

# Knowledge Organiser 2.2 : Programming Fundamentals 1

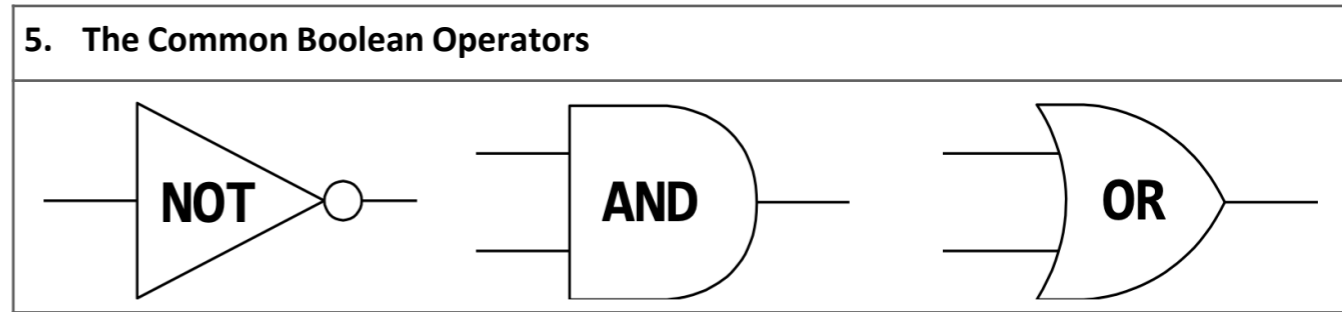
| 1. Key Terms |   |
|--------------|---|
| Variable     | A value stored in memory that can change while the program is running                                   |
| Constant     | A value that does not change while the program is running, and is assigned when the program is designed |
| Operator     | A character that represents an action, e.g. "+" is a mathematical Operator                              |
| Assignment   | Giving a variable or constant a value   |
| Casting      | Converting a variable from one data type to another   |
| Input        | A value that is entered into the program after the program has started running                          |

| 2. Correct Use of Data Types |   |
|------------------------------|---|
| Integer                      | A positive or negative whole number used when arithmetic will be required   |
| Real / Float                 | A positive or negative decimal number                                       |
| Character                    | A single alphanumeric   |
| String                       | Multiple characters joined together [n.b. use this for credit card numbers] |

| 3. The Three Basic Programming Constructs |  |
|---|--|
| Sequence                                  | Executing one instruction after another  |
| Selection                                 | Program branching depending on a condition                                       |
| Iteration                                 | sometimes called looping, is repeating sections of code. Condition controlled or |

| 4. Common Arithmetic Operators |                |
|--------------------------------|----------------|
| +                              | Addition       |
| -                              | Subtraction    |
| *                              | Multiplication |
| /                              | Division       |
| ^                              | Exponentiation |

| 5. Common Comparison Operators |                            |
|--------------------------------|----------------------------|
| ==                             | Is equal to                |
| !=                             | Is not equal to            |
| <                              | Is lesser than             |
| >                              | Is greater than            |
| <=                             | Is lesser than or equal to |



| 6. Basic String Manipulation (general) |  |
|--|--|
| string.length                          | Obtains the length of the string in characters         |
| string.upper                           | Converts the string to uppercase                       |
| string.lower                           | Converts the string to lowercase                       |
| string.left(n)                         | Gets the left-most n characters of the string          |
| string.right(n)                        | Gets the right-most n characters of the string         |
| string.substring(a,b)                  | Gets b characters of the string starting at position a |
| ASC(char)                              | Returns the numerical ASCII value of char              |

| 7. Basic File Handling Operations (OCR Reference Language) |  |
|--|--|
| myFile=open("...")   | Open a file  |
| myFile.close()   | Close a file   |
| myFile.readLine()  | Read a line from a file  |
| myFile.writeLine()   | Write a line to a file   |
| myFile=("...")   | Create a new file  |
| string.substring(a,b)                                      | Gets b characters of the string starting at position a   |
| A Workflow   | <pre> myFile = open ("sample.txt")  while NOT myFile.endOfFile()      print (myFile.readLine())  endwhile                     </pre> |