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K	1	2	3	4	5	6	7	8	9	10	11	12
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Subject: _____ Computer Science II - AP _____

CISD Curriculum Framework – Scope

Local Objectives	Extension	Textbook	Time Range	Assessment	Resources
<p>First Six Weeks The Students will :</p> <p>REVIEW C++ BASICS Review variables and data types. Review functions and parameters.</p> <p>REVIEW PROGRAM DESIGN Review how to write an algorithm. Review how to create a Stub Program. Review the idea of Step-Wise Refinement.</p> <p>FILES Learn what a file is. Learn what a class is. ifstream and ofstream Learn how to use the file class. Learn how to use the file class member functions. Learn how to write to a file. Learn how to use loops to write to and read from a file. Learn the two ways to read from a file : eof & while (cin >> var)</p>		<p>pp.1-16 pp.1-16</p> <p>pp.1-16 pp.1-16 pp.1-16</p> <p>pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16</p>	<p>1 week</p> <p>1 week</p> <p>1 week</p>	<p>Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing</p> <p>Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing</p> <p>Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing</p>	<p>Fundamentals of Program Design and Data Structures with C++ Handouts C++4.5 PowerPoint</p> <p>Handouts C++4.5 PowerPoint</p> <p>Handouts C++4.5 PowerPoint</p>

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<p>STRUCTS Learn to use the Struct data type. Learn why records are used. Learn the difference between arrays and records. Learn more about enumerated types. Learn how to pass records as parameters. Learn what hierarchical records are. Learn what an ADT is. Learn how to make an array of records. Learn more about program design.</p>		pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16	1 week	Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing	Handouts C++4.5 PowerPoint
<p>CLASSES Learn how to use a class. Learn how to go from a struct to a class. Learn how to make an ADT with a class. Learn how to make a constructor and a destructor. Learn how to use Public and Private. Learn about Enhanced information hiding. Learn what an overloaded operator is. Learn what an overloaded function is. Learn what a free function is and how to use one. Learn how to use the Large Integer Case Study as a model Learn how to add operators to a class. Learn how to use #ifndef. Learn to use the #define preprocessor command. Learn to write an = assign function with *this.</p>		pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16	1 week	Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing	Handouts C++4.5 PowerPoint Large Integer Case Study
<p>VECTORS / MATRICES Learn how to use the C++ Vector Data Structure. Learn how to call the Vector member functions. Learn how to create user-defined data-types of vectors. Learn how to pass the Vector as a parameter. Learn how to manipulate characters by ASCII values. Learn how to use the C++ Matrix data structure. Learn how to call the Matrix member functions.</p>		pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16 pp.1-16	1 Week	Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing	Handouts C++4.5 PowerPoint

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<p>2nd Six Weeks SORTING AND SEARCHING Learn all of the sorting & searching algorithms. Learn how to use BIGO notation to analyze sorts and searches. Learn which sort is the fastest and which sort is the slowest. Learn which sort is the most efficient and which is the least efficient. Learn which search is the fastest and which search is the slowest. Learn which search is the most efficient and which is the least efficient. Learn how to analyze a sort and a search routine to check speed.</p>		pp. 16 -68 pp. 16 -68 pp. 16 -68 pp. 16 -68 pp. 16 -68 pp. 16 -68 pp. 16 -68	1 week	Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing	Handouts C++4.5 PowerPoint
<p>ADVANCED CLASSES Learn to create an ADT with a class. Learn to make a class template. Learn to make generic ADTs.</p>		pp. 69 - 108 pp. 69 - 108 pp. 69 - 108	3 weeks	Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing	Handouts C++4.5 PowerPoint
<p>SOFTWARE ENGINEERING Learn how the system life cycle works. Learn how to design software. Learn to build software applications.</p>		pp. 109 - 152 pp. 109 - 152 pp. 109 - 152	2 weeks	Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing	Handouts C++4.5 PowerPoint
<p>3rd Six Weeks NUMBER SYSTEMS Learn to convert base 10 numbers to base 2. Learn to convert base 2 numbers to base 10. Learn to convert base 8 numbers to base 2. Learn to convert base 10 numbers to base 8. Learn to convert base 16 numbers to base 2.</p>			1 week	Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing	Handouts C++4.5 PowerPoint

Local Objectives	Extension	Textbook	Time Range	Assessment	Resources
<p>Learn to convert base 10 numbers to base 16. Learn to add any 2 numbers of the same base together. Learn to subtract any 2 numbers of the same.</p> <p>LINKED LISTS AND POINTERS Learn how to define pointer variables. Learn how pointers access memory locations. Learn how to make a list of pointer variables. Learn how to delete pointer locations. Learn how to insert pointer locations into a linked list. Learn how to traverse a linked list. Create and ADT with pointers.</p> <p>STACKS AND QUEUES Create a Stack ADT using pointers. Create a Queue ADT using pointers. Create a Stack using an array. Learn how the internal stack is used to handle function calls Learn to read infix, postfix, and prefix notation. Learn all of the common Queue and stack operations. Learn how a Stack is different from a Queue.</p> <p>2nd Semester 4th Six Weeks RECURSION Learn how to use Recursion in their programs. Learn what recursion is. Learn how recursion works. Learn what a base case is. Learn how recursion uses the stack. Learn what the stack is and how it is used.</p> <p>BINARY TREES Create and Binary Tree ADT. Learn to create a heap. Learn to create a binary search tree. Learn to create an arithmetic expression tree.</p>		<p>pp. 153-200 pp. 153-200 pp. 153-200 pp. 153-200 pp. 153-200 pp. 153-200 pp. 153-200</p> <p>pp. 201-261 pp. 201-261 pp. 201-261 pp. 201-261 pp. 201-261 pp. 201-261 pp. 201-261</p> <p>pp. 262-313 pp. 262-313 pp. 262-313 pp. 262-313 pp. 262-313 pp. 262-313</p> <p>pp. 314-391 pp. 314-391 pp. 314-391 pp. 314-391 pp. 314-391</p>	<p>3 weeks</p> <p>2 weeks</p> <p>3 weeks</p> <p>3 weeks</p>	<p>Standard Testing</p> <p>Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing</p> <p>Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing</p> <p>Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing</p> <p>Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing</p>	<p>Handouts C++4.5 PowerPoint</p> <p>Handouts C++4.5 PowerPoint</p> <p>Handouts C++4.5 PowerPoint</p> <p>Handouts C++4.5 PowerPoint</p>

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<p>Learn to use a pre-order traversal. Learn to use a post-order traversal.</p> <p>5th Six Weeks BINARY TREES Learn to use an in-order traversal. Learn a depth-first traversal. Learn the BigO notation in regards to Binary Trees. Learn to sort and search a binary tree.</p> <p>ADVANCED SORTING AND SEARCHING Learn the BIGO notation for all sorts. Learn to use the Merge Sort. Learn to use every type of Sort. Learn to use every type of Search. Learn to use Recursive sorts and searches. Learn to use pointers with sorts and searches.</p> <p>6th 6 weeks LARGE INTEGER CASE STUDY Students will learn to read and implement the large integer case study. Learn why the LICS was created. Learn how to use the LICS in programs. Learn some of the problems encountered while creating the LICS Learn how to add functions to the LICS. Learn the steps used to create the LICS. Learn why classes were used to create the LICS. Learn advanced program design techniques.</p> <p>AP TEST REVIEW Review all concepts covered in AP computer Science.</p> <p>LARGE PROGRAMMING PROJECT Apply all concepts practiced all year. Write a class ADT of some type. Demonstrate mastery of all concepts. Demonstrate ability to design a large data type. Demonstrate ability to implement a large data type.</p>		<p>pp. 314-391</p> <p>pp. 314-391 pp. 314-391 pp. 314-391 pp. 314-391</p> <p>case study pp. 1 -70 pp. 1 -70 pp. 1 -70 pp. 1 -70 pp. 1 -70 pp. 1 -70 pp. 1 -70</p>	<p>3 weeks</p> <p>3 weeks</p> <p>2 weeks</p> <p>1 week</p> <p>3 weeks</p>	<p>Standard Testing</p> <p>Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing</p> <p>Lab Based Evaluation Teacher Evaluation Student Evaluation Cooperative Projects Lab Based Testing Standard Testing</p>	<p>Handouts C++4.5 PowerPoint</p> <p>AP Board Handouts C++4.5 PowerPoint</p> <p>AP Practice Tests</p> <p>Handouts C++4.5 PowerPoint</p>

