

Independent Scholarship Award: Computer Science		
Bronze (Must Be Completed)	Silver	Gold
<p>Read the following title and one other from the list below.</p> <p>(Free and Online)</p> <p>How to Think Like a Computer Scientist by Peter Wentworth, Jeffrey Elkner, Allen B. Downey, and Chris Meyers http://openbookproject.net/thinkcs/python/english3e/</p> <p>Computers Ltd: What They REALLY Can't Do by D. Harel</p> <p><i>Harel explains and illustrates one of the most fundamental, yet under-exposed facets of computers - their inherent limitations. Looking at the bad news that is proven, lasting and robust, discussing limitations that no amounts of hardware, software, talents or resources can overcome, the book presents a disturbing and provocative view of computing at the start of the 21st century. Though we may strive for bigger and better things in computing, we need to be realistic: computers are not omnipotent - far from it. (Also see</i></p> <p>Algorithmics: The Spirit of Computing By David Harel, Yishai A. Feldman)</p> <p>Computer Science Distilled: Learn the Art of Solving Computational Problems by Wladston Ferreira Filho</p>	<p>As bronze, including the following:</p> <p>Learn a second language using a structured online course or book</p> <p>Languages: Code Academy https://www.codecademy.com/</p> <p>C++, Java script etc.</p>	<p>As silver, with the addition of a synopsis of a third title.</p>

A foolproof walkthrough of must-know computer science concepts. Designed for readers who don't need the academic formality, it's a fast and easy computer science guide. It teaches essential concepts for people who want to program computers effectively.

Algorithms to Live By: The Computer Science of Human Decisions by Brian Christian, Tom Griffiths
A fascinating exploration of how insights from computer algorithms can be applied to our everyday lives, helping to solve common decision-making problems and illuminate the workings of the human mind.

Grokking Algorithms An Illustrated Guide For Programmers and Other Curious People by Aditya Y. Bhargava
An algorithm is nothing more than a step-by-step procedure for solving a problem. The algorithms you'll use most often as a programmer have already been discovered, tested, and proven. If you want to take a hard pass on Knuth's brilliant but impenetrable theories and the dense multi-page proofs you'll find in most textbooks, this is the book for you.

The Code Book: The Science of Secrecy from Ancient Egypt to Quantum Cryptography by Simon Singh

In his first book since the bestselling Fermat's Enigma, Simon Singh offers the first sweeping history of encryption, tracing its evolution and revealing the dramatic effects codes have had on wars, nations, and individual lives. From Mary, Queen of Scots, trapped by her own code, to the Navajo Code Talkers who helped the Allies win World War II, to the incredible (and incredibly simple) logistical breakthrough that made Internet commerce secure, The Code Book tells the story of the most powerful intellectual weapon ever known: secrecy.