# Java Programming

## Grades 10-12

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<thead>
<tr>
<th>Unit/Marking Period</th>
<th>Module 1</th>
<th>Module 2</th>
<th>Module 3</th>
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<tbody>
<tr>
<td>Essential Question:</td>
<td>What are the key syntax components that govern Java programming?</td>
<td>What qualities do various control statements have in common? How does that affect programming?</td>
<td>What mechanisms exist for identifying overload error and how do they mechanisms differ in terms of correct the error?</td>
<td>How do the various object principles affect object development and programming?</td>
<td>How are arrays used to analyze and sort data?</td>
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### Content:
- **Introduction to Java and Basic Operations**
- **Control Statements**
- **Subroutines**
- **Objects**
- **Arrays and Graphical User Interface**

### Skills and Topics:
- **History of object-oriented programming**
- **Analyze various programming methods and compare/contrast**
- **Identify key components to basic Java syntax**
- **Apply syntax to create basic input/output functions**
- **Analyze various data types and included operations**
- **Perform increment/decrement and Type Conversation tasks**
- **Identify key components of branching statements**
- **Construct branching statements using “if” and “switch”**
- **Construct looping statements using “while” and “for”**
- **Perform increment/decrement on branching structures**
- **Interpret data files and apply to problem solving**
- **Perform appropriate method declaration**
- **Method declaration**
- **Identify and apply correct syntax for parameter passing**
- **Method and Variable Visibility**
- **Identify the conditions that commonly cause overloading and throwing exceptions**
- **Troubleshoot overload errors**
- **Construct Object Declarations, including Constructors**
- **Utilize Wrapper Classes to simplify programs**
- **Apply concepts of API Class Library to expand knowledge of objects**
- **Apply principles of Encapsulation, Inheritance, Abstraction, and Polymorphism to programming**
- **Using single and multi-dimensional arrays to collect information**
- **Compare/contrast various methods for searching and sorting arrays based on desired result parameters**
- **Expand knowledge of API Class Library through ArrayList Class**
- **Apply basic knowledge of graphical user interface to create graphics and paint**
- **Utilize Mouse and keyboard components in UI programs**
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<td>Integration of Technology:</td>
<td>Dr. Java IDE, Chromebooks, SMART Boards, Google Docs</td>
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<td>Writing:</td>
<td>Written expression of code, justification of claims, comparing/contrasting various programming methods</td>
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<td>Formative Assessments:</td>
<td>Teacher observation, class participation, Do Now activities, opening activities, closing activities, programming code, authentic benchmark assessments</td>
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<td>Summative Assessments:</td>
<td>Quizzes, tests, programs, projects, presentations, benchmark assessments</td>
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<td>Performance Assessments:</td>
<td>Authentic assessments, programs, projects</td>
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