



Computer and Information Technology Honors Java Programming



ORGANIZING THEME/TOPIC	FOCUS STANDARDS & SKILLS
<p>The Java Development Environment</p> <p>Time Frame: 1 week</p>	<p>KS 10155.1.18 Demonstrate knowledge of software development environment.</p> <ul style="list-style-type: none"> Use an industry standard Integrated Development Environment (e.g. Eclipse) to create Java programs.
<p>Algorithms</p> <p>Time Frame: 3 weeks</p>	<p>KS 10157.1.1 Choose and apply appropriate data representation and algorithms.</p> <ul style="list-style-type: none"> Design, write/code, test, and debug algorithms to solve computer problems. Apply data types (e.g. integers, strings, Boolean) to represent data within programs and use data conversion techniques (casting) properly. Read input from the keyboard for use in programs and display messages to the user. Evaluate expressions using order of operations.
<p>Logic Structures (Linear, Selection and Repetition)</p> <p>Time Frame: 4 weeks</p>	<p>KS 10157.1.4 Data structures</p> <ul style="list-style-type: none"> Represent logic structures graphically with flowcharts and verbally with pseudo-code. Select and apply the appropriate logic structure to solve programming problems. Create branching structures: if, if/else and switch. Create looping structures using while and for.
<p>Methods</p> <p>Time Frame: 4 weeks</p>	<p>KS 10159.1.2.9 Higher level program: methods, parameters, classes.</p> <ul style="list-style-type: none"> Use existing methods via standard API documentation (e.g. Math, Random). Create user-defined methods to add functionality. Control data flow using scope of variables, parameters, inheritance and encapsulation (e.g. private, public, static, and void/non-void methods). Create and use overloaded methods.
<p>Arrays</p> <p>Time Frame: During final 4-5 weeks</p>	<p>KS 10159 1.2.10 Higher level program: computer math and logic</p> <ul style="list-style-type: none"> Use single and multidimensional arrays as a way of storing and manipulating data. Search an array for an item using various algorithms (e.g. linear, binary). Sort an array using various algorithms (e.g. bubble, selection, insertion).

