Lesson 2: Creating a windows application project in visual studio</li> <li>Lesson 3: Creating a windows form user interface</li> <li>Lesson 4: Controlling application execution</li> <li>Lesson 5: Validating user input</li> <li>Lesson 6: Integrating data</li> <li>Lesson 7: Packaging and deploying windows applications</li> </ul>	n/a
	<a href="#">Web Development Fundamentals – MTA EXAM 98-363</a> Web Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 3: Working with XML, Data objects and WCF</li> <li>Lesson 4: Working with data</li> <li>Lesson 5: Working with Client-Side scripting</li> <li>Lesson 6: Trouble shooting and debugging web applications</li> </ul>	n/a

<b>3.1.13 Networking</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>Understand what a computer network is</li> <li>Be able to discuss the advantages and disadvantages of using a computer network</li> <li>Be able to describe and explain the bus, ring and star networking topologies</li> <li>Be able to discuss the advantages and disadvantages of each of these topologies</li> </ul>	<p><a href="#">Networking Fundamentals: MTA Exam 98-366</a> Networking Fundamentals</p> <ul style="list-style-type: none"> <li>Lesson 1: Understanding local area networking</li> <li>Lesson 3: Understanding wired and wireless networks</li> <li>Lesson 4: Understanding internet protocol</li> <li>Lesson 6: Working with networking services</li> <li>Lesson 7: Understanding wide area networks</li> </ul>	<p><a href="#">Networking Fundamentals:</a></p> <ul style="list-style-type: none"> <li>Module 1 “Understanding Local Area Networking”</li> <li>Module 2 “Defining Networks with the OSI Model”</li> <li>Module 3 “Understanding Wired and Wireless Networks”</li> <li>Module 4 “Understanding Internet Protocol”</li> <li>Module 5 “Implementing TCP/IP in the Command Line”</li> <li>Module 6 “Working with Networking Services”</li> <li>Module 7 “Understanding Wide Area Networks”</li> <li>Module 8 “Defining Network Infrastructures and Security”</li> </ul>
<b>3.1.13.1 Client server</b>		
<ul style="list-style-type: none"> <li>Understand the client-server model</li> <li>Be able to explain, in simple terms, the handshake process used in most modern networking protocols</li> <li>Be able to explain how coding for a client-server model is different from coding for a stand-alone application.</li> </ul>	<p><a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals</p> <ul style="list-style-type: none"> <li>Lesson 2: Introduction to object-oriented programming</li> <li>Lesson 3: Understanding general software development</li> <li>Lesson 4: Understanding web applications</li> <li>Lesson 6: Understanding databases</li> </ul>	<p><a href="#">Software Development Fundamentals:</a></p> <ul style="list-style-type: none"> <li>Module 4 “Web Applications”</li> </ul>
	<p><a href="#">Networking Fundamentals: MTA Exam 98-366</a> Networking Fundamentals</p> <ul style="list-style-type: none"> <li>Lesson 4: Understanding internet protocol</li> </ul>	<p><a href="#">Networking Fundamentals:</a></p> <ul style="list-style-type: none"> <li>Module 4 “Understanding Internet Protocol”</li> <li>Module 5 “Implementing TCP/IP in the</li> </ul>

		Command Line”
	<a href="#">Web Development Fundamentals – MTA EXAM 98-363</a> Web Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 3: Working with XML, Data objects and WCF</li> <li>• Lesson 4: Working with data</li> <li>• Lesson 5: Working with Client-Side scripting</li> <li>• Lesson 6: Trouble shooting and debugging web applications</li> </ul>	n/a
<b>3.1.13.2 Web application concepts</b>		
<ul style="list-style-type: none"> <li>• Understand the concept of coding at the server and client end</li> <li>• Know what can be coded at the server end</li> <li>• Know what can be coded at the client end</li> <li>• Have experience of coding solutions to simple web application problems.</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 2: Introduction to object-oriented programming</li> <li>• Lesson 3: Understanding general software development</li> <li>• Lesson 4: Understanding web applications</li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>• Module 4 “Web Applications”</li> </ul>
	<a href="#">Web Development Fundamentals – MTA EXAM 98-363</a> Web Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 1: Creating a web page</li> <li>• Lesson 2: Creating an interactive web page</li> <li>• Lesson 3: Working with XML, Data objects and WCF</li> <li>• Lesson 4: Working with data</li> <li>• Lesson 5: Working with Client-Side scripting</li> <li>• Lesson 6: Trouble shooting and debugging web applications</li> </ul>	<a href="#">HTML5 App Development Fundamentals</a> <ul style="list-style-type: none"> <li>• Module 4 “Javascript Core Capabilities”</li> </ul>

<b>3.1.14 Use of external code sources</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>• Know of the existence of external code sources</li> <li>• Know how to integrate code from these sources into their own code</li> <li>• Be able to explain the advantages and disadvantages of using such sources.</li> </ul>	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 2: Introduction to object-oriented programming</li> <li>• Lesson 3: Understanding general software development</li> <li>• Lesson 4: Understanding web applications</li> <li>• Lesson 6: Understanding databases</li> </ul>	n/a
	<a href="#">Web Development Fundamentals – MTA EXAM 98-363</a> Web Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 3: Working with XML, Data objects and WCF</li> <li>• Lesson 4: Working with data</li> <li>• Lesson 5: Working with Client-Side scripting</li> </ul>	<a href="#">JavaScript Fundamentals for Absolute Beginners</a> <ul style="list-style-type: none"> <li>• Module 11 “Working the External Javascript Files”</li> </ul>
	<a href="#">Windows Development Fundamentals: MTA Exam 98-362</a> Windows Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 1: Introducing windows applications</li> <li>• Lesson 4: Controlling application execution</li> <li>• Lesson 5: Validating user input</li> <li>• Lesson 6: Integrating data</li> </ul>	n/a

<b>3.1.15 Database concepts</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>Understand the basics concepts of relational database as a data store</li> <li>Be able to explain the terms record, field, table, query, primary key, relationship, index and search criteria</li> </ul>	<a href="#">Database Administration Fundamentals – MTA EXAM 98-364</a> Database Administration Fundamentals <ul style="list-style-type: none"> <li>Lesson 1: Understanding Core Database concepts</li> <li>Lesson 2: Creating Database objects</li> <li>Lesson 3: Manipulating Data</li> <li>Lesson 4: Understanding Data storage</li> <li>Lesson 5: Administering a Database</li> <li></li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>Module 6 “Understand Databases”</li> </ul>
	<ul style="list-style-type: none"> <li><a href="#">Software Development – MTA EXAM 98-361</a></li> </ul> Software Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 6: Understanding Databases</li> </ul>	n/a
<b>3.1.15.1 Query methods (SQL)</b>		
<ul style="list-style-type: none"> <li>Be able to create simple SQL statements to extract, add and edit data stored in database</li> <li>Have experience of using these SQL statements from within their own coded systems.</li> </ul>	<a href="#">Database Administration Fundamentals – MTA EXAM 98-364</a> Database Administration Fundamentals <ul style="list-style-type: none"> <li>Lesson 1: Understanding Core Database concepts</li> <li>Lesson 2: Creating Database objects</li> <li>Lesson 3: Manipulating Data</li> <li>Lesson 4: Understanding Data storage</li> <li>Lesson 5: Administering a Database</li> </ul>	n/a
	<a href="#">Software Development – MTA EXAM 98-361</a> Software Development Fundamentals <ul style="list-style-type: none"> <li>Lesson 6: Understanding Databases</li> </ul>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>Module 6 “Understand Databases”</li> </ul>
<b>3.1.15.2 Connecting to database from applications and web based apps</b>		
<ul style="list-style-type: none"> <li>Be able to use database from within their own web based applications.</li> </ul>	<a href="#">Web Development Fundamentals – MTA EXAM 98-363</a>	<a href="#">Software Development Fundamentals:</a> <ul style="list-style-type: none"> <li>Module 6 “Understand Databases”</li> </ul>



	Web Development Fundamentals <ul style="list-style-type: none"> <li>• Lesson 3: Working with XML, Data Objects, and WCF</li> <li>• Lesson 5: Working with Client-Side scripting</li> <li>• Lesson 4: Working with Data</li> </ul>	
--	---	--

<b>3.1.16 The use of computer technology in society</b>		
<i>Outcomes</i>	<i>MOAC course and lesson(s)</i>	<i>MVA course and module(s)</i>
<ul style="list-style-type: none"> <li>• Be able to evaluate the effectiveness of computer problems/solutions</li> <li>• Be able to evaluate the impact of and issues related to the use of computer technology in society.</li> </ul>	<a href="#">Advanced Digital literacy</a> <ul style="list-style-type: none"> <li>• Finding and evaluating resources on the web</li> <li>• Using social networking to connect with the world</li> </ul>	n/a