

Software: Computational Thinking, Testing and Data Checking

A	Computational Thinking
Abstraction	A model or representation removing the inessential elements of a situation to focus on the essential elements
Algorithmic thinking	Approaching a problem by breaking it into steps which need to be followed in order
Decomposition	Breaking apart a complex problem into smaller manageable parts
Computational thinking	Approaching complex problems with a mix of abstraction, decomposition, pattern recognition and algorithmic thinking
Pattern recognition	Identifying situations with the same essential elements
Program flow	The order in which statements are executed which is affected by selection, iteration and sequencing
Testing	Making sure a program works under various conditions

D	Data checking
Check digit	A digit which is calculated from an original number. It can be recalculated after transfer or input to make sure no errors have been introduced
Check sum	A number used to check if a packet of data has been sent correctly
Parity check	A binary check digit which is a 0 if the number of 1s is even and 1 if the number of 1s is odd (or vice versa)

B	Types of test
Fault Tolerance	Testing with illegal or out-of-range inputs
Functional	Testing with a selection of inputs which are chosen to be both normal and extreme
Integration	After a subroutine has been tested in isolation, testing to see that it works with the main program
Iterative	Testing every module before moving on
Parametric	Testing of individual subroutines
Regression	Testing after any changes have been made to see they have not made unexpected changes elsewhere
User Acceptance	Testing with users to see if they interact with the program as expected
Final	Functional testing on a high level to make sure the program works as expected

C	Testing vocab
Erroneous	Test data which should not be accepted by a program
Valid	Test data which is in range and should be handled
Invalid	Test data which is out of range and should be trapped
Extreme	Test data on the border of validity
Test Plan	Carefully chosen inputs and their expected outputs which will be used in testing