



GREAT NECK PUBLIC SCHOOLS

"Where Discovery Leads to Greatness"

#DiscoverGreatness

Phipps Administration Building
Office of Instruction
345 Lakeville Road
Great Neck, New York 11020

516.441.4009
516.441.4010
Fax 516.441.4992

Curriculum Profile: Data Structures

<u>Department</u>	Mathematics		
<u>Course Name</u>	Data Structures H		
<u>Course Length</u>	1 year (two semesters)		
<u>High School Credits</u>	1		
<u>Description</u>	This course explores topics in computer science beyond what is covered in the AP curriculum and will be open to students who have completed AP Computer Science. The class continues the computer science sequence with the study of data structure and algorithms in a new programming language (C++).		
<u>Target/eligible students</u>	Prerequisite of AP Computer Science A		
<u>State Learning Standards Link(s)</u>	Not applicable		
<u>Primary texts and materials</u>	Computers with ability to run C++ programs		
<u>Scope/Sequence</u>	1. Getting started with C++ 2. Anatomy of a C++ program 3. Using variables and declaring constants 4. Managing arrays and strings 5. Expressions, statements, operators 6. Controlling program flow 7. Organizing code with functions 8. Pointers and references 9. Classes and objects 10. Implementing inheritance 11. Polymorphism 12. Operator types and operator overloading	13. Casting operators 14. Header files 15. Introduction to linked lists 16. Linked list insert and delete 17. File i/o 18. Doubly linked lists 19. Circular linked lists 20. Linked lists as stacks 21. Linked lists as queues 22. Linked lists as trees 23. Binary trees and binary search trees 24. Tries	
<u>Additional Notes</u>	Class is project-based with smaller assignments for each lesson. Each quarter includes 2-4 larger, long-term programming assignments.		