Washington Office of Superintendent of
PUBLIC INSTRUCTION

Learning that works for Washington
CTE

Statewide Framework Document for: 510601

Dental Assisting

Standards may be added to this document prior to submission but may not be removed from the framework to meet state credit equivalency requirements. Performance assessments and leadership alignment may be developed at the local level. In order to earn state approval, performance assessments must be submitted within this framework. **This course is eligible for 1.0 lab science credit.**

School District Name		
Course Title: Dental Assisting		**Total Framework Hours:** 540
CIP Code: 510601	☐ Exploratory ☒ Preparatory	**Date Last Modified:** April 1, 2022
Career Cluster: Health Science		**Cluster Pathway:** Therapeutic Services

Course Summary:
Dental Assisting prepares students with an understanding of the roles and responsibilities of the dental health care professional within the application of dental care. Dental assistant means a person who is registered by the commission to provide supportive services to a licensed dentist to the extend provided in RCW: 18.260.040 and WAC 246-817-520 and 246-817-540.
Every dental assistant in the state of Washington must be registered. To be eligible for registration as a dental assistant, one must:
Provide a completed application on forms provided by the Washington State Dental Quality Assurance commission (DQAC
AND pay applicable fees.
AND provide evidence of completion of Blood Borne pathogen education and training.
AND provide any other information determined by the DQAC.
A registered dental assistant must hold a current and valid health care provider basic life support (BLS) certificate.

Units
Unit 1 Introduction to the Dental Field (15)
Unit 2 Communication (20)
Unit 3 Ethical and Legal Behavior (20)
Unit 4 Basic Dental Sciences: General Anatomy and Physiology for Head, Neck and Oral cavity (40)
Unit 5 Charting (30)
Unit 6 Safety and Infection Control (30)
Unit 7 Healthcare Office Management (30)
Unit 8 Record Patient Information and Assessment (30)

Unit 9 Preventative Dentistry (30) Unit 10 Manage Pain and Anxiety (Pharmacology) (30) Unit 11 Prepare to Provide Treatment (30) Unit 12 Radiography/Radiation (40) Unit 13 Chairside Procedures: Pre-clinical application and practice (40) Unit 14 Dental Materials (30) Unit 15 Medical/Dental Emergencies (30) Unit 16 Chairside Skills (40) Unit 17 Clinical Practicum (55) Unit 18 Employability and Professionalism (ongoing throughout course)
Eligible for Equivalent Credit in: 1.0 Lab Science and .5 Health — **Total Number of Units:** 18

Unit 1: Introduction to the Dental Field	**Total Learning Hours for Unit:** 15

Unit Summary:
This unit introduces Dentistry and the Dental Team including knowledge of dental professions and specialties and the dental healthcare team and changes over time.
**Dental specialty areas: Orthodontics, Endodontics, Pediatric Dentistry, Oral and Maxillofacial Surgery, Periodontics, Prosthodontics, Oral Pathology, Public Health.*

Performance Assessments: (Districts to complete for each unit)
Example assessments for this unit include:
Using a variety of resources, students:

- Research careers within the dental sciences and explain in a graphic illustration or informational artifact** the educational/credentialing requirements, as well as state and national compliance guidelines required of health care professionals. Include other dental specialty areas (DANB).
    - **Informational artifacts include, but are not limited to, brochures, posters, fact sheets, narratives, essays, and presentations. Graphic illustrations include, but are not limited to, charts, graphs, rubrics, drawings, and images.
- Gather relevant information from textbooks and online searches concerning the history of dentistry, with emphasis on changes in care and prevention.
    - Develop a visual, oral, and/or written presentation of the information that includes graphs, technology, and supporting evidence.
- Analyze the range of skills, competencies, and professional traits (such as leadership, time management, and ethical responsibility) required for careers in dental sciences. Using real-time and projected labor market data, identify local and national employment opportunities and determine areas of growth.
- Diagram the organizational structure of the dental/health care team and explain the role of each member of the team.
- Summarize the organization structure of the dental healthcare team by creating a checklist for each job.

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.
Example:

- Research careers within the dental sciences and explain in a graphic illustration or informational artifact** the educational/credentialing requirements, as well as state and national compliance guidelines required of health care professionals. Presentation and delivery, teamwork.
- Students complete research and present to class in teams. This requires students to work creatively with others and communicate clearly.
- Operation sweet tooth – poster and presentation on sugar and relation to caries. How to avoid the "sugar rush" of decay. Work creatively with others.

Industry Standards and/or Competencies:

- Trace the history of dentistry from early civilizations in various cultures, including education and professional development in the global community (culture) an emphasis on changing care and prevention.
- Identify and recognize the significance of professional (dental field) organizations.
- Explain the credentialing pathways for dental assistants.
    - List and describe state required certifications.
    - List and describe national requirements for certification.
- Describe the importance of DANB (Dental Assisting National Board) certification (what it represents, how it is attained).
- Identify career pathways and education requirements for the dental professions.
- Describe services/procedures performed in each dental specialty area.
- Describe the role and responsibilities of the dentist, dental hygienist, and dental assistant for the various dental procedures and other positions within a dental office.
- Describe the role of the dental assistant for each dental specialty area.
- Describe licensure required for dental specialty areas.
- Identify and describe new and emerging dental specialties.
- Dental team
    - Outline the organizational structure of the dental/health care team.
    - Identify personal traits and attitudes desirable in a member of a dental team.

Aligned Washington State Academic Standards			
Health Education			
Science	**Washington Science Standards (Next Generation Science Standards):**		
Science and Engineering Practice	**Disciplinary Core Idea**	**Crosscutting Concept**	

Unit 2: Communication	**Total Learning Hours for Unit:** 20

Unit Summary:

Dental healthcare professionals:

- Modify communication to meet the needs of the patient/client and be appropriate to the situation, considering a person's culture, age and gender within the variety of dental settings.
- Understand and apply communication skills, including interpersonal skills.
- Understand and demonstrate the explanation of planned procedures to patient/clients and health/dental professionals including goals, side effects and coping strategies.
- Use knowledge as needed in their role as a registered dental assistant.
- Demonstrate the ability to identify the needs of all patient/clients based upon awareness of the developmental and age specific processes and use various strategies to respond to clients' questions and concerns.
- Research, create and share a brochure or PowerPoint on how the social detriment of health (both in dental and health care more broadly) and established programs, services, or initiatives that have been enacted to address or mitigate these detriments (examples include access to baby & child dentistry, dental residency programs, community water fluoridation, health equity continuing education, resources available for interpreter services, etc.) impact the overall health status of underserved communities.

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

Students:

- Participate in communication-based learning activities including but not limited to, active listening, team building, problem solving, verbal & nonverbal communication and decision making and time management as outlined in performance rubrics.
    - Following each learning activity, the student/ group will complete a self- assessment & participation form evaluating the principles, process and outcome(s) of the activity.
- Demonstrate professional demeanor, positive attitude, and appropriate verbal and nonverbal communication skills in all clinic activities including interpersonal relationships with peers, staff, instructors, and clinic patients.
- Using a series of scenarios, the students will practice typical dental office day-to-day challenges, resolving conflicts and challenges in an efficient manner.
    - Role-play scenarios from the dental office such as using a dentist, receptionist, patient, and dental assistant the various ways in which to work with clients such as verbal and non-verbal skills, giving a patient record (oral or written), working in a healthcare office, and basic chair-side dental procedures.
    - With peers, practice in large and small groups delivering a variety of information to patients (pre-operative instructions, treatment options, post operative instructions, oral hygiene instructions, and informed consent).
    - Using appropriate communication techniques (e.g., role play, scenarios, formal presentation), students will gather and assess information which contributes to the determination of the appropriate dental care and or treatment plan for individuals within a diverse client population.

- Ensuring that communication is delivered, received, and verified avoiding or surmounting barriers to communication, such as those related to language, culture, environment, regional accents, age, gender, ethnicity, socioeconomic status, and special needs of the client.

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- Students work effectively in diverse teams to better understand the complexities of health care.
- Using problem solving skills, students develop possible scenarios and write what they believe would be appropriate solutions for the defined problems. Scenarios and solutions will be presented to classmates for discussion and debate.

Industry Standards and/or Competencies:

PROCEDURES USED WHEN RESPONDING TO CLIENT NEEDS

- Demonstrate client/patient identification.
- Demonstrate all forms of communication skills in the workplace.
- Interpret the elements of communication using basic sender-receiver-feedback model.
- Discuss and apply oral communication.
    - Demonstrate appropriate verbal and non-verbal communication skills.
    - Demonstrate active listening skills.
    - Complete a verbal/written client report.
    - Demonstrate telephone techniques appropriate to a health care setting.
    - Identify the components of and complete an incident /variance report.
- Demonstrate effective writing skills.
    - Report subjective and objective information.
    - Prepare examples of technical and informative writing.
    - Demonstrate information technology skills common to dentistry.
    - Demonstrate use of appropriate e-mail and social media usage.
    - Critique elements of written and electronic communication (spelling, grammar, and formatting).
- Demonstrate respectful and empathetic treatment of ALL patients/clients.
- Discuss the importance of understanding cultural diversity in the dental office:
    - Race
    - Gender
    - Cultural heritage
    - Age
    - Physical abilities
- Discuss physical, mental, social and behavioral development and its impact on healthcare.

PROBLEM SOLVE/TROUBLESHOOT

- Identify and overcome barriers to communication.

- Assess and determine impact of an event to internal/external systems and processes.
- Notify need to know personnel and/or clients.
- Manage timelines.
- Assess outcome and implement corrective action plan, if needed.

Aligned Washington State Academic Standards	
Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):**

Science and Engineering Practice	**Disciplinary Core Idea**	**Crosscutting Concept**

Unit 3: Ethical and Legal Behavior	**Total Learning Hours for Unit:** 20

Unit Summary:

Dental healthcare professionals:

- Understand the legal responsibilities, scope of practice as well as ethics and ethical practices with respect to cultural, social, religious and ethnic differences within the dental care environment.
- Understand the legal and ethical responsibilities of the Registered Dental Assistant within the health/dental care system and patient's rights including HIPAA and dental treatment.

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

- Research community agencies who provide support and create a referral list for those who offer/provide youth friendly, culturally responsive and trauma informed services.
- Investigate and present the importance of the link between oral health and mental health.
- Create a poster of ways to improve oral and mental health.
- Students demonstrate their understanding of the Dental Practice Act, HIPPA, Patient's Bill of Rights, Board of Dentistry and the purpose of the Washington State licensing dental health professionals by researching various scenarios in dental ethics and laws and present to the class.
- Choose an ethical issue affecting dental health professionals, such as leaving fluoride out of drinking water, the practice of dental tourism, or the affordability of dental care among vulnerable populations like the elderly. Craft arguments focused on the issue, including the development of claim(s) and counterclaim(s) justified with data and evidence. Discuss how this issue will affect or has affected the dental community.
- Examine the legal responsibilities of dental professionals when treating patients/clients with diseases or disorders related to infections transmitted sexually or through drug use, domestic violence, neglect, and child abuse. Construct an informational article intended to raise awareness among dental professionals and to inform patients. Incorporate the correct dental terminology.

- Compare and contrast the dental care and prevention customs and cultural beliefs of various populations. Examples might include soaking a cotton ball in turpentine for tooth pain relief or using bleach to whiten teeth. Develop an informative paper intended to reconcile such beliefs with advances in dental science.
- Research the scope of practice for a Dental Assistant in Washington State. Site sources and write a one page paper on the role of a Dental Assistant when the dentist is in office and out of office. For example, what legally can you do with dentist in office and out of the office?
- Working in teams, students will identify different legal issues with specifically assigned case studies (i.e., negligence, abandonment, abuse, harassment).

Leadership Alignment: (Districts to complete for each unit)
Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.
Example:

- Students (in groups) collaboratively research various scenarios, such as leaving fluoride out of drinking water, in dental ethics and laws and **communicate clearly** their findings by **presenting** to the class.
- Students **access and evaluate information**, **use and manage information, work effectively in diverse teams** to complete the presentations/skit on assigned case study.

Industry Standards and/or Competencies:

- Explain the legal standards practiced by the dental assistant.
  - Summarize the Dental Practice Act, Health Insurance Portability and Accountability Act (HIPAA) and Patient's Bill of Rights.
  - Explain confidentiality and its connection to HIPAA.
  - Demonstrate understand of patient's right to privacy according to Health Insurance Portability and Accountability Act (HIPAA) regulations.
  - Demonstrate an understanding of a professional code of conduct.
- Define the difference between ethics and laws including the importance of professional and personal ethics in the workplace.
- Differentiate laws governing harassment, labor, and scope of practice.
- Understand concept of implied and informed consent.
  - Explain meaning and importance of informed consent.
- Adhere to information systems policies and procedures as required by national, state, local, and organizational levels.
- Demonstrate understanding of legal records.
- Demonstrate understanding of legal responsibilities and regulations of dental assistants.

Aligned Washington State Academic Standards

Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):**

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept

Unit 4: Basic Dental Science: General Anatomy and Physiology for Head, Neck and Oral cavity	**Total Learning Hours for Unit:** 40

Unit Summary:

Dental healthcare professionals:

- Demonstrate an understanding of overall general anatomy/physiology related to health standards.
- Demonstrate basic oral and dental anatomy, physiology, and development.
- Identify structures and explain functions and pathologies of dental and general head and neck anatomy.

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

- Apply knowledge of the landmarks of the oral cavity through demonstration on a model of the human head and neck.
- Using evidence describe basic physiologic systems (circulatory, lymphatic, nervous, muscular and skeletal) and how they interact in the head and neck regions.
- Develop a model, where the student identifies and describe the tooth identification process.
    - The student further demonstrates knowledge of tooth identification by repeating the identification in a simulated setting using team members in place of models.
- Create a model showing the interaction of the gross and cellular structure and function of head and neck anatomy, including bones, muscles, sinuses, salivary glands, nerves, and blood vessels.
- Choose a research topic related to embryonic development of the head, oral cavity, and teeth. Gather relevant information from print and digital medical and/or dental resources such as the American Journal of Dentistry. Complete a short research project, including editing work after peer-review, culminating in a scientific report that examines the environmental and genetic factors affecting embryonic development, differentiating between normal and abnormal findings using dental and medical terminology.
- Create a timeline or continuum identifying and illustrating, psychological, physiological and sociological developmental processes experienced by an individual through their lifespan as they grow and develop.
- Formulate a written and digital health education project to inform an audience about the parts and functions of teeth. Include the effects of nutrition on tooth development and continuous good health and dental prevention care.
- Determine the meaning of the universal dental numbering system's name; then, number the teeth located in the human dentition on a model or chart. Explain the difference in each of the numbering systems as presented in text by paraphrasing them in simpler yet accurate terms.
- Choose a dental health disease or disorder. Examples might include dental caries in babies who drink juices from a bottle or oral cancer in smokeless tobacco users. Develop a professional report discussing the scope of the disease/disorder, affected and vulnerable populations, local incidence information as compared to state, region, and national data, existing practices that target the disease/disorder, and interventions available.
- Assess patient oral health upon visual examination of oral cavity.
- Prepare to obtain the Dental Assistant National Board Certification in Anatomy, Morphology and Physiology (AMP).

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- Create media project on which they illustrate the bones of the skull and face muscles and trigeminal nerve.
- Create a 3d model illustrating the development of the tooth, share with the class, revision for quality and revise for accuracy.

Industry Standards and/or Competencies:

Anatomy, Morphology, and Physiology (AMP) A component of the National Entry Level Dental Assistant (NELDA) certification program.

National Health Science standards (May 2019).

Fundaments of head/neck anatomy, embryology/histology, and tooth morphology: *Communicate in common language the body systems, planes, cavities, and basic units*.

- Recognize word components, terms, and abbreviations related to the dental profession.
- Use medical abbreviations to communicate information.
- Use roots, prefixes, and suffixes to communicate information.

- Recognize body planes, directional terms, quadrants, and cavities.
  - Explain the anatomy and physiology of body systems and their relationship to dentistry.

1. Head, Neck and Oral Cavity
   - Identify the body systems in terms of structure (components) and function (tissue, organ, and system).
     - Understand basic physiologic systems (circulatory, lymphatic, nervous, muscular, and skeletal) and how they interact in the head and neck regions.
     - Identify structures of the head and neck.
       - Cardio-Respiratory system
         - Identify locations of the major veins and arteries of the head and neck.
       - Lymphatic system
         - Identify location of the lymph nodes of the face and neck.
       - Muscular system
         - Identify location of the major muscles of mastication, facial expression, and the floor of the mouth, extrinsic muscles of the tongue, and major posterior muscles of the mouth.
       - Nervous system
         - List and identify the location of the nerve tissues of the head and face, including the nerves of the maxilla and the mandible.
       - Skeletal system
         - Apply knowledge of the bones of the cranium and the face and identify the landmarks of the maxilla and mandible.
         - Describe the histology of bone to include cartilage, compact bone, spongy bone, and the periosteum.
         - Joints of the head and face.
         - Temporomandibular joints
           - Identify parts and the function of the temporomandibular joint.
           - Describe how the joint works, including the glide and hinge action.
       - Sinuses (continued into 2nd year)
       - Endocrine

- Salivary glands
    - Name and locate the salivary glands and their ducts.
- Identify and describe major landmarks of the Oral Cavity anatomy (i.e., radiographic, bony, soft tissue) and surrounding structures (maxillary sinus, salivary glands and ducts, maxilla, mandible, TMJ, incisive papilla, rugae, uvula, frenuims, soft palate, hard palate, tongue, teeth, oral mucosa, gingival tissue, temporal bone, and trigeminal nerve).
    - Identify the major sources of innervation of the teeth and oral cavity.
    - Apply knowledge of the major anatomic landmarks of the skull (oral cavity and the face).

2. Tooth Anatomy, Morphology and Physiology
- Identify tooth anatomy, structures of the teeth, and the primary and permanent dentitions.
    - Identify classifications of occlusion.
    - Recognize and define normal occlusion and the relationships between maxilla and mandible during various functional movements.
    - Locate and identify teeth by name, and permanent, primary or mixed dentition using correct terminology.
        - Identify the four types of teeth, describe the design and specialized functions of each type and classify them as anterior or posterior teeth.
    - Identify anatomical parts, tissues, and surfaces of a tooth including arches and quadrants.
    - Identify supporting structures (periodontal ligaments, alveolar bones, gingival, and cementum).
    - Identify the eruption order for the primary and permanent teeth.
    - Describe tissues in terms of structure, function, and possible disorders: enamel, dentin, pulp, cementum, and periodontal ligament.
    - Define terms related to tooth morphology: Curve of Spee, names of surfaces of the teeth, contours and contacts, overbite and overjet, embrasure and occlusal form and the physiology of occlusion.
- Tooth Numbering Systems
    - Describe and demonstrate the universal, international, and Palmer numbering systems for both primary and permanent dentitions.
    - Identify and describe, using correct terminology, each of the permanent and primary teeth in terms of numbers of cusps and roots, and unusual anatomic landmarks.
    - Identify number and types of teeth in the primary dentition; state the specialized functions of the primary dentition and describe the special characters of these teeth pulp chambers.
    - Compare the primary and permanent dentition in terms of numbers of and types of teeth, size and shape of similar types of teeth.
- Recognize instances of oral pathology and report abnormal conditions to the dentist.
    - List the four major signs of inflammation and describe how inflammation helps to protect the body.
    - Recognize deviation of normal tissue.
    - Identify diseases of the teeth, dental pulp, and oral soft tissue.
    - Identify secondary oral disorders.
    - Identify hard and soft tissue anomalies and tooth anomalies.
        - Describe genetic and developmental factors that can affect dental development (tori, geographic tongue, fissure tongue, supernumerary, enamel dysplasia, cleft palate, cleft lip, tongue-tied, andontia, microdontia, and macrodontia.

Aligned Washington State Academic Standards	
Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):** 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. HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. 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. HS-LS3-2. Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
• Developing and Using Models • Constructing Explanations and Designing Solutions • Asking Questions and Defining Problems • Engaging in Argument from Evidence • Scientific Investigations Use a Variety of Methods	• LS1.A: Structure and Function • LS1.B: Growth and Development of Organisms • LS3.A: Inheritance of Traits • LS3.B: Variation of Traits	• Systems and System Models • Structure and Function • Cause and Effect • Scale, Proportion, and Quantity • Science is a Human Endeavor

Unit 5: Charting	**Total Learning Hours for Unit:** 30

Unit Summary:

Dental Healthcare professionals:

- Identify and utilize tooth numbering and charting systems to ensure proper documentation.
- Apply in clinical practicum unit.

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

- Given a scenario, perform charting functions for a patient incorporating medical/dental language.
    - Record patient information and treatment in progress notes.
    - Identify the permanent and primary teeth according to the Universal Numbering System.
    - Chart conditions in the patient's oral cavity and accurately record data using standard charting techniques.

        - Observe/record suspected decayed teeth.
        - Record periodontal conditions (mobility, furcation involvement, inflammation, and pocket depth).
        - GV Black cavity classifications
    - Interpret/prepare information for dentist to make a treatment plan.
    - Record treatment plan.
    - Obtain informed consent.
    - Use common dental software.

Leadership Alignment: (Districts to complete for each unit)
Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.
Example:

- Students work collaboratively in teams with one as patient and one as dental assistant to chart existing restorations or conditions.
- Communicate clearly and listen effectively to decipher meaning, including knowledge, values, attitudes and intentions.

Industry Standards and/or Competencies:
Dental Charting *Utilize the correct numbering and charting system to ensure proper documentation.*
Describe anatomical and geometric dental charts.
Describe charting symbols for existing, new treatment and periodontal charting.
Describe color-coding as it relates to charting.
Enter conditions as symbols as a chart.
Record entries and record treatment sequence on a chart.

Aligned Washington State Academic Standards	
Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):** HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
• Planning and Carrying Out Investigations • Scientific Investigations Use a Variety of Methods	• LS1.A: Structure and Function	• Stability and Change

Unit 6: Safety and Infection Control	**Total Learning Hours for Unit:** 30

Unit Summary:
Dental healthcare professionals:

- Identify and understand bloodborne pathogens, comply with OSHA/WISHA regulations and prevent injury or illness through safe work practices following health and safety policies and procedures according to CDC.
- Identify modes and transmission of infection control.

- Understand the fundamentals of wellness and the prevention of disease processes.
- Understand the importance of personal protective equipment, while following OSHA and WISHA regulations to ensure personal and patient safety.
- Demonstrate standard and transmission-based precautions to prevent the spread of microorganisms.
- Qualify for Infection Control Exam (ICE) through Dental Assistant National Board (DANB).
- Apply in clinical practicum unit.

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

- Demonstrate infection control procedures before, during and after treatment according to current industry and OSHA/WISHA standards.
- Prepare to obtain the Dental Assistant National Board Certification in Infection Control (ICE).
- Obtain OSHA certification.
- Demonstrate proper use and purpose of PPE (Personal Protective Equipment) and correct handwashing techniques.
- Demonstrate methods of sterilization and disinfection through a clinical simulation scenario.
- Demonstrate proper use and processing of reusable dental instruments and devices through a given scenario.
- Provide evidence of completion of bloodborne pathogen training.
- Differentiate between the pathogenic and non-pathogenic microorganisms and explain how each can cause a disease or disorder i.e., swab and grow cultures and observe under microscope. Outline modes of transmission and prevention of the spread of these organisms using resources such as DOH, CDC and OSAP.
- Investigate oral manifestations related to pathogenic and non-pathogenic organisms. Develop an informational text to share with other health care professionals that outlines concepts of disinfection, OSHA standards, and use of Personal Protective Equipment (PPE) to prevent spreading of disease to dental staff.

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- Using technology students **use and manage information** and **create media products** for distribution at wellness fair with the importance of handwashing.
- Students must **apply technology effectively**, be **self-directed learners** and **interact effectively** with others for a successful event.

Industry Standards and/or Competencies:

Infection Control (ICE) A component of the National Entry Level Dental Assistant (NELDA) and Certified Dental Assistant (CDA) certification programs.
National Consortium of Health Science standards (May 2019).

1. Standard Precautions and the Prevention of Disease Transmission.

Microbiology: Safeguard against micro-organism exposure in the dental office.

- Demonstrate understanding of infectious diseases and their relationship to patient safety and occupational risk.
    - Recognize the risk of infectious diseases to patients in the office.
    - Explain the chain of infection and principles of infection transmission including modes of disease transmission.

- Explain the need for immunization against infectious diseases (e.g., hepatitis B, influenza).
- Demonstrate understanding of how to review a medical history to prevent adverse reactions during dental care (e.g., adverse reactions to latex or vinyl).
- Identify the risks of procedures and services to the patients and dental professionals.
- Describe and apply the universal precautions used for every patient to prevent disease transmissions.
  - Demonstrate understanding of proper hand hygiene as performed before, during and after oral surgery and intraoral procedures, including but not limited to:
    - Products (e.g., antimicrobial, antibacterial, alcohol rub)
    - Skin/nail care
    - Techniques (e.g., length of time, sequencing)
    - Select appropriate hand hygiene protocol.
  - Describe how to protect the patient and operator by using personal protective equipment (PPE) (e.g., masks, gloves, eyewear, gowns).
    - Selection and sequence of placing, removing and disposing of PPE according to the procedure(s) and areas, including but not limited to:
      - Instruments/device processing
      - Laboratory
      - Oral Surgery
      - Radiology
      - Treatment room
    - Management of contaminated PPE according to OSHA Bloodborne Pathogens standard.
  - Demonstrate understanding of how to protect the patient and operator through the reduction of aerosol, droplets, and spatter, including but not limited to:
    - Proper use of barrier techniques
    - Dental dams
    - Evacuation techniques
    - Patient eyewear
    - Pre-procedural mouth rinses, and disposable items according to current industry and OSHA standards.

2. Prevent Cross-contamination during Procedures
   - Demonstrate understanding of how to maintain asepsis conditions to prevent cross-contamination for procedures and services.
     - Identify modes of disease transmission.
     - Explain and select proper method for maintenance of aseptic chain in the dental treatment environment through sterilization, disinfection, and barrier techniques.
       - Differentiate between cleaning, disinfecting and sterilizing, and when and how to use each technique properly during oral healthcare delivery.
       - Identify areas that require cleaning or disinfecting and apply the proper procedures.
     - Clean and disinfect for breakdown and setup of clinical treatment areas, the laboratory and equipment.

        - Disinfect environmental surfaces including treatment area, laboratory, darkroom, instrument processing and equipment areas according to current industry and OSHA Hazardous Communication standards
        - Prepare and use chemical disinfection for breakdown and setup.
        - Use barrier techniques for equipment and surfaces.
        - Prepare procedure-specific setups (e.g., single-use devices [SUD], single unit dosing, aseptic retrieval).
        - Maintain and monitor dental water unit lines.
        - Clean and maintain evacuation lines and traps.
    - Clean and disinfect radiological areas and equipment.
    - Use aseptic techniques for acquiring and processing conventional and digital radiographic images.
    - Select proper methods of disinfection for impressions and dental appliances.
    - Identify and dispose of biohazardous waste generated in the dental office according to current industry and OSHA standards.
3. Instrument/Device Processing
    - Explain the difference between disposable and reusable dental devices and when each type of device is to be used.
    - Demonstrate understanding of processing reusable dental instruments and devices.
        - Transport contaminated instruments/devices to prevent cross-contamination.
        - Follow workflow patterns to avoid cross-contamination of instruments/devices and supplies.
        - Clean and maintain dental instruments/devices and supplies prior to sterilization.
        - Prepare and use chemical agents for cleaning instruments/devices.
        - Prepare dental instruments/devices for sterilization.
        - Select the system for sterilization.
        - Select the system for sterilization monitoring (e.g., biological monitoring, chemical integrators).
        - Package and label instruments/devices for sterilization.
        - Load and unload the sterilizer.
        - Store and maintain integrity of sterile instruments/devices and supplies.
    - Demonstrate understanding of how to monitor and maintain processing equipment and sterilizers (e.g., ultrasonic cleaner, autoclave).
        - Interpret sterilization monitoring devices, errors and results.
        - Respond to equipment malfunctions.
4. Occupational Safety/Administrative Protocols
    - Describe and apply understanding of occupational safety standards and guidelines for personnel.
        - CDC Guidelines for Infection Control in Dental Health-Care Settings – 2003
        - CDC Summary of Infection Prevention Practices in Dental Settings: Basic Expectations for Safe Care. 2016
        - Adhere to OSHA Bloodborne Pathogens standard as it applies to, but not limited to:
            - Engineering and work practice controls
            - Needle and sharps safety
            - Record keeping and training
            - Sharps exposure and post-exposure protocol (e.g., first aid procedures).

- Adhere to OSHA Hazard Communication standard as it applies, to but not limited to:
  - Chemical exposure/hazard (e.g., amalgam, nitrous oxide, laser) and first aid.
  - Engineering and work practice controls.
  - Safety data sheets (SDS) (www.osha.gov)
  - Secondary containers
- Adhere to Federal regulations (e.g., EPA, FDA)

- Demonstrate understanding of how to maintain and documents programs/policies for infection control and safety, including but not limited to:
  - Exposure control plan
  - Infection control breaches
  - Quality assurance (quality improvement)
  - Sterilization logs/records
  - Training records
- Safety and Infection Control Policies and Practices

Aligned Washington State Academic Standards	
Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):** 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 HS-LS1-4 Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. HS-LS2-8 Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce. 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. HS-LS4-6 Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. 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

	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

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
• Constructing Explanations and Designing Solutions • Developing and Using Models • Engaging in Argument from Evidence • Using Mathematics and Computational Thinking • Scientific Investigations Use a Variety of Methods	• LS1.A: Structure and Function • LS1.B Growth and Development of Organisms • LS2.C: Ecosystems Dynamics, Functioning, and Resilience • LS2.D: Social Interactions and Group Behavior • LS4.B Natural Selection • LS4.C: Adaption • LS4.D: Biodiversity and Humans • ETS1.B: Developing Possible Solutions • PS1.A: Structure and Properties of Matter • PS1.B: Chemical Reactions • PS2.B: Types of Interactions • ESS3.A: Natural Resources • ESS3.B: Natural Hazards • ESS3.C: Human Impacts on Earth Systems • ETS1.B: Developing Possible Solutions	• Structure and Function • Systems and System Models • Cause and Effect • Stability and Change • Patterns • Influence of Science, Engineering, and Technology on Society and the Natural World

Unit 7: Health Care Office Management	**Total Learning Hours for Unit:** 30

Unit Summary:

Dental healthcare professionals:

- Interact effectively and sensitively with all members of the healthcare/dental team.
- Solve problems using critical thinking skills (analyze, synthesize, and evaluate) independently and in teams.
- Identify how key systems affect services they perform and quality of care.
- Apply basic knowledge of office administration and understanding the roles and responsibilities.

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

- Demonstrate proper maintenance, handling, and filing of patient records, as well as, recording patient data and conditions using electronic dental records.

- Perform administrative duties including minor accounting functions.
    - Explain basic fees and payments.
    - Explain basic concepts on 3rd party payment (insurance).
    - Use dental office software.
- Create a multi-media product for patient describing legal responsibilities and regulations including but not limited to:
    - Patient Bill of Rights
    - Consent for routine and emergency office dental care
    - Patient refusal of routine, surgical and emergency treatment
    - Responsibilities and obligations of the dentist and patients in the dentist-patient relationship
- Role play the skills and responsibilities of a dental assistant in the front office including patient reception and scheduling.
- Using a series of scenarios, student practice typical dental office day to day challenges, solving challenges in an efficient manner.
- Role play a professional clinic attitude and respectful behavior that contributes to a positive climate and collaborative teamwork environment.
- Apply appropriate team-oriented behavior and professional interpersonal communication skills in various clinical positions in the dental office-clinical coordinator, dental assistant, sterilization assistant, receptionist.
- Role play scenarios in a dental office such as using a dentist, receptionist, patient and dental assistant the various ways in which to work with clients such as verbal and non-verbal skills, giving a patient report (oral or written), working in a healthcare office, and basic chair-side dental procedures.
- Using a scenario, communicate with the patient their treatment plan and financial arrangements explaining/clarifying and providing written instruction on procedures and services being delivered.
- Compare and contrast the average cost of private dental insurance plans versus government-issued plans. Analyze the cost for both pediatric and adult patients for treatments such as a routine dental visit, a visit that requires fillings, and a visit that requires tooth extraction. Role play therapeutic communication utilizing correct dental terminology to explain the cost with a classmate and/or family member.

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- Role play using a scenario dental assistant/office manager and patient using and managing Information to communicate to the patient their treatment plan and financial arrangements explaining/clarifying and providing written instruction on procedures and services being delivered.
- Students individually or as a team use systems thinking to develop and implement a systems management plan including but not limited to appoint and confirm patients, maintain files and insurance claims and payments, supplies management and inventory.

Industry Standards and/or Competencies:

- Differentiate healthcare delivery systems and healthcare related agencies.
    - Identify the types of health care facilities with dental access.
    - Types of practice settings.
    - Specialty medical and dental practices.

- Analyze the impact of emerging issues such as addiction, technology, epidemiology, bioethics, and socioeconomics on healthcare delivery systems.
- Examine the healthcare consumer's rights and responsibilities within the healthcare system.
    - Self-advocacy
    - Compliance
    - Patient's Bill of Rights
- Demonstrate understanding of patient reception, communication and accounting.
- Monitor daily patient flow.
- Evaluate roles and responsibilities of healthcare team members.
    - Delegate duties.
- Identify characteristics of effective teams.
    - Defined roles
    - Common purpose
    - Mutual respect
    - Measurable processes and outcomes.
- Recognize methods for building positive team relationships.
- Analyze attributes and attitudes of an effective leaders.
- Apply effective techniques for managing team conflict.
    - Communicate assertively
    - Set clear expectations
    - Gather the facts
    - Mediate disputes
    - Negotiate resolutions
- Evaluate why teamwork is an important part of healthcare and how it improves patient care.
- Maintain patient files
    - Maintain patient confidentiality.
    - Demonstrate organization and write technical information in a patient chart.
- Demonstrate the effective use of alphabetical, numerical, subject, and color-coded filing system.
- Utilize electronic medical/dental records.
    - Schedule patient appointments.
    - Summarize the steps in receiving patient payments.
    - Explain the steps involved in filing insurance claims.
    - Record patients personal, medical, health history and dental information.
    - Record conditions of the teeth and surrounding periodontium.
- Analyze healthcare economics and related terms.
    - Fundamental terms related to health insurance:

        - Claim
        - Coinsurance
        - Co-payment
        - Fraud
        - HIPAA
        - Premium
    - Types of insurance plans:
        - Private health insurance plans
        - Managed Care:
            - Health Maintenance Organization (HMO)
            - Independent Practice Association (IPA)
            - Preferred Provider Organization (PPO)
        - Government programs:
            - Affordable Care Act (ACA)
            - Medicaid
            - Medicare
            - Tricare
            - Workers' Compensation
- Coordinate with dentists to develop patient treatment plan.
- Demonstrate communication of treatment plans and financial arrangements.
- Describe how to maintain and control supplies.
- Describe how to provide appropriate care and storage of supplies (e.g., sterile disposable products, nitrous oxide, oxygen).

Aligned Washington State Academic Standards			
Health Education			
Science	**Washington Science Standards (Next Generation Science Standards):**		
Science and Engineering Practice	**Disciplinary Core Idea**	**Crosscutting Concept**	

Unit 8: Record Patient Information and Assessment	**Total Learning Hours for Unit:** 30
Unit Summary: Dental healthcare professionals: • Follow facility protocol and regulatory guidelines for collecting and documenting patient information.	

- Participate in identifying patient dental care needs, strengths and problems and respond appropriately within the scope of practice.

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

- Role play a preliminary interview and exam of the patient by the dental assistant, recording the following data in the patient's chart.
  - Purpose of visit and chief complaint.
  - Patient's medical history and update records.
    - Contraindications
    - Tobacco use
  - Assessment of patient's general physical condition (e.g., skin, gait) and note any abnormal characteristics (e.g., evidence of eating disorders, substance abuse or physical abuse age-related changes).
  - Oral diseases (canker sores, fever blisters etc.).
  - Identification and location of the types of teeth in the primary and permanent dentition.
- Use common dental software to perform charting functions and record a treatment plan.
  - Chart conditions of oral cavity and accurately record data using standard charting techniques.
- With a classmate, practice and assess vital signs which includes taking and recording pulse rate, observing and recording respiration rate measure and recording blood pressure, taking and recording temperatures.

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- Students reason effectively, communicate clearly and apply technology effectively during a role play when collecting and recording clinical data for a given patient.
- Given scenario, chart vital signs of a patient to access and evaluate information for the patient record and to assist in developing a treatment plan.

Industry Standards and/or Competencies:

- Conduct a preliminary interview and examination of patient.
  - Describe how to record the purpose of a patient's visit and/or chief concern.
  - Gather and record personal information about the patient.
  - Review and update medical and oral health history.
- Identify the standards and criteria for patient-record entries.
  - Obtain informed consent
    - Record patient's acceptance or refusal of recommended treatment.
    - Record a patient's compliance.
  - Demonstrate common dental software program skills.
- Measure and record patient's vital signs, including:
  - Pulse rate and description

- Respiration rate
- Blood pressure
- Temperature

- Prepare for and assist with the collection of diagnostic data (i.e., radiographs, pulp tests, occlusal registrations, intraoral camera).
- Assist with and/or perform dental charting and treatment documentation that adheres to HIPAA and other legal standards.
  - Document existing conditions/needed treatment.
  - Document treatment rendered.
- Assist with and/or perform soft tissue extra/intra oral examinations.
- Identify the process, documentation, and printing of pharmacology.

Aligned Washington State Academic Standards Science			
Health Education			
Science	**Washington Science Standards (Next Generation Science Standards):**		
Science and Engineering Practice	**Disciplinary Core Idea**	**Crosscutting Concept**	

Unit 9: Preventative Dentistry	**Total Learning Hours for Unit:** 30

Unit Summary:
Through Oral Health Education, Dental healthcare professionals demonstrate understanding of personal/patient oral health, preventative techniques and nutrition.

Performance Assessments: (Districts to complete for each unit)
Example assessments for this unit include:

- Provide information on personal oral habits that may compromise general health and demonstrate knowledge and skills by presenting an oral hygiene project to elementary students including information on:
  - Dental caries
  - Periodontal disease
  - Goal of preventive dentistry
  - Oral hygiene instructions, to all ages, including how fluoride works
  - Provide information about oral hygiene products
- Explain plaque control techniques through a role play.
  - Evaluate the patient's oral health care status and habits.
  - Provide preventative oral health care information to the patient based on individual needs.
  - Instruct the patient in appropriate toothbrush selection and brushing techniques.
- Create a pamphlet explaining nutrition and its effect on dental health.
  - Provide instruction and evaluation basic nutritional needs of individual patients as they relate to dental health.

- Explain the relationship of carbohydrates to the development of dental caries.
- Develop a patient health education plan including preventative measures, signs and symptoms of exacerbation of disease/disorder/injury, pharmacological needs, and support systems.
- Formulate a written and multi-media health education project to inform an audience about the parts and functions of teeth. Include the effects of nutrition on tooth development and continuous good health and dental prevention care.

Leadership Alignment: (Districts to complete for each unit)
Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.
Example:

- **Health Literacy**: Using a variety of resources, the student will develop community awareness about oral health through participation in a community health fair and/or through presenting/demonstrating oral health to others for example a middle school science night. Students may **be creative and utilize technology skills** to develop new ways and implement innovations to capture the audience's attention (i.e. 3D take a ways).
- By **creating a media product** such as a pamphlet to explain nutrition and its effect on dental health, student understands and informs others by **communicating clearly** on preventive physical and mental health measures, including proper diet, nutrition, exercise, risk avoidance and stress reduction.

Industry Standards and/or Competencies:
Oral Health *Understand and practice personal oral health and nutrition.*

- Identify the need for preventive dentistry and discuss the consequences of dental neglect; discuss the role of the dental specialties and list the major aspects of preventive dentistry.
- Describe the role (in preventive dentistry) of phase contrast microscopy, disclosing agents and personal oral hygiene.
- Describe how dental decay occurs and the role of cariogenic food in dental caries.
- Identify methods of detecting decay.
- Identify risk factors for periodontal decay.
- Evaluate oral health care status and habits.
    - Provide preventative oral health care information based on individual needs.
    - Demonstrate competence in personal oral hygiene using a disclosing agent, the appropriate tooth brushing technique, dental floss and other dental health aids (e.g., brushes, floss, interdental aids, oral rinses, irrigating aids).
    - Evaluate patient's progress in and response to homecare therapy.
- Describe the components of plaque, its formation and patterns of accumulation on the teeth.
    - Demonstrate understanding of plaque control techniques.
    - Provide plaque control instruction to patient.
    - Select and use plaque disclosing aids.
- Identify the role of fluorides in preventive dentistry obtained through topical and systemic means.
    - Explain the effects of all types of fluoride, the advantages of the various methods of administration, and the dangers and results of over dosage.

- Promote behaviors of health and wellness.
- Describe how to provide instruction and evaluate basic nutrition needs of individual patients as they relate to dental health.
    - Identify key nutrients and describe their primary functions.
    - Discuss the role of carbohydrates in nutrition and differentiate between monosaccharides, disaccharides, and polysaccharides.
    - Describe the role of fats in the diet and identify three types of fatty acids and their sources.
    - State the role of protein in the diet and identify the terms: complete protein, incomplete protein, and essential amino acids.
    - Identify essential vitamins and minerals; state their primary function and food source for each.
    - State why foods are divided into four major food groups; identify foods found in each group and note the primary nutritional contributions of each group; identify empty calories and food containing them.
    - Describe the role of nutrition and diet in development of dental caries.
    - Identify oral manifestations of nutritional disorders.
    - Demonstrate competence in planning a special diet for a patient with an injured anterior tooth.
    - Demonstrate competence in dietary evaluation and counseling.

Promote Oral Health

- Describe strategies for prevention of disease.
    - Community health education outreach programs.
    - Medical and dental screenings.
- Provide community oral health education on personal oral health habits that may compromise general health.
- Describe how to implement patient dental health education presentations, including but not limited to:
    - Advantage and disadvantages of various restorative materials or procedures
    - Causes of dental disease
    - Classification and importance of occlusion
    - Effect of systemic disease on the healing process
    - Functions of saliva
    - Functions of the primary and permanent teeth and the relationship of the supporting structures
    - Stages of the eruption and exfoliation of the teeth.
    - Special dental health needs (e.g., due to physical status or age)

Aligned Washington State Academic Standards	
Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):** 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.

	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. 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-PS2-6 Communicate scientific and technical information about why the molecular level structure is important in the functioning of designed materials.

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
• Developing and Using Models • Constructing Explanations and Designing Solutions • Asking Questions and Defining Problems • Obtaining, Evaluating, and Communicating Information • Scientific Investigations Use a Variety of Methods	• LS1.A: Structure and Function • LS1.C: Organization for Matter and Energy Flow in Organisms • LS3.A: Inheritance of Traits • PS1.A: Structure and Properties of Matter • PS1.B: Chemical Reactions • PS2.B: Types of Interactions	• Systems and Systems Models • Energy and Matter • Cause and Effect • Patterns • Structure and Function

Unit 10: Manage Pain and Anxiety (Pharmacology)	**Total Learning Hours for Unit:** 30

Unit Summary:
Dental Healthcare professionals understand and apply the principles of pharmacology to managing dental pain and anxiety.

Performance Assessments: (Districts to complete for each unit)
Example assessments for this unit include:

- In a patient/dental assistant relationship demonstrate patient management techniques including:
  - Calm and reassure patient
  - Display professional attitude with all patients
  - Accommodate patients with special need and monitor during procedures
- Role play preparing for a local anesthetic injection.
  - Proper handling of anesthetic syringe.
  - Proper handling of anesthetic cartridge.
  - Proper handling of the disposable needle.
  - Application of a topical anesthetic.
- With a partner demonstrate assisting with or monitoring the administration of nitrous oxide/oxygen.
- Create a multimedia project discussing the role of pharmacology in the dentistry field.
- Differentiate between a generic and a brand name prescription and non-prescription drug, by describing.

- Components of a drug prescription and the purpose of each.
    - The heading, body, closing, and abbreviations.
- Security procedures designed to prevent improper use of prescription medications and prescription pads.
- Maintain security and necessary records of controlled substances.

- Research and write a paper on the modifications in dental treatment that may be necessary when treating a patient who is chemically dependent or recovering from chemical dependency.
- Create a poster describing the signs that may indicate that a patient is chemically dependent.

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- Students (individually and in teams) role-play appropriate, acceptable patient/dental assisting relationship scenarios to demonstrate patient management techniques. Students communicate clearly, collaborate with others, interact effectively with others and be flexible.
- Create a multimedia project using and managing information to communicate clearly the role of pharmacology in the dentistry field.

Industry Standards and/or Competencies:

- Explain pharmacology terms.
    - Explanation of pharmacological terms includes their definition and relationship to the dentistry field.
    - Identify, by schedule, the major drugs covered by the Controlled Substances Act.
    - Identify the major routes of drug administration.
- Differentiate between mild analgesics and strong analgesics.
- Assist with topical anesthetic.
- Understand and have knowledge of types of anesthesia used in dentistry, includes:
    - Topical, local, and general anesthesia
- Demonstrate assisting in the administration of local anesthesia, includes:
    - Prepare and dispose of anesthetic following OSHA standards
    - Recapping safety devices and techniques
    - Understand the basic placement application of topical
    - Assembling the syringe
    - Passing the needle to the doctor behind or beside
    - Rinsing and suctioning after application of injection
- Document the administration of anesthesia and pain control, includes:
    - Charting type and volume of anesthetic used
    - Charting complaints about or side effects of anesthesia
- Demonstrate safely handle and care for anesthetic armamentarium.
- Describe the components of a prescription including:
    - The heading, body, closing, and abbreviations
    - Security procedures designed to prevent improper use of prescription medications and prescription pads.

- Describing how to maintain security and necessary records of controlled substances
- Use patient management techniques.
  - Calm and reassure patients.
  - Manage patients, including accommodating patients with special needs.
  - Monitor and record patient's response during procedures, including to drugs/medications.
  - Sedation and nitrous oxide.

Aligned Washington State Academic Standards Science	
Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):** 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. 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. HS-PS2-6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
• Constructing Explanations and Designing Solutions • Developing and Using Models • Obtaining, Evaluating, and Communicating Information	• PS1.A: Structure and Properties of Matter • PS2.B: Types of Interactions	• Patterns • Structure and Function

Unit 11: Prepare to Provide Treatment (Pre-Clinical and Set Up)	**Total Learning Hours for Unit:** 30
Unit Summary: Dental healthcare professionals prepare operatory and patient for treatment and post-operative care in the clinical setting.	
Performance Assessments: (Districts to complete for each unit) • Design a modern dental treatment room and determine the best dental operatory layout, size and delivery styles. • Given a scenario, demonstrate how to prepare the treatment room to receive and treat the patient including infection control and barrier techniques including PPE. • Demonstrate how to seat and dismiss patients using ergonomically correct techniques including positioning and adjusting equipment. • Provide pre-operative and post-operative care instructions for dental procedures based on given scenario.	
Leadership Alignment: (Districts to complete for each unit) *Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.*	

Example:

- Using available information make appropriate judgements and decisions protecting the health and safety of the patient.
- Using systems thinking, design a modern dental treatment room and make judgements and decisions to determine the best dental operatory layout, size and delivery systems and styles.

Industry Standards and/or Competencies:

In a pre-clinical setting students demonstrate the following skills:

- Opening and closing duties
- Disinfect and prepare patient treatment area.
- Select and use personal protective equipment (current CDC standard).
- Prepare for patient care.
- Prepare patient for procedure and dismissal.
- Demonstrate procedures used to position and drape clients/patients.
- Explain procedures to all patients including those with specific needs.
- Maintain clinical asepsis throughout entire procedure.
- Consent forms
- Post op

Aligned Washington State Academic Standards			
Health Education			
Science	**Washington Science Standards (Next Generation Science Standards):**		
Science and Engineering Practice	**Disciplinary Core Idea**	**Crosscutting Concept**	

Unit 12: Radiography/Radiation	**Total Learning Hours for Unit:** 40

Unit Summary:

Dental Healthcare professionals (Registered dental assistants and EFDAs).

- Understand the purpose and types of x-rays and radiation safety.
- Be adequately instructed in safe operating procedures to operate x-ray equipment in the state of Washington.
- Be able to demonstrate competence, upon request from the Washington State Dental Quality Assurance Commission (DQAC), in the correct use of the equipment.

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

- Prepare to obtain the Radiation Health and Safety (RHS) Dental Assistant National Board (DANB) Certification.
- Explain exposure, processing, evaluate, mounting, and labeling of an assigned type of radiographs based on the purpose of image.
    - Periapical

- Bitewing
- Full mouth series

- Explain, evaluate, mounting, and labeling of an assigned type of radiographs based on the purpose of image.
  - Occlusal
  - Panoramic
  - Cephalometric
  - CBCT (Cone-Beam Computed Tomography)
- Given a patient scenario, select appropriate radiographic technique and describe the patient management before, during and after exposure.
- Create a poster, diorama, or multimedia presentation explaining the protocols of radiation safety, or explaining equipment and practices relating to dental radiography.
- Working with a partner, demonstrate and utilize proper safety measures to ensure protection for both operator and patient during x-ray exposure.
- Students have the opportunity to practice techniques in an internship at a dental office.

Leadership Alignment: (Districts to complete for each unit)
Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.
Example:

- Students learn to adapt to change and understand the real-world limits to adopting new ideas. Working in teams, students access and evaluate information and apply technology effectively to take and read digital images.
- Collaborating with a partner demonstrate and utilize proper safety measures to ensure protection for both operator and patient during x-ray exposure.

Industry Standards and/or Competencies: Radiation Health and Safety (RHS): A component of the National Entry Level Dental Assistant (NELDA) and Certified Dental Assistant (CDA) certification programs. *Effective 04/01/2022*.
Washington State Radiography requirements.

I. Purpose and Technique
   A. Purpose of radiographic images
      1. Describe purpose of radiographic image.
         a. Periapical
         b. Bitewing
         c. Full mouth series
         d. Occlusal
         e. Panoramic
         f. Cephalometric
         g. CBCT (cone-beam computed tomography)
      2. Identify survey used to examine or view specific conditions, teeth or landmarks.
   B. Technique
      1. Review patient medical and dental histories for contraindications, including medications.

2. Intraoral techniques, including error correction.
    a. Paralleling
    b. Bisecting angle
3. Extraoral techniques, including error correction.
    a. Panoramic
    b. Cephalometric
    c. CBCT (cone-beam computed tomography) basics
4. Technique modifications based on anatomical variations and clinical conditions.
5. Purpose and maintenance of radiographic equipment.
    a. Identification of controls
    b. Function of each control
    c. The use of a technique chart
6. Patient management techniques before, during and after exposure.
7. Mount images using facial (buccal and labial) view.
    a. Anatomical landmarks that aid in mounting.
    b. Match tooth views to tooth mount windows.
    c. Image viewing techniques.
8. Anatomical structures and dental materials observed on images (e.g., differentiating between radiolucent and radiopaque areas).
9. Features of a diagnostically acceptable image.
10. Film processing
    a. Film speed as relates to patient exposure.
    b. Film processing parameters.
    c. Quality assurance and quality control.
11. Prepare images for legal requirements, viewing, duplication and transfer (e.g., HIPAA).

II. Radiation Safety

A. X-radiation production

1. Sources of x-radiation for operators/other staff during x-radiation production.
2. Factors affecting x-ray production (e.g., kVp, mA, exposure time).
3. X-radiation characteristics
4. X-radiation physics:
    a. Primary
    b. Scatter (secondary)
5. X-radiation biology:
    a. Short-and-long-term effects of x-radiation on cells and tissues.
    b. Concepts of x-radiation dose.

B. X-radiation safety:

1. Causes of unnecessary exposure to x-radiation.
2. Patient exposure to x-radiation (ALARA, ADA recommendations).
3. Factors that influence x-radiation safety (e.g., filtration, shielding, collimation, PID length).
4. Patient x-radiation concerns.
5. Informed consent or patient refusal for exposure to x-radiation.
6. Protocol for suspected x-ray machine malfunctions.

III. Infection Prevention and Control

A. Standard precautions for equipment and supplies according to ADA, CDC, and OSHA, including but not limited to:
1. Breakdown and setup of treatment room
2. Barriers
3. Positioning devices
4. Clinical content surfaces
5. Critical and semi-critical instrument sterilization

B. Standard precautions for patients and operators according to ADA, CDC, and OSHA , including but not limited to:
1. Hand hygiene
2. PPE (donning, doffing)
3. Cross contamination

Aligned Washington State Academic Standards

Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):** 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. 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.

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
• Developing and Using Models • Obtaining, Evaluating, and Communicating Information	• PS1.C: Nuclear Processes • PS3.D: Energy in Chemical Processes • PS4.A: Wave Properties • PS4.B: Electromagnetic Radiation • PS4.C: Information Technologies and Instrumentation	• Energy and Matter • Cause and Effect • Interdependence of Science, Engineering, and Technology

Unit 13: Chairside Procedures: Pre-Clinical Application and Practice	**Total Learning Hours for Unit:** 40

Unit Summary:

Dental healthcare professionals:

- Demonstrates basic technical skills which facilitate an optimal level of care for patient.
- Demonstrate knowledge and skills of chairside dental assisting including the selection of appropriate materials and instruments associated with operative procedures.

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

- Select and prepare all necessary armamentarium for a given chair-side procedure:
  - Place and remove dental dam.
  - Maintain a clear operating field.
  - Demonstrate proper instrument transfer.
- Select and prepare tray set-ups and all necessary instruments for general dentistry and dental procedures:
  - Basic oral surgery
  - Emergency
  - Prophylaxis
  - Restorative tray
- Identify basic dental office instrumentation and explain the purpose of each item. Role-play a scenario based in a dental office that uses at least five instruments accurately, including patient assessment, procedure for operatory preparation of the patient room, receiving and seating the patient, and providing at least one treatment.
- Demonstrate four-handed dentistry concepts in all treatment procedures:
  - Assume correct positions.
  - Preform instrument transfers.
  - Maintain access and visibility for treatment procedures.
- Prepare operatory for given procedure:
  - Prepare the treatment room to receive and treat the patient (includes infection control and barrier techniques).
  - Prepare appropriate treatment trays with instruments in sequence of use and delivery position.
  - Seat and prepare patient; position and adjust equipment.

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- In preparing for clinical internship and performing chairside dental procedures, students must make sound judgements and decisions, **communicate clearly** and **collaborate with others** for efficiency.
- Demonstrating organization skills by preparing for a given procedure **Utilize time** and **manage workload efficiently**.

Industry Standards and/or Competencies:

Demonstrate understanding of Four-Handed Dentistry Techniques.

- Assist with restorative procedures.
- Prepare basic operatory setup include instrumentation.
- Seat and position patient.
- Demonstrate proper ergonomics, includes:
    - Identifying risk factors that can contribute to injury.
    - Assuming the neutral position.
    - Performing exercises that reduce strain.
- Pass and retrieve instruments in transfer zones, to include:
    - Pen-grasp transfer
    - Palm-grasp transfer
    - Palm-thumb grasp transfer
    - Alternating transfer
- Demonstrate maintenance of a clear field, includes:
    - Prepare isolation dental dam equipment and materials.
    - Use of various items for retraction.
    - Use of three-way syringe.
    - Positioning dental light and when loupe lights are in use.
- Perform oral evacuation including use of saliva ejector and high-volume evacuator (HVE).
- Prepare tray instrumentation, selection of materials and disposables and mix and manipulate materials for the following procedures:
    - Preform a preventive dentistry treatment, includes:
        - Performance of prophylaxis and fluoride treatment.
    - Prepare a restorative tray.
        - *Select a shade*.
        - Identify/exchange/manage/sterilize instruments/equipment.
        - Place and remove matrix and wedges.
    - Prepare a basic oral surgery tray.
    - Prepare an emergency tray.
- Breakdown the operatory
- Dismiss patient, includes:
    - Repositioning chair and preparing patient for dismissal.
    - Reviewing postoperative instructions with patient.
    - Escorting patient from operatory.

Aligned Washington State Academic Standards	
Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):**

	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.

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
• Asking Questions and Defining Problems • Obtaining, Evaluating, and Communicating Information	• PS3.E: Energy in Chemical Processes • PS4.A: Wave Properties • PS4.B: Electromagnetic Radiation • PS4.C: Information Technologies and Instrumentation	• Cause and Effect • Stability and Change • Interdependence of Science, Engineering, and Technology • Influence of Engineering, Technology, and Science on Society and the Natural World

Unit 14: Dental Materials (Introduced and Reinforced in Units 16-17)	**Total Learning Hours for Unit:** 30

Unit Summary:
Dental healthcare professionals demonstrate knowledge and skills of the dental materials, including the properties used in the dental labs and during clinical procedures.

Performance Assessments: (Districts to complete for each unit)
Example assessments for this unit include:

- Follow medical procedures precisely when performing patient/client skills related to the role of dental assistant.
    - Produce quality impressions of various materials, and fabricate models using gypsum products.
    - Prepare for and assist with impressions.
        - Prepare, mix, deliver and store the following materials for impressions:
            - Irreversible hydrocolloid (alginate)
            - Elastomeric (polyether, polyvinylsiloxane)
    - Prepare for and assist with restoratives.
        - Prepare, mix, deliver and store restorative materials including:
            - Amalgam
            - Cements
            - Composites
            - Temporary restorative materials
            - Bases/liners
            - Etchants
            - Bonding agents
    - Prepare for and assist with abrasives and polishing agents.
    - Prepare for and assist with sealants.

- Prepare for and assist with bleaching trays and techniques with using bleaching study models.

Leadership Alignment: (Districts to complete for each unit)
Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.
Example:

- Following specific instructions while performing given procedures. Listening and engaging.
- Collaborate with business partners when ordering supplies and materials.

Industry Standards and/or Competencies:

- Explain the properties of dental material.
  - Define common terms used to describe properties of dental materials: force (tensile, compressive, shearing), stress (tensile, compressive, shearing), strain, elasticity, elastic limit, modulus or elasticity, ultimate strength, ductility and malleability, thermal conductivity and thermal expansion.
  - Discuss adhesions in terms of viscosity, contract angle, wetting, film thickness, and surface tension and why these are of concern in dentistry.
  - Define terms relating to synthetic resins: polymer, monomer, polymerization, self-cured, heat-cured, and light-cured.
  - Define terms relating to metals in dentistry: alloys, amalgam, cast structure.
- Understand the basic strategies behind selecting and manipulating laboratory materials.
- Demonstrate the manipulation, preparation and application of gypsum products, acrylic products or acrylic substitutes, dental waxes.
- Demonstrate the manipulation, preparation and application of impression materials: elastomerics, alginate (e.g., irreversible hydrocolloid), waxes.
- Demonstrate the manipulation, preparation, application, and storage of all restorative materials, including but not limited to: amalgam; cements; composites; dentin bonding materials; glass ionomers; temporary restorative materials; varnishes, bases and liners.
- Demonstrate the preparation and application of abrasives, finishing, polishing, and cleaning agents.
- Demonstrate how to prepare, mix, deliver, and store other materials, including but not limited to:
  - Bleaching agents
  - Bonding agents
  - Endodontic materials
  - Etchants
  - Pit and fissure sealants
- Demonstrate the manipulation, preparation, application and storage of sedative/palliative materials, including but not limited to post-extraction dressings.
- Demonstrate the manipulation, preparation and application of whitening materials.
- Demonstrate the preparation and mixing of dental cements.

Aligned Washington State Academic Standards Science	
Science	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.

	HS-PS1-3. Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles. 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. HS-PS1-6. Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium. 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. HS-ESS3-2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. 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.

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
• Planning and Carrying Out Investigations • Developing and Using Models • Using Mathematics and Computational Thinking • Constructing Explanations and Designing Solutions • Engaging in Argument from Evidence	• PS1.A: Structure and Properties of Matter • PS1.B: Chemical Reactions • PS2.B: Types of Interaction • PS3.A: Definitions of Energy • PS3.C: Relationship Between Energy and Forces • PS3.D: Energy in Chemical Processes • ETS1.C: Optimizing the Design Solution • ESS3.A: Natural Resources	• Patterns • Energy and Matter • Stability and Change • Cause and Effect

Unit 15: Medical/Dental Emergencies	**Total Learning Hours for Unit:** 30
Unit Summary: Dental healthcare professionals: • Recognize and respond to emergency situations. • Obtain Basic Life Support (BLS) and first aid certification.	
Performance Assessments: (Districts to complete for each unit) *Example assessments for this unit include:*	

- Complete training in American Heart Association or American Red Cross adult and child Cardiopulmonary Resuscitation (CPR). Students should be certified in Basic Life Support (BLS) and First Aid card prior to clinical rotation.
- Recognize and assist with medical emergencies given a scenario.
    - Recognize the signs and symptoms related to medial conditions/emergencies including tooth emergencies.
    - Assemble and maintain appropriate emergency supplies, drugs and equipment.
    - Locate and follow office emergency procedures.
    - Demonstrate how to respond to medical emergencies.
- Create an emergency medical kit and demonstrate its use.

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- Using a series of scenarios, students will (individually and in teams) role-play appropriate, acceptable response to emergent situations. Students will need to communicate clearly, collaborate with others, interact effectively with others and be flexible.
- Understanding national and international public health and safety issues, assemble and manage products to maintain appropriate emergency supplies, drugs and equipment.

Industry Standards and/or Competencies:

- Apply the techniques of taking and recording the patient's vital signs.
- Take actions to prevent medical emergencies.
- Explain the basic medical emergency procedures and rules for the dental office, including.
    - Post a list of vital emergency information (call 911).
    - Maintenance of patient health form.
    - Emergency preparedness strategies, including implementation and/or assistance with appropriate emergency procedures.
    - Emergency standards for dental personnel.
- List and update items found in a basic emergency kit to include epinephrine, inhaler, icing agent, nitroglycerine spray, ammonia ampules or inhalants, oxygen source.
- Explain the basic dental emergency procedures and rules for the dental office, including:
    - Fractured tooth
    - Broken appliance
    - Avulsed tooth
    - Toothache
    - Loss of restoration
    - Soft tissue injuries
    - Abscessed tooth
- Identify medical conditions that can cause medical emergencies in patients, such as:
    - Alcohol/substance abuse
    - Allergies

    - Asthma
    - Blood disorders
    - Cancer
    - Cardiovascular disease
    - Diabetes mellitus or hypoglycemia
    - Emphysema
    - Epilepsy
    - Hypertension
    - Hyperventilation
    - Kidney or liver problems
    - Pregnancy
    - Prosthetic replacements
    - Respiratory infection
    - Rheumatic fever
    - Ulcers
- Recognize the signs and symptoms related to specific dental conditions and emergencies likely to occur in the office including, but no limited to:
    - Soft tissue inflammation of the oral cavity
    - Oral contagious diseases
- Describe response to and assistance in management of symptoms, and treatment of selected medical situations/emergencies, such as:
    - Airway obstruction
    - Allergic reactions
    - Blood loss
    - Cardiovascular or cerebrovascular irregularities
    - Contagious diseases
    - Diabetes-or epilepsy-related incidents
    - Fainting
    - Metabolic or neurologic disease
    - Reactions to drugs, anesthetics
    - Respiratory irregularities (e.g., hypo- or hyperventilation, asthma)
    - Shock
- Identify the names, uses and routes of administration of the medical emergency drugs used in a dental practice.
- Perform appropriate first aid procedures, document and report all incidents.
    - Demonstrate knowledge of and skills to obtain BLS certification and first aid certification.
    - Maintain certification in First Aid and cardiopulmonary resuscitation (CPR).
        - CPR approved by DANB
            - American Heart Association

- Basic Life Support (BLS)
- Heartsaver
- Advanced Cardiac Life Support (ACLS)

Aligned Washington State Academic Standards		
Health Education		
Science	**Washington Science Standards (Next Generation Science Standards):**	
Science and Engineering Practice	**Disciplinary Core Idea**	**Crosscutting Concept**

Unit 16: Chairside Skills	**Total Learning Hours for Unit:** 40

Unit Summary: Dental healthcare professionals demonstrate advanced chairside dental assisting procedures.

Performance Assessments: (Districts to complete for each unit)
Example assessments for this unit include:

- Understand principles of and successfully perform skills related to dental assisting including:
  - Perform coronal polish.
  - Apply topical fluorides.
  - Apply pit and fissure sealant.
  - Place and remove retraction cord.
  - Assist impression procedure.
  - Fabricate and cement temporary/provisional crowns.
  - Take impression and bite registration.
  - Fabricate study model.
  - Remove surgical sutures.
  - Pack and medicate extraction site.
  - Fabricate bleaching tray.
- Research and present to class emerging dental technology solutions related to dental and oral health which improve business processes, optimize patient experience, and are more efficient ways to acquire new patients, i.e. Intraoral Scanners, Chairside Mills, 3D CT CAD/CAM dentistry, Smart toothbrushes, cloud-storage.

Leadership Alignment: (Districts to complete for each unit)
Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.
Example:

- While in their clinical rotations, students are self-directed learners as they demonstrate chairside procedures.

Industry Standards and/or Competencies:

Perform coronal polish.
Apply topical fluorides.
Apply pit and fissure sealant.
Place and remove retraction cord.
Assist impression procedure.
Fabricate and cement temporary/provisional crowns.
Take impression and bite registration.
Fabricate study model.
Remove surgical sutures.
Pack and medicate extraction site.
Fabricate bleaching tray.
Prepare lab case for pickup.

Aligned Washington State Academic Standards	
Health Education	
Science	**Washington Science Standards (Next Generation Science Standards):** 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. 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-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. 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.

Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept

Unit 17: Clinical Practicum or Clinical Simulation- (Student must meet criteria for practicum)	**Total Learning Hours for Unit:** 55

Unit Summary:
Dental healthcare professionals:

- Understand employability skills to enhance their employment opportunities.

- Demonstrate skills that support and maintain job functions, as well as upgrade skills as needed.

Performance Assessments: (Districts to complete for each unit)
Example assessments for this unit include:
Students participate in an approved clinical practicum or clinical simulation while upholding professional conduct and standards.

- Complete a supervised clinical practicum.
- Demonstrate professional behavior in a clinical practicum.
- Assist and perform skills competencies and procedures as stated in the state Dental Practice Act.
- Assessed by the worksite supervisor and their teacher.
    - Upon completion of clinical hours, clinical site completes evaluation and returns to instructor.
    - Documentation of student competencies by instructor using an observation checklist.
- SIMTICS simulations for dental operatory
- In building labs clinical simulation
- Job Shadows; informational interviews

Leadership Alignment: (Districts to complete for each unit)
Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.
Example:

- While in their clinical rotations, students must be flexible and adapt to change, work independently, communicate clearly, collaborate with others and interact effectively with others.

Industry Standards and/or Competencies:

- Complete a supervised student practicum with a minimum number of clinical experiences in a dental office.
- Demonstrate professional behavior/employability skills in a clinical practice.
    - Demonstrate teamwork skills.
        - Recognize methods for building positive team relationships.
        - Apply effective techniques for managing team conflict.
    - Demonstrate proper workplace appearance.
    - Demonstrate motivation and initiative.
        - Evaluate assigned tasks for time to completion and prioritization.
        - Demonstrate initiative by requesting new assignments and challenges.
        - Explain proposed solutions to challenges observed in workplace.
        - Demonstrate ability to evaluate multiple solutions to problems and challenges using critical reasoning and workplace/industry knowledge and select best solution to the problem.
    - Demonstrate awareness of workplace culture and policy.
    - Demonstrate attendance including professional time-management and attendance behaviors as punctuality, reliability, planning and flexibility.

- Demonstrate professional communication (language).
  - Show respect and collegiality, both formally and informally.
  - Accept direction and constructive criticism.
- Interact appropriately with coworkers.
- Explain and follow workplace policy on the use of cell phones and other forms of social media.

- Documentation of completion of skills competencies.
  - Provide weekly documentation of hours at clinical site.
  - Documentation of student competencies by instructor using an observation checklist.

Aligned Washington State Academic Standards		
Health Education		
Science	**Washington Science Standards (Next Generation Science Standards):**	
Science and Engineering Practice	**Disciplinary Core Idea**	**Crosscutting Concept**

Unit 18: Employability and Professionalism	**Total Learning Hours for Unit:** Ongoing Throughout Framework

Unit Summary:
Dental healthcare professionals:

- Develops a multi-level portfolio, as part of the job process assessment during the clinical practicum.
- Present portfolio to community members, advisory board members, career path professionals, and future employers. Portfolio development and presentation serve as a capstone project.

Performance Assessments: (Districts to complete for each unit)
Example assessments for this unit include:
Student's complete a capstone project to include:

- Portfolio
  - High School and Beyond Plan
  - Mission Statement
  - Cover Letter
  - Resume
  - Letter of Recommendations
  - Application for Employment Form
  - Evidence of Student Work
  - Certifications
  - Program Competencies Checklist/Employability Skills Rubric

- Work Based Learning
  - Service-Learning Hour Log
  - Job shadow/clinical observation
    - Work-site visits
    - Observations of various professionals and duties of the worksite
- Leadership School Activities
  - Personal Achievement/Certificates

- Presentation of portfolio to community members
- Reflection essay of their learning during the school year

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- To complete the project, students must be self-directed learners, manage projects and produce results, access and evaluate and use and manage information, analyze media, create media products and think creatively. All students are required to produce their culminating project and parts of their portfolio outside of class and be accountable for those results in logging 30 hours of additional work outside of class. This outside work will include their Service-Learning Hours.

Industry Standards and/or Competencies:

Employability Skills

4.2.1 Apply employability skills in healthcare:

- Attendance
- Chain of command
- Communication Skills
- Decision making
- Flexible
- Organization
- Problem Solving/Critical Thinking
- Scope of practice
- Time Management
- Work Ethic

Employability Preparation

4.4.1 Develop components of a personal portfolio:

- Letter of introduction
- Resume
- Cover Letter

- Follow-up Letter
- Complete Job Application
- Participate in a mock Job Interview
- Sample Projects
- Writing Sample
- Work-based Learning Documentation
  - Weekly documentation of hours of clinical site and skills performed
- Oral Report
- Community Service/Service Learning
- Credentials
- Technology Skills
- Leadership Examples
- HSBP
  - Determine personal career goals and employment opportunities

Aligned Washington State Academic Standards		
Health Education		
Science	**Washington Science Standards (Next Generation Science Standards):**	
Science and Engineering Practice	**Disciplinary Core Idea**	**Crosscutting Concept**