

COURSE: C++ Programming	GRADE(S): 10 11 12
UNIT 1 : Input/output features of C++	

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<p>STATE STANDARDS:</p> <p>2.5.11A. Select and use appropriate mathematical concepts and techniques from different areas of mathematics and apply them to solving non-routine and multi-step problems.</p> <p>2.5.11B. Use symbols, mathematical terminology, standard notation, mathematical rules, graphing and other types of mathematical representations to communicate observations, predictions, concepts, procedures, generalizations, ideas and results.</p> <p>2.5.11C. Present mathematical procedures and results clearly, systematically, succinctly and correctly.</p> <p>2.5.11D. Conclude a solution process with a summary of results and evaluate the degree to which the results obtained represent an acceptable response to the initial problem and why the reasoning is valid.</p>	<p>UNIT OBJECTIVES:</p> <p>1.1 Introduction to C++ Programming and compare/contrast to Java Programming</p> <p>1.2 Write and run C++ programs using output commands to the console</p> <p>1.3 Use variables for input and storage</p> <p>1.4 Write and run C++ program accepting input from the user</p> <p>1.5 Use the C++ math operators +, -, *, /, %</p>
<p>ACTIVITIES:</p> <p>1.1 Use cout, endl, and '\n' to run programs generating output</p> <p>Write, compile, and run programs to output mailing address and original pictures.</p> <p>1.2 1.3 1.4</p> <p>Use variables (char, float, int) to accept input from user, manipulate the data with math operators, and output data.</p> <p>Write and run programs...</p> <p>Accepting measurements of geometric figures and outputting area and perimeter.</p>	<p>ASSESSMENTS :</p> <p>Exact Change Dispenser Program</p> <p>REMEDIATION:</p> <p>Work with partners</p> <p>Examine well written programs of other students</p> <p>ENRICHMENT:</p> <p>Discover and explore the use of built-in math functions such as exponents, square root, etc.</p> <p>Cash Register Program</p>

Accepting input, using simple formulas, and outputting answers.

Accepting dividend and divisor and outputting quotient and remainder

RESOURCES:

C++ Programming Deitel
Introduction to Computer Science using C++ -
Knowlton

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UNIT 2 : Control Structures	

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<p>ACTIVITIES:</p> <p>2.1 - 2.4</p> <p>Write and run programs...</p> <p>producing an original multiple choice question test</p> <p>displaying a menu, accepting input, and executing correct code</p> <p>Write and run programs...</p> <p>Accepting weight and dimensions of a</p>	<p>ASSESSMENTS :</p> <p>SAT Program</p> <p>Cash Register Program</p> <p>REMEDIATION:</p> <p>Work with partners</p> <p>Examine other programmers code</p> <p>Inches, Feet, Yards Program</p> <p>ENRICHMENT:</p>

**package, outputting if package is correct
size for mailing**

**accepting numerical grades and outputting
corresponding letter grades**

RESOURCES:

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**Add to multiple choice test program by including
scoring, hints, or other extra features**

**Add special features to any previously made
programs (colors, sounds, etc.)**

Police Sketch Program

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UNIT 3 : Allegro Graphics	

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<p>ACTIVITIES:</p> <p>3.1 – 3.3 Using geometric shapes to output interesting pictures and designs including various colors (House,Snowman,Bullseye,3D Box, etc...)</p> <p>Photo story using BITMAP images</p> <p>RESOURCES:</p> <p>C++ Programming Deitel Introduction to Computer Science using C++ - Knowlton</p>	<p>ASSESSMENTS :</p> <p>Creating your own graphics quiz Program that outputs specific geometric shape</p> <p>REMEDIATION:</p> <p>Graph paper drawing activity</p> <p>ENRICHMENT:</p> <p>Designing programmer desired graphics Designing personal logos</p>

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UNIT 4 : Selection and Repetition	

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<p>ACTIVITIES:</p> <p>4.1-4.3 Joe's Shoe Store Program Metro City Election Program</p> <p>Wages Program Dice Game Program Game to 21 Program</p> <p>RESOURCES:</p> <p>C++ Programming Deitel Introduction to Computer Science using C++ - Knowlton</p>	<p>ASSESSMENTS :</p> <p>First to 100 Program Mastermind Program Loop Quiz Mid-Term Exam/Program</p> <p>REMEDIATION:</p> <p>High-Low Game Program Average Positive Numbers Activity</p> <p>ENRICHMENT:</p> <p>Prime Factorization Program Artificial Intelligence for First to 100 Program</p>

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UNIT 5 : Arrays	

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<p>ACTIVITIES:</p> <p>5.1 – 5.2 Hangman Mancala</p> <p>RESOURCES:</p> <p>C++ Programming Deitel Introduction to Computer Science using C++ - Knowlton</p>	<p>ASSESSMENTS :</p> <p>Array Assignment with 5 different functions for differentiation</p> <p>Array quiz</p> <p>REMEDIATION:</p> <p>Advanced NIM</p> <p>Modify previous programs to use arrays</p> <p>ENRICHMENT:</p> <p>Add graphics to hangman and mancala program</p>

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UNIT 6 : Multi-Dimensional Arrays	
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<p>ACTIVITIES:</p> <p>6.1 – 6.2 Battleship</p> <p>The Memory Game</p> <p>Use 2-d arrays to develop original pictures</p> <p>RESOURCES:</p> <p>C++ Programming Deitel Introduction to Computer Science using C++ - Knowlton</p>	<p>ASSESSMENTS : 2D Array quiz</p> <p>Exploring Graphics</p> <p>Final Project</p> <p>REMEDIATION:</p> <p>Final Project Modify previous programs to use arrays</p> <p>ENRICHMENT:</p> <p>Final Project, addition of graphics to programs</p>