

FORMAT FOR CORRELATION TO THE GEORGIA PERFORMANCE STANDARDS

Subject Area: Computing

State-Funded Course: Beginning Programming

Textbook Title: An Introduction to Programming Using Microsoft Visual Basic 2008

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The Georgia Performance Standards for Grades 6-12 Career, Technical and Agricultural Education (CTAE) may be accessed on-line at: <http://www.georgiastandards.org/>.

<u>Standard</u> (Cite Number)	<u>Standard</u> (Cite specific standard)	<u>Where Taught</u> (If print component, cite page number; if non-print, cite appropriate location.)
BCS-BP-1	<p><u>CAREERS</u></p> <p>Students will explore careers in the field of computing.</p> <p>Students will explore careers in computing</p> <p>a. Describe the daily tasks and responsibilities of a professional in the field of computing.</p> <p>b. Compare and contrast the top jobs in computing.</p> <p>c. Explore careers that combine computing with another field.</p>	<p>20, 31 (Exercise 10)</p> <p><i>Opportunities to address this standard can be found on the following pages:</i></p> <p>20, 31 (Exercise 10)</p> <p>20, 31 (Exercise 10)</p>

<p>Academic Standards:</p>	<p>equivalent to a small high-level program.</p> <p>d. Solve simple binary arithmetic problems.</p> <p>e. Explain the interaction between the operating system and the processor.</p>	<p>5, 23, 27 (Review Question 40d)</p> <p>8-9</p> <p><i>Opportunities to address this standard can be found on the following pages:</i> 3, 26 (Review Question 6)</p>
<p>MM3P4</p>	<p><i>Students will make connections among mathematical ideas and to other disciplines.</i></p>	<p>8-9, 52, 73-74, 85, 87-88 (Critical Thinking 9-10, 12, 14-16), 89-92 (Exercises 1-10), 205-233, 235-236 (Critical Thinking 10, 12-13), 237-244 (Exercises 1-16), 279 (Exercise 14)</p>
<p>ELA11W1</p>	<p><i>The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.</i></p>	<p>30-31 (Exercises 5-9)</p>
<p>ELA11LSV1</p>	<p><i>The student participates in student-to-teacher, student-to-student, and group verbal interactions.</i></p>	<p>27 (Review Questions 27b), 32 (Exercise 12), 63 (Exercise 11), 64 (Exercise 13), 162 (Exercise 19), 440 (Exercise 6)</p>
<p>BCS-BP-3</p>	<p>Students will explain the process that turns a high-level language program into something a computer can execute.</p> <p>a. Explain the purpose of a compiler, interpreter, and assembler.</p> <p>b. Compare and contrast a compiler and</p>	<p>5, 23, 26 (Review Question 9c), 39</p> <p>5, 26 (Review Question 9c)</p>

<p>BCS-BP-4</p> <p><i>Academic Standards:</i></p> <p><i>MM4A10</i></p> <p><i>ELA11W2</i></p> <p><i>ELA11LSVI</i></p>	<p>an interpreter and specify languages that use each.</p> <p>c. Compare and contrast high-level and low-level languages for different uses.</p> <p>Students will explore different representations of images and music in a computer.</p> <p>a. Explain the difference between bitmapped and vector-based representations of images.</p> <p>b. Explain the difference between MIDI and sampled sound representations of music.</p> <p>c. Write a program to modify a bitmapped image and/or sampled sound.</p> <p><i>Students will understand and use vectors.</i></p> <p><i>The student demonstrates competence in a variety of genres.</i></p> <p><i>The student participates in student-to-teacher, student-to-student, and group verbal interactions.</i></p>	<p>5, 20, 23, 26 (Review Question 9a)</p> <p><i>Opportunities to address this standard can be found on the following pages: 10, 164-165, 283-284</i></p> <p><i>Opportunities to address this standard can be found on the following pages: 285-287</i></p> <p><i>Opportunities to address this standard can be found on the following pages: 10, 164-165, 285-287</i></p> <p><i>Not addressed in this text.</i></p> <p><i>Opportunities to address this standard can be found on the following pages: 30 (Exercise 6)</i></p> <p>27 (Review Questions 27b), 32 (Exercise 12), 63 (Exercise 11), 64 (Exercise 13), 162 (Exercise 19), 440 (Exercise 6)</p>
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<p><i>ELA11W1</i></p>	<p><i>The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.</i></p>	<p>30-31 (Exercises 5-9)</p>
<p><i>ELA11W2</i></p>	<p><i>The student demonstrates competence in a variety of genres.</i></p>	<p><i>Opportunities to address this standard can be found on the following pages:</i> 30 (Exercise 6)</p>
<p><i>ELA11LSV1</i></p>	<p><i>The student participates in student-to-teacher, student-to-student, and group verbal interactions.</i></p>	<p>27 (Review Questions 27b), 32 (Exercise 12), 63 (Exercise 11), 64 (Exercise 13), 162 (Exercise 19), 440 (Exercise 6)</p>
<p>BCS-BP-6</p>	<p><u>PROGRAMMING</u></p> <p>Students will use basic programming techniques to design, implement, and solve simple problems using an object-oriented programming language.</p> <p>Students will design solutions for simple programs using basic programming techniques and constructs.</p> <p>a. Implement techniques such as conditional statements, iterative statements, and variables to solve simple problems.</p> <p>b. Utilize basic mathematical expressions to solve simple problems.</p>	<p>65-69, 93-98, 102-109, 121-128 (Exercises 1-17), 129-138, 155-162 (Exercises 1-19), 201-202 (Exercises 13, 15)</p> <p>205-207, 229-233, 237-244 (Exercises 1-16), 407 (Exercise 3)</p>

	<p>c. Use arrays and lists where appropriate.</p> <p>d. Comment programs to aid program readability.</p> <p>e. Test and debug simple programs.</p> <p>f. Analyze and explain simple programs involving fundamental programming constructs.</p>	<p>245-268, 273-280 (Exercises 1-15), 400</p> <p>50-51, 54-55, 67, 72, 96, 168, 189, 323, 324, 326, 329, 335-337, 375</p> <p>38-42, 59 (Critical Thinking #1), 76-77, 83, 84, 149, 188-189, 228-230, 306, 344, 434</p> <p>46-49, 51, 54, 68, 71, 93-94, 96-97, 129-132, 144, 160 (Exercise 15), 274 (Exercise 5)</p>
Academic Standards:		
<i>ELA11W1</i>	<i>The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.</i>	30-31 (Exercises 5-9)
<i>ELA11W2</i>	<i>The student demonstrates competence in a variety of genres.</i>	<i>Opportunities to address this standard can be found on the following pages: 30 (Exercise 6)</i>
BCS-BP-7	<p>Students will use and develop algorithms to solve simple problems.</p> <p>a. Develop algorithms to solve simple problems using psuedocode and/or flowcharts.</p> <p>b. Interpret algorithms expressed in psuedocode and/or flowcharts to code solutions to simple problems.</p>	<p>101-103, 146-147, 155-162 (Exercises 1-19), 184-185, 203 (Exercise 17), 222-223, 263-264, 274 (Exercise 5), 302-303, 339-341, 377-378, 400, 425-426, 428</p> <p>101-103, 112, 134, 146-147, 184-185, 222-223, 263-264, 290, 302-303, 339-341, 377-378, 391, 397, 425-426, 428</p>

<p>Academic Standards:</p> <p><i>ELA11W1</i></p> <p><i>ELA11LSV1</i></p> <p>BCS-BP-8</p>	<p>c. Discuss the importance of algorithms in problem solving.</p> <p>d. Identify properties of well-written algorithms in solving problems.</p> <p>e. Interpret algorithms to write code that will implement searching and sorting techniques.</p> <p><i>The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.</i></p> <p><i>The student participates in student-to-teacher, student-to-student, and group verbal interactions.</i></p> <p>Students will demonstrate knowledge of the relationships between classes.</p> <p>a. Utilize Class, Responsibilities, and Collaborator (CRC) in problem analysis.</p> <p>b. Create UML diagrams to illustrate</p>	<p>101-102, 116 (Chapter Summary)</p> <p>101-102, 105, 112, 394, 397, 400</p> <p>173, 391-403, 406-407 (Exercises 1-5)</p> <p>30-31 (Exercises 5-9)</p> <p>27 (Review Questions 27b), 32 (Exercise 12), 63 (Exercise 11), 64 (Exercise 13), 162 (Exercise 19), 440 (Exercise 6)</p> <p><i>Not addressed in this text.</i></p> <p><i>Not addressed in this text.</i></p>
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<p>Academic Standards:</p> <p><i>ELA11W1</i></p> <p><i>ELA11LSV1</i></p>	<p>relationships between classes.</p> <p>c. Describe and explain the implementation of “is-a” and “has-a” relationships.</p> <p>d. Describe how using classes implements the ideas of encapsulation and information hiding.</p> <p><i>The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.</i></p> <p><i>The student participates in student-to-teacher, student-to-student, and group verbal interactions.</i></p> <p><u>DATA STRUCTURES</u></p> <p>Students will demonstrate the ability to process one-dimensional arrays, two-dimensional arrays, and lists. Students will choose an appropriate data structure</p>	<p><i>Opportunities to address this standard can be found on the following pages:</i></p> <p>318, 322</p> <p>321, 345d, 347, 349 (Critical Thinking 8)</p> <p>30-31 (Exercises 5-9)</p> <p>27 (Review Questions 27b), 32 (Exercise 12), 63 (Exercise 11), 64 (Exercise 13), 162 (Exercise 19), 440 (Exercise 6)</p>
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<p>BCS-BP-9</p>	<p>for a given situation.</p> <p>Students will write programs that process one-dimensional arrays.</p> <p>a. Calculate the average of the contents of an array.</p> <p>b. Manipulate each element of an array.</p> <p>c. Manipulate a section of an array.</p>	<p>260, 355</p> <p>246-247, 252-256, 262-267, 271 (Critical Thinking 4), 273-277 (Exercises 1-11)</p> <p>253-254, 256-258, 260, 262-268, 275-279 (Exercises 7-14)</p>
<p><i>Academic Standards:</i></p>		
<p><i>ELA11W1</i></p>	<p><i>The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.</i></p>	<p>30-31 (Exercises 5-9)</p>
<p><i>ELA11W2</i></p>	<p><i>The student demonstrates competence in a variety of genres.</i></p>	<p><i>Opportunities to address this standard can be found on the following pages:</i> 30 (Exercise 6)</p>
<p>BCS-BP-10</p>	<p>Students will write programs that process two-dimensional arrays.</p> <p>a. Manipulate each element of a two-dimensional array.</p>	<p>255-258, 278-280 (Exercises 12-15)</p>

<p>Academic Standards:</p> <p><i>MM3A7</i></p> <p><i>ELA11LSVI</i></p> <p><i>ELA11W1</i></p> <p><i>ELA11W2</i></p> <p>BCS-BP-11</p>	<p>b. Manipulate a section of a two-dimensional array.</p> <p>c. Explain the difference between row major and column major two-dimensional arrays.</p> <p>d. Explain how to process an array in a row-first or column-first manner.</p> <p><i>Students will understand and apply matrix representations of vertex-edge graphs.</i></p> <p><i>The student participates in student-to-teacher, student-to-student, and group verbal interactions.</i></p> <p><i>The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.</i></p> <p><i>The student demonstrates competence in a variety of genres.</i></p> <p>Students will write programs that process lists.</p> <p>a. Manipulate each element of a list.</p>	<p>279-280 (Exercises 14-15)</p> <p><i>Opportunities to address this standard can be found on the following pages: 255-258</i></p> <p><i>Opportunities to address this standard can be found on the following pages: 256</i></p> <p><i>Not addressed in this text</i></p> <p>27 (Review Questions 27b), 32 (Exercise 12), 63 (Exercise 11), 64 (Exercise 13), 162 (Exercise 19), 440 (Exercise 6)</p> <p>30-31 (Exercises 5-9)</p> <p><i>Opportunities to address this standard can be found on the following pages: 30 (Exercise 6)</i></p> <p>391-403, 406-407 (Exercises 1-5)</p>
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<p>Academic Standards:</p>	<p>b. Add items to a list.</p>	<p>407 (Exercise 5)</p>
<p><i>ELA11W1</i></p>	<p><i>The student produces writing that establishes an appropriate organizational structure, sets a context and engages the reader, maintains a coherent focus throughout, and signals a satisfying closure.</i></p>	<p>30-31 (Exercises 5-9)</p>
<p><i>ELA11W2</i></p>	<p><i>The student demonstrates competence in a variety of genres.</i></p>	<p><i>Opportunities to address this standard can be found on the following pages: 30 (Exercise 6)</i></p>
<p>BCS-BP-12</p>	<p>Students will demonstrate knowledge of the basics of stacks and queues.</p> <p>a. Explain the purpose of a call stack.</p> <p>b. Describe the purpose of a printer queue.</p> <p>c. Compare and contrast stacks and queues.</p> <p><u>LIMITS OF COMPUTING</u></p> <p>Students will determine how programming limits can affect business, and will recognize that there is a time hierarchy in programming.</p>	<p><i>Not addressed in this text.</i></p> <p><i>Not addressed in this text.</i></p> <p><i>Not addressed in this text.</i></p>

<p>BCS-BP-13</p>	<p>Students will discuss limits on computing as a result of programming complexity.</p> <p>a. Determine the number of steps that a program will take to execute.</p> <p>b. Compare and contrast the speed of different algorithms.</p> <p>c. Identify the possible impact on a business when a computer programmer leaves a company.</p>	<p><i>Opportunities to address this standard can be found on the following pages:</i> 391, 394, 397, 400</p> <p>393-394, 396, 399, 407 (Exercise 4)</p> <p><i>Opportunities to address this standard can be found on the following pages:</i> 5, 20</p>
<p><i>Academic Standards:</i></p>		
<p><i>ELA11W3</i></p>	<p><i>The student uses research and technology to support writing.</i></p>	<p>31 (Exercises 8-9)</p>
<p><i>ELA11LSV1</i></p>	<p><i>The student participates in student-to-teacher, student-to-student, and group verbal interactions.</i></p>	<p>27 (Review Questions 27b), 32 (Exercise 12), 63 (Exercise 11), 64 (Exercise 13), 162 (Exercise 19), 440 (Exercise 6)</p>
<p>BCS-BP-14</p>	<p>Students will identify time-related limits to computing.</p> <p>a. Define polynomial time as it relates to computing.</p>	<p><i>Not addressed in this text.</i></p>

	b. Define exponential time as it relates to computing.	<i>Not addressed in this text.</i>
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