DENTAL SCIENCE STANDARDS

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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

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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

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ACKNOWLEDGEMENTS

The development of Nevada career and technical standards and assessments is a collaborative effort sponsored by the Office of Career Readiness, Adult Learning & Education Options at the Department of Education and the Career and Technical Education Consortium of States. 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 Dental Science.

STANDARDS DEVELOPMENT MEMBERS

Carole Brew, CDA, MEd	Program Director	College of Southern Nevada, Las Vegas
Dr. Michael Georges, DDS	Program Director	Southwest Career & Technical Academy, Las Vegas
Dr. Sherrie Maclean, DDS	Dentist	Seven Hills Dental Center, Las Vegas
Linda McGillicuddy, CDA	Teacher	Truckee Meadows Community College, Reno
Lacey Rahmig, RDH	Clinical Faculty	UNLV – School of Dental Medicine, Las Vegas
Noelia Ruiz de Vasquez	DA Supervisor	Community Health Alliance

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 Dental Science standards were validated through active participation of business and industry representatives on the development team.

PROJECT COORDINATOR

Randi Hunewill, Assistant Director/Education Programs Supervisor
Health Science and Public Safety
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 an advanced high school Dental Science 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 Nevada Academic Content Standards in Science (based on the Next Generation Science Standards) and the English Language Arts and Mathematics (based on the Common Core State Standards). Where correlation with an academic content standard exists, students in the Dental Science program perform learning activities that support, either directly or indirectly, achievement of the academic content standards that are listed.

All students are encouraged to participate in the career and technical student organization (CTSO) that relates to their Dental Science program. 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.

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 Name: Dental Science Standards Reference Code: **DS**

Example: DS.2.3.4

Standards	Content Standard	Performance Standard	Performance Indicator
Dental Science	2	3	4

CONTENT STANDARD 1.0 : INTRODUCTION TO DENTISTRY

PERFORMANCE STANDARD 1.1 : REVIEW THE HISTORY OF DENTISTRY

1.1.1 Construct the timeline of dental history
1.1.2 Identify prominent historical figures
1.1.3 Describe the progression of dentistry in the United States
1.1.4 List members of the dental team

PERFORMANCE STANDARD 1.2 : DEMONSTRATE KNOWLEDGE OF DENTAL CAREERS

1.2.1 Classify the roles and requirements of a dentist
1.2.2 Classify the roles and requirements of a dental hygienist
1.2.3 Classify the roles and requirements of a dental assistant
1.2.4 Classify the roles and requirements of a laboratory technician
1.2.5 Classify the roles and requirements of office management
1.2.6 Classify the roles and requirements of other related medical careers

PERFORMANCE STANDARD 1.3 : ANALYZE LICENSING REQUIREMENTS

1.3.1 Recognize and implement the state dental practice act (NAC/NRS 631)
1.3.2 Describe professional development requirements
1.3.3 Critique state and national dental board examinations
1.3.4 Complete the healthcare provider CPR certification

PERFORMANCE STANDARD 1.4 : UNDERSTAND HEALTHCARE SYSTEMS

1.4.1 Discuss the various healthcare systems

CONTENT STANDARD 2.0 : UNDERSTAND MEDICAL AND DENTAL TERMINOLOGY
PERFORMANCE STANDARD 2.1 : DEMONSTRATE KNOWLEDGE OF MEDICAL TERMINOLOGY
2.1.1 Interpret roots, prefixes, and suffixes of medical terminology
2.1.2 Interpret and correctly utilize medical acronyms within documentation
2.1.3 Recognize body planes, directional terms, quadrants, and cavities
2.1.4 Utilize mathematical measurement terminology related to healthcare procedures
2.1.5 Demonstrate communication skills using the terminology applicable to medical science
PERFORMANCE STANDARD 2.2 : DEMONSTRATE KNOWLEDGE OF DENTAL TERMINOLOGY
2.2.1 Interpret roots, prefixes, and suffixes of dental terminology
2.2.2 Interpret and correctly utilize dental acronyms within documentation
2.2.3 Demonstrate communication skills using the terminology applicable to dental science

CONTENT STANDARD 3.0 : DISCUSS ANATOMY AND PHYSIOLOGY

PERFORMANCE STANDARD 3.1 : DEMONSTRATE KNOWLEDGE OF MICROBIOLOGY

- 3.1.1 Outline the history of microbiology
- 3.1.2 Classify groups of microorganisms
- 3.1.3 Describe disease management
- 3.1.4 List diseases of major concerns to the medical profession
- 3.1.5 Identify modes of transmission
- 3.1.6 List immunizations

PERFORMANCE STANDARD 3.2 : IDENTIFY BODY SYSTEMS

- 3.2.1 Differentiate between the anatomical structure and location of each system
- 3.2.2 Compare and contrast the functions of each body system

PERFORMANCE STANDARD 3.3 : UNDERSTAND HEAD AND NECK ANATOMY

- 3.3.1 Identify landmarks of the face and oral cavity
- 3.3.2 Identify bones, muscles, and nerves of the head and neck
- 3.3.3 Describe Temporomandibular Joint (TMJ) and its functions
- 3.3.4 Describe the circulation of the head and neck

PERFORMANCE STANDARD 3.4 : DISCUSS TOOTH MORPHOLOGY

- 3.4.1 Compare and contrast between primary and permanent dentition
- 3.4.2 Identify supporting structures of the teeth
- 3.4.3 Examine dental anatomy

CONTENT STANDARD 4.0 : UNDERSTAND INFECTION CONTROL

PERFORMANCE STANDARD 4.1 : UTILIZE HAND HYGIENE

- 4.1.1 Demonstrate proper hand washing technique
- 4.1.2 Differentiate between sanitizer and soaps
- 4.1.3 Maintain aseptic personal conditions

PERFORMANCE STANDARD 4.2 : INTERPRET OSHA AND CDC GUIDELINES

- 4.2.1 Compare and contrast between disinfection and sterilization
- 4.2.2 Recognize employee safety
- 4.2.3 Utilize Safety Data Sheet (SDS)
- 4.2.4 Summarize the requirements for immunizations
- 4.2.5 Practice water line disinfections and biofilm management

PERFORMANCE STANDARD 4.3 : IDENTIFY PERSONAL PROTECTIVE EQUIPMENT (PPE)

- 4.3.1 Draw conclusions on the importance of disease prevention
- 4.3.2 Demonstrate the proper use of personal protective equipment

PERFORMANCE STANDARD 4.4 : IDENTIFY AND ILLUSTRATE OPERATORY DISINFECTION

- 4.4.1 Differentiate between the different types of waste disposal
- 4.4.2 Demonstrate barrier techniques and disposal
- 4.4.3 Explain prevention of cross contamination
- 4.4.4 Compare types of disinfectants
- 4.4.5 Differentiate between types of clinical surfaces

CONTENT STANDARD 5.0 : UNDERSTAND THE MAINTAINANCE OF DENTAL HEALTH
PERFORMANCE STANDARD 5.1 : DESCRIBE CARIES
5.1.1 Define Greene Vardiman Black's classification of caries
5.1.2 Illustrate the caries process
5.1.3 Explain the process of caries removal
5.1.4 Practice the prevention of decay
5.1.5 Explain the process of restorative treatment
PERFORMANCE STANDARD 5.2 : UNDERSTAND PERIODONTAL DISEASE
5.2.1 Describe the clinical characteristics of gingivitis and periodontitis
5.2.2 Define the classifications of periodontal disease
5.2.3 Illustrate the periodontal disease process
5.2.4 Summarize the prevention of periodontal disease
5.2.5 Determine periodontitis treatment options
PERFORMANCE STANDARD 5.3 : UNDERSTAND PREVENTIVE DENTISTRY
5.3.1 Demonstrate patient education
5.3.2 Practice oral hygiene instruction
5.3.3 Compare and contrast supplemental aids
5.3.4 Relate importance of nutrition in oral health
5.3.5 Discuss the process of sealants
5.3.6 Distinguish and understand the use of fluorides

CONTENT STANDARD 6.0 : EVALUATE PHARMACOLOGY IN DENTISTRY
PERFORMANCE STANDARD 6.1 : UNDERSTAND BASICS OF PHARMACOLOGY IN A DENTAL SETTING
6.1.1 Distinguish between routes of pharmacological administration
6.1.2 Explain drug interactions
6.1.3 Demonstrate writing of prescriptions
6.1.4 Explain types of sedation
6.1.5 Distinguish between classes of drugs
6.1.6 List commonly prescribed drugs
PERFORMANCE STANDARD 6.2 : UNDERSTAND DENTAL PAIN MANAGEMENT
6.2.1 Demonstrate the handling and identification of syringe and needle
6.2.2 Identify local anesthetic agents
6.2.3 Explain indications and contraindications of vasoconstrictors
6.2.4 Categorize different types of anesthetic

CONTENT STANDARD 7.0 : UNDERSTAND RADIOLOGY

PERFORMANCE STANDARD 7.1 : DISCUSS RADIATION SAFETY

- 7.1.1 Identify the biological effects of ionizing radiation
- 7.1.2 Explain As Low As Reasonably Achievable (ALARA)
- 7.1.3 Explain the role of the National Council on Radiation Protection and Measurements (NCRP)
- 7.1.4 Explain NAC 459.580 and NRS 459.201
- 7.1.5 Demonstrate patient and operator techniques
- 7.1.6 Compare and contrast the risks and benefits of dental radiographs

PERFORMANCE STANDARD 7.2 : IDENTIFY RADIOLOGY EQUIPMENT

- 7.2.1 Identify components of the x-ray machine
- 7.2.2 Identify types of radiographic receptors
- 7.2.3 Identify use of receptor device holders
- 7.2.4 Discuss panoramic indications and technique
- 7.2.5 Discuss the use of film developer

PERFORMANCE STANDARD 7.3 : EXPLAIN RADIOLOGICAL EXPOSURE AND PROCESSING

- 7.3.1 Demonstrate the use of Extension Cone Paralleling (XCP) system
- 7.3.2 Differentiate between bisecting angle and parallel techniques
- 7.3.3 Demonstrate film mounting techniques
- 7.3.4 Identify sizes and types of dental radiographs
- 7.3.5 Identify film processing technique

CONTENT STANDARD 8.0 : DEMONSTRATE PRACTICE MANAGEMENT SKILLS
PERFORMANCE STANDARD 8.1 : COMPOSE A RESUME
8.1.1 Create a cover letter and resume 8.1.2 Construct a portfolio
PERFORMANCE STANDARD 8.2 : SUMMARIZE AMERICAN DENTAL ASSOCIATION'S (ADA) INSURANCE CODES
8.2.1 Explore the use of American Dental Association's (ADA) codes with dental insurance
PERFORMANCE STANDARD 8.3 : BASIC UNDERSTANDING OF ELECTRONIC MEDICAL RECORDS
8.3.1 Describe the regulations of HIPAA 8.3.2 Recognize various electronic medical record software systems

CONTENT STANDARD 9.0 : DEMONSTRATE PRE-CLINICAL PROCEDURES

PERFORMANCE STANDARD 9.1 : DIFFERENTIATE CHAIRSIDE PROCEDURES

- 9.1.1 Demonstrate obtaining and recording vital signs
- 9.1.2 Illustrate charting
- 9.1.3 Describe coronal polishing
- 9.1.4 Demonstrate instruments passing
- 9.1.5 Review radiographs
- 9.1.6 Demonstrate head and neck examination
- 9.1.7 Demonstrate suction techniques
- 9.1.8 Demonstrate patient and operator positioning

PERFORMANCE STANDARD 9.2 : ANALYZE EXPANDED FUNCTIONS

- 9.2.1 Demonstrate cord packing on typodont
- 9.2.2 Determine state regulations on expanded functions

PERFORMANCE STANDARD 9.3 : ASSESS EMERGENCIES AND MEDICAL CONSIDERATIONS

- 9.3.1 Demonstrate patient assessment
- 9.3.2 Demonstrate how to respond to a medical emergency relating to specific medical conditions
- 9.3.3 List responsibilities of each team member during an emergency
- 9.3.4 Recognize accommodations for special needs patients
- 9.3.5 Practice fire safety

CONTENT STANDARD 10.0 : UTILIZE DENTAL INSTRUMENTS AND EQUIPMENT

PERFORMANCE STANDARD 10.1 : DESCRIBE THE USE OF DENTAL INSTRUMENTS

10.1.1 Compare and contrast restorative instruments
10.1.2 Compare and contrast surgical instruments
10.1.3 Compare and contrast periodontal instruments
10.1.4 Compare and contrast endodontic instruments
10.1.5 Compare and contrast crown and bridge instruments

PERFORMANCE STANDARD 10.2 : DESCRIBE THE USE OF DENTAL EQUIPMENT

10.2.1 Analyze the types of laboratory equipment (model trimmer, dental vibrator, polishing lathe, vacuum former)
10.2.2 Describe the function of the air compressor
10.2.3 Describe the function of the vacuum unit
10.2.4 Analyze the types of operatory equipment (patient dental chair, delivery system, amalgamator, composite curing light, operator and assistant stools, x-ray unit)
10.2.5 Demonstrate proper sterilization processes

CONTENT STANDARD 11.0 : CATEGORIZE DENTAL MATERIALS

PERFORMANCE STANDARD 11.1 : CLASSIFY MATERIALS

- 11.1.1 Compare and contrast restorative materials
- 11.1.2 Compare and contrast impression materials
- 11.1.3 Compare and contrast laboratory materials
- 11.1.4 Compare and contrast provisional materials
- 11.1.5 Compare and contrast endodontic materials
- 11.1.6 Compare and contrast teeth whitening materials

PERFORMANCE STANDARD 11.2 : PRACTICE LABORATORY PROCEDURES

- 11.2.1 Construct study models
- 11.2.2 Demonstrate model trimming
- 11.2.3 Prepare bleach trays

CONTENT STANDARD 12.0 : UNDERSTAND THE VARIOUS DENTAL SPECIALTIES

PERFORMANCE STANDARD 12.1 : UNDERSTAND THE SPECIALIST'S ROLE IN DENTISTRY

12.1.1 Explain the role of a public health dentist
12.1.2 Explain the role of an orthodontist
12.1.3 Explain the role of an endodontist
12.1.4 Explain the role of an oral surgeon
12.1.5 Explain the role of a periodontist
12.1.6 Explain the role of a pedodontist
12.1.7 Explain the role of prosthodontist
12.1.8 Explain the role of a general dentist

CONTENT STANDARD 13.0 : UNDERSTAND THE LEGAL AND ETHICAL RESPONSIBILITIES WITHIN THE HEALTHCARE SYSTEM

PERFORMANCE STANDARD 13.1 : PERFORM DUTIES ACCORDING TO REGULATIONS, POLICIES, AND LAWS

- 13.1.1 Describe laws covering the practice of healthcare professionals
- 13.1.2 Compare licensure, credentialing, and legislated scope of practice for dental care practitioners
- 13.1.3 Explain the Patient's Bill of Rights
- 13.1.4 Explain various forms of consent
- 13.1.5 Explain practices that could result in malpractice, liability, and/or negligence
- 13.1.6 Analyze legal responsibilities and limitations of healthcare providers
- 13.1.7 Apply standards for Health Insurance Portability and Accountability Act (HIPAA)
- 13.1.8 Recognize common threats to confidentiality
- 13.1.9 Demonstrate procedures for accurate documentation and recordkeeping

PERFORMANCE STANDARD 13.2 : EVALUATE THE ROLE OF ETHICAL ISSUES IMPACTING HEALTHCARE

- 13.2.1 Identify ethical viewpoints in decision-making
- 13.2.2 Explore ethical issues impacting healthcare
- 13.2.3 Compare personal, professional, and organizational ethics

PERFORMANCE STANDARD 13.3 : DEMONSTRATE PROFESSIONAL AND ETHICAL STANDARDS IMPACTING HEALTHCARE

- 13.3.1 Identify professional behaviors in healthcare
- 13.3.2 Identify medical practices that relate to diverse populations
- 13.3.3 Discuss the importance of respectful and empathetic interactions with diverse populations
- 13.3.4 Describe the influence of diversity on healthcare practices
- 13.3.5 Identify procedures for reporting violations of ethical standards

CROSSWALKS AND ALIGNMENTS

CROSSWALKS (ACADEMIC STANDARDS)

The crosswalk of the Dental Science Standards shows links to the Nevada Academic Content Standards in Science (based on the Next Generation Science Standards – Disciplinary Core Ideas Arrangement) and the English Language Arts and Mathematics (based on the Common Core State Standards). The crosswalk identifies the performance indicators in which the learning objectives in the Dental Science program support academic learning. The performance indicators are grouped according to their content standard and are crosswalked to the Nevada Academic Content Standards in Science, English Language Arts, and Mathematics.

ALIGNMENTS (MATHEMATICAL PRACTICES)

In addition to correlation with the Nevada Academic Content Standards for Mathematics, many performance indicators support the Mathematical Practices. The following table illustrates the alignment of the Dental Science Standards Performance Indicators and the Mathematical Practices. This alignment identifies the performance indicators in which the learning objectives in the Dental Science program support academic learning.

ALIGNMENTS (SCIENCE AND ENGINEERING PRACTICES)

In addition to correlation with the Nevada Academic Content Standards for Science, many performance indicators support the Science and Engineering Practices. The following table illustrates the alignment of the Dental Science Standards Performance Indicators and the Science and Engineering Practices. This alignment identifies the performance indicators in which the learning objectives in the Dental Science program support academic learning.

CROSSWALKS (COMMON CAREER TECHNICAL CORE)

The crosswalk of the Dental Science Standards shows links to the Common Career Technical Core. The crosswalk identifies the performance indicators in which the learning objectives in the Dental Science 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 Dental Science Standards are crosswalked to the Health Science Career Cluster™ and the Therapeutics Career Pathway Career Pathway.

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CROSSWALK OF DENTAL SCIENCE STANDARDS AND THE NEVADA ACADEMIC CONTENT STANDARDS

CONTENT STANDARD 1.0: INTRODUCTION TO DENTISTRY

Performance Indicators	Nevada Academic Content Standards
1.1.2	**English Language Arts: Speaking and Listening Standards** SL.11-12.1a Come to discussions prepared having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.
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. **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. **English Language Arts: Speaking and Listening Standards** SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas. 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.
1.1.4	**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.
1.3.1	**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: 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.

Performance Indicators	Nevada Academic Content Standards
1.3.2	**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: 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.
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1.4.1	**English Language Arts: Speaking and Listening Standards** SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.

CONTENT STANDARD 2.0: UNDERSTAND MEDICAL AND DENTAL TERMINOLOGY

Performance Indicators	Nevada Academic Content Standards
2.1.1	**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. **English Language Arts: Speaking and Listening Standards** SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
2.1.3	**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.
2.1.5	**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.
2.2.1	**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. **English Language Arts: Speaking and Listening Standards** SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
2.2.3	**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 3.0: DISCUSS ANATOMY AND PHYSIOLOGY

Performance Indicators	Nevada Academic Content Standards
3.2.1	**Science: HS-From Molecules to Organisms: Structures and Processes** HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.
3.2.2	**Science: HS-From Molecules to Organisms: Structures and Processes** HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.
3.3.1	**Science: HS-From Molecules to Organisms: Structures and Processes** HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
3.3.2	**Science: HS-From Molecules to Organisms: Structures and Processes** HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

CONTENT STANDARD 4.0: UNDERSTAND INFECTION CONTROL

Performance Indicators	Nevada Academic Content Standards
4.1.3	**Science: HS-From Molecules to Organisms: Structures and Processes** HS-LS1-1 Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.
4.2.1	**Science: HS-Matter and Its Interactions** HS-PS1-5 Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.
4.3.1	**Science: HS-From Molecules to Organisms: Structures and Processes** HS-LS1-4 Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. **Science: HS-Ecosystems: Interactions, Energy, and Dynamics** HS-LS2-8 Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce. **Science: HS-Biological Evolution: Unity and Diversity** HS-LS4-2 Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.
4.4.1	**Science: HS-Ecosystems: Interactions, Energy, and Dynamics** HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. **Science: HS-Biological Evolution: Unity and Diversity** HS-LS4-6 Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. **Science: HS-Earth and Human Activity** HS-ESS3-1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity. HS-ESS3-4 Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
4.4.4	**Science: HS-Matter and Its Interactions** HS-PS1-1 Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

CONTENT STANDARD 5.0: UNDERSTAND THE MAINTENANCE OF DENTAL HEALTH

Performance Indicators	Nevada Academic Content Standards
5.1.2	**Science: HS-From Molecules to Organisms: Structures and Processes** HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. HS-LS1-6 Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. **Science: HS-Heredity: Inheritance and Variation of Traits** HS-LS3-1 Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.
5.1.5	**Science: HS-Matter and Its Interactions** HS-PS1-5 Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs. **Science: HS-Motion and Stability: Forces and Interactions** HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
5.2.3	**Science: HS-From Molecules to Organisms: Structures and Processes** HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. **Science: HS-Heredity: Inheritance and Variation of Traits** HS-LS3-1 Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.
5.3.6	**Science: HS-Matter and Its Interactions** HS-PS1-1 Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.

CONTENT STANDARD 6.0: EVALUATE PHARMACOLOGY IN DENTISTRY

Performance Indicators	Nevada Academic Content Standards
6.1.2	**Science: HS-Matter and Its Interactions** HS-PS1-1 Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.
6.1.5	**Science: HS-Motion and Stability: Forces and Interactions** HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
6.2.3	**Science: HS-Matter and Its Interactions** HS-PS1-2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.
6.2.4	**Science: HS-Motion and Stability: Forces and Interactions** HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

CONTENT STANDARD 7.0: UNDERSTAND RADIOLOGY

Performance Indicators	Nevada Academic Content Standards
7.1.1	**Science: HS-Matter and Its Interactions** HS-PS1-8 Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay. **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.
7.2.1	**Science: HS-Waves and Their Applications in Technologies for Information Transfer** HS-PS4-5 Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.
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CONTENT STANDARD 8.0: DEMONSTRATE PRACTICE MANAGEMENT SKILLS

Performance Indicators	Nevada Academic Content Standards
8.3.2	**Science: HS-Waves and Their Applications in Technologies for Information Transfer** HS-PS4-5 Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

CONTENT STANDARD 9.0: DEMONSTRATE PRE-CLINICAL PROCEDURES

Performance Indicators	Nevada Academic Content Standards
9.1.1	**Science: HS-Waves and Their Applications in Technologies for Information Transfer** HS-PS4-2 Evaluate questions about the advantages of using a digital transmission and storage of information. HS-PS4-5 Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

CONTENT STANDARD 10.0: UTILIZE DENTAL INSTRUMENTS AND EQUIPMENT

Performance Indicators	Nevada Academic Content Standards
10.2.1	**Science: HS-Energy** HS-PS3-1 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.
10.2.2	**Science: HS-Energy** HS-PS3-4 Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics)
10.2.3	**Science: HS-Energy** HS-PS3-4 Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics)
10.2.5	**Science: HS-Energy** HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

CONTENT STANDARD 11.0: CATEGORIZE DENTAL MATERIALS

Performance Indicators	Nevada Academic Content Standards
11.1.1	**Science: HS-Earth and Human Activity** HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
11.1.2	**Science: HS-Matter and Its Interactions** HS-PS1-4 Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy. HS-PS1-5 Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.
11.1.3	**Science: HS-Matter and Its Interactions** HS-PS1-4 Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy. HS-PS1-5 Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.
11.1.6	**Science: HS-Engineering Design** HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
11.2.1	**Science: HS-Matter and Its Interactions** HS-PS1-4 Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy. **Science: HS-Energy** HS-PS3-4 Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics). HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.

Content Standard 12.0: Understand the Various Dental Specialties

Performance Indicators	Nevada Academic Content Standards
12.1.1	**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.
12.1.2	**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.
12.1.3	**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.
12.1.4	**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.
12.1.5	**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.
12.1.6	**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.
12.1.7	**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.
12.1.8	**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.

Content Standard 13.0 Understand the Legal and Ethical Responsibilities Within the Healthcare System

Performance Indicators	Nevada Academic Content Standards
13.1.3	**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.
13.1.6	**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.
13.2.2	**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.

ALIGNMENT OF DENTAL SCIENCE STANDARDS AND THE MATHEMATICAL PRACTICES

Mathematical Practices	Dental Science Performance Indicators
1. Make sense of problems and persevere in solving them.	10.1.2
2. Reason abstractly and quantitatively.	5.2.5, 10.2.3, 10.2.4
3. Construct viable arguments and critique the reasoning of others.	13.2.1, 13.2.2,
4. Model with mathematics.	2.1.4, 4.2.5, 6.1.3,
5. Use appropriate tools strategically.	4.3.2, 5.3.3
6. Attend to precision.	6.1.5
7. Look for and make use of structure.	3.2.1, 3.3.1, 3.3.2, 5.1.1, 5.2.2,
8. Look for and express regularity in repeated reasoning.	4.2.3

ALIGNMENT OF DENTAL SCIENCE STANDARDS AND THE SCIENCE AND ENGINEERING PRACTICES

Science and Engineering Practices	Dental Science Performance Indicators
1. Asking questions (for science) and defining problems (for engineering).	2.4.3
2. Developing and using models.	7.2.1, 7.2.2, 7.2.3
3. Planning and carrying out investigations.	8.1.5
4. Analyzing and interpreting data.	5.1.1, 5.2.2, 9.1.1, 9.2.2,
5. Using mathematics and computational thinking.	5.1.3, 5.2.1, 6.1.5
6. Constructing explanations (for science) and designing solutions (for engineering).	5.1.5
7. Engaging in argument from evidence.	3.1.6, 4.2.4, 13.2.1, 13.2.2
8. Obtaining, evaluating, and communicating information.	8.1.1, 8.1.2

CROSSWALKS OF DENTAL SCIENCE STANDARDS AND THE COMMON CAREER TECHNICAL CORE

Health Science Career Cluster™ (HL)	Performance Indicators
1. Determine academic subject matter, in addition to high school graduation requirements, necessary for pursuing a health science career.	2.1.1, 2.4.1
2. Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.	1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.2.6
3. Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.	4.2.2, 4.2.3, 4.2.4, 4.4.1
4. Evaluate the roles and responsibilities of individual members as part of the healthcare team and explain their role in promoting the delivery of quality healthcare.	12.1.1, 12.1.2, 12.1.3, 12.1.4, 12.1.5, 12.1.6, 12.1.7, 12.1.8
5. Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace.	13.1.1, 13.1.2, 13.1.6, 13.1.7, 13.2.3
6. Evaluate accepted ethical practices with respect to cultural, social and ethnic differences within the healthcare workplace.	13.2.2, 13.3.2, 13.3.3, 13.3.4

Therapeutic Services Career Pathway (HL-THR)	Performance Indicators
1. Utilize communication strategies to answer patient/client questions and concerns on planned procedures and goals.	2.4.3, 5.1.5, 5.2.3, 5.2.5, 5.3.1
2. Communicate patient/client information among healthcare team members to facilitate a team approach to patient care.	2.1.5, 2.2.3, 5.3.1
3. Utilize processes for assessing, monitoring and reporting patient's/clients' health status to the treatment team within protocol and scope of practice.	1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.2.6, 9.1.1, 9.1.5,
4. Evaluate patient/client needs, strengths and problems in order to determine if treatment goals are being met.	5.3.1, 9.3.1