

ARTS, ENGINEERING AND DESIGN MIDDLE SCHOOL STANDARDS



This document was prepared by:

Office of Career Readiness, Adult Learning & Education Options
Nevada Department of Education
755 N. Roop Street, Suite 201
Carson City, NV 89701

www.doe.nv.gov

Adopted by the Nevada State Board of Education on
December 13, 2018

The Nevada Department of Education does not discriminate on the basis of race, color, religion, national origin, sex, disability, sexual orientation, gender identity or expression, or age in its programs and activities and provides equal access to the Boy Scouts and other designated youth groups.

NEVADA STATE BOARD OF EDUCATION

Elaine Wynn.....President
Mark Newburn..... Vice President
Robert Blakely..... Member
David Carter Member
Tonia Holmes-Sutton Member
Tamara Hudson..... Member
Dave Jensen..... Member
Cathy McAdoo..... Member
Dawn Miller..... Member
Felicia Ortiz..... Member
Ashley Macias..... Student Representative

NEVADA DEPARTMENT OF EDUCATION

Steve Canavero, Ph.D.
Superintendent of Public Instruction

Kristine Nelson, Director
Office of Career Readiness, Adult Learning & Education Options

VISION

All Nevadans ready for success in the 21st century

MISSION

*To improve student achievement and educator effectiveness by ensuring opportunities,
facilitating learning, and promoting excellence*



TABLE OF CONTENTS

Nevada State Board of Education / Nevada Department of Education	ii
Acknowledgements / Standards Development Members / Alignment To CTE Standards / Project Coordinator	iv
Introduction	v
Content Standard 1.0 - Understand Careers And The Nature Of Work	i
Content Standard 2.0 - Understand The Role Of Media In A Digital World	2
Content Standard 3.0 - Apply The Design Process	3
Content Standard 4.0 - Create With Digital Media.....	4
Crosswalks And Alignments.....	6

ACKNOWLEDGEMENTS

The Department of Education relies on teachers and industry representatives who have the technical expertise and teaching experience to develop standards and performance indicators that truly measure student skill attainment. Most important, however, is recognition of the time, expertise and great diligence provided by the writing team members in developing the career and technical standards for middle school.

STANDARDS DEVELOPMENT MEMBERS

Tara R. Bishop	Teacher	Thurman White Academy, Henderson
Rico Dunn	Teacher	Brown Academy of International Studies, Las Vegas
Monique Gaudin	Teacher	Bonanza High School, Las Vegas
Anthony Weed	Teacher	College of Southern Nevada, Las Vegas

ALIGNMENT TO CTE STANDARDS

Middle school standards are aligned to CTE program areas and broadly built upon high school CTE standards within a program area. All CTE standards developed through the Nevada Department of Education are validated by business and industry. Middle school standards are designed to provide foundational knowledge about careers in a program area with hands-on learning, leadership development, and career exploration.

PROJECT COORDINATOR

Melissa Scott, Education Programs Professional
Information and Media Technologies
Office of Career Readiness, Adult Learning & Education Options
Nevada Department of Education

INTRODUCTION

The standards in this document are designed to clearly state what the student should know and be able to do upon completion of a middle school course. These standards may assist the student in their career pathway decision-making before entering high school.

These standards are designed for the student to complete all standards in one course. These standards are intended to guide curriculum objectives for a middle school course.

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 course.

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 course learning objectives.

The crosswalk and alignment section of the document shows where the performance indicators support the Nevada Academic Content Standards in Science (based on the Next Generation Science Standards) and in English Language Arts and Mathematics (based on the Common Core State Standards). Where correlation with academic content standards and practices exist, students in the middle school course perform learning activities that support, either directly or indirectly, achievement of the academic content standards that are listed.

Career and Technical Student Organizations are co-curricular national associations that directly enforce learning in the CTE classroom through curriculum resources, competitive events, and leadership development. Some CTSOs have middle school level programs and can offer students the opportunity to develop leadership skills and apply what they learn.

CONTENT STANDARD 1.0 : UNDERSTAND CAREERS AND THE NATURE OF WORK

PERFORMANCE STANDARD 1.1 : EXPLORE CAREER PATHWAYS

- 1.1.1 Relate your skills, interests, talents, and values to a Career pathway
- 1.1.2 Explain careers in each of the Career Clusters
- 1.1.3 Research the pathway to a career of interest
- 1.1.4 Describe the difference between various types of academic degrees and other credentials
- 1.1.5 Discuss the importance of company dress codes
- 1.1.6 Create or review an academic and career plan
- 1.1.7 Define terms used within technical careers

PERFORMANCE STANDARD 1.2 : COLLABORATE WITH OTHERS

- 1.2.1 Practice communicating with others in a variety of ways to explain an idea, solution, or problem
- 1.2.2 Explain what it means to be reliable and honest
- 1.2.3 Demonstrate leadership skills through participation in a school activity, club, or career and technical student organization
- 1.2.4 Plan and/or participate in a community service project
- 1.2.5 Demonstrate conflict-resolution skills
- 1.2.6 Demonstrate critical-thinking and problem-solving skills
- 1.2.7 Practice active listening skills

PERFORMANCE STANDARD 1.3 : PRACTICE LEADERSHIP ROLES

- 1.3.1 Demonstrate language, attitude, and manners suitable for the workplace
- 1.3.2 Assume different roles on a team to accomplish a goal
- 1.3.3 Discuss characteristics of a leader and a team member
- 1.3.4 Prepare and make a presentation in front of a group
- 1.3.5 Practice speaking to adults in an interview format
- 1.3.6 Describe the importance of personal appearance
- 1.3.7 Utilize a timeline to manage a project

CONTENT STANDARD 2.0 : UNDERSTAND THE ROLE OF MEDIA IN A DIGITAL WORLD

PERFORMANCE STANDARD 2.1 : DEFINE MEDIA TECHNOLOGIES

- 2.1.1 Research and explain the historical context of various media technologies
- 2.1.2 Compare and contrast the different forms of media technologies
- 2.1.3 Analyze the evolution of media technology in different cultures and genres
- 2.1.4 Apply the appropriate form of media to convey a message or a purpose to an intended target audience

PERFORMANCE STANDARD 2.2 : DEMONSTRATE SAFE PRACTICES USING MEDIA EQUIPMENT

- 2.2.1 Describe and explain digital safety and the lasting effects of a digital footprint, i.e., personal information, sharing, and netiquette
- 2.2.2 Demonstrate safe practices when using online applications, i.e., privacy policies, agreement statements, and licensing agreements
- 2.2.3 Demonstrate the proper management, storage, and care of tools and equipment

PERFORMANCE STANDARD 2.3 : EXPLAIN ISSUES RELATED TO COPYRIGHT AND ETHICS

- 2.3.1 Explain copyright law and how it applies to digital media
- 2.3.2 Model ethical creation and uses creation of digital media
- 2.3.3 Discuss ethical and unethical practices in media creation
- 2.3.4 Explain what is meant by fair use, transformative work, and open source

PERFORMANCE STANDARD 2.4 : CREATE A PERSONAL PORTFOLIO

- 2.4.1 Research various types of portfolios
- 2.4.2 Develop a digital portfolio
- 2.4.3 Conduct peer and self-evaluations using rubrics
- 2.4.4 Create an artist statement or biography

CONTENT STANDARD 3.0 : APPLY THE DESIGN PROCESS**PERFORMANCE STANDARD 3.1 : ANALYZE COMPOSITION**

- 3.1.1 Analyze the application of the elements of design in digital works (line, shape, color, form, texture, space, value, and scale)
- 3.1.2 Analyze the application of the principles of design in digital works (balance, contrast, rhythm and movement, emphasis, proportion, unity and variety, alignment, and harmony)
- 3.1.3 Analyze the application of rules of composition in digital works
- 3.1.4 Demonstrate the elements, principles, and rules of composition through the creation of manual or digital graphic works

PERFORMANCE STANDARD 3.2 : DESCRIBE THE DESIGN PROCESS

- 3.2.1 Explain the design process
- 3.2.2 Apply visual organizational strategies that clearly communicate concepts or ideas to a targeted audience
- 3.2.3 Demonstrate conceptual designs
- 3.2.4 Develop and implement an effective creative workflow
- 3.2.5 Revise work based on critiques

PERFORMANCE STANDARD 3.3 : PRACTICE CRITIQUE AND ANALYSIS OF DIGITAL WORKS

- 3.3.1 Explain the purpose and process of critiques
- 3.3.2 Critique the use of the compositional design concepts in digital works (elements, principles, and rules of composition)
- 3.3.3 Use self-reflection and the critiquing process to modify and improve design creations

CONTENT STANDARD 4.0 : CREATE WITH DIGITAL MEDIA

PERFORMANCE STANDARD 4.1 : EXPLORE PHOTOGRAPHY

- 4.1.1 Identify and analyze compositional structures within a photograph
- 4.1.2 Compare different career paths within photography (photojournalism, commercial photographer, advertising, portrait, etc.)
- 4.1.3 Produce visually compelling images for multiple applications (product, portrait, magazine layout, etc.)
- 4.1.4 Demonstrate a basic understanding of vocabulary specific to photographic applications (f-stop, aperture, ISO, shutter speed, rule of thirds, etc.)
- 4.1.5 Identify the different types of cameras and formats
- 4.1.6 Demonstrate competence in using photographic equipment
- 4.1.7 Demonstrate a basic understanding of the editing process in photography

PERFORMANCE STANDARD 4.2 : EXPLORE VIDEO

- 4.2.1 Explain what is meant by production (pre-production, production, post-production, and promotion)
- 4.2.2 Compare different types and purposes of videos, i.e., PSA, documentary, feature films, and shorts
- 4.2.3 Research different career paths in commercial video production (producer, scriptwriter, storyboard artist, director, actor, camera person, boom mic operator, and editor)
- 4.2.4 Produce a video using the production phases to create a completed production, e.g., scripting, recording, editing and promoting
- 4.2.5 Evaluate assets and formats used for video editing, e.g., audio files, still image files, MP4, MOV, MPEG, etc.

PERFORMANCE STANDARD 4.3 : EXPLORE GRAPHIC DESIGN

- 4.3.1 Discuss the history and context of graphic design
- 4.3.2 Analyze and apply the different image file types
- 4.3.3 Identify and compare different career avenues in commercial graphic design
- 4.3.4 Research and compare different graphic software applications
- 4.3.5 Demonstrate a basic understanding of vocabulary specific to graphic design
- 4.3.6 Research and analyze common design layouts, typography concepts, and information hierarchy
- 4.3.7 Apply design layout and typography concepts in the production of graphic works (graphic artworks, promotional materials, fliers, and infographics)

PERFORMANCE STANDARD 4.4 : EXPLORE DIGITAL ANIMATION

- 4.4.1 Identify what constitutes animation
- 4.4.2 Compare the different types of animation, e.g., stop motion, computer animation, 2D, and 3D
- 4.4.3 Compare different career paths in commercial animation
- 4.4.4 Create a sequential animation
- 4.4.5 Compare different animation applications

PERFORMANCE STANDARD 4.5 : EXPLORE WEB DESIGN AND SOCIAL MEDIA

- 4.5.1 Analyze the role of web design, social media, and search engine technologies in society
- 4.5.2 Analyze the common design layouts, typography, usability, and hierarchy in web design
- 4.5.3 Identify and compare different career paths in web design and social media
- 4.5.4 Produce an interactive webpage integrating multiple elements of media 2018
- 4.5.5 Demonstrate a basic understanding of vocabulary specific to web design and social media (HTML, CSS, Facebook, Twitter, Instagram, Google, Ask, Yahoo)

CROSSWALKS AND ALIGNMENTS**CROSSWALKS (ACADEMIC STANDARDS)**

The crosswalk of the Middle School standards shows links to the Nevada Academic Content Standards for English Language Arts. The crosswalk identifies the performance indicators in which the learning objectives in the middle school course support academic learning. The performance indicators are grouped according to their content standard and are crosswalked to the Nevada Academic Content Standards for English Language Arts.

ALIGNMENTS (MATHEMATICAL PRACTICES)

Several performance indicators support the Mathematical Practices. The following table illustrates the alignment of the middle school course Standards Performance Indicators and the Mathematical Practices. This alignment identifies the performance indicators of the learning objectives.

ALIGNMENTS (SCIENCE AND ENGINEERING PRACTICES)

Several performance indicators support the Science and Engineering Practices. The following table illustrates the alignment of the middle school Standards Performance Indicators and the Science and Engineering Practices. This alignment identifies the performance indicators of the learning objectives in the middle school support academic learning.

CROSSWALK OF ARTS, ENGINEERING AND DESIGN MIDDLE SCHOOL STANDARDS
AND THE NEVADA ACADEMIC CONTENT STANDARDS

CONTENT STANDARD 1.0: UNDERSTAND CAREERS AND THE NATURE OF WORK

Performance Indicators	Nevada Academic Content Standards for English Language Arts
1.1.1	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
1.1.2	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
1.1.3	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> . English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently. WHST.6-8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
1.1.7	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .
1.2.1	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
1.3.1	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .
1.3.4	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

CONTENT STANDARD 2.0: UNDERSTAND THE ROLE OF MEDIA IN A DIGITAL WORLD

Performance Indicators	Nevada Academic Content Standards for English Language Arts
2.1.1	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.10 By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
2.1.2	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.2 Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .
2.2.2	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
2.2.3	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
2.3.1	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.9 Draw evidence from informational texts to support analysis reflection, and research.
2.3.3	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
2.3.4	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .
2.4.1	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
2.4.4	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.2d Use precise language and domain-specific vocabulary to inform about or explain the topic. WHST.6-8.2e Establish and maintain a formal style and objective tone.

CONTENT STANDARD 3.0: APPLY THE DESIGN PROCESS

Performance Indicators	Nevada Academic Content Standards for English Language Arts
3.1.1	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .
3.1.2	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .
3.1.3	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .
3.2.1	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .
3.3.3	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CONTENT STANDARD 4.0: CREATE WITH DIGITAL MEDIA

Performance Indicators	Nevada Academic Content Standards
4.1.2	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.
4.1.4	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .
4.2.1	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> . English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. WHST.6-8.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. WHST.6-8.9 Draw evidence from informational texts to support analysis reflection, and research.
4.2.3	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
4.2.4	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
4.3.3	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
4.4.1	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i> .

Performance Indicators	Nevada Academic Content Standards
4.4.2	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. WHST.6-8.9 Draw evidence from informational texts to support analysis reflection, and research.
4.4.3	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects WHST.6-8.7 Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. WHST.6-8.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
4.4.4	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
4.5.3	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
4.5.5	English Language Arts: Reading Standards for Literacy in Science and Technical Subjects RST.6-8.4 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 <i>grades 6-8 texts and topics</i>.

**ALIGNMENT OF ARTS, ENGINEERING AND DESIGN MIDDLE SCHOOL STANDARDS
AND THE MATHEMATICAL PRACTICES**

Mathematical Practices	Arts, Engineering and Design Middle School Performance Indicators
1. Make sense of problems and persevere in solving them.	
2. Reason abstractly and quantitatively.	
3. Construct viable arguments and critique the reasoning of others.	1.1.5 2.3.3; 2.4.3 3.3.1, 3.3.2, 3.3.3
4. Model with mathematics.	
5. Use appropriate tools strategically.	2.1.4; 2.2.3 4.1.6, 4.1.7; 4.2.4; 4.4.4; 4.5.4
6. Attend to precision.	
7. Look for and make use of structure.	3.1.1, 3.1.2, 3.1.3 4.3.7; 4.5.4
8. Look for and express regularity in repeated reasoning.	

**STANDARDS ALIGNMENT OF ARTS, ENGINEERING AND DESIGN MIDDLE SCHOOL STANDARDS
AND THE SCIENCE AND ENGINEERING PRACTICES**

Science and Engineering Practices	Arts, Engineering and Design Middle School Performance Indicators
1. Asking questions (for science) and defining problems (for engineering).	
2. Developing and using models.	3.2.1, 3.2.3 4.3.7
3. Planning and carrying out investigations.	
4. Analyzing and interpreting data.	
5. Using mathematics and computational thinking.	
6. Constructing explanations (for science) and designing solutions (for engineering).	
7. Engaging in argument from evidence.	
8. Obtaining, evaluating, and communicating information.	2.3.3 3.2.2