WEB DESIGN AND DEVELOPMENT STANDARDS

This document was prepared by:

Office of Career, Technical and Adult Education
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CTE MISSION STATEMENT:

The Office of Career, Technical and Adult Education is dedicated to developing innovative educational opportunities for students to acquire skills for productive employment and lifelong learning.

NEVADA DEPARTMENT OF EDUCATION

TABLE OF CONTENTS

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BUSINESS AND INDUSTRY VALIDATION

All CTE standards developed through the Nevada Department of Education are validated by business and industry through one or more of the following processes: (1) the standards are developed by a team consisting of business and industry representatives; or (2) a separate review panel was coordinated with industry experts to ensure the standards include the proper content; or (3) the adoption of nationally-recognized standards endorsed by business and industry.

The Web Design and Development standards were validated through a complete review by an industry panel.

PROJECT COORDINATOR

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INTRODUCTION

The standards in this document are designed to clearly state what the student should know and be able to do upon completion of an advanced high school Web Design and Development program. These standards are designed for a three-credit course sequence that prepares the student for a technical assessment directly aligned to the standards.

These exit-level standards are designed for the student to complete all standards through their completion of a program of study. These standards are intended to guide curriculum objectives for a program of study.

The standards are organized as follows:

Content Standards are general statements that identify major areas of knowledge, understanding, and the skills students are expected to learn in key subject and career areas by the end of the program.

Performance Standards follow each content standard. Performance standards identify the more specific components of each content standard and define the expected abilities of students within each content standard.

Performance Indicators are very specific criteria statements for determining whether a student meets the performance standard. Performance indicators may also be used as learning outcomes, which teachers can identify as they plan their program learning objectives.

The crosswalk and alignment section of the document shows where the performance indicators support the English Language Arts and the Mathematics Common Core State Standards, and the Nevada State Science Standards. Where correlation with an academic standard exists, students in the Web Design and Development program perform learning activities that support, either directly or indirectly, achievement of one or more Common Core State Standards.

All students are encouraged to participate in the career and technical student organization (CTSO) that relates to their program area. CTSOs are co-curricular national associations that directly enforce learning in the CTE classroom through curriculum resources, competitive events, and leadership development. CTSOs provide students the ability to apply academic and technical knowledge, develop communication and teamwork skills, and cultivate leadership skills to ensure college and career readiness.

The Employability Skills for Career Readiness identify the “soft skills” needed to be successful in all careers, and must be taught as an integrated component of all CTE course sequences. These standards are available in a separate document.

CONTENT STANDARD 1.0 : UNDERSTAND THE FOUNDATIONS OF WEB DESIGN	
PERFORMANCE STANDARD 1.1 : UNDERSTAND THE HISTORY OF WEB DESIGN AND DEVELOPMENT	
1.1.1	Research career opportunities
1.1.2	Describe the history and impact of social media
1.1.3	Describe the role of the World Wide Web Consortium (W3C) in defining web standards
1.1.4	Research the history of the World Wide Web
1.1.5	Compare and contrast the Internet and the World Wide Web
PERFORMANCE STANDARD 1.2 : LAYOUT AND DESIGN THEORY	
1.2.1	Explain color theory
1.2.2	Explain the principles of design
1.2.3	Explain the elements of design
1.2.4	Describe the role of typography
1.2.5	Evaluate the use of white space
1.2.6	Describe the web design and development cycle
PERFORMANCE STANDARD 1.3 : DEMONSTRATE KNOWLEDGE OF INDUSTRY TERMINOLOGY	
1.3.1	Define common terminology and their acronyms
1.3.2	Communicate both written and verbally using appropriate industry terminology

CONTENT STANDARD 2.0 : UNDERSTAND ETHICAL USE OF INFORMATION	
PERFORMANCE STANDARD 2.1 : UNDERSTAND COPYRIGHT LAWS IN RELATIONSHIP TO WEB	
2.1.1	Research laws that govern intellectual property in diverse forms
2.1.2	Evaluate Creative Commons licensure
2.1.3	Cite the boundaries of third-party work
2.1.4	Explain terms related to copyright, trademarks, and other intellectual property
PERFORMANCE STANDARD 2.2 : UNDERSTAND SECURITY ISSUES IN RELATION TO WEB	
2.2.1	Explain invasion of privacy in the use of technology
2.2.2	Model acceptable security practices
2.2.3	Analyze your personal digital footprint
2.2.4	Differentiate between secure and unsecure web protocols
PERFORMANCE STANDARD 2.3 : APPLY PERSONAL AND PROFESSIONAL ETHICS	
2.3.1	Model legal and ethical use of information
2.3.2	Identify key elements of non-disclosure agreements (NDA)
2.3.3	Analyze content for bias

CONTENT STANDARD 3.0 : CONSTRUCT A WEBSITE	
PERFORMANCE STANDARD 3.1 : DEVELOP A FILE MANAGEMENT SYSTEM	
3.1.1	Create a maintainable directory structure for a website
3.1.2	Apply file naming protocols
3.1.3	Demonstrate and use correct file paths for relative and absolute links
3.1.4	Recognize the relationship between local and remote site structures
3.1.5	Develop data backup procedures
PERFORMANCE STANDARD 3.2 : DEMONSTRATE PROPER LAYOUT TECHNIQUES	
3.2.1	Identify commonly used layout techniques for web design
3.2.2	Develop appropriate navigation systems (site map)
3.2.3	Develop wireframe for initial design concept
3.2.4	Calculate resolution for various displays (e.g., desktop, mobile, tablet, etc.)
3.2.5	Identify the uses of Cascading Style Sheets (CSS)
PERFORMANCE STANDARD 3.3 : CREATE WEB CONTENT	
3.3.1	Discuss and differentiate voice, tone, and style as it applies to web writing
3.3.2	Determine the primary and secondary purposes of web content
3.3.3	Identify target audiences and reading levels for specific websites
3.3.4	Create a list of keywords and descriptions (meta tags) to include in web content for search engine optimization (SEO)
3.3.5	Apply grammar and spelling conventions to content
3.3.6	Evaluate existing content for web use (e.g., images, print documents, text, video, etc.)
PERFORMANCE STANDARD 3.4 : CREATE MEDIA FOR THE WEB	
3.4.1	Describe common media file formats
3.4.2	Identify appropriate software for media creation
3.4.3	Create and edit media files (e.g., sound, video, graphics, multimedia)
3.4.4	Optimize media files for uploading using compression tools
3.4.5	Embed media files in a web design
3.4.6	Calculate and convert images to desired sizes and resolution

PERFORMANCE STANDARD 3.5 : DEMONSTRATE KNOWLEDGE OF CHALLENGES ASSOCIATED	
3.5.1	Describe regional, national and international legal requirements and standards for accessibility on the web
3.5.2	Identify types of disabilities that should be considered when designing websites
3.5.3	Optimize websites to accommodate users with special needs
3.5.4	Explain website usability procedures
PERFORMANCE STANDARD 3.6 : UNDERSTAND THE IMPACT OF MARKETING, ANALYTICS, AND	
3.6.1	Identify web page content that is relevant to the purpose and target audience
3.6.2	Identify important meta tags that communicate a clear information hierarchy and keyword prominence to search engine spiders
3.6.3	List and describe best practices in content creation that foster indexing and ranking of websites
3.6.4	Describe web analytics for purposes of understanding and analyzing web usage
3.6.5	Create a branding message that will present a professional image
PERFORMANCE STANDARD 3.7 : UPDATE AND MAINTAIN WEB CONTENT	
3.7.1	Evaluate content with client for relevancy
3.7.2	Evaluate content for viability
3.7.3	Monitor validity of hyperlinks
3.7.4	Maintain and update all website documentation (e.g., prototype, site map, navigation, etc.)

CONTENT STANDARD 4.0 : UNDERSTAND THE PROCESS OF PUBLISHING A	
PERFORMANCE STANDARD 4.1 : UNDERSTAND FUNDAMENTALS OF A WEB SERVER	
4.1.1	Identify server hardware and software components
4.1.2	Explain the relationship between client and server
4.1.3	Describe the process to configure and test a web server
4.1.4	Explain common web server maintenance routines
PERFORMANCE STANDARD 4.2 : DEMONSTRATE PUBLISHING TO THE WEB	
4.2.1	Identify the purpose of File Transfer Protocol (FTP)
4.2.2	Demonstrate the use of FTP
4.2.3	Describe the technical requirements involved in choosing a web host
4.2.4	Preview and test web pages for compatibility using various browsers and output devices
4.2.5	Describe the process of locating and registering a domain name

CONTENT STANDARD 5.0 : DEMONSTRATE KNOWLEDGE OF WEB	
PERFORMANCE STANDARD 5.1 : DEVELOP A WEBSITE USING HYPERTEXT MARKUP LANGUAGE	
5.1.1	Explain the role of Hypertext Markup Language (HTML) in web development
5.1.2	Differentiate among the different forms of HTML
5.1.3	Identify HTML tags for authoring a web page document
5.1.4	Code a basic web page utilizing proper HTML document structure in a text editor
5.1.5	Identify and use online validation tools
PERFORMANCE STANDARD 5.2 : UNDERSTAND CONCEPTS AND USE OF CASCADING STYLE SHEETS	
5.2.1	Describe the role of CSS in relation to web design
5.2.2	Identify the structure of CSS style rules
5.2.3	Describe CSS selector types
5.2.4	Differentiate between internal, external and inline style sheets
5.2.5	Use CSS to style and layout webpage content (e.g., box model, div layout, etc.)
5.2.6	Compare and contrast static, relative, absolute and fixed positioning
PERFORMANCE STANDARD 5.3 : UNDERSTAND FOUNDATIONS OF WEB SCRIPTING	
5.3.1	Explain the use of current web scripting technologies
5.3.2	Implement scripting (e.g., rollovers, form scripts, etc.)
5.3.3	Compare and contrast client (browser) scripting and server scripting (e.g., PHP, JavaScript, ASP.NET, etc.)
5.3.4	Enhance interactivity of websites using current scripting trends
5.3.5	Compare and contrast between static versus dynamic websites
PERFORMANCE STANDARD 5.4 : UNDERSTAND DATABASES	
5.4.1	Identify and describe relational databases
5.4.2	Identify the use of Extensible Markup Language (XML) for the transportation and storage of data
5.4.3	Describe the purpose of a database as it relates to web development
5.4.4	Incorporate a database into a website

PERFORMANCE STANDARD 5.5 : UTILIZE CONTENT MANAGEMENT SYSTEMS IN WEB	
5.5.1	Identify content management systems (CMS) (e.g., Word Press, Joomla, etc.)
5.5.2	Evaluate current trends in CMS (e.g., blogging, online magazine, corporate websites, etc.)
5.5.3	Construct a site using a CMS

CONTENT STANDARD 6.0 : UNDERSTAND ADVANCED AND EMERGING	
PERFORMANCE STANDARD 6.1 : UNDERSTAND E-COMMERCE CONCEPTS	
6.1.1	Define e-commerce as it relates to web development
6.1.2	Explain how to integrate a shopping cart into a web page
6.1.3	Evaluate payment portal options
PERFORMANCE STANDARD 6.2 : UNDERSTAND THE ROLE OF SOCIAL MEDIA	
6.2.1	Describe the role of social media in web development
6.2.2	Discuss current trends in social media
6.2.3	Create and implement a strategy that uses social networks to drive traffic to a website
6.2.4	Define Real Simple Syndication (RSS) and use feed aggregating tools to collect information
PERFORMANCE STANDARD 6.3 : UTILIZE CLOUD COMPUTING RESOURCES	
6.3.1	Define cloud computing
6.3.2	Identify open source technologies relevant to cloud computing
6.3.3	Develop a website using cloud computing

CROSSWALK AND ALIGNMENTS OF WEB DESIGN AND DEVELOPMENT STANDARDS AND THE COMMON CORE STATE STANDARDS, THE NEVADA SCIENCE STANDARDS, AND THE COMMON CAREER TECHNICAL CORE STANDARDS

CROSSWALK (ACADEMIC STANDARDS)

The crosswalk of the Web Design and Development Standards shows links to the Common Core State Standards for English Language Arts and Mathematics and the Nevada Science Standards. The crosswalk identifies the performance indicators in which the learning objectives in the Web Design and Development program support academic learning. The performance indicators are grouped according to their content standard and are crosswalked to the English Language Arts and Mathematics Common Core State Standards and the Nevada Science Standards.

ALIGNMENTS (MATHEMATICAL PRACTICES)

In addition to correlation with the Common Core Mathematics Content Standards, many performance indicators support the Common Core Mathematical Practices. The following table illustrates the alignment of the Web Design and Development Standards Performance Indicators and the Common Core Mathematical Practices. This alignment identifies the performance indicators in which the learning objectives in the Web Design and Development program support academic learning.

CROSSWALK (COMMON CAREER TECHNICAL CORE)

The crosswalk of the Web Design and Development Standards shows links to the Common Career Technical Core. The crosswalk identifies the performance indicators in which the learning objectives in the Web Design and Development program support the Common Career Technical Core. The Common Career Technical Core defines what students should know and be able to do after completing instruction in a program of study. The Web Design and Development Standards are crosswalked to the Information Technology Career Cluster™ and the Web & Digital Communications Career Pathway.

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CROSSWALK OF WEB DESIGN AND DEVELOPMENT STANDARDS AND THE COMMON CORE STATE STANDARDS

CONTENT STANDARD 1.0: UNDERSTAND THE FOUNDATIONS OF WEB DESIGN AND DEVELOPMENT

Performance Indicators	Common Core State Standards and Nevada Science Standards
1.1.1	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** 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. 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. WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
1.1.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. RST.11-12.10 By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently.
1.1.4	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** 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. 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. WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research
1.2.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. RST.11-12.10 By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently. **English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. **English Language Arts: Language Standards** L.11-12.6 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

1.2.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. 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. RST.11-12.10 By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently. **English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. **English Language Arts: Language Standards** L.11-12.6 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
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1.2.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. **English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. **English Language Arts: Language Standards** L.11-12.6 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
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1.3.1	**English Language Arts: Language Standards** L.11-12.6 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
1.3.2	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.1d Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. **English Language Arts: Speaking and Listening Standards** SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks. SL.11-12.6 Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 on page 54 for specific expectations.) **English Language Arts: Language Standards** L.11-12.6 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

CONTENT STANDARD 2.0: UNDERSTAND ETHICAL USE OF INFORMATION

Performance Indicators	Common Core State Standards and Nevada Science Standards
2.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. **English Language Arts: Reading Standards for Informational Text** RI.11-12.8 Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses). **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** 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. 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.
2.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
2.2.1	**English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SL.11-12.6 Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 on page 54 for specific expectations.)
2.2.3	**English Language Arts: Reading Standards for Informational Text** RI.11-12.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain. **English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. **English Language Arts: Speaking and Listening Standards** SL.11-12.1d Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task. SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.

2.2.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. 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. **English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
2.3.1	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** 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.
2.3.2	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.2d 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. **English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
2.3.3	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research. **English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. 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. 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.

CONTENT STANDARD 3.0: CONSTRUCT A WEBSITE

Performance Indicators	Common Core State Standards and Nevada Science Standards
3.1.1	**English Language Arts: Reading Standards for Informational Text** RI.11-12.3 Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
3.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
3.1.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
3.2.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
3.2.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
3.3.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.2d 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. WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
3.3.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. 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. **English Language Arts: Language Standards** L.11-12.4a Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
3.3.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.

3.3.5	**English Language Arts: Language Standards** L.11-12.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. L.11-12.1a Apply the understanding that usage is a matter of convention, can change over time, and is sometimes contested. L.11-12.2b Spell correctly. L.11-12.3 Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
3.3.6	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. 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.
3.4.1	**English Language Arts: Language Standards** L.11-12.6 Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression~~.~~
3.4.2	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** 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. **English Language Arts: Reading Standards for Informational Text** RI.11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
3.5.1	**English Language Arts: Reading Standards for Informational Text** RI.11-12.8 Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., The Federalist, presidential addresses).
3.5.2	**English Language Arts: Reading Standards for Informational Text** RI.11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
3.5.4	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
3.6.1	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.2b 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. **English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
3.6.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.

3.6.3	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.2b 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.
3.6.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.1b 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.
3.6.5	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
3.7.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. 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. **English Language Arts: Speaking and Listening Standards** SL.11-12.1d Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task. SL.11-12.3 Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
3.7.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
3.7.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.

CONTENT STANDARD 4.0: UNDERSTAND THE PROCESS OF PUBLISHING A WEBSITE

Performance Indicators	Common Core State Standards and Nevada Science Standards
4.1.2	**English Language Arts: Speaking and Listening Standards** SL.11-12.1d Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task. SL.11-12.3 Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.
4.1.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
4.1.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
4.2.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
4.2.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST 9 WHST.11-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
4.2.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. 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.

CONTENT STANDARD 5.0: DEMONSTRATE KNOWLEDGE OF WEB PROGRAMMING

Performance Indicators	Common Core State Standards and Nevada Science Standards
5.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
5.1.2	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
5.2.1	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
5.2.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
5.2.4	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
5.2.6	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
5.3.1	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
5.3.3	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
5.3.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** 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.
5.4.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** 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.
5.5.2	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.1 Write arguments focused on discipline-specific content. WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.

CONTENT STANDARD 6.0: UNDERSTAND ADVANCED AND EMERGING TECHNOLOGIES IN WEB DEVELOPMENT

Performance Indicators	Common Core State Standards and Nevada Science Standards
6.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
6.1.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
6.2.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
6.2.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** 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. 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.
6.2.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.
6.3.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** 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.

ALIGNMENT OF WEB DESIGN AND DEVELOPMENT STANDARDS AND THE COMMON CORE MATHEMATICAL PRACTICES

Common Core Mathematical Practices	Web Design and Development Performance Indicators
1. Make sense of problems and persevere in solving them.	3.2.4
2. Reason abstractly and quantitatively.	3.2.4; 3.4.6
3. Construct viable arguments and critique the reasoning of others.	
4. Model with mathematics.	
5. Use appropriate tools strategically.	3.2.4; 3.4.6
6. Attend to precision.	5.4.1
7. Look for and make use of structure.	5.4.1
8. Look for and express regularity in repeated reasoning.	

CROSSWALKS OF WEB DESIGN AND DEVELOPMENT STANDARDS AND THE COMMON CAREER TECHNICAL CORE

Information Technology Career Cluster™ (IT)	Performance Indicators
1. Demonstrate effective professional communication skills and practices that enable positive customer relationships.	1.3.1, 1.3.2
2. Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.	3.2.1-3.2.5
3. Demonstrate the use of cross-functional teams in achieving IT project goals.	
4. Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.	2.1.1-2.1.4 2.3.1-2.3.3
5. Explain the implications of IT on business development.	3.6.1-3.6.5 6.1.1; 6.3.1
6. Describe trends in emerging and evolving computer technologies and their influence on IT practices.	1.1.1-1.1.5 5.3.1; 5.5.2 6.2.2; 6.3.2
7. Perform standard computer backup and restore procedures to protect IT information.	3.1.4, 3.1.5
8. Recognize and analyze potential IT security threats to develop and maintain security requirements.	2.2.1-2.2.4
9. Describe quality assurance practices and methods employed in producing and providing quality IT products and services.	
10. Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.	
11. Demonstrate knowledge of the hardware components associated with information systems.	4.1.1-4.1.4
12. Compare key functions and applications of software and determine maintenance strategies for computer systems.	

Web & Digital Communications Career Pathway (IT-WD)	Performance Indicators
1. Analyze customer requirements to design and develop a Web or digital communication product.	
2. Apply the design and development process to produce user-focused Web and digital communications solutions.	1.2.1-1.2.6 3.3.1-3.3.6; 3.4.1-3.4.6 5.2.1-5.2.6
3. Write product specifications that define the scope of work aligned to customer requirements.	
4. Demonstrate the effective use of tools for digital communication production, development and project management.	5.2.1-5.2.6; 5.4.1-5.4.4 5.5.1, 5.5.3 6.1.2; 6.2.3, 6.2.4

5. Develop, administer and maintain Web applications.	4.2.1-4.2.5 5.1.1-5.1.5; 5.3.1-5.3.5
6. Design, create and publish a digital communication product based on customer needs.	
7. Evaluate the functionality of a digital communication product using industry accepted techniques and metrics.	3.7.1-3.7.4; 6.1.3
8. Implement quality assurance processes to deliver quality digital communication products and services.	
9. Perform maintenance and customer support functions for digital communication products.	3.7.1-3.7.4
10. Comply with intellectual property laws, copyright laws and ethical practices when creating Web/digital communications.	2.1.1-2.1.4; 2.2.1-2.2.4 2.3.1-2.3.3