

CompuScholar, Inc.

Alignment to Florida "Java Programming Essentials" Course Standards

Florida Course Details:

Course Name:	Java Programming Essentials (2020-2021)
Course Code(s):	9007240
Credit:	1
State Standards Link:	http://www.fldoe.org/core/fileparse.php/19869/urlt/9007200-2021.rtf

CompuScholar Course Details:

Course Title:	Java Programming (Abridged)
Course ISBN:	978-0-9887070-4-7
Course Year:	2019

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Course Title:	Java Programming (AP)
Course ISBN:	978-0-9887070-2-3
Course Year:	2019

CompuScholar's **Java Programming (Abridged)** and **(AP)** courses contain identical material, except for additional, AP CS A-specific chapters at the end of the (AP) version. Either course can be identically used to meet Florida's "Java Programming Essentials" standards.

Note 1: Citation(s) listed may represent a subset of the instances where objectives are met throughout the course.

Note 2: Citation(s) for a "Lesson" refer to the "Lesson Text" elements and associated "Activities" within the course, unless otherwise noted. The "Instructional Video" components are supplements designed to introduce or re-enforce the main lesson concepts, and the Lesson Text contains full details.

Course Description

This course continues the study of computer programming concepts specific to the Java programming language.

Course Standards

31.0 Construct statements that declare, initialize, and modify different types of variables used in Java programs. – The student will be able to:	CITATION(S)
31.01 Describe how variables are used in programs.	Chapter 4
31.02 Identify the eight Java primitive data types.	Chapter 4, Lesson 1
31.03 Identify the minimum and maximum ranges of primitive data types.	Chapter 4, Lesson 1

31.04 Identify which data type should be used for a given situation.	Chapter 4, Lessons 1 - 2
31.05 Identify the syntax for using variables.	Chapter 4, Lesson 2
31.06 Declare and initialize variables.	Chapter 4, Lesson 2
31.07 Assign new values to variables.	Chapter 4, Lesson 2
31.08 Create and use constant variables.	Chapter 4, Lesson 2

32.0 Describe the types and characteristics of lexical units in the Java programming language. – The student will be able to:	CITATION(S)
32.01 Describe the types of lexical units.	Chapter 2, Lesson 2 and as needed elsewhere
32.02 Describe identifiers and identify valid and invalid identifiers.	Chapter 2, Lesson 2 and as needed elsewhere
32.03 Describe and identify reserved words, delimiters, literals, and comments.	Chapter 2, Lesson 2 and as needed elsewhere

33.0 Describe the data types employed in Java programs. – The student will be able to:	CITATION(S)
33.01 Describe the data type categories.	Chapter 4, Lessons 1 - 2 Chapter 5, Lesson 1
33.02 Give examples of primitives, reference data types.	Chapter 4, Lessons 1 - 2 Chapter 5, Lesson 1
33.03 Identify and use enumerations.	N/A
33.04 Understand the use of Wrapper Classes in programs.	Chapter 4, Lesson 2 Chapter 5, Lessons 1, 5
33.05 Describe the difference between real and integer data types.	Chapter 4, Lessons 1 - 2

34.0 Construct Java statements that employ the use of various operators. – The student will be able to:	CITATION(S)
34.01 Construct statements using arithmetic operators.	Chapter 4, Lesson 2 Chapter 7, Lesson 1
34.02 Construct statements using relational operators.	Chapter 7, Lessons 1 - 2
34.03 Construct and use statements using logical operators.	Chapter 7, Lessons 1 - 2
34.04 Construct and use statements using assignment operators.	Chapter 4, Lesson 2 and throughout the course
34.05 Construct and execute statements using operator precedence.	Chapter 7, Lesson 1

35.0 Write executable statements using Java. – The student will be able to:	CITATION(S)
35.01 Construct variable assignment statements.	Chapter 4, Lesson 2 and throughout the course
35.02 Construct statements using built-in Math functions.	Chapter 17, Lesson 1
35.03 Differentiate between implicit and explicit data type conversions.	Chapter 4, Lesson 2 Chapter 15, Lesson 3
35.04 Describe when implicit data type conversions take place.	Chapter 4, Lesson 2 Chapter 15, Lesson 3
35.05 List the drawbacks of implicit data type conversions.	Chapter 4, Lesson 2 Chapter 15, Lesson 3
35.06 Describe the process of autoboxing and promotion.	Chapter 4, Lesson 2
35.07 Construct statements using functions to explicitly convert data types.	Chapter 5, Lesson 5

36.0 Describe variable scope and its implications in Java programming. – The student will be able to:	CITATION(S)
36.01 Understand the scope and visibility of variables.	Chapter 8, Lesson 1 Chapter 10, Lesson 2
36.02 Write programs using local variables.	Chapter 8 and throughout the course
36.03 Describe the scope of a variable.	Chapter 8, Lesson 1 Chapter 10, Lesson 2
36.04 Describe the default value of local, instance, and static scope of variables.	Chapter 4, Lesson 2
36.05 Describe how compiler uses scope to identify variables with the same name.	Chapter 10, Lesson 2

37.0 Apply common Java programming style guidelines and conventions. – The student will be able to:	CITATION(S)
37.01 List examples of good programming practices.	Chapter 2, Lesson 2 Chapter 7, Lesson 2 Chapter 8, Lesson 1
37.02 Insert comments into code.	Chapter 2, Lesson 2
37.03 Follow formatting guidelines when writing code.	Chapter 2, Lesson 2 Chapter 7, Lesson 2 Chapter 8, Lesson 1
37.04 Understand the different types of errors produced by programs.	Chapter 9, Lesson 1

38.0 Demonstrate use of the compiler and interpreter through command line interface. – The student will be able to:	CITATION(S)
38.01 Describe the use of the Java compiler (javac) and Java interpreter (Java VM).	Chapter 2, Lessons 1, 3
38.02 Demonstrate the use of the -classpath flag and -d flag to the compiler.	N/A
38.03 Identify the environmental variables of PATH and CLASSPATH.	N/A
38.04 Describe the process of command line arguments to the program.	Chapter 6, Lesson 1
38.05 Create programs that take in multiple command line arguments.	Chapter 6, Lesson 1

39.0 Construct conditional control statements in Java. – The student will be able to:	CITATION(S)
39.01 Construct and use an if statement.	Chapter 7, Lesson 2
39.02 Construct and use a switch statement.	Chapter 7, Lesson 3
39.03 Construct and use a while, do while, and for loop.	Chapter 7, Lessons 4 - 5
39.04 Construct and use a conditional operator.	Chapter 7, Lessons 1 - 2

40.0 Construct iterative control statements in Java. – The student will be able to:	CITATION(S)
40.01 Describe the types of loop statements and their uses.	Chapter 7, Lessons 4 - 5
40.02 Construct and use the while and do while loop.	Chapter 7, Lesson 5
40.03 Construct and use the for loop.	Chapter 7, Lesson 4
40.04 Construct and use the enhanced for loop.	Chapter 14, Lesson 5
40.05 Describe when a while loop is used.	Chapter 7, Lesson 5
40.06 Describe when a for loop is used.	Chapter 7, Lesson 4

41.0 Use nested loop iterative control statements in Java. – The student will be able to:	CITATION(S)
41.01 Construct and execute a program using nested loops.	Chapter 7, Lessons 4 - 5
41.02 Construct and execute a loop using break and continue.	Chapter 7, Lessons 4 - 5

41.03 Evaluate a nested loop construct and sentinel value.	Chapter 7, Lesson 5
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42.0 Produce input and output for Java programs. – The student will be able to:	CITATION(S)
42.01 Describe and use classes (e.g., Scanner, System) to input data into programs.	Chapter 6, Lessons 2 - 3
42.02 Demonstrate the use of different ways to input data into programs using Scanner or System class.	Chapter 6, Lessons 2 - 3
42.03 Describe and demonstrate the use of the System class to produce output to the console.	Chapter 4, Lesson 3
42.04 Explain the difference between print and println functions in the System class.	Chapter 4, Lesson 3
42.05 Create and use escape sequences.	Chapter 4, Lesson 3

43.0 Use packages and import statements in a Java program. – The student will be able to:	CITATION(S)
43.01 Describe the use of import statements.	Chapter 2, Lesson 4
43.02 Describe the use of packages.	Chapter 2, Lesson 4
43.03 Create code that uses package statements to avoid class conflict.	Chapter 2, Lesson 4
43.04 Create packages that abide by standard Java naming convention.	Chapter 2, Lesson 4
43.05 Demonstrate the use of Java-API to search for classes and packages.	Chapter 3, Lesson 4

44.0 Create a Java program that uses methods. – The student will be able to:	CITATION(S)
44.01 Differentiate between anonymous blocks and methods.	N/A
44.02 Identify the benefits of using methods.	Chapter 8, Lesson 1
44.03 Describe a method signature.	Chapter 8, Lesson 2
44.04 Create a method.	Chapter 8
44.05 Describe how a method is invoked.	Chapter 8, Lessons 1 - 3
44.06 Describe the purpose of overloading methods.	Chapter 8, Lesson 2
44.07 Create overloaded methods in programs.	Chapter 8, Lesson 2

45.0 Create a Java program that uses parameters in methods. – The student will be able to:	CITATION(S)
45.01 Describe how parameters are passed into functions.	Chapter 8, Lessons 2 - 3
45.02 Define a parameter.	Chapter 8, Lessons 2 - 3
45.03 Create a method using a parameter.	Chapter 8, Lessons 2 - 3
45.04 Invoke a method that has parameters.	Chapter 8, Lessons 2 - 3
45.05 Distinguish between formal and actual parameters.	Chapter 8, Lessons 2 - 3
45.06 Demonstrate the use of reference parameters in methods.	Chapter 8, Lessons 2 - 3

46.0 Describe and use recursion in a Java program. – The student will be able to:	CITATION(S)
46.01 Describe the use of recursion in solving problems.	Chapter 19, Lesson 1
46.02 Describe the difference of iterative and recursive methods.	Chapter 19, Lesson 1
46.03 Demonstrate the use of direct recursion.	Chapter 19, Lesson 1
46.04 Demonstrate the use of indirect recursion.	N/A

47.0 Construct Java statements that use the String class to manipulate String data. – The student will be able to:	CITATION(S)
47.01 Explain the use of the String class.	Chapter 5
47.02 Create code to concatenate strings using the concatenation operator.	Chapter 5, Lesson 4
47.03 Demonstrate how to search a string using indexOf method of the String class.	Chapter 5, Lesson 3
47.04 Explain the effect of immutability of Strings.	Chapter 5, Lesson 3
47.05 Create Strings using string literals, and through new keyword.	Chapter 5, Lesson 1
47.06 Demonstrate the use of the following string manipulation methods of the String class: charAt,length ,trim, substring, replace,startsWith and endsWith.	Chapter 5, Lesson 3