2023 Instructional Material Summer Review Institute

Review Team Appraisal of Title

Grades K-12 Computer Science

This appraisal form is provided for use by educators responsible for the selection of instructional materials for implementation with districts and charter schools across New Mexico to meet the need of their student populations.

NMPED Adoption Information

Text Title	Computer Science: A Problem Solving Approach -- Student Edition with six (6) eText student access code cards	**Publisher**	Savvas Learning Company LLC
SE ISBN	9780138046521	**TE ISBN**	9780138043094
SW ISBN		**Grade Level/Content**	9-12 Computer Science

Core Instructional Material Designation *(Core instructional material (CIM) is the comprehensive print and/or digital educational material, including basal material, which constitutes the necessary instructional components of a full academic course of study in those subjects for which the department has adopted content standards and benchmarks.)*

Recommended (90% and above)	☐	**Recommended with Reservations** (80-89%)	☐	**Not Recommended and Not Adopted** (below 80%)	☑

Total Score - *The final score for the materials is averaged between the team of reviewers.*

Average Score
69%

Cultural and Linguistic Relevance Recognition - *Materials are reviewed for relevant criteria pertaining to the support for teachers and students in the material regarding cultural relevance and the inclusion of a culturally responsive lens. Those materials receiving a score of 85% or above on the CLR portion of the review are recognized as culturally and linguistically relevant.*

CLR Recognized ☐

Average Score
50%

FOCUS AREA 3 CULTURAL AND LINGUISTIC PERSPECTIVES AND RESPONSIVENESS:
Instructional materials represent a variety of cultural and linguistic perspectives and highlight diversity in culture and language through multiple perspectives.
Statements of appraisal and supporting evidence:

The materials invite students to share their perspective or learning on some topics, contributing their cultural and linguistic diversity, but there is no evidence of the materials themselves presenting multiple perspectives on specific concepts. No evidence of references to New Mexico cultures, past or present, is found. A unit on digital citizenship has two pictures in total, with the section on cybercrime showing a black male as a hacker and a white male in a public space protecting their information online.

Computer Science Standards Review - *Materials are reviewed for alignment with the state adopted content standards, benchmarks and performance standards.*

Average Score
72%

OVERALL ALIGNMENT
Materials align with the computer science standards overall.
Statements of appraisal and supporting evidence:

Materials address some of the content and principles in the standards, but no evidence is found of the materials explicitly pointing out alignment with the computer science standards. While the Python programming content in these materials is fairly robust, including debugging, designing, and collaborating on projects, these materials offer inconsistent evidence of support for culturally and linguistically diverse students. Furthermore, the materials do not provide students the opportunity to engage in more nuanced practices, such as evaluating the efficiency of an algorithm or the tradeoffs between usability and security. Some concepts, such as networks or data visualization, are not apparent in the materials.

COMPUTING SYSTEMS
Materials align to the computing systems standards for computer science.
Statements of appraisal and supporting evidence:

The materials help students learn about the basic hardware components and operating systems, such as how to troubleshoot a problem; e.g., a wifi outage. However, there is no evidence of the materials providing opportunities for students to explain interactions and abstractions between hardware, operating systems, and applications, or to develop strategies to troubleshoot problems themselves.

NETWORKS AND THE INTERNET
Materials align to the networks and internet standards for computer science.
Statements of appraisal and supporting evidence:

The material invites students to learn about digital citizenship and internet safety, starting from key concepts and then moving on to debating a school policy or presenting about password usage. However, there is no evidence of materials providing students with opportunities to examine tradeoffs between computer security and usability, or evidence of addressing network concepts.

DATA AND ANALYSIS
Materials align to the data and analysis standards for computer science.
Statements of appraisal and supporting evidence:

The materials give students practice with translating from binary to decimal to ASCII, and students write programs using computational models. However, there is no evidence of materials explaining data visualization.

ALGORITHMS AND PROGRAMMING
Materials align to the algorithms and programming standards for computer science.
*Statements of appraisal and supporting evidence***:**

The materials encourage students to design and write programs, use tools like flowcharts or Problem Analysis Charts, and solve problems such as compound interest calculation or finding the most frequent letter in a string. Evidence of students justifying design choices or evaluating the efficiency of algorithms is not found.

IMPACTS OF COMPUTING
Materials align to the impacts of computing standards for computer science.
Statements of appraisal and supporting evidence:

The materials give students opportunities to learn about digital citizenship and the legal and ethical considerations of computing. However, the materials don't support student exploration of the nuances of a topic, such as explaining the positive and negative impacts of intellectual property laws or tradeoffs between usability and security of a system.

Computer Science Content Review- *Materials are reviewed against relevant criteria pertaining to the support for teachers and students in the specific content area reviewed.*

Average Score
79%

FOCUS AREA 1 COMPUTATIONAL CONCEPTS
Instructional materials provide strategies to develop students' skills that are crucial to understanding computational concepts, including sequencing, looping, parallelism, events, conditionals, operators, and data.
Statements of appraisal and supporting evidence:

The materials provide tools like flow charts and problem analysis charts to design and implement algorithms. Concepts such as parallelism and recursion are not addressed in the materials.

FOCUS AREA 2 COMPUTATIONAL PRACTICES
Instructional materials provide strategies to develop students' skills that are crucial to understanding computational practices, including experimenting and iterating; testing and debugging; and reusing and remixing.
Statements of appraisal and supporting evidence:

The materials provide students opportunities to start from designing a program, go on to implementing an algorithm in code, and then to refining the program based on peer feedback. However, materials encouraging students in evaluating an algorithm's efficiency or using a wide range of test cases to find bugs isn't apparent.

FOCUS AREA 3 COMPUTATIONAL PERSPECTIVES
Instructional materials provide strategies to develop students' skills that are crucial to understanding computational perspectives, including expressing, connecting, and questioning.
Statements of appraisal and supporting evidence:

Students are able to practice their programming skills, but there are few opportunities to do in-depth debugging and analysis for correctness and efficiency.

FOCUS AREA 4 ACCESSIBILITY AND EQUITY
Statements of appraisal and supporting evidence:

The materials provide a glossary in the printed and online textbook, an audio tool for reading the text online, and a way to enlarge text. However, aside from students contributing their own cultural and linguistic diversity during collaborations, no evidence is found in the materials for supporting accessibility and equity.

FOCUS AREA 5 TEACHER SUPPORT
*Statements of appraisal and supporting evidence***:**

Directions for downloading and installing Python on Windows are included. The test question bank from Savvas has a zip file of Word docs for each chapter. A zip file of Python code solutions is also available.

All Content Review - *Materials are reviewed against relevant criteria pertaining to the support for teachers and students in the material regarding the progression of the standards, pacing, assessment, individual learners, and cultural and linguistic relevance and responsiveness.*

CLR Recognition Average Score	Average Score
50%	48%

FOCUS AREA 1 RESOURCES AND SUPPORTS FOR TEACHERS AND STUDENTS
Instructional materials provide teacher resources to support planning and supports for all students.
Statements of appraisal and supporting evidence:

Evidence is not found of a reference to standards, instructional time estimates, a curriculum map, or a teacher pacing guide. A screen reader tool is available. Looking up a word from the digital textbook takes the user to the Wikipedia article for that word. The consistently suggested modification for supporting lower-level students is to pair them with more advanced students; for EL students it is to define the vocabulary terms.

FOCUS AREA 2 ASSESSMENT
Instructional materials offer teachers a variety of assessment resources and tools to collect ongoing data about student progress related to the standards.
Statements of appraisal and supporting evidence:

Teachers can use a set of True and False, Multiple Choice, and Fill in the Blank questions (usually 10-12) for each chapter. Teachers can also create flashcards. However, no premade sets of flashcards are found in the materials. Programming solutions and test questions are available as downloadable zip files, but with no ability to navigate between them online. A Microsoft Word license is required to view the downloaded test questions files. Digital testing tools for concepts or programs are not apparent. The Python exercises use the default IDLE environment, which is not integrated into the the online platform.

FOCUS AREA 3 CULTURAL AND LINGUISTIC PERSPECTIVES AND RESPONSIVENESS
Instructional materials represent a variety of cultural and linguistic perspectives and highlight diversity in culture and language through multiple perspectives.
Statements of appraisal and supporting evidence:

The materials invite students to share their perspective or learning on some topics, contributing their cultural and linguistic diversity, but there is no evidence of the materials themselves presenting multiple perspectives on specific concepts. No evidence of references to New Mexico cultures, past or present, is found. A unit on digital citizenship has two pictures in total, with the section on cybercrime showing a black male as a hacker and a white male in a public space protecting their information online.

Reviewers' Professional Summary - *These materials are reviewed by Level II and Level III educators from across New Mexico. The reviewers have brought their knowledge, experience and expertise into the review of these materials. They offer here their individual summary of the material as a whole.*

Reviewer #: 80

Background and experience:

I have a masters in mathematics from the University of South Florida, a math and physics B.A. from Goshen College, and a computer science B.A. equivalent along with some English Language studies from Eastern Kentucky University. I have taught high school math for 13 years and during 3 of those years, I also taught regular and AP computer science. During the 10 years I worked as a university website administrator, I also taught JavaScript and undergraduate math classes part time.

Professional summary of material:

While accurate and reasonably robust as far as the syntax and programming aspects of Python, this material does not provide or expand on many opportunities for students to address cultural and linguistic diversity. Big data and data visualization are not addressed. The programming examples are fairly basic, which makes it easier for students to grasp concepts initially. However, students have few opportunities to develop their debugging strategies and spend less time analyzing their programs' correctness, efficiencies, accessibility, user experience, and code reusability. Furthermore, students do not get a chance to discuss the pros and cons of emerging technologies and computing innovations. The online materials are not integrated much. Accessing test bank questions and programming solutions is a zipped file download that requires a MS Word license for the test bank questions.

Reviewer #: 81

Background and experience:

I have a Bachelor's in computer science from the University of New Mexico. I've been a teacher for 15 years, and I have taught computer science at the high school and college levels since 2015. Prior to teaching, I worked as a system administrator, web developer, and computer programmer.

Professional summary of material:

These materials provide support for covering most of the concepts in an introductory computer science class. However, the opportunities for students to go deeper are not apparent, from evaluating the efficiency of a program, to the tradeoffs involved in intellectual property laws, or the beneficial and harmful impacts of an innovation. The lack of computer science standards alignment and instructional time estimates would require more effort from the teacher to ensure alignment. There is no integration to the platform for the programming exercises or tools to assist in assessing them. Looking up a word in the digital text takes the user to the Wikipedia page for that word, which may cause additional challenges for an EL student. Programming assignments consist of tasks like "write a loop to enable the manual input of weather data" or "write a function to calculate compound interest", with no evidence of the development of larger programs which engage student interest and incorporate the range of developed concepts.