

### Computing Step 9-1 Descriptors

Step	Descriptor
9	<p>To achieve a Step 9 candidates will be able to:</p> <ul style="list-style-type: none"> <li>• analyse and decompose a range of complex problems and create an algorithm without any help</li> <li>• use a range of programming techniques in two text based languages confidently</li> <li>• write efficient code using a wide range of techniques, data structures and recursion</li> <li>• systematically resolve errors and build robust programs</li> </ul>
8	<p>To achieve a Step 8 candidates will be able to:</p> <ul style="list-style-type: none"> <li>• analyse and decompose a more complex problem and create an algorithm without any help.</li> <li>• write an algorithm using a flow chart and pseudo code</li> <li>• create an accurate algorithm</li> <li>• use a range of programming techniques in two text based languages</li> <li>• write efficient code using a range of techniques</li> <li>• apply MOD/DIV and exponential to solve problems</li> <li>• systematically resolve errors and build robust programs</li> </ul>
7	<p>To achieve a Step 7 candidates will be able to:</p> <ul style="list-style-type: none"> <li>• analyse and decompose a complex problem, create an algorithm without any help</li> <li>• create an accurate algorithm</li> <li>• use more than one text based programming language</li> <li>• use a range of casting and file handling skills</li> <li>• always write programs using procedure/ suitable functions</li> <li>• write nested statements</li> <li>• explain what exponential means</li> <li>• access/ modify 1d and 2d arrays</li> <li>• use a query language/search for data</li> <li>• tests on programs are through</li> </ul>
6	<p>To achieve a Step 6 candidates will be able to:</p> <ul style="list-style-type: none"> <li>• analyse and decompose a more complex problem, create an algorithm with some help</li> <li>• create a mostly accurate algorithm</li> <li>• have confidence in using at least one text based language</li> <li>• use procedures in code</li> <li>• research and find new ways to program problems (functions)</li> <li>• create a two dimensional array</li> <li>• solve Boolean logic problems of more than 2 levels</li> <li>• solve an MOD/DIV problem</li> <li>• use records to store data</li> <li>• systematically use a range of tests on programs</li> </ul>
5	<p>To achieve a Step 5 candidates will be able to:</p> <ul style="list-style-type: none"> <li>• analyse and decompose a simple problem, create an algorithm with some help</li> <li>• create an almost perfect algorithm that includes variables, decisions and a loop</li> <li>• use an algorithm to create a program in a text based language</li> <li>• explain what variables/ data types are needed</li> <li>• write a program using casting/ file handling</li> <li>• explain what functions/procedures are</li> <li>• solve Boolean logic problems (2 levels)</li> <li>• explain MOD/DIV</li> <li>• create and store data in a 1d array</li> <li>• always test programs</li> </ul>

4	<p>To achieve a Step 4 candidates will be able to:</p> <ul style="list-style-type: none"> <li>• Practise writing sequences and don't require much help to make my own</li> <li>• work out the outcome of an algorithm using different data</li> <li>• make an algorithm with a loop (iteration)</li> <li>• write a program with a loop (iteration)</li> <li>• explain where variables are required</li> <li>• give an example of a data type</li> <li>• solve a simple Boolean logic problem</li> <li>• know what the system life cycle is</li> <li>• explain why a program needs to be tested</li> </ul>
3	<p>To achieve a Step 3 candidates will be able to:</p> <ul style="list-style-type: none"> <li>• write a set of instructions with some processing and a decision (selection)</li> <li>• make an algorithm with a decision</li> <li>• write a program (using a block/object orientated programming language) with a decision (selection) • use a variable</li> <li>• add, subtract, divide and multiply 2 digit numbers</li> </ul>
2	<p>To achieve a Step 2 candidates will be able to:</p> <ul style="list-style-type: none"> <li>• requires help to break problems down</li> <li>• make an algorithm with an input and output</li> <li>• write a program with an input</li> <li>• state what a variable is</li> <li>• add, subtract, divide and multiply simple numbers</li> </ul>
1	<p>To achieve a Step 1 candidates will be able to:</p> <ul style="list-style-type: none"> <li>• follow simple instructions to create an algorithm with an input and output</li> <li>• add and subtract with simple numbers</li> <li>• identify a program with a simple input</li> </ul>