

F.33 Computer Science - Grades 6-12

Public Education Department

PROVIDER/PUBLISHER / MATERIAL INFORMATION (TO BE COMPLETED BY PROVIDER/PUBLISHER)

Provider/Publisher / Imprint:	Grade(s):	
Title of Student Edition:	Student Edition ISBN:	
Title of Teacher Edition:	Teacher Edition ISBN:	
Title of SE Workbook:	SE Workbook ISBN:	

PUBLISHER CITATION VIDEO: Must be viewed before starting the review of this set of materials.								
Citation Video Link:								
Citation video certification:	I certify that I have viewed the citation set of materials.							
Digital Material Log In (if applicable):	Website:	Username:	Password:					

SCORING (TO BE COMPLETED BY REVIEWER AND FACILITATOR)							
Reviewer Number:		Date:					

Section 1: Standards Review: Computer Science

PROVIDER/PUBLISHER INSTRUCTIONS:

• Provider/Publisher citations for this section will refer to the **Teacher Edition (teacher-facing core material)** and/or **Student Edition/Student Workbook (student-facing core material)**. The cited Teacher Edition, Student Edition, and/or Student Workbook should correspond with titles and ISBNs entered on the Form F cover page, whether in print, online, or both. The review set submitted to the summer review institute should also correspond with what is cited on the Form F. If the review set is an online platform only, then that is what should be cited on the Form F and submitted for review by the review set is in print only, then that is what should be cited on the Form F and submitted for review by the review set is in print only, then that is what should be cited on the Form F and submitted for review by the review set is in print only, then that is what should be cited on the Form F and submitted for review by the review set is in print only, then that is what should be cited on the Form F and submitted for review by the review set is in print only.

• For this section, the provider/publisher will enter two citations per standard (Columns C and G). Each citation should direct the reviewer to a specific location in the materials that best meets the standard. The citations should be concise and should allow the reviewer to easily determine that all components of the standard have been met. Each citation should cover no more than 3 pages within the materials.

o Columns D and H: Enter one citation in Column D and one citation in Column H from either the Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material). Each citation should direct the reviewer to a specific location in the materials that best meets the standard.

• The material will be scored for alignment with each standard as "Meets expectations," "Partially meets expectations," or "Does not meet expectations" based on the citations provided.

o NOTE: You may not use a citation more than once across ALL sections of the rubric.

Reviewer directions for Computer Science Standards Review:		Columns D-G: The provider/publisher will provide a citation from the Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material) (print and/or digital) for each standard. Review the cited material and score the material by determining the degree to which it meets the standard: o M = Meets the standard o P = Partially meets the standard o D = Does not meet the standard Evidence for the publisher citations is required <i>only</i> if you score the materials with a D. For your evidence for each standard that scores a D, choose one of the options from the dropdown menu in Column G. If the reason for scoring the materials with a D is not one of the dropdown options, enter your own evidence statement in the cell in Column G.			Columns H-K: The provider/public (teacher-facing core material) O (student-facing core material) (p the cited material, score the material meets the standard, and provide of determination: o M = Meets the standard o P = Partially meets the standard o D = Does not meet the standar o Each score cell (column I) an you score the materials.				
Criteria #	Identifier	F.33 Computer Science Grades 6-12	Provider/Publisher Citation	Score	If Scored D: Reviewer's Evidence for Publisher Citation	Provider/Publisher Citation	Score	Required: Reviewer's Evidence for Publisher Citation	Comments, other citations, notes
LEVELS	2, 3A AND 3B	GRADES 6-12 COMPUTER SCIENCE STANDAR	DS						
COMPUT	TING SYSTEM	S							
1	2-CS-01	Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.							
2	2-CS-02	Design projects that combine hardware and software components to collect and exchange data.							
3	2-CS-03	Systematically identify and fix problems with computing devices and their components.							
4	3A-CS-01	Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects.							
5	3A-CS-02	Compare levels of abstraction and interactions between application software, system software, and hardware layers.							
6	3A-CS-03	Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors.							

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7	3B-CS-01	Categorize the roles of operating system software.				
8	3B-CS-02	Illustrate ways computing systems implement logic, input, and output through hardware components.				
NETWO	RKS AND THE	NTERNET				
9	2-NI-04	Model the role of protocols in transmitting data across networks and the Internet.				
10	2-NI-05	Explain how physical and digital security measures protect electronic information.				
11	2-NI-06	Apply multiple methods of encryption to model the secure transmission of information.				
12	3A-NI-04	Evaluate the scalability and reliability of networks, by describing the relationship between routers, switches, servers, topology, and addressing.				
13	3A-NI-05	Give examples to illustrate how sensitive data can be affected by malware and other attacks.				
14	3A-NI-06	Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.				
15	3A-NI-07	Compare various security measures, considering tradeoffs between the usability and security of a computing system.				
16	3A-NI-08	Explain tradeoffs when selecting and implementing cybersecurity recommendations.				
17	3B-NI-03	Describe the issues that impact network functionality (e.g., bandwidth, load, delay, topology).				
18	3B-NI-04	Compare ways software developers protect devices and information from unauthorized access.				
DATA AN	ND ANALYSIS			•		
19	2-DA-07	Represent data using multiple encoding schemes.				
20	2-DA-08	Collect data using computational tools and transform the data to make it more useful and reliable.				
21	2-DA-09	Refine computational models based on the data they have generated.				
22	3A-DA-09	Translate between different bit representations of real-world phenomena, such as characters, numbers, and images.				

			-		-	
23	3A-AP-10	Evaluate the tradeoffs in how data elements are organized and where data is stored.				
24	3A-AP-11	Create interactive data visualizations using software tools to help others better understand real-world phenomena.				
25	3A-AP-12	Create computational models that represent the relationships among different elements of data collected from a phenomenon or process.				
26	3B-DA-05	Use data analysis tools and techniques to identify patterns in data representing complex systems.				
27	3B-DA-06	Select data collection tools and techniques to generate data sets that support a claim or communicate information.				
28	3B-DA-07	Evaluate the ability of models and simulations to test and support the refinement of hypotheses.				
ALGORI	THMS AND PF	OGRAMMING				
29	2-AP-10	Use flowcharts and/or pseudocode to address complex problems as algorithms.				
30	2-AP-11	Create clearly named variables that represent different data types and perform operations on their values.				
31	2-AP-12	Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.				
32	2-AP-13	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.				
33	2-AP-14	Create procedures with parameters to organize code and make it easier to reuse.				
34	2-AP-15	Seek and incorporate feedback from team members and users to refine a solution that meets user needs.				
35	2-AP-16	Incorporate existing code, media, and libraries into original programs, and give attribution.				
36	2-AP-17	Systematically test and refine programs using a range of test cases.				
37	2-AP-18	Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.				
38	2-AP-19	Document programs in order to make them easier to follow, test, and debug.				

39	3A-AP-13	Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.				
40	3A-AP-14	Use lists to simplify solutions, generalizing computational problems instead of repeatedly using simple variables.				
41	3A-AP-15	Justify the selection of specific control structures when tradeoffs involve implementation, readability, and program performance, and explain the benefits and drawbacks of choices made.				
42	3A-AP-16	Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using events to initiate instructions.				
43	3A-AP-17	Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects.				
44	3A-AP-18	Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs.				
45	3A-AP-19	Systematically design and develop programs for broad audiences by incorporating feedback from users.				
46	3A-AP-20	Evaluate licenses that limit or restrict use of computational artifacts when using resources such as libraries.				
47	3A-AP-21	Evaluate and refine computational artifacts to make them more usable and accessible.				
48	3A-AP-22	Design and develop computational artifacts working in team roles using collaborative tools.				
49	3A-AP-23	Document design decisions using text, graphics, presentations, and/or demonstrations in the development of complex programs.				
50	3B-AP-08	Describe how artificial intelligence drives many software and physical systems.				
51	3B-AP-09	Implement an artificial intelligence algorithm to play a game against a human opponent or solve a problem.				
52	3B-AP-10	Use and adapt classic algorithms to solve computational problems.	 			
53	3B-AP-11	Evaluate algorithms in terms of their efficiency, correctness, and clarity.				

54	3B-AP-12	Compare and contrast fundamental data structures and their uses.				
55	3B-AP-13	Illustrate the flow of execution of a recursive algorithm.				
56	3B-AP-14	Construct solutions to problems using student- created components, such as procedures, modules and/or objects.				
57	3B-AP-15	Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution.				
58	3B-AP-16	Demonstrate code reuse by creating programming solutions using libraries and APIs.				
59	3B-AP-17	Plan and develop programs for broad audiences using a software life cycle process.				
60	3B-AP-18	Explain security issues that might lead to compromised computer programs.				
61	3B-AP-19	Develop programs for multiple computing platforms.				
62	3B-AP-20	Use version control systems, integrated development environments (IDEs), and collaborative tools and practices (code documentation) in a group software project.				
63	3B-AP-21	Develop and use a series of test cases to verify that a program performs according to its design specifications.				
64	3B-AP-22	Modify an existing program to add additional functionality and discuss intended and unintended implications (e.g., breaking other functionality).				
65	3B-AP-23	Evaluate key qualities of a program through a process such as a code review.				
66	3B-AP-24	Compare multiple programming languages and discuss how their features make them suitable for solving different types of problems.				
IMPACT	S OF COMPUT	ING	-			-
67	2-IC-20	Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.				
68	2-IC-21	Discuss issues of bias and accessibility in the design of existing technologies.				
69	2-IC-22	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact.				

70	2-IC-23	Describe tradeoffs between allowing information to be public and keeping information private and secure.			
71	3A-IC-24	Evaluate the ways computing impacts personal, ethical, social, economic, and cultural practices.			
72	3A-IC-25	Test and refine computational artifacts to reduce bias and equity deficits.			
73	3A-IC-26	Demonstrate ways a given algorithm applies to problems across disciplines.			
74	3A-IC-27	Use tools and methods for collaboration on a project to increase connectivity of people in different cultures and career fields.			
75	3A-IC-28	Explain the beneficial and harmful effects that intellectual property laws can have on innovation.			
76	3A-IC-29	Explain the privacy concerns related to the collection and generation of data through automated processes that may not be evident to users.			
77	3A-IC-30	Evaluate the social and economic implications of privacy in the context of safety, law, or ethics.			
78	3B-IC-25	Evaluate computational artifacts to maximize their beneficial effects and minimize harmful effects on society.			
79	3B-IC-26	Evaluate the impact of equity, access, and influence on the distribution of computing resources in a global society.			
80	3B-IC-27	Predict how computational innovations that have revolutionized aspects of our culture might evolve.			
81	3B-IC-28	Debate laws and regulations that impact the development and use of software.			

Section	2: Computer Science Content Review				Section 2: Computer Science Content Review									
PROVID • Provid Edition with wh be cite • For thi concis o • The m o	ROVIDER/PUBLISHER INSTRUCTIONS: Provider/Publisher citations for this section will refer to the Teacher Edition (teacher-facing core material) and/or Student Edition/Student Workbook (student-facing core material) . The cited Teacher Edition, Student Edition, and/or Student Workbook should correspond with titles and ISBNs entered on the Form F cover page, whether in print, online, or both. The review set submitted to the summer review institute should also correspond with what is cited on the Form F. If the review set is an online platform only, then that is what should be cited on the Form F and submitted for review by the review set is in print only, then that is what should be cited on the Form F and submitted for review by the review teams. For this section, the provider/publisher will enter two citations per criterion (Columns C and G). Each citation should direct the reviewer to a specific location in the materials. o Columns C and G : Enter one citation in Column G from either the Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material) . The material will be scored for alignment with each criterion as "Meets expectations," "Partially meets expectations," or "Does not meet expectations" based on the citations provided. o NOTE: You may not use a citation more than once across ALL sections of the rubric.													
Columns C-F: The provider/publisher will provide a citation from the Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material) (print and/or digital) for each criterion. Review the cited material and score the material by determining the degree to which it meets the criterion: O M = Meets the criterion O M = Meets the criterion O D = Does not meet the criterion O D = Does not meet the criterion D = Does not meet the criterion that scores a D, choose one of the options from the dropdown menu in Column F. If the reason for scoring the materials D = Each score cell (column D) will turn green as you score the materials. 							a citation from the Teacher Edition ion/Student Workbook al) for each criterion. Review ng the degree to which it the material to support your ell (column J) will turn green							
Criteria #	Grades 3-8 Computer Science Content Criteria	Provider/Publisher Citation	Score	If Scored D: Reviewer's Evidence for Publisher Citation	Provider/Publisher Citation	Score	Required: Reviewer's Evidence for Publisher Citation	Comments, other citations, notes						
FOCUS Instruct includin	AREA 1 COMPUTATIONAL CONCEPTS ional materials provide strategies to develop students's g sequencing, looping, parallelism, events, conditionals	skills that are crucial to und s, operators, and data.	erstanding	g computational concepts,										
1	Instructional materials provide block programmed sequence activities that direct action of on-screen agents in virtual worlds and that sense and respond to the physical world.													
2	Instructional materials provide block programmed loop activities that direct action of on-screen agents in virtual worlds and that sense and respond to the physical world.													
3	Instructional materials provide block programmed math/logic activities that direct action of on-screen agents in virtual worlds and that sense and respond to the physical world.													
4	Instructional materials provide block programmed data activities that direct action of on-screen agents in virtual worlds and that sense and respond to the physical world.													

FOCUS Instruct	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.									
5	Instructional materials provide frequent guided opportunities for students to overcome problems stemming from incomplete programs, incorrect syntax, missing sensor/actuator libraries, or misfits between hardware and software.									
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.										
6	Instructional materials provide frequent guided opportunities for students to create and construct designs for their physical computing devices that allows users to enjoy its programmed capabilities.									
7	Instructional materials provide frequent guided opportunities for students to co-create and co-construct designs for their physical computing devices that allows users to enjoy its programmed capabilities.									
FOCUS	AREA 4 ACCESSIBILITY AND EQUITY:		•							
8	Instructional materials provide all students (e.g. those who read below grade level, students with special needs, gifted students, and ELL) with extensive opportunities to encounter and comprehend grade-level and complex concepts within the scope of computer science.									
9	Instructional materials help students to develop an understanding and appreciation for ethical behaviors and digital citizenship.									
FOCUS	AREA 5 TEACHER SUPPORT:									
10	Instructional materials provide a detailed list of requisite software, libraries, hardware and tools.									

Section 2	Section 2: Computer Science Content Review										
PROVIDE • Provide Edition, with wh be cited • For this concise • Concise • The mate • The mate	ROVIDER/PUBLISHER INSTRUCTIONS: Provider/Publisher citations for this section will refer to the Teacher Edition (teacher-facing core material) and/or Student Edition/Student Workbook (student-facing core material) . The cited Teacher Edition, Student Edition, and/or Student Workbook should correspond with titles and ISBNs entered on the Form F cover page, whether in print, online, or both. The review set submitted to the summer review institute should also correspond with what is cited on the Form F. If the review set is an online platform only, then that is what should be cited on the Form F and submitted for review by the review teams. If the review set is in print only, then that is what should be cited on the Form F and submitted for review by the review teams. For this section, the provider/publisher will enter two citations per criterion (Columns C and G). Each citation should direct the reviewer to a specific location in the materials that best meets the criterion. The citations should be concise and should allow the reviewer to easily determine that all components of the criterion have been met. Each citation should cover no more than 3 pages within the materials. o Columns C and G: Enter one citation in Column C and one citation in Column G from either the Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material) . The material will be scored for alignment with each criterion as "Meets expectations," "Partially meets expectations," or "Does not meet expectations" based on the citations provided. o NOTE: You may not use a citation more than once across ALL sections of the rubric.										
	Reviewer directions for Computer Science Content Review:	 Columns C-F: The provider/publisher will provide a citation from the Teacher Edition (teacher-facing core material) OR Student Edition/Student Workbook (student-facing core material) (print and/or digital) for each criterion. Review the cited material and score the material by determining the degree to which it meets the criterion: o M = Meets the criterion o D = Does not meet the criterion Evidence for the publisher citations is required only if you score the materials with a D. For your evidence for each criterion that scores a D, choose one of the options from the dropdown menu in Column F. If the reason for scoring the materials with a D is not one of the dropdown options, enter your own evidence statement in the cell in Column F. 			Columns G-J: The provider/publis (teacher-facing core material) OF (student-facing core material) (put the cited material, score the material meets the criterion, and provide ex- determination: o M = Meets the criterion o P = Partially meets the criterion o D = Does not meet the criterion o Each score cell (column H) ar as you score the materials.						
Criteria #	Grades 9-12 Computer Science Content Criteria	Provider/Publisher Citation	Score	If Scored D: Reviewer's Evidence for Publisher Citation	Provider/Publisher Citation	Score	Required: Reviewer's Evidence for Publisher Citation	Comments, other citations, notes			
FOCUS A Instruction	AREA 1 COMPUTATIONAL CONCEPTS onal materials provide strategies to develop students's g sequencing, looping, parallelism, events, conditional	skills that are crucial to und s, operators, and data.	erstanding	g computational concepts,							
1	Instructional materials provide strategies for students to design and implement algorithms using a. sequencing of instructions; b. conditional execution; and c. iteration.										
2	Instructional materials provide strategies for students to design and implement algorithms that use sequence and selection including: nested Ifs (e.g. if, if/else, if, switch case); nested Loops (e.g. for, for each, while, do while); and Iteration and recursion.										
3	Instructional materials provide strategies for students to create computational models that represent the relationships among different elements of data collected from a process.										

4	Instructional materials provide strategies for students to identify mathematical concepts (e.g. random number generation, vocabulary) related to computer science and to recognize the similarities and differences between math and computer science algorithms.							
FOCUS	AREA 2 COMPUTATIONAL PRACTICES:	•		•	•	•		
Instructi	ional materials provide strategies to develop students'	skills that are crucial to unc	lerstanding	g computational practices,				
including experimenting and iterating; testing and debugging; and reusing and remixing.								
5	Instructional materials provide strategies for students to create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests.							
6	Instructional materials provide strategies for students to evaluate algorithms in their efficiency, correctness, and clarity by using a series of test cases to verify that the program performs according to its design specification.							
FOCUS	AREA 3 COMPUTATIONAL PERSPECTIVES:							
Instructi	ional materials provide strategies to develop students'	skills that are crucial to unc	lerstanding	g computational				
perspec	tives, including expressing, connecting, and questionin	ng.						
7	Instructional materials provide strategies for students to create a computational artifact for practical intent, personal expression, or to address a societal issue.							
8	Instructional materials provide strategies for students to explore and explain advancing and emerging technologies and predict how computational innovations will revolutionize aspects of our culture based on knowledge of the historical timeline of computers and technology.							
FOCUS AREA 4 ACCESSIBILITY AND EQUITY:								
9	Instructional materials provide all students (e.g. those who read below grade level, students with special needs, gifted students, and ELL) with extensive opportunities to encounter and comprehend grade-level and complex concepts within the scope of computer science.							
FOCUS AREA 5 TEACHER SUPPORT:								
10	Instructional materials provide a detailed list of requisite software, libraries, hardware and tools.							

Section 2: All Content Review

PROVIDERS/PUBLISHERS:

- The All Content tab will be completed solely by the reviewers. They will score each criterion and provide evidence for their score from the material based on their overall review of the material. You will not provide any citations for this tab.
 The material will be scored for alignment with each criterion as "Meets expectations," "Partially meets expectations," or "Does not meet expectations".

	Reviewer directions for All Content Review:	Columns C-F provided bas score the mate provide evide o M = Meets o P = Partiall o D = Does r Your evidence evidence as w o Each scor as you scr o Any cells	: The criteria presented on this tab will be scored and evidence ed on your overall review of the materials. Review the material, erial by determining the degree to which it meets each criterion, and ance from the material to support your determination: the criterion by meets the criterion the criterion e should speak to where in the materials you have found the vell as what is in the materials that supports the score given. The cell (column C) and evidence cell (column E) will turn green for the materials. grayed out do not require a score or evidence.				
Criteria #	All Content Criteria	Score	Required: Reviewer's Evidence from Material	Comments, citations, notes			
FOCUS AREA 1 RESOURCES AND SUPPORTS FOR TEACHERS AND STUDENTS: Instructional materials provide teacher resources to support planning and supports for all students.							
1	Instructional materials provide a list of lessons in the Teacher Edition or teacher-facing core material (in print or clearly distinguished/accessible as a teacher-facing core material in digital materials), cross-referencing the standards addressed and providing an estimated instructional time for each lesson, chapter, and unit.						
2	Instructional materials integrate opportunities for digital learning, including interactive digital components, and digital assessment.						
3	Instructional materials incorporate features that aid students and teachers in making meaning of the text.						
4	Instructional materials provide appropriate linguistic support for English Learners and Culturally and Linguistically Diverse students, and accommodations and modifications for other special populations that will support their regular and active participation in learning content.						
FOCUS Instruct tools to	AREA 2 ASSESSMENT: ional materials offer teachers a variety of assessment r collect ongoing data about student progress related to	esources a the standa	nd rds.				

5	Instructional materials provide a variety of assessments that measure student progress in all strands of the standards for the content under review. (Adopted New Mexico Content Standards for 2023: 7-12 Career and Technical Education Standards; CSTA K-12 Computer Science Standards; K-12 Health Education Standards; K-12 Physical Education Standards)					
6	Instructional materials provide multiple formative and summative assessments, clearly defining which standards are being assessed through content and language objectives.					
7	Instructional materials provide appropriate assessment alternatives for English Learners, Culturally and Linguistically Diverse students, advanced students, and special needs students.					
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.						
8	Instructional materials inform culturally and linguistically responsive pedagogy by affirming students' backgrounds in the materials themselves and in the student discussions.					
9	Instructional materials include tools and resources to relate the content area appropriately to diversity in culture and language.					
10	Instructional materials include tools and resources that demonstrate multiple perspectives in a specific concept.					
11	Instructional materials engage students in critical reflection about their own lives and societies, including cultures past and present in New Mexico.					
12	Instructional materials address multiple ethnic descriptions, interpretations, or perspectives of events and experiences					