SKILLED AND TECHNICAL SCIENCES
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

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

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 Skilled and Technical Sciences.

STANDARDS DEVELOPMENT MEMBERS

James Brawley	Teacher	Adobe Middle School, Elko
Sherry Christiansen	Teacher	Molasky Junior High School, Las Vegas
Tim Conley	Teacher	Reed High School, Sparks
Katelyn Howard-O'Loughlin	Teacher	Carson Middle School, Carson City
Annmarie Jablon	Teacher	Walter Johnson JHS, Las Vegas
Nikki Meador	Teacher	Clark County School District CTE, 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.

The six program areas in Career and Technical Education are: Agriculture and Natural Resources; Business and Marketing Education; Education, Hospitality and Human Services; Health Science and Public Safety; Information and Media Technologies; and Skilled and Technical Sciences.

PROJECT COORDINATOR

Melissa Scott, Education Programs Professional
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 in Skilled and Technical Sciences. 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 in Skilled and Technical Sciences.

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 for Science (based on the Next Generation Science Standards), Computer Science, and 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 Skilled and Technical Sciences 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 in the area of Skilled and Technical Sciences.

The **Standards Reference Code** is only used to identify or align performance indicators listed in the standards to daily lesson plans, curriculum documents, or national standards.

Program Area Name: Skilled and Technical Sciences Standards Reference Code: **MSSTS**

Example: MSSTS.2.3.4

Standards	Content Standard	Performance Standard	Performance Indicator
Skilled and Technical Sciences	2	3	4

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 : PRACTICE SAFETY AND UTILIZE TOOLS

PERFORMANCE STANDARD 2.1 : DEMONSTRATE SAFETY PRACTICES

- 2.1.1 Describe general lab safety rules and procedures
- 2.1.2 Comply with lab dress standards and use of personal protective equipment (PPE) during lab activities
- 2.1.3 Identify marked safety areas
- 2.1.4 Identify the location and the types of fire safety equipment
- 2.1.5 Demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment
- 2.1.6 Identify the location of the posted evacuation routes
- 2.1.7 Maintain an organized and clean work environment
- 2.1.8 Follow verbal and written instructions to complete work assignments

PERFORMANCE STANDARD 2.2 : IDENTIFY AND UTILIZE HAND TOOLS

- 2.2.1 Identify hand tools and their appropriate usage
- 2.2.2 Identify standard and metric designation
- 2.2.3 Demonstrate the proper techniques when using hand tools
- 2.2.4 Demonstrate safe handling and use of appropriate hand tools
- 2.2.5 Demonstrate proper cleaning, storage, and maintenance of hand tools

PERFORMANCE STANDARD 2.3 : UTILIZE POWER TOOLS

- 2.3.1 Identify power tools and equipment and their appropriate usage
- 2.3.2 Demonstrate the proper techniques when using power tools and equipment
- 2.3.3 Demonstrate safe handling and use of appropriate power tools and equipment
- 2.3.4 Demonstrate proper cleaning, storage, and maintenance of power tools and equipment

CONTENT STANDARD 3.0 : UNDERSTAND MEASUREMENT SYSTEMS

PERFORMANCE STANDARD 3.1 : DEMONSTRATE USE OF MEASURING DEVICES

- 3.1.1 Operate a measuring tool to determine length, width, and height of an object
- 3.1.2 Calculate the volume of an object
- 3.1.3 Determine the weight of an object using a measuring tool
- 3.1.4 Use a measuring tool to determine the time of an event

PERFORMANCE STANDARD 3.2 : DESCRIBE MEASUREMENT SYSTEMS, UNITS, AND CONVERSION

- 3.2.1 Differentiate between the U.S. Customary System and Metric System of measurement
- 3.2.2 Determine which measurement system to use in a given situation
- 3.2.3 Discuss the relationships between unit dimension and what you are trying to measure
- 3.2.4 Convert between and within U.S. Customary units or Metric units

PERFORMANCE STANDARD 3.3 : EXPLAIN RATIOS, PROPORTIONS, AND SCALE

- 3.3.1 Demonstrate accurate measurements with fractions and decimals in various units
- 3.3.2 Identify the scale between two mediums (sketch, 3D model, real world object)
- 3.3.3 Use ratio reasoning to convert measurement units; manipulate and transform units appropriately
- 3.3.4 Apply a scale when converting between two mediums (sketch, 3D model, real world object)
- 3.3.5 Assess what scale/proportion is appropriate

PERFORMANCE STANDARD 3.4 : CALCULATE MEASUREMENTS

- 3.4.1 Calculate the cost of the materials for a project
- 3.4.2 Determine most efficient layout with given measurements to maximize resources
- 3.4.3 Use length measurements to calculate surface area and volume
- 3.4.4 Use length and time measurement to determine speed

CONTENT STANDARD 4.0 : UNDERSTAND THE ENGINEERING DESIGN PROCESS

PERFORMANCE STANDARD 4.1 : EXPLAIN THE STEPS IN THE DESIGN PROCESS

- 4.1.1 Identify the steps in an engineering design process
- 4.1.2 Explain the relationships between the steps in the engineering design process
- 4.1.3 Solve a problem using the engineering design process
- 4.1.4 Apply the engineering design process in an interdisciplinary group with assigned roles (team leader, recorder, tester, presenter)

PERFORMANCE STANDARD 4.2 : DESCRIBE SPATIAL RELATIONS

- 4.2.1 Explain the difference between one and two point perspectives
- 4.2.2 Identify the quadrants and the X, Y & Z axes in a coordinate plane
- 4.2.3 Apply rotations, reflections, and translations to two-dimensional and three-dimensional figures
- 4.2.4 Describe the two-dimensional figures that result from slicing three-dimensional figures

PERFORMANCE STANDARD 4.3 : SKETCH AN OBJECT

- 4.3.1 Compare and contrast the difference between a thumbnail, perspective, and isometric sketch
- 4.3.2 Describe the qualities of a sketch that conveys information to an engineer
- 4.3.3 Create a detailed sketch by hand with labels and dimension of an object
- 4.3.4 Incorporate a sketch into the design process

PERFORMANCE STANDARD 4.3 : CREATE A MODEL

- 4.4.1 Describe the role that models have in the design process
- 4.4.2 Create a model to demonstrate a solution to a problem
- 4.4.3 Evaluate data generated from testing a prototype to determine if design modification is needed before manufacturing
- 4.4.4 Use a computer simulation to evaluate a model's design
- 4.4.5 Use computer software to create a 3D model

CONTENT STANDARD 5.0 : EXPLORE ROBOTICS AND AUTOMATION TECHNOLOGIES

PERFORMANCE STANDARD 5.1 : EXPLORE THE ROLE OF ROBOTICS AND RELATED TECHNOLOGIES IN SOCIETY

- 5.1.1 Describe the purpose of automation and robotics and its effect on society
- 5.1.2 Explore terminology related to basic robotics concepts
- 5.1.3 Discuss the potential positive and negative impacts technology may have on the natural environment ultimately limiting possible solutions to various problems
- 5.1.4 Discuss the roles and responsibilities of mechanical, electrical, and computer engineers
- 5.1.5 Research employment opportunities in areas related to robotic technologies

PERFORMANCE STANDARD 5.2 : EXPLAIN GEAR RATIOS

- 5.2.1 Investigate and interpret the relationship between kinetic energy, mass, and speed of an object
- 5.2.2 Identify standard units of measurement focusing on gear ratio
- 5.2.3 Explain the difference between speed and torque
- 5.2.4 Evaluate Newton's Law of Motion when designing a solution to a problem
- 5.2.5 Identify standard gear assemblies, e.g., simple gear train, bevel gear, differential gear, universal joint, worm wheel, chain drive, belt drive, crank and slider, and cam and follower
- 5.2.6 Research how standard gears are incorporated in various real world applications

PERFORMANCE STANDARD 5.3 : EXPLORE THE FIELD OF AUTOMATION

- 5.3.1 Design, build, wire, and program both open and closed loop systems
- 5.3.2 Use motors and sensors appropriately to solve robotic problems
- 5.3.3 Troubleshoot a malfunctioning system using a methodical approach
- 5.3.4 Use models, simulations, and peer feedback to test, modify, and improve solutions to various problems
- 5.3.5 Integrate hardware and software design to solve a task using critical thinking and collaboration skills

CONTENT STANDARD 6.0 : UNDERSTAND POWER SYSTEMS

PERFORMANCE STANDARD 6.1 : IDENTIFY POWER SYSTEMS

- 6.1.1 Define terms used in power systems, e.g., power, work, horsepower, and watts
- 6.1.2 Identify basic power systems
- 6.1.3 List the basic components of a power system

PERFORMANCE STANDARD 6.2 : EXPLAIN ELECTRICAL SYSTEMS

- 6.2.1 Define AC and DC electrical systems
- 6.2.2 Discuss safety concerns of working with electricity
- 6.2.3 Describe the principles of generation, transmission, distribution, and storage of electricity
- 6.2.4 Compute values of current, resistance, and voltage using Ohm's law
- 6.2.5 Identify series, parallel, and series-parallel (combination) circuits
- 6.2.6 Construct and test simple electrical circuits from a schematic

PERFORMANCE STANDARD 6.3 : DESCRIBE MOTORS, ENGINES, AND DRIVES

- 6.3.1 Explain the difference between an electric motor and a combustion engine/generator
- 6.3.2 Explain the function of an electric engine
- 6.3.3 Research the parts and function of a small combustion engine
- 6.3.4 Construct a simple drive system using ratios of gears
- 6.3.5 Deconstruct a full drive system with gearing

CONTENT STANDARD 7.0 : RESEARCH ENERGY SOURCES
PERFORMANCE STANDARD 7.1 : DESCRIBE ENERGY SOURCES
7.1.1 Research non-renewable energy sources and their effect on the environment
7.1.2 Research different types of renewable energy sources and their benefits
7.1.3 Compare and contrast sustainable energy vs renewable energy sources
7.1.4 Design a model related to a renewable or sustainable energy source
PERFORMANCE STANDARD 7.2 : EXPLORE SUSTAINABLE CONSTRUCTION
7.2.1 Identify systems required in a residential home, e.g. electrical, plumbing, heating, ventilation, and air conditioning
7.2.2 Explore various construction technologies to maximize energy consumption
7.2.3 Design an environmentally friendly building
7.2.4 Evaluate a carbon footprint and how it can be reduced

CONTENT STANDARD 8.0 : UTILIZE CODING CONCEPTS
PERFORMANCE STANDARD 8.1 : UTILIZE ALGORITHMS TO SOLVE A PROBLEM
8.1.1 Use flowcharts and/or pseudocode to address complex problems as algorithms
PERFORMANCE STANDARD 8.2 : DOCUMENT PROGRAM DEVELOPMENT
8.2.1 Document programs (throughout the design, development, troubleshooting, and user experience phases) in order to make them easier to follow, test, and debug by others
PERFORMANCE STANDARD 8.3 : CREATE VARIABLES
8.3.1 Create clearly named variables that represent different data types and perform operations on their values
PERFORMANCE STANDARD 8.4 : UTILIZE CONTROL STRUCTURES
8.4.1 Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals
PERFORMANCE STANDARD 8.5 : ORGANIZE CODE WITH MODULARITY
8.5.1 Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs 8.5.2 Create procedures with parameters to organize code and make it easier to reuse

CROSSWALKS AND ALIGNMENTS

CROSSWALKS (ACADEMIC STANDARDS)

The crosswalk of the Skilled and Technical Sciences Middle School Standards shows links to the Nevada Academic Content Standards for English Language Arts and the Nevada K-12 Computer Science Standards. The crosswalk identifies the performance indicators in which the learning objectives in the middle school Skilled and Technical Sciences 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 and Computer Science.

ALIGNMENTS (MATHEMATICAL PRACTICES)

Several performance indicators support the Mathematical Practices. The following table illustrates the alignment of the Skilled and Technical Sciences Middle School Standards Performance Indicators and the Mathematical Practices. This alignment identifies the performance indicators in which the learning objectives in the middle school Skilled and Technical Sciences course support academic learning.

ALIGNMENTS (SCIENCE AND ENGINEERING PRACTICES)

Several performance indicators support the Science and Engineering Practices. The following table illustrates the alignment of the Skilled and Technical Sciences Middle School Standards Performance Indicators and the Science and Engineering Practices. This alignment identifies the performance indicators in which the learning objectives in the middle school Skilled and Technical Sciences course support academic learning.

CROSSWALK OF SKILLED AND TECHNICAL SCIENCES 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
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 *grades 6–8 texts and topics*. **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 *grades 6–8 texts and topics*.
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 *grades 6–8 texts and topics*.
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: PRACTICE SAFETY AND UTILIZE TOOLS

Performance Indicators	Nevada Academic Content Standards
2.1.1	**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. **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.
2.1.8	**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 *grades 6–8 texts and topics*.
2.2.2	**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 *grades 6–8 texts and topics*.

CONTENT STANDARD 3.0: UNDERSTAND MEASUREMENT SYSTEMS

Performance Indicators	Nevada Academic Content Standards
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 *grades 6–8 texts and topics*.
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 *grades 6–8 texts and topics*.

CONTENT STANDARD 4.0: UNDERSTAND THE ENGINEERING DESIGN PROCESS

Performance Indicators	Nevada Academic Content Standards
4.1.1	**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. 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 *grades 6–8 texts and topics*.
4.1.2	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.6-8.1 Write arguments focused on discipline-specific content. WHST.6-8.1a Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically. WHST.6-8.1b Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources. WHST.6-8.1c Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence. WHST.6-8.1d Establish and maintain a formal style. WHST.6-8.1e Provide a concluding statement or section that follows from and supports the argument presented.
4.2.3	**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.
4.3.1	**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 *grades 6–8 texts and topics*. **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.
4.3.2	**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. WHST.6-8.10 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.
4.4.1	**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.

Performance Indicators	Nevada Academic Content Standards
4.4.3	**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 *grades 6–8 texts and topics*. RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

CONTENT STANDARD 5.0: EXPLORE ROBOTICS AND AUTOMATION TECHNOLOGIES

Performance Indicators	Nevada Academic Content Standards
5.1.1	**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.
5.1.2	**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 *grades 6–8 texts and topics*.
5.1.5	**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.
5.2.1	**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.
5.2.3	**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. WHST.6-8.9 Draw evidence from informational texts to support analysis reflection, and research.

Performance Indicators	Nevada Academic Content Standards
5.2.6	**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 *grades 6–8 texts and topics*. 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.6-8.7 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.

CONTENT STANDARD 6.0: UNDERSTAND POWER SYSTEMS

Performance Indicators	Nevada Academic Content Standards
6.1.1	**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 *grades 6–8 texts and topics*. **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.
6.1.3	**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.
6.2.1	**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 *grades 6–8 texts and topics*. **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.
6.2.3	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. WHST.6-8.2a Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension. WHST.6-8.2b Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples. WHST.6-8.2c Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts. 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. WHST.6-8.2f Provide a concluding statement or section that follows from and supports the information or explanation presented.
6.2.5	**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 *grades 6–8 texts and topics*. **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.

Performance Indicators	Nevada Academic Content Standards
6.2.6	**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. 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 *grades 6–8 texts and topics*.
6.3.1	**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. 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.
6.3.2	**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. 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.
6.3.3	**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). 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.
6.3.4	**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. 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 *grades 6–8 texts and topics.*
6.3.5	**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. 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 *grades 6–8 texts and topics.*

CONTENT STANDARD 7.0: RESEARCH ENERGY SOURCES

Performance Indicators	Nevada Academic Content Standards
7.1.1	**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. RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. **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.
7.1.2	**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. RST.6-8.8 Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. **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.
7.1.3	**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. 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.
7.2.4	**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.

CROSSWALK OF SKILLED AND TECHNICAL SCIENCE STANDARDS AND THE NEVADA K-12 COMPUTER SCIENCE STANDARDS

CONTENT STANDARD 8.0: UTILIZE CODING CONCEPTS

Performance Indicators	Nevada Academic Content Standards
8.1.1	**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 *grades 6–8 texts and topics*. **K-12 Computer Science: Algorithms and Programming** CS.6-8.AP.A.1 Use flowcharts and/or pseudocode to address complex problems as algorithms.
8.2.1	**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. **K-12 Computer Science: Algorithms and Programming** CS.6-8.AP.PD.5 Document programs (throughout the design, development, troubleshooting, and user experience phases) in order to make them easier to follow, test, and debug by others.
8.3.1	**K-12 Computer Science: Algorithms and Programming** CS.6-8.AP.V.1 Create clearly named variables that represent different data types and perform operations on their values.
8.4.1	**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. **K-12 Computer Science: Algorithms and Programming** CS.6-8.AP.C.1 Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.
8.5.1	**K-12 Computer Science Algorithms and Programming** CS.6-8.AP.M.1 Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.
8.5.2	**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. **K-12 Computer Science: Algorithms and Programming** CS.6-8.AP.M.2 Create procedures with parameters to organize code and make it easier to reuse.

ALIGNMENT OF SKILLED AND TECHNICAL SCIENCES MIDDLE SCHOOL STANDARDS AND THE MATHEMATICAL PRACTICES

Mathematical Practices	Skilled and Technical Sciences Middle School Performance Indicators
1. Make sense of problems and persevere in solving them.	3.1.1; 3.2.2; 3.4.1 4.1.3; 4.2.2, 4.2.4 5.2.2; 5.3.3
2. Reason abstractly and quantitatively.	3.3.3, 3.3.4, 3.3.5; 3.4.2
3. Construct viable arguments and critique the reasoning of others.	1.2.1 3.2.3 5.3.4
4. Model with mathematics.	3.1.2; 3.3.1; 3.4.3, 3.4.4 4.4.2 6.2.4
5. Use appropriate tools strategically.	3.1.1, 3.1.2, 3.1.3, 3.1.4
6. Attend to precision.	3.1.2, 3.1.3; 3.2.4; 3.4.3, 3.4.4
7. Look for and make use of structure.	
8. Look for and express regularity in repeated reasoning.	

ALIGNMENT OF SKILLED AND TECHNICAL SCIENCES MIDDLE SCHOOL STANDARDS AND THE SCIENCE AND ENGINEERING PRACTICES

Science and Engineering Practices	Skilled and Technical Sciences Middle School Performance Indicators
1. Asking questions (for science) and defining problems (for engineering).	3.2.1, 3.2.2; 3.4.2 4.2.1, 4.2.4 5.2.1, 5.2.3; 5.3.3; 5.3.5 6.2.6 8.1.1
2. Developing and using models.	3.3.2, 3.3.4, 3.3.5 4.3.3; 4.4.2, 4.4.4, 4.4.5 5.3.1, 5.3.4 6.2.6; 6.3.4, 6.3.5 7.1.4; 7.2.3 8.2.1
3. Planning and carrying out investigations.	4.1.1, 4.1.2, 4.1.3, 4.1.4; 4.4.1
4. Analyzing and interpreting data.	4.4.3
5. Using mathematics and computational thinking.	3.1.1, 3.1.2, 3.1.3, 3.1.4; 3.3.1; 3.4.1, 3.4.2, 3.4.3, 3.4.4 6.2.4 8.1.1; 8.3.1; 8.4.1; 8.5.1, 8.5.2
6. Constructing explanations (for science) and designing solutions (for engineering).	3.2.2; 3.3.2, 3.3.5 5.2.4 8.3.1
7. Engaging in argument from evidence.	6.2.2 7.1.3 7.2.4
8. Obtaining, evaluating, and communicating information.	6.2.2