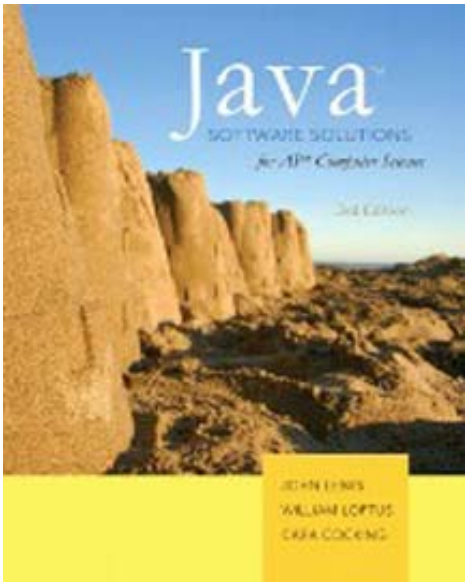
SAVVAS

A Correlation of

# Java Software Solutions for AP Computer Science

## Lewis et al.

## 3rd Edition, ©2011




To the

# Arkansas Curriculum Framework for Programming I

Savvas is proud to partner with Pearson to offer the best in career and technical education products.

**Java Software Solutions for AP Computer Science, Lewis et al., 3rd Edition, ©2011**
**to the**
**Arkansas Curriculum Framework for Programming I**

## Table of Contents

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Unit 1: Introduction to Programming Hours: 3** | |
| Terminology: Application software, Compiler, Event-driven, Events, Executable code, Hardware, High-level language, Low-level language, Object-Oriented Programming (OOP), Operating system, Software, Source code, System software, Unicode, Windows application | |
| **CAREER and TECHNICAL SKILLS** | |
| What the Student Should be Able to Do | |
| **Knowledge** | |
| 1.1 Define terminology | **SE:** Terminology is introduced as appropriate throughout the text. Representative pages follow: 11, 30, 52, 63, 81, 97, 136, 183, 187, 192, 203, 211, 249, 259, 306<br><br>Glossary: 557-573 |
| **Application** | |
| 1.1.1 Prepare a list of terms with definitions | **SE:** A list may be generated from terminology used in text. Representative pages follow: 11, 30, 52, 63, 81, 97, 136, 183, 187, 192, 203, 211, 249, 259, 306<br><br>Glossary: 557-573 |
| **Knowledge** | |
| 1.2 Explain the difference between system and application software | **SE:** 2, 3-5, 557, 571 |
| **Application** | |
| 1.2.1 Identify various software as system or application | **SE:** 2, 3-5, 35-36 |
| **Knowledge** | |
| 1.3 Discuss hardware and software | **SE:** 2-4, 9-11, 12-16, 16-22, 22-24 |
| **Application** | |
| 1.3.1 Identify technology as either hardware or software | **SE:** 2-4, 9-11, 12-16, 16-22, 22-24 |
| **Knowledge** | |
| 1.4 Describe executable code and source code | **SE:** 5, 23-24, 35, 39, 42, 97, 135-136, 580 |
| **Application** | |
| 1.4.1 Explain the difference between executable code and source code | **SE:** 5, 23-24 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Knowledge** | |
| 1.5 Discuss Windows applications, events, and event driven programs | **SE:** 4, 277-280, 281-283, 412-415 |
| **Application** | |
| 1.5.1 Give examples of events and the actions that result in an event-driven program | **SE:** 277-280, 281-283, 412-415 |
| **Unit 2: Programming Techniques and Characteristics of Good Programs Hours: 4** | |
| Terminology: Algorithm, Code, Documentation, Line continuation character, Logic errors, Naming conventions, Program maintenance, Pseudocode, Run-time error, Statement, Syntax, Syntax errors, User-friendly | |
| **CAREER and TECHNICAL SKILLS** | |
| What the Student Should be Able to Do | |
| **Knowledge** | |
| 2.1 Define terminology | **SE:** 25, 37, 43, 119, 168 |
| **Application** | |
| 2.1.1 Prepare a list of terms with definitions | **SE:** A list may be generated from the following pages: 25, 37, 43, 119, 168 |
| **Knowledge** | |
| 2.2 List the steps of the programming process | **SE:** 22-24, 24-26, 42 |
| **Application** | |
| 2.2.1 When given an example, be able to identify the correct steps | **SE:** 24-2625, 118-119, 271-273 |
| **Knowledge** | |
| 2.3 Identify syntax of comments | **SE:** 36, 43 |
| **Application** | |
| 2.3.1 Use appropriate syntax to include comments in programs | **SE:** 27-30, 36, 43 |
| **Knowledge** | |
| 2.4 Explain the characteristics of user-friendly programs | **SE:** 3-5, 25, 118-119, 271-273 |

**Java Software Solutions for AP Computer Science, Lewis et al., 3rd Edition, ©2011**
**to the**
**Arkansas Curriculum Framework for Programming I**

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Application** | |
| 2.4.1 Write programs that have clear instructions | **SE:** This objective is found throughout the text. Representative pages follow: 64, 75, 79, 87, 91, 126, 142, 150, 154, 159-160, 166-167, 186, 194, 210, 216 |
| 2.4.2 Write programs whose output is easy to read and understand | **SE:** This objective is found throughout the text. Representative pages follow: 50, 71, 94, 96, 103-104, 127, 137, 156, 162-163, 217, 222-223, 246-247, 315, 331, 445-447 |
| **Knowledge** | |
| 2.5 Explain the importance of program documentation and maintenance | **SE:** 25, 118-119, 271-273 |
| **Application** | |
| 2.5.1 Write programs that contain comments | **SE:** This objective is found throughout the text. Representative pages follow: 25, 26-27, 30, 31, 62, 71, 91, 96, 126, 127, 141, 205, 206-207, 210, 248 |
| 2.5.2 Update an existing program | **SE:** An opportunity to address this objective may be found throughout the text. Representative pages follow: 71, 94, 96, 103-104, 127, 137, 154, 162-163, 194, 216, 217, 222-223, 246-247, 315, 331 |
| **Knowledge** | |
| 2.6 Explain the importance of algorithm and/or pseudocode in program development | **SE:** This objective is found throughout the text. Representative pages follow: 64, 75, 79, 87, 91, 119, 126, 142, 150, 154, 159-160, 166-167, 186, 194, 347-348 |
| **Application** | |
| 2.6.1 Write a psuedocode (algorithm) for a programming problem | **SE:** An opportunity to address this objective may be found throughout the text. Representative pages follow: 94, 96, 103-104, 127, 137, 154, 162-163, 194, 216, 217, 222-223, 246-247, 315, 331, 4845-486 |
| **Knowledge** | |
| 2.7 Identify different types of errors (syntax, semantic, run-time, compile time) | **SE:** 36-37, 284 |
| **Application** | |
| 2.7.1 When given an example, identify the error type | **SE:** 37, 271-273 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Knowledge** | |
| 2.8 Explain the characteristics of readable programs | **SE:** 22-23, 118-119 |
| **Application** | |
| 2.8.1 Explain the characteristics of readable programs | **SE:** 22-23, 118-119 |
| 2.8.2 Declare and use variables | **SE:** 61-65, 74, 225 |
| 2.8.3 Document difficult logic to make it easy to follow | **SE:** 137, 138, 141, 142145, 148, 150, 152-153, 154, 156, 159-160 |
| 2.8.4 Use standard naming conventions for controls by beginning the name with the appropriate prefix (btn for button, lbl for label, etc.) | **SE:** An opportunity to address this objective may be found on the following pages: 341-345, 345-349 |
| 2.8.5 Use the line continuation character (_) in the code to make it more readable | **SE:** 67-68, 576 |
| **Unit 3: Data Types, Variables, Constants, and Mathematical Operations Hours: 13** | |
| Terminology: Accumulator, Boolean, Character, Concatenation, Constants, Counter, Data type, Dim, Fix(), Floating point (real), Global declaration, Int(), Integer, Integer division, IsNumeric() function, Local declaration, Mathematical operators, Modulus, Order of operations, Random numbers, Randomize(), Round-off errors, Static variables, String, Val() function, Variable | |
| **CAREER and TECHNICAL SKILLS** | |
| What the Student Should be Able to Do | |
| **Knowledge** | |
| 3.1 Define terminology | **SE:** 52, 59, 61-63, 65, 67-68, 69-70, 73, 85-86, 120-122, 123-125, 130-132, 137, 211, 253, 298, 509, 579 |
| **Application** | |
| 3.1.1 Prepare a list of terms with definitions | **SE:** A list may be generated from the following pages: 52, 59, 61-63, 65, 67-68, 69-70, 73, 85-86, 120-122, 123-125, 130-132, 137, 211, 253, 298, 509, 579 |
| **Knowledge** | |
| 3.2 List the following data types: Integer, Boolean, Single/ Double, String, Char | **SE:** 65-67, 67-68, 68-71, 72-77, 77-79 |
| **Application** | |
| 3.2.1 Compare the data types | **SE:** 65-67, 67-68, 68-71, 72-77, 77-79 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| 3.2.2 Determine whether a particular "number" would be considered numeric | **SE:** 65, 66-67, 68-71, 591-597 |
| 3.2.3 Determine whether a number should be treated as an integer or a floating point (i.e. single, double) | **SE:** 66-67 |
| 3.2.4 Designate data type using correct syntax | **SE:** 65-67, 67-68, 68-71, 72-77, 77-79 |
| 3.2.5 Determine whether an identification number (such as Social Security Number) should be treated as a string or number | **SE:** 77-79 |
| 3.2.6 Explain the similarities and differences between Strings and Chars | **SE:** 65-68, 77-79 |
| **Knowledge** | |
| 3.3 Describe how to declare a variable (using Dim) and list the initial value for each type of data | **SE:** 60-62, 63-65, 189-192, 202 |
| **Application** | |
| 3.3.1 Write programs in which variables are declared | **SE:** 62, 64, 74 |
| **Knowledge** | |
| 3.4 Describe the syntax of an assignment statement | **SE:** 36, 43, 63-65 |
| **Application** | |
| 3.4.1 Write a program that uses assignment statements | **SE:** 63-65 |
| **Knowledge** | |
| 3.5 Describe concatenation and list the concatenation operator (&) | **SE:** 57-60, 70, 189, 204, 298, 579 |
| **Application** | |
| 3.5.1 Write output lines that use concatenation | **SE:** 58, 59, 61, 62, 64, 71, 75, 7987, 91, 92, 94, 96 |
| **Knowledge** | |
| 3.6 Explain the advantages of using integer variables whenever possible (faster computation, require less memory, obtain exact answers) | **SE:** 61, 63, 66-67 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Application** | |
| 3.6.1 Use integer variables in programs where appropriate | **SE:** 62, 64, 71 |
| **Knowledge** | |
| 3.7 Explain the advantages and disadvantages of floating-point numbers (round-off errors, more memory, approximate answers, slower computation, size of numbers to be stored, etc.) | **SE:** 66-67, 105 |
| **Application** | |
| 3.7.1 Use floating point variables in programs where appropriate | **SE:** 71, 92, 96 |
| **Knowledge** | |
| 3.8 List arithmetic operations and order of operations (^, *, /, \, mod, +, -) | **SE:** 68-69, 69-71 |
| **Application** | |
| 3.8.1 Write formulas using operators and order of operations | **SE:** 69-71, 112-113 |
| 3.8.2 Write programs that use mathematical operations correctly (integer arithmetic vs. floating point arithmetic) | **SE:** 71, 92, 96, 112-113 |
| **Knowledge** | |
| 3.9 Describe the syntax for assignment statement | **SE:** 36, 43 |
| **Application** | |
| 3.9.1 Write statements that assign values to objects, such as text to a label | **SE:** 52-53, 54, 55-57 |
| 3.9.2 Write statements that assign values to variables | **SE:** 62, 64, 71 |
| **Knowledge** | |
| 3.10 Explain rules for choosing variable names | **SE:** 61-63, 63-65 |
| **Application** | |
| 3.10.1 Write programs that use proper variable naming conventions | **SE:** 62, 64, 71 |
| 3.10.2 Write programs that use descriptive variable names | **SE:** 62, 64, 71, 112-113 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Knowledge** | |
| 3.11 Explain the circumstances and give examples of appropriate occasions to use constants | **SE:** 65 |
| **Application** | |
| 3.11.1 Use appropriate constants when writing programs | **SE:** 62, 64 |
| **Knowledge** | |
| 3.12 List and explain the function of the following constants: vbCrLF, vbTab, Nothing | **SE:** An opportunity to address this objective may be found on the following pages: 62, 64, 65 |
| **Application** | |
| 3.12.1 Write programs that use these constants | **SE:** 62, 64 |
| **Knowledge** | |
| 3.13 Display the results of calculations formatted appropriately (Currency, Standard, Percent) | **SE:** 68-71, 72-73 |
| **Application** | |
| 3.13.1 Write programs where the results of calculations are formatted in Currency, Standard, and Percent formats | **SE:** 62, 64, 71, 112-113 |
| **Knowledge** | |
| 3.14 Describe the circumstances under which variables should be declared locally and globally | **SE:** 187-189, 202 |
| **Application** | |
| 3.14.1 Write programs where the variables are declared appropriately (either globally at the beginning of the program or locally within the procedure) | **SE:** 62, 64, 71, 112-113, 186-187, 188-189 |
| **Knowledge** | |
| 3.15 Explain automatic type conversion (for example, an integer assigned to double variable, or a double assigned to an integer variable) | **SE:** 72-73 |
| **Application** | |
| 13.15.1 Determine the value stored in an integer variable when a double is used | **SE:** 72-73 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| 13.15.2 Determine the value stored in a double variable when an integer is used | **SE:** 72-73 |
| **Knowledge** | |
| 3.16 Explain the purpose of the val() function and explain what is stored when non-numeric data is used | **SE:** An opportunity to address this objective may be found on the following pages: 68-73, 77-79 |
| **Application** | |
| 13.16.1 Write programs that use the val() function to cast text to a number | **SE:** An opportunity to address this objective may be found on the following pages: 62-64 |
| **Knowledge** | |
| 3.17 Explain the use of the IsNumeric function | **SE:** An opportunity to address this objective may be found on the following pages: 57-60, 77-81 |
| **Application** | |
| 3.17.1 Write programs that use the IsNumeric() function to check the data prior to use in a mathematical formula or numeric variable | **SE:** An opportunity to address this objective may be found on the following pages: 57-60, 77-81 |
| **Knowledge** | |
| 3.18 Explain the uses for random numbers and the purpose of the Randomize() statement | **SE:** 85-86 |
| **Application** | |
| 3.18.1 Write programs that use random numbers | **SE:** 87-88, 186-187, 206-207 |
| **Knowledge** | |
| 3.19 Explain how Int() and Fix() functions work | **SE:** 61-63, 297 |
| **Application** | |
| 3.19.1 Predict the results of using Fix() and Int() with a group of real (floating point) numbers | **SE:** 62-63, 297-298, 299-303 |
| **Knowledge** | |
| 3.20 Explain the scope and lifetime of static variables | **SE:** 86, 253-256, 273 |
| **Application** | |
| 3.20.1 Write programs that use static variables | **SE:** 87, 254-256 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Knowledge** | |
| 3.21 Explain the purpose of a counter variable | **SE:** 137, 150 |
| **Application** | |
| 3.21.1 Write programs that use static variables as counters | **SE:** 137, 150 |
| **Knowledge** | |
| 3.22 Explain the purpose of an accumulator variable | **SE:** 150-153, 154-155 |
| **Application** | |
| 3.22.1 Write programs that use static variables as accumulators | **SE:** 137, 150-153, 154-155 |
| **Unit 4: Simple Programs and Visual Basic Features Hours: 8** | |
| Terminology: BackColor, Button, Checked, Control, Design view, Event procedure, Font, ForeColor, Form, IntelliSense, Label, MainMenu, Me, Name, Project, Property, Text, TextAlign, TextBox, Toolbar, Toolbox | |
| **CAREER and TECHNICAL SKILLS** | |
| What the Student Should be Able to Do | |
| **Knowledge Application** | |
| 4.1 Define terminology | **SE:** 68, 102, 277-278, 280, 308, 342-345, 345-349, 404, 575 |
| **Application** | |
| 4.1.1 Prepare a list of terms with definitions | **SE:** A list may be generated from the following pages: 68, 102, 277-278, 280, 308, 342-345, 345-349, 404, 575 |
| **Knowledge** | |
| 4.2 Describe the process of creating a new project | **SE:** 22-24, 118-119 |
| **Application** | |
| 4.2.1 Create a new Visual Basic project | **SE:** An opportunity to address this objective may be found on the following pages**:** 22-24, 31-33, 34-36, 118-119 |
| **Knowledge** | |
| 4.3 Describe the process of creating/designing a form | **SE:** 274-277, 278-279, 280-283, 341-345, 346-349 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Application** | |
| 4.3.1 Create or design a form | **SE:** 275, 277-278, 280, 281-282, 342, 343-344, 346, 347-348 |
| 4.3.2 Place and size controls on the form | **SE:** An opportunity to address this objective may be found on the following pages: 275, 277-278, 280, 281-282, 342, 343-344, 346, 347-348 |
| 4.3.3 Set properties in the properties window | **SE:** An opportunity to address this objective may be found on the following pages: 275, 277-278, 280, 281-282, 342, 343-344, 346, 347-348 |
| **Knowledge** | |
| 4.4 Explain the difference in setting properties at design time and setting/changing properties at runtime | **SE:** 118-119, 189-192 |
| **Application** | |
| 4.4.1 Create a program where properties are set both in the design phase and set or modified in the code | **SE:** An opportunity to address this objective may be found throughout the text. Representative pages follow: 122, 154, 164-165, 185, 194, 206-207, 212, 216, 217, 222-223, 224, 275, 227-228, 311-312, 316 |
| **Knowledge** | |
| 4.5 Describe the difference in the name and text property | **SE:** 25-27, 54 |
| **Application** | |
| 4.5.1 Name controls using the convention of beginning the object name with a prefix | **SE:** 27-30 |
| 4.5.2 Use the text property to change the text on various object | **SE:** An opportunity to address this objective may be found on the following pages: 67-68 |
| **Knowledge** | |
| 4.6 Describe some actions that can trigger event procedures | **SE:** 277-278, 342-345, 411-412 |
| **Application** | |
| 4.6.2 Write click event procedures | **SE:** 277-278, 342, 343-344, 411-412 |
| **Knowledge** | |
| 4.7 Explain how to use an assignment statement to change an object's value at runtime, including the use of Me, dot (.) notation, the equal (=) sign, and IntelliSense | **SE:** 30, 55, 63, 70, 76-77 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Application** | |
| 4.7.1 Write program statements that change the values of properties at runtime, using Me, dot notation, equal sign, and IntelliSense | **SE:** An opportunity to address this objective may be found throughout the text. Representative pages follow: 79, 87, 92, 103-104, 127, 129, 145-146, 156, 159-160, 164-165, 185, 258, 281, 337, 392-393 |
| **Knowledge** | |
| 4.8 Explain the use and features of MainMenu | **SE:** An opportunity to address this objective may be found on the following pages: 22-24, 118-119 |
| **Application** | |
| 4.8.1 Write programs that contain a MainMenu | **SE:** An opportunity to address this objective may be found on the following pages: 475-477 |
| **Knowledge** | |
| 4.9 List several properties that can be used to improve the appearance of objects (Font and font features, BackColor, ForeColor, TextAlign) | **SE:** 98, 99-100, 100-104, 161-163, 164-165, 166-167, 182-183, 221-223 |
| **Application** | |
| 4.9.1 Use these features in programs to improve the appearance of the forms and the objects on the form | **SE:** 98, 99-100, 100-104, 161-163, 164-165, 166-167, 182-183, 221-223 |
| **Knowledge** | |
| 4.10 Describe the purpose of a label | **SE:** An opportunity to address this objective may be found on the following pages: 120-121 |
| **Application** | |
| 4.10.1 Write programs that use labels as prompts | **SE:** An opportunity to address this objective may be found on the following pages: 120-121 |
| 4.10.2 Write programs that use labels to display answers | **SE:** An opportunity to address this objective may be found on the following pages: 120-121 |
| **Knowledge** | |
| 4.11 Explain the use of a button | **SE:** 342-345, 345-349 |
| **Application** | |
| 4.11.1 Write programs that use buttons and code the click event procedure | **SE:** 342, 343-344, 346, 347-348 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Knowledge** | |
| 4.12 Explain the uses for a TextBox | **SE:** 280-283 |
| **Application** | |
| 4.12.1 Write programs that use text boxes for user input | **SE:** 281-282 |
| **Unit 5: More Visual Basic Features Hours: 8** | |
| Terminology: AutoSize, CenterImage, CheckBox, GroupBox, Image, InputBox, MessageBox, Normal, Parameters, PictureBox, RadioButton, SizeMode, StretchImage, Visible | |
| **CAREER and TECHNICAL SKILLS** | |
| What the Student Should be Able to Do | |
| **Knowledge** | |
| 5.1 Define terminology | **SE:** 280-282, 342, 345 |
| **Application** | |
| 5.1.1 Prepare a list of terms with definitions | **SE:** A list may be generated from the following pages: 280-282, 342, 345 |
| **Knowledge** | |
| 5.2 Explain the use of the checked property--for example with a RadioButton or CheckBox | **SE:** 342-345, 345-349 |
| **Application** | |
| 5.2.1 Use the checked property in code to determine which object is selected | **SE:** 342, 343-344 |
| **Knowledge** | |
| 5.3 Describe the features of a RadioButtons and a GroupBox | **SE:** 345-349 |
| **Application** | |
| 5.3.1 Write programs that use RadioButtons--code both the click event and use the checked property to determine the item selected | **SE:** 346, 347-348 |
| 5.3.2 Use a GroupBox for a set of RadioButtons | **SE:**274-275 |
| **Knowledge** | |
| 5.4 Describe a MessageBox | **SE:** 274, 275, 276-280, 281-283 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Application** | |
| 5.4.1 Write code that shows a message box to display information or a warning, setting the text, caption, and icon | **SE:** 275, 277-278, 280, 281-282 |
| **Knowledge** | |
| 5.5 Describe the use for a PictureBox | **SE:** 451-453, 454-460 |
| **Application** | |
| 5.5.1 Design a form with a PictureBox with a graphic image | **SE:** 275-276, 455-456, 458-459 |
| 5.5.2 Place the image in the bin folder | **SE:** An opportunity to address this objective may be found on the following pages: 38-40, 451-453, 454-460 |
| 5.5.3 Set the SizeMode to Normal, StretchImage, AutoSize, or CenterImage | **SE:** 38-39, 338-341, 405-409, 410-412, 413-415, 451-453, 454-460 |
| **Knowledge** | |
| 5.6 Describe the purpose for an InputBox | **SE:** 274 |
| **Application** | |
| 5.6.1 Write programs that use an InputBox | **SE:** 275, 280, 281-282 |
| **Knowledge** | |
| 5.7 Describe the type of data returned by an InputBox and the needed steps to convert to the String data to numeric data | **SE:** 275, 280, 281-282 |
| **Application** | |
| 5.7.1 Write programs where the data being returned is being used as a String | **SE:** 281-282 |
| 5.7.2 Write programs where the expected data is numeric, using *IsNumeric()* to check validity, and *val()* to convert to a number | **SE:** 275, 280 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Unit 6: Decision Structure Hours: 9** | |
| Terminology: Boolean expression, Logical operators, Nested statements, Relational operator, Select case, Truth tables | |
| **CAREER and TECHNICAL SKILLS** | |
| What the Student Should be Able to Do | |
| **Knowledge** | |
| 6.1 Define terminology | **SE:** 123, 130-134, 143-146, 579 |
| **Application** | |
| 6.1.1 Prepare a list of terms with definitions | **SE:** A list may be generated from the following pages: 123, 130-134, 143-146, 579 |
| **Knowledge** | |
| 6.2 List relational operators | **SE:** 120-122, 123-128, 129-130 |
| **Application** | |
| 6.2.1 Write Boolean expressions that use the appropriate relational operator | **SE:** 130-132, 132-134 |
| **Knowledge** | |
| 6.3 Describe the process of comparing two strings | **SE:** 132-134 |
| **Application** | |
| 6.3.1 When given two strings, determine if they are equal, the first is smaller, or the first is larger | **SE:** 132-134, 135-136 |
| **Knowledge** | |
| 6.4 Describe a roundoff error | **SE:** 72-73 |
| **Application** | |
| 6.4.1 Write *if* statements that avoid the problems created by roundoff errors | **SE:** 122 |
| **Knowledge** | |
| 6.5 Explain the syntax and logic of *if* statements | **SE:** 121-122, 123-125 |
| **Application** | |
| 6.5.1 Write programs that use *if* statements | **SE:** 122, 125, 126, 127, 129, 145, 188-189, 196-197, 205, 206-207 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Knowledge** | |
| 6.6 Explain the syntax and logic of *if-else* statements | **SE:** 124-125 |
| **Application** | |
| 6.6.1 Write statements that use if-else to make the correct decision based on the data | **SE:** 125 |
| **Knowledge** | |
| 6.7 Explain the use of logical operators *and* , *or* , and *not* | **SE:** 130-132 |
| **Application** | |
| 6.7.1 Write programs which require the use *and, not,* and *or* | **SE:** 177 |
| **Knowledge** | |
| 6.8 Explain the use of the *select case* statement | **SE:** An opportunity to address this objective may be found on the following pages: 166-167 |
| **Application** | |
| 6.8.1 Write programs that use the *select case* statement, including cases that use a range of values, a list of possible values, and case else | **SE:** An opportunity to address this objective may be found on the following pages: 166-167 |
| **Unit 7: Loops Hours: 15** | |
| Terminology: Do loop, Entrance condition loop, Exit condition loop, Flag, For-next loop, Infinite loop, Iteration, Loop, Nested loop, Sentinel | |
| **CAREER and TECHNICAL SKILLS** | |
| What the Student Should be Able to Do | |
| **Knowledge** | |
| 7.1 Define terminology | **SE:** 120, 143, 144-146, 150, 151, 152-153, 155-156, 162, 314, 323 |
| **Application** | |
| 7.1.1 Prepare a list of terms with definitions | **SE:** A list may be generated from the following pages: 120, 143, 144-146, 150, 151, 152-153, 155-156, 162, 314, 323 |
| **Knowledge** | |
| 7.2 Describe the purpose and syntax of for-next loops | **SE:** 150-152 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Application** | |
| 7.2.1 Write programs that use for-next loops | **SE:** 1540, 152-153 |
| **Knowledge** | |
| 7.3 Explain the procedure to use for loops to count in increments/decrements other than one | **SE:** 152-153 |
| **Application** | |
| 7.3.1 Write counting for loops with increments other than 1 | **SE:** 152-153 |
| **Knowledge** | |
| 7.4 List the types of do loops | **SE:** 120-121 |
| **Application** | |
| 7.4.1 Write programs that use do loops | **SE:** 159-160, 275 |
| **Knowledge** | |
| 7.5 Describe the use of a do until loop | **SE:** 159-160 |
| **Application** | |
| 7.5.1 Write programs that use do…loop until | **SE:** 162-163 |
| 7.5.2 Write programs that use do until…loop | **SE:** An opportunity to address this objective may be found on the following pages: 162-163 |
| **Knowledge** | |
| 7.6 Describe the difference in a do unitl and a do while loop | **SE:** An opportunity to address this objective may be found on the following pages: 162-163 |
| **Application** | |
| 7.6.1 Write programs that use do…loop while | **SE:** 137, 138-139, 141, 142, 145, 148-149 |
| 7.6.2 Write programs that use do while…loop | **SE:** An opportunity to address this objective may be found on the following pages: 137, 138-139, 141, 142, 145, 148-149 |
| **Knowledge** | |
| 7.7 Describe the difference in a entrance condition loop and an exit condition loop | **SE:** 136-137, 138-140 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Application** | |
| 7.7.1 Explain the potential effects of placing the condition on the do line and the loop line and conditions where each is appropriate | **SE:** 136-137, 138-140 |
| **Knowledge** | |
| 7.8 Describe a loop which ends when a sentinel or flag is entered | **SE:** 130-134, 136-137, 138-140 |
| **Application** | |
| 7.8.1 Write loops that end when a sentinel or flag is entered | **SE:** 137, 138-139 |
| 7.8.2 Write loops that use an InputBox and end when the Cancel button is selected | **SE:** 274-276, 277-279, 280-283 |
| **Knowledge** | |
| 7.9 Explain the process of using counters with loops | **SE:** 136-138 |
| **Application** | |
| 7.9.1 Write programs that use counters with loops | **SE:** 137, 138-139 |
| **Knowledge** | |
| 7.10 Explain the logic of using accumulators with loops | **SE:** 140-143 |
| **Application** | |
| 7.10.1 Write programs that use accumulators with loops | **SE:** 142 |
| **Knowledge** | |
| 7.11 Explain the difference in the effect of a while loop (entrance condition loop) and a do while (exit condition loop) loop | **SE:** 120-121, 136-138 The do statement can be found on the website. See p 121. |
| **Application** | |
| 7.11.1 Write programs that use do while loops | **SE:** The do statement can be found on the website. See p 121. |
| **Knowledge** | |
| 7.12 Explain the syntax of nested loops | **SE:** 128-130 |

| Arkansas Curriculum Framework for Programming I | Java Software Solutions for AP Computer Science, Lewis et al. 3rd Edition, ©2011 |
|---|---|
| **Application** | |
| 7.12.1 Determine the output of a nested loop | **SE:** 129-130 |
| 7.12.2 Write programs that use nested for loops | **SE:** 129, 176-177 |