Skill Struck’s alignment to

Alabama’s Course of Study Digital Literacy and Computer Science Standards

Legend

✅ = Standard aligned

🔹 = Not currently aligned

Standard	Status
Kindergarten, Computational Thinker: Algorithms 1. List the sequence of events required to solve problems. Examples: Tying shoes, making a sandwich, brushing teeth.	✅
Kindergarten, Computational Thinker: Programming and Development 2. Demonstrate use of input devices. Examples: Mouse, touch screen, keyboard.	✅
Kindergarten, Citizen of a Digital Culture: Safety, Privacy, and Security 3. Distinguish between private and public information. Example: Your birth date is private; your shirt color is public. 4. Identify age-appropriate methods for keeping personal information private. Example: Keeping passwords, name, address, and phone number confidential.	✅

Kindergarten, Citizen of a Digital Culture: Legal and Ethical Behavior 5. Demonstrate appropriate behaviors for working with others responsibly and kindly. Examples: Face-to-face collaborative groups or interactions, online interactions, role play.	✅
Kindergarten, Citizen of a Digital Culture: Impact of Computing 6. Recognize ways in which computing devices make certain tasks easier. Examples: Communication, doctor's visits/medical records, maps and directions.	✅
Kindergarten, Global Collaborator: Digital Tools 7. Locate letters and numbers on the keyboard.	✅
Kindergarten, Global Collaborator: Collaborative Research 8. Present information from a variety of digital resources. 9. Create a research-based product collaboratively using online digital tools, given specific guidance. Examples: Find simple facts about a specific topic, create a slide that contains facts located in trade books or other sources as a group or with a partner.	✅
Kindergarten, Computing Analyst: Data 10. Collect data and organize it in a chart or graph collaboratively. 11. Describe how digital devices save information.	✅
Kindergarten, Computing Analyst: Systems 12. Use a variety of digital devices, in both independent and collaborative settings. Examples: Interactive boards, tablets, laptops, other handheld devices.	🔹
Kindergarten, Innovative Designer: Design Thinking 13. Use a design process in a guided setting to create an artifact or solve a problem. Example: Problem - understanding locations on the school campus. Solution - draw paper or digital maps of the school.	✅

Grade 1, Computational Thinker: Abstraction 1. Classify and sort information into logical order with and without a computer. Examples: Sort by shape, color, or other attribute; sort A-Z.	✅
Grade 1, Computational Thinker: Algorithms 2. Order events into a logical sequence or algorithm. Examples: Unplugged coding activities, sequence of instruction.	✅
Grade 1, Computational Thinker: Programming and Development 3. Construct elements of a simple computer program in collaboration with others. Examples: Block programming, basic robotics, unplugged programming.	✅
Grade 1, Citizen of a Digital Culture: Safety, Privacy, and Security 4. Demonstrate age-appropriate methods for keeping personal information private. Example: Keep passwords confidential, use anonymous profile picture or avatar, develop user names that are non-identifying or do not include actual name.	✅
Grade 1, Citizen of a Digital Culture: Legal and Ethical Behavior 5. Differentiate between prior knowledge and ideas or thoughts gained from others. 6. Identify appropriate and inappropriate behaviors for communicating in a digital environment. Examples: Cyberbullying, online etiquette.	✅
Grade 1, Citizen of a Digital Culture: Digital Identity 7. Recognize that a person has a digital identity.	✅
Grade 1, Citizen of a Digital Culture: Impact of Computing 8. Identify ways in which computing devices have impacted people's lives. Example: Location services, instantaneous access to information.	✅
Grade 1, Global Collaborator: Communication 9. Use a variety of digital tools collaboratively to connect with other	🔹

learners. Examples: Video calling, blogs, collaborative documents.	
Grade 1, Global Collaborator: Digital Tools 10. Identify an appropriate tool to complete a task when given guidance and support. Examples: Choosing a word processing tool to write a story, choosing a spreadsheet for a budget. 11. Type five words per minute minimum with 95% accuracy using appropriate keyboarding techniques.	✅
Grade 1, Global Collaborator: Collaborative Research 12. Identify keywords in a search and discuss how they may be used to gather information. 13. Create a research-based product collaboratively using online digital tools. Examples: Find simple facts about a specific topic, create a slide that contains facts located in trade books or other sources	🔹
Grade 1, Computing Analyst: Data 14. Discuss the purpose of collecting and organizing data. 15. Interpret data displayed in a chart. Example: Using charts which depict data students interpret the data either verbally or in written form (which has more, less, are equal). 16. Demonstrate how digital devices can save information as data that can be stored, searched, retrieved, and deleted.	✅
Grade 1, Computing Analyst: Systems 17. Use digital devices with a variety of operating systems. Examples: Interactive boards, tablets, laptops, other handheld devices 18. Label visible components of digital devices. Examples: Visible input and output components such as USB, touch screen, keyboard, audio and video connectors, speakers.	✅

Grade 1, Innovative Designer: Design Thinking 19. Identify and revise problem-solving strategies to solve a simple problem. Examples: Scientific method, visual images or mind pictures, look for patterns, systematic list.	✅
Grade 2, Computational Thinker: Abstraction 1. Create and sort information into useful order using digital tools. Examples: Sort data spreadsheets A-Z, simple filters, and tables.	✅
Grade 2, Computational Thinker: Algorithms 2. Create an algorithm for other learners to follow. Examples: Unplugged coding activities, illustrate sequence of a process such as baking a cake.	✅
Grade 2, Computational Thinker: Programming and Development 3. Construct elements of a simple computer program using basic commands. Examples: Digital block-based programming, basic robotics. 4. Identify bugs in basic programming. Examples: Problem-solving, trial and error.	✅
Grade 2, Citizen of a Digital Culture: Legal and Ethical Behavior 5. Cite media and/or owners of digital content at an age-appropriate level. Example: Basic website citation. 6. Demonstrate appropriate behaviors for communicating in a digital environment. Example: netiquette.	✅
Grade 2, Citizen of a Digital Culture: Digital Identity 7. List positive and negative impacts of digital communication. Example: Anything posted or communicated electronically may be easily reproduced and could remain a positive or negative part of your digital identity/footprint.	✅
Grade 2, Citizen of a Digital Culture: Impact of Computing 8. Interpret ways in which computing devices have influenced people's	✅

lives. Example: Discuss tasks completed daily in which some type of device is used to make the tasks easier (calculator, microwave to quickly heat food, mobile phone for instant communication).	
Grade 2, Global Collaborator: Communication 9. Use a variety of digital tools to connect with other learners. Examples: Online conferences, blogs, collaborative documents.	🔹
Grade 2, Global Collaborator: Digital Tools 10. Identify multiple tools which could be used to complete a task. 11. Type 10 words per minute with 95% accuracy using appropriate keyboarding techniques.	✅
Grade 2, Global Collaborator: Collaborative Research 12. Conduct basic keyword searches to gather information. 13. Create a research-based product using online digital tools.	🔹
Grade 2, Computing Analyst: Data 14. Collect, create, and organize data in a digital chart or graph. 15. Explain how users control the ways digital devices save information in an organized manner. Examples: Folders, cloud-based, pictures, chronologically, naming files.	✅
Grade 2, Computing Analyst: Systems 16. Compare the different operating systems used on digital devices. 17. Explain the purposes of visible input and output components of digital devices. Examples: Purpose of keyboard, mouse, ports, printers, etc.	✅
Grade 2, Innovative Designer: Design Thinking 18. Investigate the design process and use digital tools to illustrate potential solutions to a problem, given guidance and support. Examples: Create a presentation, drawing or graphic, audio tool, or video.	✅
Grade 3, Computational Thinker: Abstraction	✅

1. Use numbers or letters to represent information in another form. Examples: Secret codes/encryption, Roman numerals, or abbreviations. 2. Analyze a given list of sub-problems while addressing a larger problem. Example: Problem - making a peanut butter sandwich; sub-problem - opening jar, finding a knife, getting the bread. Problem - design and share a brochure; sub-problem - selecting font, choosing layout.	
Grade 3, Computational Thinker: Algorithms 3. Explain that different solutions exist for the same problem or sub-problem. Example: Multiple paths exist to get home from school; one may be a shorter distance while one may encounter less traffic. 4. Examine logical reasoning to predict outcomes of an algorithm. 5. Create an algorithm to solve a problem as a collaborative team. Examples: Move a character/robot/person through a maze. List steps to build a sandwich. 6. Describe the function of a flowchart	✅
Grade 3, Computational Thinker: Programming and Development 7. Test and debug a given program in a block-based visual programming environment using arithmetic operators, conditionals, and repetition in programs, in collaboration with others. Examples: Sequencing cards for unplugged activities, online coding practice.	✅
Grade 3, Citizen of a Digital Culture: Safety, Privacy, and Security 8. Describe how to use proper ergonomics when using devices. Examples: Body position, lighting, positioning of equipment, taking breaks. 9. Identify the proper use and operation of security technologies. Examples: Passwords, virus protection software, spam filters, pop-up blockers. 10. Describe ways web advertising collects personal information.	✅

Examples: Search ads, banner ads, in-game ads, email ads.	
Grade 3, Citizen of a Digital Culture: Impacting of Computing 11. Identify resources in the community that offer technology access. Examples: Libraries, community centers, restaurants, education programs, schools, or hardware/software donation programs. 12. Identify and discuss ways that access to technology helps empower individuals and groups. Examples: Gives access to information; provides the ability to communicate with others around the world; enables people to buy and sell things.	✅
Grade 3, Global Collaborator: Communication 13. Communicate key ideas and details collaboratively in a way that informs, persuades, and/or entertains, using digital tools. Example: Create a digital presentation to persuade school administrators to allow additional time for lunch.	✅
Grade 3, Global Collaborator: Digital Tools 14. Type 15 words per minute with 95% accuracy using appropriate keyboarding techniques. 15. Describe local, networked, and online or cloud environments.	✅
Grade 3, Global Collaborator: Collaborative Research 16. Conduct basic keyword searches to produce valid, appropriate results, and evaluate results for accuracy, relevance, and appropriateness. Examples: Use search techniques, check for credibility and validity.	🔹
Grade 3, Computing Analyst: Data 17. Describe examples of data sets or databases from everyday life. Examples: Library catalogs, school records, telephone directories, or contact lists.	🔹
Grade 3, Computing Analyst: Systems 18. Identify a broad range of digital devices, the services they provide, and appropriate uses for them. Examples: Computers, smartphones, tablets,	✅

robots, e-textiles, driving directions apps that access remote map services, digital personal assistants that access remote information services. 19. Describe the differences between hardware and software.	
Grade 3, Innovative Designer: Human/Computer Partnerships 20. Compare and contrast human and computer performance on similar tasks to understand which is better suited to the task. Examples: Sorting alphabetically, finding a path across a cluttered room. 21. Explain advantages and limitations of technology. Example: A spell-checker can check thousands of words faster than a human could look them up; however, a spell-checker might not know whether underserved is correct or if the author's intent was to type undeserved.	✅
Grade 3, Innovative Designer: Design Thinking 22. Discuss the design process and use digital tools to illustrate potential solutions. 23. Implement the design process to solve a simple problem. Examples: Uneven table leg, noise in the cafeteria, tallying the collection of food drive donations.	✅
Grade 4, Computational Thinker: Abstraction 1. Construct a basic system of numbers, letters, or symbols to represent information as a cipher. Examples: Combine data from multiple sources, sorting multi-level. 2. Formulate a list of sub-problems to consider while addressing a larger problem. Examples: Problem - a multi-step math problem; sub-problem - steps to solve. Problem - light bulb does not light; sub-problem - steps to resolve why.	✅
Grade 4, Computational Thinker: Algorithms 3. Show that different solutions exist for the same problem or sub-problem. 4. Detect and debug logical errors in various basic algorithms.	✅

Example: Trace the path of a set of directions to determine success or failure. 5. Use flowcharts to create a plan or algorithm. 6. Define a simple pseudocode.	
Grade 4, Computational Thinker: Programming and Development 7. Create a working program in a block-based visual programming environment using arithmetic operators, conditionals, and repetition in programs, in collaboration with others.	✅
Grade 4, Citizen of a Digital Culture: Safety, Privacy, and Security 8. Demonstrate the proper use and operation of security technologies. Examples: Passwords, virus protection software, spam filters, pop-up blockers.	✅
Grade 4, Citizen of a Digital Culture: Legal and Ethical Behavior 9. Identify laws and tools which help ensure that users of varying abilities can access electronic and information technology. Examples: ADA Laws	🔹
Grade 4, Citizen of a Digital Culture: Digital Identity 10. Identify the different forms of web advertising and why websites, digital resources, and artifacts may include advertisements and collect personal information. Examples: Search ads, pay-per-click ads, banner ads, targeted ads, in-game ads, email ads.	🔹
Grade 4, Citizen of a Digital Culture: Impact of Computing 11. Discuss the digital divide as unequal access to technology based on differences such as income, education, age, or geographic location and locate resources in the community that can give people access to technology.	🔹
Grade 4, Global Collaborator: Communication 12. Use basic features of digital tools to communicate key ideas and	✅

details in a way that informs and/or persuades. 13. Synthesize complex information from multiple sources in different ways to make it more useful and/or relevant.	
Grade 4, Global Collaborator: Digital Tools 14. Type 20 words per minute with 95% accuracy using appropriate keyboarding techniques.	✅
Grade 4, Global Collaborator: Collaborative Research 15. Conduct complex keyword searches to produce valid, appropriate results and evaluate results for accuracy, relevance, and appropriateness. Examples: Search techniques, check for credibility and validity.	✅
Grade 4, Computing Analyst: Data 16. Gather and organize data to answer a question using a variety of computing and data visualization methods. Examples: Sorting, totaling, averaging, charts, and graphs.	✅
Grade 4, Computing Analyst: Systems 17. Demonstrate an appropriate level of proficiency in performing tasks using a range of digital devices. Examples: Collect and record data, print, use send command, connect to Internet, or search; use probes, sensors, printers, robots, or computers.	🔹
Grade 4, Computing Analyst: Modeling and Simulation 18. Create a simple digital model of a system, individually and collaboratively, and explain what the model shows and does not show. Examples: Create a model of the water cycle and indicate that it shows how precipitation forms but does not indicate how pesticides get into rivers. 19. Use data from a simulation to answer a question collaboratively.	✅
Grade 4, Innovative Designer: Human/Computer Partnerships 20. Explain how hardware and applications can enable everyone, including people with disabilities, to	🔹

do things they could not do otherwise. Examples: Global Positioning System [GPS] to navigate, text-to-speech feature to read aloud from a digital resource, translate a digital resource to a different language.	
Grade 4, Innovative Designer: Design Thinking 21. Develop, test, and refine prototypes as part of a cyclical design process to solve a simple problem.	✅
Grade 5, Computational Thinker: Abstraction 1. Construct a complex system of numbers or letters to represent information. Example: Student-created complex secret codes using more than one form to solve a problem or answer a question.	✅
Grade 5, Computational Thinker: Algorithms 2. Create an algorithm to solve a problem while detecting and debugging logical errors within the algorithm. Examples: Program the movement of a character, robot, or person through a maze. 3. Define a variable that can be changed or updated. 4. Create an algorithm that is defined by simple pseudocode. 5. Create a simple pseudocode. Develop and recommend solutions to a given problem and explain the process to an audience.	✅
Grade 5, Computational Thinker: Programming and Development 6. Create a working program in a block-based visual programming environment using arithmetic operators, conditionals, and repetition in programs. 7. Identify variables. 8. Demonstrate that programs require known starting values that may need to be updated appropriately during the execution of programs. Examples: Set initial value of a variable, updating variables.	✅

Grade 5, Citizen of a Digital Culture: Safety, Privacy, and Security 9. Explain the proper use and operation of security technologies. Examples: Passwords, virus protection software, spam filters, pop-up blockers, cookies. 10. Identify appropriate and inappropriate uses of communication technology and discuss the permanence of actions in the digital world.	✅
Grade 5, Citizen of a Digital Culture: Legal and Ethical Behavior 11. Explain that laws and tools exist to help ensure that people of varying abilities can access electronic and information technology. Examples: Section 508, Telecommunication Act of 1996, Braille, closed captioning, text to speech.	🔹
Grade 5, Citizen of a Digital Culture: Digital Identity 12. Explain the different forms of web advertising and why websites, digital resources, and artifacts may include advertisements that may collect personal information. Examples: personalized web experiences based on tailored web searches, maintaining search history, quicker access to relevant information.	🔹
Grade 5, Citizen of a Digital Culture: Impact of Computing 13. Share knowledge of resources in the community that can give people access to technology. Example: student created print and/or digital resource to share WiFi or other connectivity opportunities within the community. 14. Analyze the impact of social media on individuals, families, and society. 15. Explore and predict how advances in computing technologies affect job opportunities and/or processes now and in the future.	✅
Grade 5, Global Collaborator: Communication 16. Use advanced features of digital tools and media-rich resources to communicate key ideas and details in a way that informs, persuades, and/or entertains. 17. Publish organized information in different ways to make it more useful or relevant.	✅

Examples: Infographic, student created website.	
Grade 5, Global Collaborator: Digital Tools 18. Type 25 words per minute with 95% accuracy using appropriate keyboarding techniques.	✅
Grade 5, Global Collaborator: Collaborative Research 19. Conduct advanced keyword searches to produce valid, appropriate results and evaluate results for accuracy, relevance, and appropriateness. Examples: Search techniques, check for credibility and validity.	✅
Grade 5, Global Collaborator: Social interactions 20. Collaborate locally and globally using online digital tools under teacher supervision.	🔹
Grade 5, Computing Analyst: Data 21. Manipulate data to answer a question using a variety of computing methods and tools to collect, organize, graph, analyze, and publish the resulting information.	✅
Grade 5, Computing Analyst: Systems 22. Identify computing services that may be initially turned on by default. Examples: Geolocations, geotagging. 23. Identify the key components of a network. Examples: Links, nodes, networking devices. 24. Describe the need for authentication of users and devices as it relates to access permissions, privacy, and security. Examples: Logging in at school, logging personal devices to public networks.	✅
Grade 5, Computing Analyst: Modeling and Simulations 25. Analyze the concepts, features, and behaviors illustrated by a simulation. Examples: Object motion, weather, ecosystem, predator/prey. 26. Connect data from a simulation to real-life events.	✅

Grade 5, Innovative Designer: Human/Computer Partnerships 27. Define social engineering and discuss possible defenses. Examples: Phishing, impersonating	🔹
Grade 5, Innovative Designer: Design Thinking 28. Develop, test, and refine prototypes as part of a cyclical design process to solve a complex problem. Examples: Design backpack for a specific user's needs; design a method to collect and transport water without the benefit of faucets; design boats that need to hold as much payload as possible before sinking; design models of chairs based on specific user needs.	✅
Grade 6, Computational Thinker: Abstraction 1. Remove background details from an everyday process to highlight essential properties. Examples: When making a sandwich, the type of bread, condiments, meats, and/or vegetables do not affect the fact that one is making a sandwich. 2. Define a process as a function. Example: Functions or sets of steps combined to produce a process: turning off your alarm + getting out of bed + brushing your teeth + getting dressed = morning routine.	✅
Grade 6, Computational Thinker: Algorithms 3. Create pseudocode that uses conditionals. Examples: Using if/then/else (If it is raining then bring an umbrella else get wet). 4. Differentiate between flowcharts and pseudocode. Example: Flowcharts use shapes to indicate what to do at each step while pseudocode uses text. 5. Identify algorithms that make use of sequencing, selection or iteration. Examples: Sequencing is doing steps in order (put on socks, put on shoes, tie laces); selection uses a Boolean condition to determine which of two parts of an algorithm are used (hair is dirty? True, wash hair; false, do not); iteration is	✅

the repetition of part of an algorithm until a condition is met (if you're happy and you know it clap your hands, when you're no longer happy you stop clapping).	
Grade 6, Computational Thinker: Programming and Development 6. Identify steps in developing solutions to complex problems using computational thinking. 7. Describe how automation works to increase efficiency. Example: Compare the amount of time/work to hand wash a car vs. using an automated car wash. 8. Create a program that initializes a variable. Example: Create a flowchart in which the variable or object returns to a starting position upon completion of a task.	✅
Grade 6, Citizen of a Digital Culture: Safety, Privacy, and Security 9. Differentiate between a secure and a non-secure website including how they affect personal data. Example: HTTP vs. HTTPS.	✅
Grade 6, Citizen of a Digital Culture: Legal and Ethical Behavior 10. Describe the causes and effects of illegal use of intellectual property as it relates to print and digital media, considering copyright, fair use, licensing, sharing, and attribution. 11. Differentiate between appropriate and inappropriate digital content and the use of that content.	✅
Grade 6, Citizen of a Digital Culture: Digital Identity 12. Define digital permanence. 13. Define personal privacy, digital footprint, and open communication.	✅
Grade 6, Citizen of a Digital Culture: Impact of Computing 14. Discuss digital globalization and Internet censorship. Examples: Software that scans a website for posts about potential threats; a person's ability to order a product directly from a manufacturer in	✅

another part of the world; a student in Africa can take an online math course created in the United States; web-hosting company prevents posting of content. 15. Identify emerging technologies in computing.	
Grade 6, Global Collaborator: Creative Communications 16. Communicate and/or publish collaboratively to inform others from a variety of backgrounds and cultures about issues and problems.	✅
Grade 6, Global Collaborator: Digital Tools 17. Type 30 words per minute with 95% accuracy using appropriate keyboarding techniques.	✅
Grade 6, Global Collaborator: Social Interactions 18. Define censorship.	🔹
Grade 6, Computing Analyst: Data 19. Track data change from a variety of sources. Example: Use editing or versioning tools to track changes to data. 20. Identify data transferring protocols, visualization, and the purpose of data and methods of storage. Examples: Using an online collection tool or form to collect data that is then stored in a spreadsheet or database. 21. Identify varying data structures/systems and methods of classification, including decimal andbinary. Examples: Difference between a bit and a byte, bit representation, pixels. 22. Summarize the purpose of the American Standard Code for Information Interchange (ASCII).	✅
Grade 6, Computing Analyst: Systems 23. Discuss how digital devices may be used to collect, analyze, and present information. 24. Compare and contrast types of networks. Examples: Wired, wireless (WiFi), local, wide area, mobile, Internet, and intranet.	✅

25. Differentiate between secure and non-secure systems.	
Grade 6, Computing Analyst: Modeling and Simulation 26. Explain why professionals may use models as logical representations of physical, mathematical, or logical systems or processes. Example: Students will discuss why an engineer may build a model of a building before actually constructing the building. 27. Explain how simulations serve to implement models.	✅
Grade 6, Innovative Designer: Human/Computer Partnerships 28. Define assistive technologies and state reasons they may be needed. 29. Define artificial intelligence and identify examples of artificial intelligence in the community. Examples: Image recognition, voice assistants.	✅
Grade 6, Innovative Designer: Design Thinking 30. Discuss and apply the components of the problem-solving process. Example: Students will devise a plan to alleviate traffic congestion around the school during drop-off and pick-up.	✅
Grade 7, Computational Thinker: Abstraction 1. Create a function to simplify a task. Example: Get a writing utensil, get paper, jot notes can collectively be named “note taking”.	✅
Grade 7, Computational Thinker: Algorithms 2. Create complex pseudocode using conditionals and Boolean statements. Example: Automated vacuum pseudocode – drive forward until the unit encounters an obstacle; reverse 2”; rotate 30 degrees to the left, repeat. 3. Create algorithms that demonstrate sequencing, selection or iteration. Examples: Debit card transactions are approved until the account balance is insufficient to fund the transaction = iteration, do until. 4. Design a complex algorithm that contains sequencing, selection or iteration.	✅

Examples: Lunch line algorithm that contains parameters for bringing your lunch and multiple options available in the lunch line.	
Grade 7, Computational Thinker: Programming and Development 5. Solve a complex problem using computational thinking. 6. Create and organize algorithms in order to automate a process efficiently. Example: Set of recipes (algorithms) for preparing a complete meal. 7. Create a program that updates the value of a variable in the program. Examples: Update the value of score when a coin is collected (in a flowchart, pseudocode or program). 8. Formulate a narrative for each step of a process and its intended result, given pseudocode or code.	✅
Grade 7, Citizen of a Digital Culture: Safety, Privacy, and Security 9. Identify common methods of securing data. Examples: Permissions, encryption, vault, locked closet.	✅
Grade 7, Citizen of a Digital Culture: Legal and Ethical Behavior 10. Explain social engineering, including countermeasures, and its impact on a digital society. Examples: Phishing, hoaxes, impersonation, baiting, spoofing. 11. Demonstrate positive, safe, legal, and ethical habits when creating and sharing digital content and identify the consequences of failing to act responsibly.	✅
Grade 7, Citizen of a Digital Culture: Digital Identity 12. Discuss the impact of data permanence on digital identity including best practices to protect personal digital footprint.	✅
Grade 7, Citizen of a Digital Culture: Impact of Computing 13. Compare and contrast information available locally and globally. Example: Review an article published in the United States and compare to an article on the same subject published in China. 14. Discuss current events related to emerging technologies in computing	✅

and the effects such events have on individuals and the global society. 15. Discuss unique perspectives and needs of a global culture when developing computational artifacts, including options for accessibility for all users. Example: Would students create a webpage aimed at reaching a village of users that have no way access to the Internet?	
Grade 7, Global Collaborator: Creative Communications 16. Construct content designed for specific audiences through an appropriate medium. Examples: Design a multi-media children's e-book with an appropriate readability level. 17. Publish content to be available for external feedback.	✅
Grade 7, Global Collaborator: Digital Tools 18. Type 35 words per minute with 95% accuracy using appropriate keyboarding techniques.	✅
Grade 7, Global Collaborator: Social Interactions 19. Discuss the benefits and limitations of censorship. 20. Evaluate the validity and accuracy of a data set.	✅
Grade 7, Computing Analyst: Data 21. Compare common transfer protocols. Examples: FTP, HTTP 22. Compare data storage structures. Examples: Stack, array, queue, table, database.	✅
Grade 7, Computing Analyst: Systems 23. Demonstrate the use of a variety of digital devices individually and collaboratively to collect, analyze, and present information for content-related problems. 24. Diagram a network given a specific setup or need. Examples: Home network, public network, business network. 25. List common methods of system cybersecurity. Examples: Various password requirements, two factor authentication, biometric, geolocation.	✅

Grade 7, Computing Analyst: Modeling and Simulation 26. Categorize models based on the most appropriate representation of various systems. 27. Identify data needed to create a model or simulation of a given event. Examples: When creating a random name generator, the program needs access to a list of possible names.	✅
Grade 7, Innovative Designer: Human/Computer Partnerships 28. Classify types of assistive technologies. Examples: Hardware, software, stylus, sticky keys. 29. Compare and contrast human intelligence and artificial intelligence.	✅
Grade 7, Innovative Designer: Design Thinking 30. Apply the problem-solving process to solve real-world problems.	✅
Grade 8, Computational Thinker: Abstraction 1. Design a function using a programming language that demonstrates abstraction. Example: Create a program that utilizes functions in an effort remove repetitive sequences of steps. 2. Explain how abstraction is used in a given function. Example: Examine a set of block-based code and explain how abstraction was used.	✅
Grade 8, Computational Thinker: Algorithms 3. Create an algorithm using a programming language that includes the use of sequencing, selections, or iterations. Example: Use a block-based or script programming language Step 1: Start Step 2: Declare variables a, b and c. Step 3: Read variables a, b and c. Step 4: If a>b If a>c Display a is the largest number. Else Display c is the largest number. Else If b>c Display b is the largest number.	✅

Else Display c is the greatest number. Step 5: Stop 4. Create a function to simplify a task. Example: 38 = 3*3*3*3*3*3*3*3; =(Average) used in a spreadsheet to average a given list of grades.	
Grade 8, Computational Thinker: Programming and Development 5. Discuss the efficiency of an algorithm or technology used to solve complex problems. 6. Describe how algorithmic processes and automation increase efficiency. 7. Create a program that includes selection, iteration, or abstraction, and initializes, and updates, at least two variables. Examples: Make a game, interactive card, story, or adventure game.	✅
Grade 8, Citizen of a Digital Culture: Safety, Privacy, and Security 8. Compare and contrast common methods of securing data. 9. Secure a file or other data. Examples: lock spreadsheet cell(s), password protect, encrypt.	✅
Grade 8, Citizen of a Digital Culture: Legal and Ethical Behavior 10. Analyze different modes of social engineering and their effectiveness. Examples: Phishing, hoaxes, impersonation, baiting, spoofing. 11. Advocate for positive, safe, legal, and ethical habits when creating and sharing digital content. Example: Students create a brochure that highlights the consequences of illegally downloading media.	✅
Grade 8, Citizen of a Digital Culture: Digital Identity 12. Cite evidence of the positive and negative effects of data permanence on personal and professional digital identity.	✅
Grade 8, Citizen of a Digital Culture: Impact of Computing 13. Evaluate the impact of digital globalization on public perception and ways Internet censorship can affect free and equitable access to information.	✅

14. Analyze current events related to computing and their effects on education, the workplace, individuals, communities, and global society. 15. Critique computational artifacts, including options for accessibility for all users, with respect to the needs of a global culture.	
Grade 8, Global Collaborator: Creative Communications 16. Present content designed for specific audiences through an appropriate medium. Example: Create and share a help video for a senior's center that provides tips for online safety. 17. Communicate and publish individually or collaboratively to persuade peers, experts, or community about issues and problems.	✅
Grade 8, Global Collaborator: Digital Tools 18. Type 40 words per minute with 95% accuracy using appropriate keyboarding techniques.	✅
Grade 8, Global Collaborator: Social Interactions 19. Critique the impacts of censorship as it impacts global society. Example: Create a presentation outlining the social implications of limiting access to web content by favoring or blocking particular products or websites. 20. Examine an artifact that demonstrates bias through distorting, exaggerating, or misrepresenting data and redesign it using factual, relevant, unbiased content to more accurately reflect the truth.	✅
Grade 8, Computing Analyst: Data 21. Differentiate types of data storage and apply most efficient structure. Examples: Stack, array, queue, table, database. 22. Encrypt and decrypt various data. Example: Create and decipher a message sent in a secret code.	✅
Grade 8, Computing Analyst: Data 23. Design a digital artifact to propose a solution for a content-related problem.	✅

Example: Create a presentation outlining how to create a cost-efficient method to melt snow on roads during the winter. 24. Compare and contrast common methods of cybersecurity. Example: Discuss how password protections and encryption are similar and different.	
Grade 8, Computing Analyst: Modeling and Simulation 25. Create a model that represents a system. Example: Food chain, supply and demand. 26. Create a simulation that tests a specific model. Examples: Demonstrate that pressure changes with temperature in a controlled environment; demonstrate that rocket design affects the height of a rocket's launch; demonstrate that the amount of water changes the height of a plant.	✅
Grade 8, Innovative Designer: Human/Computer Partnerships 27. Analyze assistive technologies and how they improve the quality of life for users. Example: Research multiple speech to text technologies and write a persuasive essay in favor of one over another. 28. Develop a logical argument for and against artificial intelligence. Examples: Students debate the use of artificial intelligence in self-driving vehicles. Students write a persuasive essay to argue for or against digital personal assistants.	✅
Grade 8, Innovative Designer: Design Thinking 29. Create an artifact to solve a problem using ideation and iteration in the problem-solving process. Examples: Create a public service announcement or design a computer program, game, or application.	✅
Grade 9-12, Computational Thinker: Abstraction 1. Decompose problems into component parts, extract key information, and develop descriptive models to understand the levels of abstractions in	✅

complex systems. 2. Explain how computing systems are often integrated with other systems and embedded in ways that may not be apparent to the user. Examples: Millions of lines of code control the subsystems within an automobile (e.g., antilock braking systems, lane detection, and self-parking).	
Grade 9-12, Computational Thinker: Algorithms 3. Differentiate between a generalized expression of an algorithm in pseudocode and its concrete implementation in a programming language. a. Explain that some algorithms do not lead to exact solutions in a reasonable amount of time and thus approximations are acceptable. b. Compare and contrast the difference between specific control structures such as sequential statements, conditional, iteration, and explain the benefits and drawbacks of choices made. Examples: Tradeoffs involving implementation, readability, and program performance. c. Distinguish when a problem solution requires decisions to be made among alternatives, such as selection constructs, or when a solution needs to be iteratively processed to arrive at a result, such as iterative "loop" constructs or recursion. d. Evaluate and select algorithms based on performance, reusability, and ease of implementation. e. Explain how more than one algorithm may solve the same problem and yet be characterized with different priorities. Examples: All self-driving cars have a common goal of taking a passenger to a designation but may have different priorities such as safety, speed, or conservation; web search engines have their own algorithms for search with their own priorities. 4. Use and adapt classic algorithms to solve computational problems. Examples: Sorting, searching, shortest path, and data compression.	✅
Grade 9-12, Computational Thinker: Programming and Development	✅

5. Design and iteratively develop computational artifacts for practical intent, personal expression, or to address a societal issue by using current events. 6. Decompose problems into smaller components through systematic analysis, using constructs such as procedures, modules, and/or objects, with parameters, and which return a result. 7. Compare and contrast fundamental data structures and their uses. Examples: Strings, lists, arrays, stacks, queues. 8. Demonstrate code reuse by creating programming solutions using libraries and Application Programming Interfaces. 9. Demonstrate the ability to verify the correctness of a program. a. Develop and use a series of test cases to verify that a program performs according to its design specifications b. Collaborate in a code review process to identify correctness, efficiency, scalability and readability of program code. 10. Resolve or debug errors encountered during testing using iterative design process. Examples: Test for infinite loops, check for bad input, check edge-cases.	
Grade 9-12, Citizen of a Digital Culture: Safety, Privacy, and Security 11. Model and demonstrate behaviors that are safe, legal, and ethical while living, learning, and working in an interconnected digital world. a. Recognize user tracking methods and hazards. Examples: Cookies, WiFi packet sniffing. b. Understand how to apply techniques to mitigate effects of user tracking methods. c. Understand the ramifications of end-user license agreements and terms of service associated with granting rights to personal data and media to other entities. d. Explain the relationship between online privacy and personal security. Examples: Convenience and accessibility, data mining, digital marketing, online wallets, theft of personal information. e. Identify physical, legal, and ethical consequences of inappropriate digital behaviors.	✅

Examples: Cyberbullying/harassment, inappropriate sexual communications. f. Explain strategies to lessen the impact of negative digital behaviors and assess when to apply them. 12. Describe how sensitive data can be affected by malware and other attacks. 13. Compare various security measures of a computer system. Examples: Usability, security, portability, and scalability. 14. Compare ways to protect devices, software, and data.	
Grade 9-12, Citizen of a Digital Culture: Legal and Ethical Behavior 15. Explain the necessity for the school's Acceptable Use Policy. 16. Identify laws regarding the use of technology and their consequences and implications. Examples: Unmanned vehicles, net neutrality/common carriers, hacking, intellectual property, piracy, plagiarism. 17. Discuss the ethical ramifications of malicious hacking and its impact on society. Examples: Dissemination of privileged information, ransomware. 18. Explain the beneficial and harmful effects that intellectual property laws can have on innovation.	✅
Grade 9-12, Citizen of a Digital Culture: Digital Identity 19. Prove that digital identity is a reflection of persistent, publicly available artifacts. 20. Evaluate strategies to manage digital identity and reputation with awareness of the permanent impact of actions in a digital world.	✅
Grade 9-12, Citizen of a Digital Culture: Impact of Computing 21. Explain how technology facilitates the disruption of traditional institutions and services. Examples: Digital currencies, ridesharing, autonomous vehicles, retail, Internet of Things. 22. Research the impact of computing technology on possible career pathways. Examples: Government, business, medicine, entertainment,	✅

education, transportation. 23. Debate the positive and negative effects of computing innovations in personal, ethical, social, economic, and cultural spheres. Examples: Artificial Intelligence/machine learning, mobile applications, automation of traditional occupational skills.	
Grade 9-12, Global Collaborator: Creative Communication 24. Compare and contrast Internet publishing platforms, including suitability for media types, target audience, and feedback mechanism. a. Apply version control capabilities within a digital tool to understand the importance of managing historical changes across suggestions made by a collaborative team.	🔹
Grade 9-12, Global Collaborator: Digital Tools 25. Utilize a variety of digital tools to create digital artifacts across content areas.	✅
Grade 9-12, Global Collaborator: Collaborative Research 26. Use collaborative technologies to work with others including peers, experts, or community members to examine local, national, and global issues and problems from multiple viewpoints.	✅
Grade 9-12, Global Collaborator: Social Interactions 27. Apply tools and methods for collaboration on a project to increase connectivity among people in different cultures and career fields. Examples: Collaborative documents, webinars, teleconferencing, and virtual fieldtrips	✅
Grade 9-12, Computing Analyst: Data 28. Develop a model that reflects the methods, procedures and concepts used by computing devices in translating digital bits as real-world phenomena, such as print characters, sound, images, and video. 29. Summarize the role of compression and encryption in modifying the structure of digital artifacts and the varieties of information carried in the metadata of these artifacts.	✅

30. Evaluate the tradeoffs involved in choosing methods for the organization of data elements and the location of data storage, including the advantages and disadvantages of networked computing. Examples: Client server, peer-to-peer, cloud computing. 31. Create interactive data visualizations using software tools to help others understand real-world phenomena. 32. Use data analysis tools and techniques to identify patterns in data representing complex systems.	
Grade 9-12, Computing Analyst: Systems 33. Evaluate the scalability and reliability of networks by describing the relationship between routers, switches, servers, topology, packets, or addressing, as well as the issues that impact network functionality. Examples: Bandwidth, load, delay. a. Explain the purpose of Internet Protocol addresses and how domain names are resolved to IP addresses through a Domain Name System server. b. Understand the need for networking protocols and examples of common protocols. Examples: HTTP, SMTP, and FTP 34. Categorize the roles of operating system software. 35. Appraise the role of artificial intelligence in guiding software and physical systems. Examples: predictive modeling, self-driving cars. 36. Explain the tradeoffs when selecting and implementing cybersecurity recommendations. Examples: Two-factor authentication, password requirements, geolocation requirements.	✅
Grade 9-12, Computing Analyst: Modeling and Simulation 37. Evaluate the ability of models and simulations to test and support the refinement of hypotheses. a. Create and utilize models and simulations to help formulate, test, and refine a hypothesis. b. Form a model of a hypothesis, testing the hypothesis by the collection	✅

and analysis of data generated by simulations. Examples: Science lab, robotics lab, manufacturing, space exploration. c. Explore situations where a flawed model provided an incorrect answer.	
Grade 9-12, Innovative Designer: Human/Computer Partnerships 38. Systematically design and develop programs for broad audiences by incorporating feedback from users. Examples: Games, utilities, mobile applications. 39. Identify a problem that cannot be solved by either humans or machines alone and discuss a solution for it by decomposing the task into sub-problems suited for a human or machine to accomplish. Examples: Forecasting weather, piloting airplanes.	✅
Grade 9-12, Innovative Designer: Design Thinking 40. Use an iterative design process, including learning from mistakes, to gain a better understanding of a problem domain.	✅