IDAHO STATE DEPARTMENT OF EDUCATION

Advanced Placement Course

Content Area: ___PTE - Information Technology _____

Course Title: ___AP Computer Science A_____

Title of Material: ___TeenCoder: Java Programming_____

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Reviewers: _____

Meets Content Standards Alignment: _____Yes _____ No

Meets Literacy Standards Alignment: _____Yes _____ No

Meets Materials Analysis Evaluation: _____Yes _____ No

_____ Comprehensive Program

_____ Component Program

_____ Resource/Supplemental

_____ Not Recommended

Advanced Placement:

- ☐ **AP Capstone**
- ☐ **Arts**
- ☐ **English**
- ☐ **History & Social Science**
- √ **Math & Computer Science**
- ☐ **Sciences**
- ☐ **World Languages & Cultures**

Advanced Placement		Computer Science A	
Standards and Learning Indicators		**Publisher/Provider: List units/lessons with specific examples of where standards are Introduced/Taught/Assessed.**	**Point Value 0/.5/1 (Reviewer)**
I. Object-Oriented Program Design			
A. Program and Class Design	1. Problem analysis	All chapter activities require students to understand the problem requirements and produce a coded solution. Procedures for analyzing bugs are found in **Chapter 9, Lesson 3**. Specific discussions about problem analysis from a design perspective can be found in **Chapter 10, Lesson 2** (object properties, methods, relationships), **Chapter 15, Lesson 2** (object hierarchies), and **Chapter 22 Lessons 1 and 2** (functional decomposition and composite classes).	
	2. Data abstraction and encapsulation	**Chapter 10, Lessons 1 and 3** (object-oriented concepts and public/private/protected discussion)	
	3. Class specifications, interface specifications, relationships ("is-a," "has-a"), and extension using inheritance	**Chapter 10, Lesson 2** (specification) **Chapter 11, Lesson 2** (interfaces) **Chapter 10, Lesson 2** (relationships) **Chapter 15, Lesson 2** (inheritance)	
	4. Code reuse	**Chapter 10, Lesson 1** (reusable code objects)	
	5. Data representation and algorithms	**Chapter 4, Lesson 2** (data types and variables) **Chapter 10, Lesson 2** (object properties) **Chapter 17, Lesson 4** (common algorithms) **Chapter 20, Lesson 1** (more common algorithms)	
	6. Functional decomposition	**Chapter 8, Lesson 1** (creating methods) **Chapter 22, Lesson 1** (functional decomposition)	
II. Program Implementation			
A. Implementation techniques	1. Top-down	**Chapter 24, Lesson 1** (design processes)	
	2. Bottom-up	**Chapter 24, Lesson 1** (design processes)	

	3. Object-oriented	**Chapter 10** (introduction to OOP) **Chapter 11** (objects in Java) **Chapter 15** (inheritance and polymorphism)	
	4. Encapsulation and information hiding	**Chapter 10, Lessons 1 and 3** (object-oriented concepts and public/private/protected discussion)	
	5. Procedural abstraction	**Chapter 10, Lesson 1** (data encapsulation section)	
B. Programming constructs	1. Primitive types vs. reference types	**Chapter 4, Lesson 1** (primitive data types) **Chapter 5, Lesson 1** (reference data types)	
	2. Declaration (Constants, Variables, Methods and parameters, Classes, Interfaces)	**Chapter 4, Lesson 2** (declaring constants) **Chapter 4, Lesson 2** (declaring variables) **Chapter 8, Lessons 1 and 2** (declaring methods and parameters) **Chapter 10, Lesson 2** (declaring classes) **Chapter 11, Lesson 2** (declaring Interfaces)	
	3. Text output using *System.out.print* and *System.out.println*	**Chapter 4, Lesson 3** (printing data)	
	4. Control (Method call, Sequential execution, Conditional execution, Iteration, Recursion)	**Chapter 8, Lesson 3** (method calls) **Chapter 2, Lesson 2** and **Chapter 7, Lesson 2** (sequential execution) **Chapter 7, Lesson 2** (conditional execution) **Chapter 14, Lesson 3** – (iteration) **Chapter 19, Lesson 1** – (recursion)	
	5. Expression evaluation (Numeric expressions, String expressions, Boolean expressions, short-circuit evaluation, De Morgan's law)	**Chapter 4, Lesson 2** (numeric expressions) **Chapter 5, Lessons 2 and 3** (string expressions) **Chapter 7, Lesson 1** (Boolean expressions, short-circuits, De Morgan's Law)	
C. Java library classes and interfaces included in the AP Java Subset			
III. Program Analysis			
A. Testing	1. Development of appropriate test cases, including boundary cases	**Chapter 24, Lesson 3** (testing your code)	
	2. Unit testing	**Chapter 24, Lesson 3** (testing your code)	

	3. Integration testing	**Chapter 24, Lesson 3** (testing your code)	
B. Debugging	1. Error categories: compile-time, run-time, logic	**Chapter 9, Lesson 1** (logic errors, runtime errors, exceptions)	
	2. Error identification and correction	**Chapter 9, Lesson 3** (finding runtime errors)	
	3. Techniques such as using a debugger, adding extra output statements, or hand-tracing code.	**Chapter 9, Lessons 3 and 4** (finding runtime errors and the Eclipse debugger)	
C. Runtime exceptions		**Chapter 9, Lesson 1** (logic errors, runtime errors, exceptions)	
D. Program correctness	1. Pre- and post-conditions	**Chapter 24, Lesson 3** (testing your code)	
	2. Assertions	**Chapter 24, Lesson 3** (testing your code)	
E. Algorithm Analysis	1. Statement execution counts	**Chapter 20, Lesson 3** (measuring efficiency)	
	2. Informal running time comparison	**Chapter 20, Lesson 2** (algorithm performance)	
F. Numerical representations of integers	1. Representations of non-negative integers in different bases	**Chapter 17, Lesson 2** (the binary number system)	
	2. Implications of finite integer bounds	**Chapter 17, Lesson 2** (the binary number system)	
IV. Standard Data Structures			
A. Primitive data types (int, boolean, double)		**Chapter 4, Lesson 1** (primitive data types)	
B. Strings		**Chapter 5, all lessons** (working with strings)	
C. Classes		**Chapters 10 and 11, all lessons** (introduction to OOP and objects in Java)	
D. Lists		**Chapter 14, Lesson 2** (Java lists)	

E. Arrays (1-dimensional and 2-dimensional)		**Chapter 14, Lesson 1** (arrays)	
V. Standard Operations and Algorithms			
A. Operations on data structures	1. Traversals	**Chapter 14, Lesson 3** (iteration over arrays and linked lists)	
	2. Insertions	**Chapter 14, Lesson 2** (linked lists in Java)	
	3. Deletions	**Chapter 14, Lesson 2** (linked lists in Java)	
B. Searching	1. Sequential	**Chapter 19, Lesson 3** (searching algorithms)	
	2. Binary	**Chapter 19, Lesson 3** (searching algorithms)	
C. Sorting	1. Selection	**Chapter 19, Lesson 2** (sorting algorithms)	
	2. Insertion	**Chapter 19, Lesson 2** (sorting algorithms)	
	3. Mergesort	**Chapter 19, Lesson 2** (sorting algorithms)	
VI. Computing in Context			
A. System reliability		**Chapter 1, Lesson 4** (computer ethics and security)	
B. Privacy		**Chapter 1, Lesson 4** (computer ethics and security)	
C. Legal issues and intellectual property		**Chapter 1, Lesson 4** (computer ethics and security)	
D. Social and ethical ramifications of computer use		**Chapter 1, Lesson 4** (computer ethics and security)	

Standards Alignment Evaluation Rubric

0 = No Alignment– **Not Evident:** ELA/Literacy content as described in the Standards is **not evident**.

.5 = Partial Alignment- **Partially Evident:** ELA/Literacy content as described in the Standards is **partially evident** and there are few gaps.

1 = High Alignment – **Clearly Evident:** ELA/Literacy content is fully aligned as described in the Standards and repeatedly included to guarantee extensive opportunities for students to work with the content. Alignment is **clearly evident**.

N/A = Not applicable for standard.

CCSS ELA/Literacy in Science & Technical Subjects Grade 9-10

ANCHOR STANDARD: Key Ideas and Details Grade 9-10	Objectives	Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.	Point Value 0/.5/1 (Reviewer)
CCRA.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	RST.9-10.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
CCRA.R.2 Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	RST.9-10.2 Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
CCRA.R.3 Analyze how and why individuals, events, and ideas develop and interact over the course of a text.	RST.9-10.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.	Every chapter contains hands-on technical labs with multi-step instructions. Results are compared to activity requirements within the text. Examples include **Chapter 11 Activity** (Let's Go Racing) and **Chapter 19 Activity** (Recursive Binary Search).	

ANCHOR STANDARD: Craft and Structure Grade 9-10	Objectives	Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.	Point Value 0/.5/1 (Reviewer)
CCRA.R.4 Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meaning or tone.	RST.9-10.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.	Every chapter defines new keywords and Java symbols to be used in context of technical coding tasks. Examples include **Chapter 4, Lesson 1** (Data Types), **Chapter 10, Lesson 2** (Defining a Class), and **Chapter 17, Lesson 2** (Binary Number System).	
CCRA.5 Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.	RST.9-10.5 Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
CCRA.R.6 Assess how point of view or purpose shapes the content and style of a text.	RST.9-10.6Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
ANCHOR STANDARD: Integration of Knowledge and Ideas **Grade 9-10**	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed.** **Include a narrative explanation.**	**Point Value** **0/.5/1** **(Reviewer)**
CCRA.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.	RST.9-10.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.	**Chapter 17, Lesson 4** (Use flowcharts and text descriptions to describe common algorithms) All lessons provide integrated multi-media presentations (video + text) explaining how to address a question or solve a problem. Students use videos and text together to understand technical concepts in both text and visual forms. See, for example, **Chapter 19, Lesson 2** (Sorting Algorithms) with video and text explanations, plus a hands-on SortDemo program letting students verify sorting algorithms with real data.)	

CCRA.R.8 Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	RST.9-10.8 Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.	**Chapter 19, Lesson 2** (Students use the SortDemo program to verify the behavior of different sorting algorithms using varying input data sets)	
CCRA.R.9 Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	RST.9-10.9 Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.	**Chapter 3, Lesson 4** (Understand multiple sources of help information to solve technical problems) All lessons provide integrated multi-media presentations (video + text) explaining how to address a question or solve a problem. See, for example, **Chapter 19, Lesson 2** (Sorting Algorithms) with video and text explanations, plus a hands-on SortDemo program letting students verify sorting algorithms with real data.)	
ANCHOR STANDARD: Range of Reading and Level of Text Grade 9-10	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed.** **Include a narrative explanation.**	**Point Value** **0/.5/1** **(Reviewer)**
CCRA.R.10 Read and comprehend complex literary and informational texts independently and proficiently.	RST.9-10.10 By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
***#3 Note:** Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results. *			
ANCHOR STANDARD: Text Types and Purposes Grade 9-10	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed.** **Include a narrative explanation.**	**Point Value 0/.5/1 (Reviewer)**
CCRA.W.1 Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.	WHST.9-10.1 Write arguments focused on discipline-specific content. a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization	a.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	

	that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns. c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from or supports the argument presented.	b.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise) c.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise) d.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise) e.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
CCRA.W.2 Write informative/ explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	WHST.9-10.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts. d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the	a.) **Chapter 25** (Team project involves successive class presentations regarding project requirements, design, implementation, and test results using any desired documentation or media). b.) **Chapter 25** (Team project involves successive class presentations regarding project requirements, design, implementation, and test results using any desired documentation or media). c.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise) d.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	

	expertise of likely readers. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).	e.) **Most chapter activities** involve writing or formatting of code within the formal Java syntax and best coding practices. Examples include **Chapter 2 Activity** (Show Time!) and **Chapter 25** (Team project and written report). f.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
CCRA.W.3 Write narratives to develop real or imagined experiences of events using effective technique, well, chosen details and well-structured event sequences.	WHST.9-10.3 (See note; not applicable as a separate requirement)	**Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
ANCHOR STANDARD: Production and Distribution of Writing Grade 9-10	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.**	**Point Value 0/.5/1 (Reviewer)**
CCRA.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	WHST.9-10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Most chapter activities involve writing Java code using specific best practices and language rules to meet the project requirements. Examples include **Chapter 2 Activity** (Show Time!) and **Chapter 25** (Team project and written report).	
CCRA.W.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	WHST.9-10.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	**Chapter 25** (Team project involves successive class presentations regarding project requirements, design, implementation, and test results using any desired documentation or media)	
CCRA.W.6 Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	WHST.9-10.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.	**Chapter 25** (Team project involves successive class presentations regarding project requirements, design, implementation, and test results using any desired documentation or media)	

ANCHOR STANDARD: Research to Build and Present Knowledge **Grade 9-10**	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed.** **Include a narrative explanation.**	**Point Value** **0/.5/1** **(Reviewer)**
CCRA.W.7 Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	WHST.9-10.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	**Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
CCRA.W.8 Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	WHST.9-10.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.	**Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
CCRA.W.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.	WHST.9-10.9 Draw evidence from informational texts to support analysis, reflection, and research.	**Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
ANCHOR STANDARD: Range of Writing Grade 9-10	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed.** **Include a narrative explanation.**	**Point Value** **0/.5/1** **(Reviewer)**
CCRA.W.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	WHST.9-10.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Students engage in short, hands-on labs in every chapter to write code. They have the opportunity to write longer code with iterative improvements in **Chapter 16** (Jail Break Project) and larger projects with supporting technical documentation in **Chapter 25** (Team Project and report).	

Standards Alignment Evaluation Rubric

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N/A = Not applicable for standard.

CCSS ELA/Literacy in Science & Technical Subjects Grade 11-12

ANCHOR STANDARD: Key Ideas and Details Grade 11-12	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.**	**Point Value 0/.5/1 (Reviewer)**
CCRA.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	RST.11-12.1 Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
CCRA.R.2 Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
CCRA.R.3 Analyze how and why individuals, events, and ideas develop and interact over the course of a text.	RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.	Every chapter contains hands-on technical labs with multi-step instructions. Results are compared to activity requirements within the text. Examples include **Chapter 11 Activity** (Let's Go Racing) and **Chapter 19 Activity** (Recursive Binary Search).	
ANCHOR STANDARD: Craft and Structure Grade 11-12	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.**	**Point Value 0/.5/1 (Reviewer)**
CCRA.R.4 Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meaning or tone.	RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.	Every chapter defines new keywords and Java symbols to be used in context of technical coding tasks. Examples include **Chapter 4, Lesson 1** (Data Types), **Chapter 10, Lesson 2** (Defining a Class), and **Chapter 17, Lesson 2** (Binary Number System).	

CCRA.R.5 Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.	RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
CCRA.R.6 Assess how point of view or purpose shapes the content and style of a text.	RST.11-12.6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
ANCHOR STANDARD: Integration of Knowledge and Ideas Grade 11-12	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.**	**Point Value 0/.5/1 (Reviewer)**
CCRA.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.	RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.	**Chapter 17, Lesson 4** (Use flowcharts and text descriptions to describe common algorithms) All lessons provide integrated multi-media presentations (video + text) explaining how to address a question or solve a problem. Students use videos and text together to understand technical concepts in both text and visual forms. See, for example, **Chapter 19, Lesson 2** (Sorting Algorithms) with video and text explanations, plus a hands-on SortDemo program letting students verify sorting algorithms with real data.)	
CCRA.R.8 Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.	**Chapter 19, Lesson 2** (Students use the SortDemo program to verify the behavior of different sorting algorithms using varying input data sets)	
CCRA.R.9 Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.	**Chapter 3, Lesson 4** (Understand multiple sources of help information to solve technical problems). Also, **all lessons** provide integrated multi-media presentations (video + text) explaining how to address a question or solve a problem. See, for example, **Chapter 19, Lesson 2** (Sorting Algorithms) with video and text explanations, plus a hands-on SortDemo program letting students verify sorting algorithms with real data.)	

ANCHOR STANDARD: Range of Reading and Level of Text Grade 11-12	Objectives	Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.	Point Value 0/.5/1 (Reviewer)
CCRA.R.10 Read and comprehend complex literary and informational texts independently and proficiently.	RST.11-12.10 By the end of grade 12, read and comprehend science/technical texts in the grades 11–12 text complexity band independently and proficiently.	**Chapter 1, Lesson 4** (Read and discuss sample EULA) **Chapter 3, Lesson 4** (Read and discuss Java API reference documents)	
***#3 Note:** Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In history/social studies, students must be able to incorporate narrative accounts into their analyses of individuals or events of historical import. In science and technical subjects, students must be able to write precise enough descriptions of the step-by-step procedures they use in their investigations or technical work that others can replicate them and (possibly) reach the same results. *			
ANCHOR STANDARD: Text Types and Purposes Grade 11-12	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.**	**Point Value 0/.5/1 (Reviewer)**
CCRA.W.1 Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.	WHST.11-12.1 Write arguments focused on discipline-specific content. a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence. b. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases. c. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. e. Provide a concluding statement or section that follows from or supports the argument presented	a.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise) b.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise) c.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise) d.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise) e.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
CCRA.W.2 Write informative/ explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	WHST.11-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. a. Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes	a.) **Chapter 25** (Team project involves successive class presentations regarding project requirements, design, implementation, and test results using any	

	it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension. b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. d. Use precise language, domain specific vocabulary and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; convey a knowledgeable stance in a style that responds to the discipline and context as well as to the expertise of likely readers. e. Provide a concluding statement or section that follows from and supports the information or explanation provided (e.g., articulating implications or the significance of the topic).	desired documentation or media). b.) **Chapter 25** (Team project involves successive class presentations regarding project requirements, design, implementation, and test results using any desired documentation or media). c.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise) d.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise). Also, **most chapter activities** involve writing or formatting of code within the formal Java syntax and best coding practices. Examples include **Chapter 2 Activity** (Show Time!) and **Chapter 25** (Team project and report). e.) **Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise).	
CCRA.W.3 Write narratives to develop real or imagined experiences of events using effective technique, well, chosen details and well-structured event sequences.	WHST.11-12.3 (See note; not applicable as a separate requirement)	**Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
ANCHOR STANDARD: Production and Distribution of Writing Grade 11-12	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.**	**Point Value 0/.5/1 (Reviewer)**
CCRA.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	Most chapter activities involve writing Java code using specific best practices and language rules to meet the project requirements. Examples include **Chapter 2 Activity** (Show Time!) and **Chapter 25** (Team project and written report).	
CCRA.W.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	WHST.11-12.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	**Chapter 25** (Team project involves successive class presentations regarding project requirements, design, implementation, and test results using any desired documentation or media)	

CCRA.W.6 Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.	WHST.11-12.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.	**Chapter 25** (Team project involves successive class presentations regarding project requirements, design, implementation, and test results using any desired documentation or media)	
ANCHOR STANDARD: Research to Build and Present Knowledge Grade 11-12	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.**	**Point Value 0/.5/1 (Reviewer)**
CCRA.W.7 Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	WHST.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	**Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
CCRA.W.8 Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.	**Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
CCRA.W.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.	WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.	**Supplemental Lesson 2 / Activity 2** (Technical writing lesson and exercise)	
ANCHOR STANDARD: Range of Writing Grade 11-12	**Objectives**	**Provider: List units with specific examples of where standards are Introduced/Taught/Assessed. Include a narrative explanation.**	**Point Value 0/.5/1 (Reviewer)**
CCRA.W.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.	WHST.11-12.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	Students engage in short, hands-on labs in every chapter to write code. They have the opportunity to write longer code with iterative improvements in **Chapter 16** (Jail Break Project) and larger projects with supporting technical documentation in **Chapter 25** (Team Project and report).	

Please double check the material's alignment to standards.

Alignment to Idaho Content Standards: _____% correlation

If the material aligns to the Idaho Content Standards with at least an 80%, move on to: **Material Analysis. If the material has less than an 80% alignment, please notify your team leader.

Materials Analysis:

Directions: Complete one form for each textbook /program you evaluate. In your evaluation, you are asked to consider the materials according to the criteria below. First, take each individual criterion and rate the material using the following standard: **0 (Inadequate), .5 (Partially Meets), and 1.0 (Meets or Exceeds).** Use the comment and notes sections to give the reasons for your ratings, citing unit/lesson whenever possible.

A. Objectives	**Comments/Examples (Publisher and Reviewer)**	**Inadequate 0**	**Partially Meets 0.5**	**Meets or Exceeds 1.0**
Objectives are generally aligned with Idaho Professional-Technical Education Performance Standards.	**Publisher:** The curriculum aligns with Idaho's PTE standards and the College Board's AP Computer Science A course requirements.			
The scope and sequence of the content is well organized and comprehensive.	**Publisher:** Each chapter carefully builds on the skills taught earlier in the course. Each chapter activity demonstrates the skills taught in that chapter and re-enforces skills learned in earlier chapters. The scope and sequence includes all major programming topics typically taught in an AP Computer Science A class.			
The objectives covered require the students to use higher level cognitive skills (analysis, synthesis, evaluations, etc.).	**Publisher:** Students are required to analyze and understand existing code, evaluate project requirements, write new code to demonstrate skills, and evaluate their results. Programming involves sequential planning, understanding of logical expressions and decision-making, and the ability to model abstract concepts as working code.			
Instructional plans and teaching suggestions provide for efficient adaptation of materials for a variety of performance skill levels and learning styles.	**Publisher:** Lesson concepts are provided in multiple formats (both text and instructional video) to appeal to a range of student learning styles. Videos can be used to introduce and re-enforce the lesson concepts for audio-visual learners or those needing extra instruction.			

Objectives integrate relevant performance, creative, and assessment.	**Publisher:** Students demonstrate understanding of the objectives through both hands-on programming projects and integrated lesson quizzes and chapter tests.		
Quality supplemental teacher materials are available for this text.	**Publisher:** Every lesson includes a teacher's guide with listed objectives and suggested classroom discussion points. Every activity includes a solution guide and a fully coded solution project for reference. All quizzes and tests are auto-scored and come with an answer key. An electronic gradebook allows easy and automated management of class grades.		

B. Content		**Inadequate 0**	**Partially Meets 0.5**	**Meets or Exceeds 1.0**
The content incorporates and supports current performance practices.	**Publisher:** In addition to supporting the specific course objectives and CCSS/ELA literacy standards, we follow the **5E** instructional model. **Engage** – with familiar real-world examples. **Explore** – with integrated multi-media lessons. **Explain** – with guided classroom discussions. **Elaborate** – with hands-on activities to apply concepts. **Evaluate** – with automated quizzes and tests.			
The teacher's guide provides opportunities for differentiation.	**Publisher:** Lesson concepts are provided in multiple formats (both text and instructional video) to appeal to a range of student learning styles. Videos can be used to introduce and re-enforce the lesson concepts for audio-visual learners or those needing extra instruction. Open-ended projects (e.g. **Chapter 25**, Team Project) allow advanced students to creatively expand beyond the initial scope.			

Concepts and skills are presented in tandem.	**Publisher:** Lessons contain integrated example code, and activities serve to demonstrate skills and re-enforce concepts within every chapter.			
The text effectively integrates technology.	**Publisher:** As a technical course, technology permeates every lesson. In addition, the course material is delivered using a modern, online learning management system and the latest HTML5 standards.			
All materials develop student vocabulary and background knowledge.	**Publisher:** Lessons introduce new vocabulary and keywords in a carefully integrated sequence. All required background knowledge is provided within the lesson or in previously completed lessons earlier in the course.			
Activities apply to diverse student abilities, interests, and learning styles.	**Publisher:** The course supports multiple learning styles with both text and video-based instruction. Hands-on programming projects are different in every chapter, using a variety of subject matter and real-world examples to demonstrate skills and concepts. Open-ended projects (e.g. **Chapter 25**, Team Project) allow advanced students to creatively expand beyond the initial scope.			
Activities include guiding questions which encourage the development of higher-level thinking and performance skills.	**Publisher:** Each lesson includes guided classroom discussion questions. Hands-on programming activities contain step-by-step instructions that require students to understand and demonstrate skills taught in the chapter.			
Subject matter covers a spectrum of accomplishments and contributions by all sexes, races and physical conditions.	**Publisher:** The lessons include contributions from men and women (e.g. **Chapter 1, Lesson 1**). All videos, lessons, and activities are neutral with respect to sex, race, physical conditions, politics, religion, location, culture, etc.			

Students of both sexes and various cultures and physical conditions will be able to use the materials without feeling excluded, estranged, or diminished.	**Publisher:** The lessons include contributions from men and women (e.g. **Chapter 1, Lesson 1**). All videos, lessons, and activities are neutral with respect to sex, race, physical conditions, politics, religion, location, culture, etc.			
The resources/materials use references and timelines that feature events from various parts of the world and a variety of time periods and cultures, where appropriate.	**Publisher:** The examples and projects generally focus on small-scale subjects (e.g. telephones, racing, temperature conversions) that are portable across multiple geographic locations, cultures, and time periods.			
The program makes connections to other content areas and real-world applications.	**Publisher:** All lessons and activities use concrete, real-world examples to explain and demonstrate concepts. For example, students can incorporate temperature conversions in **Chapter 9**, acceleration & velocity physics in **Chapter 11**, game-playing in **Chapter 16**, and art in **Chapter 21**.			
The textbook/resources/materials include activities, support, and development of leadership skills.	**Publisher:** Materials have periodic opportunities for peer support in learning vocabulary and concepts (see teacher's guide in the last lesson of each chapter). **Chapter 25** is a team project, and **Supplemental Lesson 1** covers job roles and career opportunities, including management.			

C. Organization of Publication		**Inadequate 0**	**Partially Meets 0.5**	**Meets or Exceeds 1.0**
The scope and sequence of the standards based content is well-organized and comprehensive.	**Publisher:** Lessons introduce new skills in a carefully integrated sequence. All required background knowledge is provided within the lesson or in previously completed lessons earlier in the course. The course covers all relevant Idaho standards plus other typical introductory programming topics.			

The text provides opportunities for direct instruction as well as guided and independent practice.	**Publisher:** Our online learning management system supports a variety of teaching approaches. An experienced teacher can provide direct instruction and lectures based on a combination of their knowledge and the curriculum. A novice teacher can rely on the guided classroom discussions and provided solutions to assist students. A purely administrative teacher can allow students to self-study their way through the course and provide only light grading and other logistical support.			
The layout is consistent, clear, and understandable.	**Publisher:** The online system provides a Student and Teacher Menu with commonly accessed features. Chapter content is organized sequentially, and individual lessons contain links to all student and teacher material in one place. Teacher-only material is identified with gray icons and is hidden from the student.			
Chapters are logically arranged, and contain clear and comprehensive introductions and summaries.	**Publisher:** Each chapter contains a summary of contents at the top, and is arranged to progressively build student skills. All required background knowledge is provided within each lesson or in lessons completed earlier in the course.			
Text provides a useful table of contents, glossary and index.	**Publisher:** The main course page displays chapter-by-chapter table of contents in the main area. A combo box at the bottom of each chapter page allows you to leap directly to any other chapter page. A subject index is provided in the last section, as well as a link to a Microsoft translator that will define technical keywords in a variety of languages.			

Text contains references, bibliography and resources.	**Publisher:** Where relevant, links to 3rd party websites are provided for reference and additional resources (e.g. **Chapter 3, Lesson 4** Java API reference links).			
Textbook provides a separate teacher edition with resource package.	**Publisher:** All teacher material is delivered via teacher login to our online system and integrated alongside the relevant student material. Teacher logins are free for each student classroom.			
Non-text content (performance clips, images, maps, graphs, pictures) are accurate and well integrated into the text.	**Publisher:** Videos are integrated alongside the corresponding lesson text. Images within lessons are positioned next to the relevant paragraph and the HTML text will flow around the image, where appropriate. All material is reviewed for accuracy.			
Construction of text appears durable and able to withstand normal use.	**Publisher:** Not directly relevant for a curriculum delivered entirely online. Our delivery system is hosted in a professional data center.			
Supplementary materials listed below are well organized, of high quality, and are useful in enhancing instruction (rate all that apply):				
On line access to textbook, student materials, resources, etc.	**Publisher:** All material is delivered online.			
Videos, Workbooks, Manipulatives, Prepared Kits	**Publisher:** Courses include videos, lesson text, and guided activities.			
Assessment Materials	**Publisher:** Courses include automated assessments (lesson quizzes and chapter tests).			
Software (CD-ROMs, DVDs, USB Flash drives, etc.)	**Publisher:** All required software is freely accessible from 3rd parties (e.g. Oracle), and the course includes detailed download and installation instructions.			

	TOTALS			

D. Overall Evaluation		**Inadequate**	**Partially Meets**	**Meets or Exceeds**
How do you rate these materials overall? Check one.		☐	☐	☐

COMMENTS:

STRENGTHS	**WEAKNESSES**