

 

Statewide Framework Document for: 510913

**Sports Medicine 2**

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 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.**

The Washington State Science Standards performance expectations for high school blend core ideas (Disciplinary Core Ideas, or DCIs) with scientific and engineering practices (SEPs) and crosscutting concepts (CCCs) to support students in developing usable knowledge that can be applied across the science disciplines. These courses are to be taught in a [three-dimensional manner](http://nextgenscience.org/three-dimensions). The details about each performance expectation can be found at [Next Generation Science Standards](http://nextgenscience.org/next-generation-science-standards).

The Sports Medicine course is intended to help students gain an understanding of sports medicine, various associated disciplines, and the role they play in the physically active community.

Programs are to follow applicable state laws regarding athletic training licensure and/or regulation and the scope of practice of student aides. Students enrolled in the course will not provide patient care. which includes without limitation, allowing students or other unlicensed or unqualified individuals to perform functions of a medical professional, or to otherwise engage in the practice of athletic training.

Regardless of practice setting, it is understood that all athletic trainers must comply with their state practice acts, the BOC Standards of Practice, and the NATA Code of Ethics. These legal and ethical parameters apply and limit the incorporation of student aides outside of the classroom and within the activities of athletic programs.

Proper use of student aides: The NATA recognizes that allowing secondary school students the opportunity to observe the daily professional duties and responsibilities of an athletic trainer can be a valuable educational experience. This unique experience may expose students to the foundations of various health related careers as well as provide them with important life skills. Athletic Trainers, not aides, are the appropriate individuals to be providing Athletic Training services, specifically injury evaluations, treatments, rehab and RTP (return to play) decisions. Athletic Trainers should use time with student aides as an opportunity for teaching and sharing their passion for the profession of Athletic Training.

In the secondary school setting, student aides may be the eyes and ears for sideline recognition of potential injury, practicing taping skills on non-injured individuals for the purpose of a learning experience and providing first aid activities if **trained and certified** to do so. First aid is not a protected skill. However, first aid does not include return to play. A student may perform first aid but cannot determine whether that athlete may return to play.

Clinical-type experience can include tours of health care facilities, guest speakers, participation in health fairs or health-related community service, laboratory/skills practice, demonstration in the classroom, and observation or job shadowing experiences in various health care settings.

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| **School District Name** |
| **Course Title:** Sports Medicine 2 | **Total Framework Hours:** 180 |
| **CIP Code:** 510913 | **☐** Exploratory **☒** Preparatory | **Date Last Modified:** March 22, 2023; June 10 2025 |
| **Career Cluster:** Health Science  | **Cluster Pathway:** Therapeutic Services  |
| **Course Summary**: This is a yearlong course that will continue to explore current medical topics more in depth as well as anatomy, physiology, kinesiology, and professionalism.  The main topics will include injury etiology, recognition, and treatment of the head and face, spine, hip, and abdomen as well as administration in sport, injury rehabilitation, and modalities in sport. Unit 1: Organization and Administration in Sports Medicine (10) Unit 2: Advanced CPR, First Aid, and Emergency Care (20)Lower Extremities\*Unit 3: The Foot – Advanced Anatomy, Evaluation, and Injuries (5)Unit 4: The Ankle – Advanced Anatomy, Evaluation, and Injuries (5) Unit 5: The Knee – Advanced Anatomy, Evaluation, and Injuries (5) Unit 6: The Hip/Groin – Anatomy, Evaluation, and Injuries (10)Upper Extremities\*Unit 7: The Shoulder/Upper Arm – Advanced Anatomy, Evaluation, and Injuries (5)Unit 8: The Elbow – Advanced Anatomy, Evaluation, and Injuries (5)Unit 9: The Hand/Wrist/Thumb – Advanced Anatomy, Evaluation, and Injuries (5)Head/Neck/Torso\*Unit 10: The Lumbar Spine – Anatomy, Evaluation, and Injuries (10)Unit 11: The Abdomen/Thorax – Anatomy, Evaluation, and Injuries (15) Unit 12: The Head/Face and Cervical Spine – Anatomy, Evaluation, and Injuries (15) Unit 13: Introduction to Exercise Science (Exercise Physiology, Kinesiology, and Biomechanics) (10) Unit 14: Introduction to Research Methods (10)Unit 15: Advanced Modalities in Sports Medicine (15) Unit 16: Advanced Rehabilitation in Sports Medicine (15)Unit 17: Introduction to Pharmacology in Sports Medicine (10)Unit 18: General Medical Conditions (10)\**The teacher has discretion to determine the sequence of anatomy units within the course.* |
| **Eligible for Equivalent Credit in:** Lab Science  | **Total Number of Units:** 18 |
| **Course Resources:** Washington State Department of Health Athletic Trainer License Requirements: [Chapter 246-916 WAC](https://apps.leg.wa.gov/WAC/default.aspx?cite=246-916) Licensure Requirements for Athletic Trainers and [Chapter 18.250 RCW](https://app.leg.wa.gov/rcw/default.aspx?cite=18.250) Athletic Trainers[National Athletic Trainers Association: Official Statement on Proper Supervision of Secondary School Student Aides](https://www.nata.org/sites/default/files/student-aide-statement.pdf#:~:text=This%20Official%20Statement%20of%20the%20National%20Athletic%20Trainers%E2%80%99,instruction%20and%20observation%20of%20qualified%20health%20care%20professionals.)[NATA Secondary School Student Aide Q & A](https://www.nata.org/professional-interests/job-settings/secondary-school/resources/student-aid-faq) [NATA Student Aide Letter](https://www.nata.org/sites/default/files/student-aide-statement.pdf)[WSATA Secondary Schools Quarterly Newsletter Volume 2 Issue 1, January/February 2020](https://www.wsata.org/_files/ugd/275f86_9b939cc06cec44ecbdee7322844d7d3d.pdf)NATA- The Secondary School Sports Medicine Course Outline <https://www.nata.org/sites/default/files/secondary-school-sports-medicine-course-outline.pdf>NATA- Athletic Training Education Competencies 5th EditionPrinciples of Athletic Training: A Competency Based Approach 17th Edition[National Health Science Standards](https://healthscienceconsortium.org/standards/) - National Consortium of Health Science Education |

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| **Unit 1:** Organization and Administration in Sports Medicine | **Total Learning Hours for Unit:** 10 |
| **Unit Summary**: Students understand the importance of policies and procedures for a Sports Medicine Facility and will be able to develop Sports Medicine-related policies and procedures as well as budget and design needs for various Sports Medicine facilities. |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** In a small group, students create, design, and present a brand-new athletic training facility for an assigned setting and population. Students also order all supplies needed to run their facility for 1 year with an assigned budget
* Students create a Policies and Procedures manual for an assigned athletic training room
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| **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 create media products (5.B.1) to illustrate an athletic training facility and create a policy and procedure manual.
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| **Industry Standards and/or Competencies**: * Students understand the importance of a policies and procedures manual for a Sport Medicine Facility and are able to develop Sports Medicine-related policies and procedures.
* Students know the pros and cons of various types of budgets relevant to Sports Medicine settings.
* Students can identify the importance and functions of different areas of an Athletic Training Room.
* Students can design Athletic Training Rooms for various Sports Medicine settings as well as budget and order for the facility.
* Students will review the NATA guidelines for athletic training student aides and Washington State RCW codes pertaining to Athletic Training.
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| **National Health Science Standards****Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication**2.1.1 Model verbal and nonverbal therapeutic communication.**2.3 Written Communication Skills**2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting).2.3.2 Prepare examples of technical and informative writing.2.3.3 Demonstrate appropriate use of digital communication in a work environment, such as email, text, and social media. |
| **National Athletic Trainers Association Standards:****Unit 1 Investigating the Field of Sports Medicine**1.3 Delineate the process for attaining national certification and state licensure for the athletic trainer.**Unit 2 Understanding Concepts of Health Care Administration**2.1 Investigate the necessary components that make up a well-designed sports medicine facility.2.2 List budgetary concerns.2.3 Explain the legal importance of accurate, clear and up-to-date record keeping.2.4 Create and analyze legal scenarios to consider as an administrator of an athletic health care facility in different settings.2.5 Explain the difference between HIPAA and FERPA in relation to sharing medical information. **Unit 3 Analyzing Legal, Ethical, and Insurance Considerations in Sports Medicine**3.2 Analyze legal considerations for health care professionals.3.4 Differentiate between legal and ethical actions in a given scenario.3.7 Discuss the importance of medical professionals obtaining National Provider Identifiers `(NPis) |
| **Aligned Washington State Academic Standards** |
| Science | HS-ETS1-2. Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineeringHS-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 impactsHs-ETS1-4. Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem |
| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Constructing Explanations and Designing Solutions Using Mathematics and Computational Thinking | ETS1.B: Developing Possible SolutionsETS1.C: Optimizing the Design Solution | Systems and System ModelsInfluence of Science, Engineering, and Technology on Society and the Natural World |

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| **Unit 2:** Advanced CPR, First Aid, and Emergency Care  | **Total Learning Hours for Unit:** 20  |
| **Unit Summary**: Students identify advanced life-threatening and non-life-threatening emergencies and proceed with the proper and prudent steps of emergency care. Students will also know the signs and symptoms of advanced medical conditions as well as the first aid treatments of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Students determine the proper first aid care for multiple victims in small group situations
* Students design and act out an emergency situation for younger students to triage. Students should understand the proper treatments for each victim in their created situation
* Students create an EAP for a venue of their choice
* Students lead a group of rescuers during a medical emergency that requires spine boarding
* Students create a storybook to teach CPR, AED, and First Aid information to elementary school students
* Students demonstrate knowledge and skills in CPR/AED/First Aid and Bloodborne Pathogen for health care providers
* *Suggested Practical Skills: Manual Blood Pressure; Assessing Vitals*
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| **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 solve problems (2.D.1; 2.D.2) and interact effectively with others (9.A.1; 9.A.2) by demonstrating proper spine boarding techniques of an injured person.
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| **Industry Standards and/or Competencies**:* Students can identify a life-threatening emergency and proceed with the proper and prudent steps of emergency care (Primary Survey c or w/o CPR vs. Secondary Survey).
* Students understand when the use of a spine board is warranted and the proper steps of spine boarding.
* Students understand how and when equipment removal is warranted in spine boarding.
* Students know how to properly treat and dress a skin wound as well as when to refer an individual for further treatment (e.g. Stitches, S/S of infection).
* Students can perform a basic injury evaluation and identify a possible fracture. After doing so, students can splint this fracture for medical transport.
* Students know the various fracture types.
* Students understand the S/S and first aid treatments for several medical conditions including, but not limited to heat exhaustion, heat stroke, frostbite, hypothermia, shock, stroke, heart attack, anaphylaxis, hypoglycemia, hyperglycemia, seizure, rhabdomyolysis, and a sickle cell crisis.
* Students understand the components of an emergency action plan and can write venue specific emergency action plans.
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| **National Health Science Standards****Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases and disorders, and medical math principles.**1.2 Diseases and Disorders**1.2.1 Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication**2.1.1 Model verbal and nonverbal therapeutic communication. 2.1.3 Distinguish between subjective and objective information.**2.2 Medical Terminology**2.2.1 Use common roots, prefixes, and suffixes to communicate information. 2.2.2 Interpret common medical abbreviations to communicate information.**2.3 Written Communication Skills**2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting).**Standard 4 Employability Skills**Use employability skills to enhance employment opportunities and job satisfaction.**4.2 Employability Skills**4.2.1 Apply employability/soft skills in healthcare.**Standard 5 Legal Responsibilities**Describe legal responsibilities and implications on healthcare worker actions.**5.2 Legal Practice**5.2.1 Apply standards for the safety, privacy, and confidentiality of health information.5.2.3 Summarize the essential characteristics of a patient’s basic rights within a healthcare setting. 5.2.4 Differentiate informed and implied consent. 5.2.5 Describe the concept of scope of practice.5.2.6 Interpret procedures for reporting activities and behaviors that affect the health, safety, and welfare of others (incident report).**Standard 7 Safety Practices**Identify existing and potential hazards to clients, co-workers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.**7.1 Infection Control**7.1.1 Explain principles of infection transmission.7.1.2 Differentiate methods of controlling the spread and growth of pathogens.**7.2 Personal Safety**7.2.1 Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations. 7.2.2 Demonstrate principles of body mechanics during patient care.**7.3 Environmental Safety**7.3.1 Apply safety techniques in the work environment.**7.4 Common Safety Hazards**7.4.1 Observe all safety standards related to the occupational exposure to hazardous chemicals standard (Safety Data Sheets [SDS]). 7.4.2 Comply with safety signs, symbols, and labels.**7.5 Emergency Procedures and Protocols**7.5.2 Apply principles of basic emergency response in natural disasters and other emergencies (safe location, contact emergency personnel, follow facility protocols).**Standard 8 Teamwork**Identify roles and responsibilities of individual members as part of the healthcare team.**8.1 Healthcare Teams**8.1.2 Identify characteristics of effective teams.**8.2 Team Member Participation**8.2.4 Evaluate why teamwork is an important part of healthcare and how it improves patient care.**Standard 9 Health Maintenance Practices**Differentiate between wellness and disease. Promote disease prevention and model healthy behaviors.**9.1 Healthy Behaviors**9.1.3 Describe public health strategies for prevention of disease. **Standard 10 Technical Skills**Apply and demonstrate technical skills and knowledge common to health career specialties.**10.1 Technical Skills**10.1.1 Demonstrate procedures for measuring and recording vital signs in both normal and abnormal ranges - including but not limited to:10.1.2 Obtain training or certification in:* Automated external defibrillator (AED)
* Cardiopulmonary resuscitation (CPR)
* First aid
* Foreign body airway obstruction (FBAO)

**Standard 11 Information Technology in Healthcare**Apply information technology practices common across health professions.11.1.4 Examine information systems policies, procedures, and regulations as required by national, state, and local entities. |
| **National Athletic Trainers Association Standards:****Unit 5 Assessing Environmental Factors That Lead to Injury**5.5 Discuss the importance of an EAP and policy for thunder and lightning as it relates to athletics.**Unit 10 Recognizing and Preventing the Spread of Blood Borne Pathogens**10.1 Investigate various blood borne pathogens.10.2 Explain the OSHA blood borne pathogen standard.10.3 Outline the components of a written exposure plan.10.4 Explain basic wound care procedures.**Unit 11 Determining Appropriate Emergency Injury Management**11.1 Determine the components of an EAP.11.2 Investigate the acute injury management techniques.11.4 Explain the steps involved in performing CPR.11.5 Recognize the common causes of cardiopulmonary complications in sports.Discuss the necessary skills to provide first aid treatment,Describe the concepts for treating:* Bleeding and the applications of dressings and bandages.
* Shock
* Musculoskeletal injuries
* Sudden illness

**Unit 15 Fundamental Concepts of Evaluation**15.1 Differentiate between HOPS and SOAP15.2 Illustrate the “anatomical position”15.3 Differentiate between manual muscle testing and resistive range of motion testing.15.4 Examine cultural differences as it pertains to the manner in which an evaluation is conducted. |
| **Aligned Washington State Academic Standards** |
| Science | HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. |
| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Developing and Using ModelsAnalyzing and Interpreting DataObtaining, Evaluating, and Communicating InformationAsking Questions (for science) and Defining Problems (for engineering) | LS1.A: Structure and Function | Systems and System Models |

*Lower Extremities- Analyze anatomy, muscular structure, tests, injury, as well as prevention and treatment of lower extremities.*

*(Unit 3 - Foot, Unit 4 – Ankle, Unit 5 – Knee, Unit 6 – Hip/Groin)*

*Suggested Practical Skills for Lower Extremities: Lower Extremity Reflex Testing; Turf Toe Tape Job; Achilles Tape Job; Tear Drop Tape Job; Ankle Ace Wrap with Horseshoe; Ankle Tape Job (Open, Closed, and Basic); Herringbone Ace Wrap; Knee Hyperextension Tape Job; Hip Ace Wrap; Groin Ace Wrap*

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| **Unit 3:** The Foot – Advanced Anatomy, Evaluation, and Injuries  | **Total Learning Hours for Unit:** 5 |
| **Unit Summary**: Students recognize and know the relevant anatomy of the foot. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the foot along with signs and symptoms of foot injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of the foot related to sports injuries.
* Discuss common injuries of the lower extremities.
	1. a. Identify the common injuries and a given mechanism of each.
		+ Foot:
			- Plantar fasciitis
			- Turf toe
			- Achilles sprain
			- Foot fracture (Jones and Lisfranc)
	2. b. Identify and discuss special tests used to assess injuries to the foot.
* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. Research and present a foot injury of their choice including anatomy, MOI, S/S, diagnosis, and treatment
	2. Review foot evaluation and teach their classmates an assigned palpation points and special tests
	3. Apply the taping procedures learned from lower extremity practical skills to appropriate foot injuries
	4. Demonstrate written and oral conversations using the proper medical terms
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| **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 communicate clearly (3.A.1; 3.A.2; 3.A.3) when teaching classmates about palpation and special tests.
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| **Industry Standards and/or Competencies**:* Students can identify important history questions and observation points of the foot.
* Students understand the gross and fine anatomy of the foot and how to palpate major and minor anatomical landmarks.
* Students can perform important special tests of the foot and identify the positive signs of each.
* Students can measure ROMs of the foot with a goniometer and identify normal ROMs.
* Students know the S/S of common and uncommon foot injuries and conditions and the diagnosis and treatment of each.
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| **National Health Science Standards****Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases, and medical math principles**1.1 Human Anatomy and Physiology**1.1.1 Describe the organization of the human body and directional terms.d. Use directional terms1.1.2 Identify basic structures and describe functions of human body systems.a. Skeletal* Structures of the skeletal system
	+ Distinguish between axial and appendicular skeletons
	+ Describe long bone anatomy
	+ Identify joint types and movement
	+ Name and classify all bones (206)
* Functions of the skeletal system
	+ Hematopoiesis
	+ Mineral storage
	+ Muscle attachment and movement
	+ Ossification
	+ Structure and support

b. Muscular* Structure of the muscular system
	+ Identify types of muscle tissue
	+ Identify major muscle groups of neck, shoulder, chest, abdomen, back, arms, and legs
* Functions of the muscular system
	+ Body movement
	+ Posture
	+ Protection

g. Nervous* Structures of the nervous system
	+ Differentiate CNS and PNSDifferentiate sympathetic and parasympathetic
	+ Identify organs of the nervous system
	+ Identify structures of the special sense organs
* Functions of the nervous system
	+ Movement
	+ Processing
	+ Sensation

**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication**2.1.3 Distinguish between subjective and objective information.2.1.5 Modify communication to meet the needs of the patient/client and to be appropriate to the situation**2.3 Written Communication Skills**2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting).2.3.2 Prepare examples of technical and informative writing.**Standard 4 Employability Skills**Use employability skills to enhance employment opportunities and job satisfaction.**4.1 Personal Traits of the Health Professional**4.1.1 Identify personal traits and attitudes desirable in a career ready member of a health team.**4.2 Employability Skills**4.2.1 Apply employability/soft skills in healthcare.**Standard 5 Legal Responsibilities**Describe legal responsibilities, limitations, and implications on healthcare workers actions.**5.2 Legal Practices**5.2.1 Apply standards for the safety, privacy, and confidentiality of health information.**Standard 6 Ethics**Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment.**6.2 Cultural, Social, and Ethnic Diversity**6.2.2 Demonstrate respectful and empathetic treatment of all patients/clients/families.**Standard 7 Safety Practices**Identify existing and potential hazards to clients, co-workers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.**7.1 Infection Control**7.1.2 Differentiate methods of controlling the spread and growth of pathogens.**7.2 Personal Safety**7.2.2 Demonstrate principles of body mechanics during patient care.7.2.3 Demonstrate and apply the use of Personal Protective Equipment (PPE).**7.3 Environmental Safety**7.3.1 Apply safety techniques in the work environment.**Standard 8 Teamwork**Identify roles and responsibilities of individual members as part of the healthcare team.**8.1 Healthcare Teams**8.1.1 Evaluate roles and responsibilities of healthcare team members.8.1.2 Identify characteristics of effective teams.**8.2 Team Member Participation**8.2.4 Evaluate why teamwork is an important part of healthcare and how it improves patient care.**Standard 11 Information Technology in Healthcare**Apply information technology practices common across health professions.**11.1 Key principles, components, and practices of health information systems (HIS)** 11.1.1 Identify components of an electronic health record (EHR) and/or electronic medical record (EMR).11.1.3 Create electronic documentation that reflects timeliness, completeness, and accuracy.11.1.4 Examine information systems policies, procedures, and regulations as required by national, state, and local entities. |
| **National Athletic Trainers Association Standards:****Unit 6 Human Anatomy and Physiology: Discussion on the Following Body Systems**6.2 Skeletal6.3 Nervous6.6 Muscular**Unit 7 Understanding Basic Taping, Wrapping and Bracing for Injuries**7.3 Identify the types of marketed and fabricated bracing devices as well as techniques.7.4 Debate the advantages and disadvantages of taping versus wrapping.7.5 Determine which elastic wraps and wrapping procedures are most appropriate for specific scenarios. 7.6 Differentiate between different types of adhesive and cohesive tape, and determine what application is best for a specific scenario.**Unit 9 Identifying Basic Tissue Response and Common Injuries**9.1 Describe and illustrate the three phases of the healing process as it pertains to various soft tissue structures, including cartilage, ligament, muscle, tendon, and nerve.9.2 Explain the physiology and psychology of pain.9.3 Differentiate between sprains and strains, and differentiate between 1st, 2nd, and 3rd degree injuries.9.4 Illustrate various types of fractures and explain the forces required to produce each one.9.5 List the mechanical properties of tissue as they pertain to the stress-strain curve.9.6 Illustrate and describe the 5 types of tissue loading.**Unit 11 Determining Appropriate Emergency Injury Management**11.2 Investigate the acute injury management techniques11.3 List and describe the signs and symptoms of a concussion and demonstrate the recognition of them.**Unit 15 Fundamental Concepts of Evaluation**15.1 Differentiate between HOPS and SOAP15.3 Differentiate between manual muscle testing and resistive range of motion testing |
| **Aligned Washington State Academic Standards** |
| Science | HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems thatprovide specific functions within multicellular organisms. |
| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Developing and Using ModelsAnalyzing and interpreting dataObtaining, evaluating, and communicating informationAsking questions (for science) and defining problems (for engineering) | LS1.A: Structure and Function | Systems and System Models |

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| **Unit 4:** The Ankle – Advanced Anatomy, Evaluation, and Injuries  | **Total Learning Hours for Unit:** 5  |
| **Unit Summary**: Students recognize and know the relevant anatomy of the ankle. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the ankle along with signs and symptoms of ankle injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of the ankle related to sports injuries.
* Discuss common injuries of the ankle
	1. a. Identify the common injuries and a given mechanism of each.
		+ Ankle:
			- Lateral ankle sprain
			- Syndesmosis sprain
	2. b. Identify and discuss special tests used to assess injuries to the ankle.
		+ Thomas test
		+ Anterior/posterior drawer
		+ Valgus/Varus test
		+ Talar tilt
* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. Research and present an ankle injury of their choice including anatomy, MOI, S/S, diagnosis, and treatment
	2. Review foot evaluation and teach their classmates an assigned palpation points and special tests
	3. View a surgery of an ankle injury, write a research paper pertaining to the surgery, and present the surgery to their classmates
	4. Apply the taping procedures learned from lower extremity practical skills to appropriate ankle injuries
	5. Demonstrate written and oral conversations using the proper medical terms
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| **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 creatively with others (1.B.1; 1.B.2) when teaching classmates about palpation points and special tests.
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| **Industry Standards and/or Competencies**: * Students can identify important history questions and observation points of the ankle.
* Students understand the gross and fine anatomy of the ankle and how to palpate major and minor anatomical landmarks.
* Students can perform important special tests of the ankle and identify the positive signs of each.
* Students can measure ROMs of the ankle with a goniometer and identify normal ROMs.
* Students know the S/S of common and uncommon ankle injuries and conditions and the diagnosis and treatment of each.
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| **National Health Science Standards** **Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases, and medical math principles**1.1 Human Anatomy and Physiology**1.1.1 Describe the organization of the human body and directional terms.d. Use directional terms1.1.2 Identify basic structures and describe functions of human body systems.a. Skeletal* Structures of the skeletal system
* Functions of the skeletal system

b. Muscular* Structure of the muscular system
* Functions of the muscular system

g. Nervous* Structures of the nervous system
* Functions of the nervous system

**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication**2.1.3 Distinguish between subjective and objective information.2.1.5 Modify communication to meet the needs of the patient/client and to be appropriate to the situation**2.3 Written Communication Skills**2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting).2.3.2 Prepare examples of technical and informative writing.**Standard 4 Employability Skills**Use employability skills to enhance employment opportunities and job satisfaction.**4.1 Personal Traits of the Health Professional**4.1.1 Identify personal traits and attitudes desirable in a career ready member of a health team.**4.2 Employability Skills**4.2.1 Apply employability/soft skills in healthcare.**Standard 5 Legal Responsibilities**Describe legal responsibilities, limitations, and implications on healthcare workers actions.**5.2 Legal Practices**5.2.1 Apply standards for the safety, privacy, and confidentiality of health information.**Standard 6 Ethics**Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment.**6.2 Cultural, Social, and Ethnic Diversity**6.2.2 Demonstrate respectful and empathetic treatment of all patients/clients/families.**Standard 7 Safety Practices**Identify existing and potential hazards to clients, co-workers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.**7.1 Infection Control**7.1.2 Differentiate methods of controlling the spread and growth of pathogens.**7.2 Personal Safety**7.2.2 Demonstrate principles of body mechanics during patient care.7.2.3 Demonstrate and apply the use of Personal Protective Equipment (PPE).**7.3 Environmental Safety**7.3.1 Apply safety techniques in the work environment.**Standard 8 Teamwork**Identify roles and responsibilities of individual members as part of the healthcare team.**8.1 Healthcare Teams**8.1.1 Evaluate roles and responsibilities of healthcare team members.8.1.2 Identify characteristics of effective teams.**8.2 Team Member Participation**8.2.4 Evaluate why teamwork is an important part of healthcare and how it improves patient care.**Standard 11 Information Technology in Healthcare**Apply information technology practices common across health professions.**11.1 Key principles, components, and practices of health information systems (HIS)** 11.1.1 Identify components of an electronic health record (EHR) and/or electronic medical record (EMR).11.1.3 Create electronic documentation that reflects timeliness, completeness, and accuracy.11.1.4 Examine information systems policies, procedures, and regulations as required by national, state, and local entities. |
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| **Aligned Washington State Academic Standards** |
| Science | HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. |
| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Developing and Using Models | LS1.A: Structure and Function | Systems and System Models |

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| **Unit 5:** The Knee – Advanced Anatomy, Evaluation, and Injuries  | **Total Learning Hours for Unit:** 5  |
| **Unit Summary**: Students recognize and know the relevant anatomy of the knee. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the knee along with signs and symptoms of knee injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of the knee related to sports injuries.
* Discuss common injuries of the knee.
	1. a. Identify the common injuries and a given mechanism of each.
		+ Knee
			- Sprains (ACL, MCL, LCL, PCL)
			- Meniscal tear
			- Patella tendonitis
			- Patella dislocation/subluxation
	2. b. Identify and discuss special tests used to assess injuries to the knee.
		+ Thomas test
		+ Anterior/posterior drawer
* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. Research and present a knee injury of their choice including anatomy, MOI, S/S, diagnosis, and treatment
	2. Review knee evaluation and teach their classmates an assigned palpation points and special tests
	3. View a surgery of a knee injury, write a research paper pertaining to the surgery, and present the surgery to their classmates
	4. Apply the taping procedures learned from lower extremity practical skills to appropriate knee injuries
	5. Demonstrate written and oral conversations using the proper medical terms
 |
| **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 analyze media (5.A.1; 5.A.2) to write a research paper on a surgery they observed.
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| **Industry Standards and/or Competencies**:* Students can identify important history questions and observation points of the knee.
* Students understand the gross and fine anatomy of the knee and how to palpate major and minor anatomical landmarks.
* Students can perform important special tests of the knee and identify the positive signs of each.
* Students can measure ROMs of the knee with a goniometer and identify normal ROMs.
* Students know the S/S of common and uncommon knee injuries and conditions and the diagnosis and treatment of each.
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| **National Health Science Standards****Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases, and medical math principles**1.1 Human Anatomy and Physiology**1.1.1 Describe the organization of the human body and directional terms.d. Use directional terms1.1.2 Identify basic structures and describe functions of human body systems.a. Skeletal* Structures of the skeletal system
* Functions of the skeletal system

b. Muscular* Structure of the muscular system
* Functions of the muscular system

g. Nervous* Structures of the nervous system
* Functions of the nervous system

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| Developing and Using ModelsAnalyzing and interpreting dataObtaining, evaluating, and communicating informationAsking questions (for science) and defining problems (for engineering)  | LS1.A: Structure and Function  | Systems and System Models |

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| **Unit 6:** The Hip/Groin – Anatomy, Evaluation, and Injuries  | **Total Learning Hours for Unit:** 10  |
| **Unit Summary**: Students recognize and know the relevant anatomy of the hip/groin. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the hip/groin along with signs and symptoms of hip/groin injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of the hip/groin related to sports injuries.
	1. Identify the bones and bony landmarks related to injuries of the hip/groin.
		+ Hip/Groin
			- Anterior and posterior iliac crest/spine
			- Ischial tuberosity
			- Greater trochanter of the femur
	2. Identify the soft and connective tissues related to injuries of the hip/groin and their respective functions.
		+ Hip/Groin
			- Glutes
			- Iliotibial (IT) band
			- Adductor muscle group
			- Quadricep group (as a whole)
			- Hamstring group (as a whole)
	3. Identify the nerve tissue related to injuries of the hip/groin.
		+ Sciatic nerve
* Discuss common injuries of the hip/groin.
	1. a. Identify the common injuries and a given mechanism of each.
		+ Hip/Groin
			- Hip pointer
			- Labrum tear
			- Sciatica
			- Strains (e.g., hip flexor, quadriceps, hamstrings, groin)
			- Quad contusions
	2. b. Identify and discuss special tests used to assess injuries to the lower extremities.
		+ Thomas test
* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. Fill out an injury flowchart for hip/groin injuries
	2. Evaluate their classmates for various hip/groin injuries using a HOPS form and provide proper immediate treatment for each (e.g. PRICE, taping, rehabilitation)
	3. Apply the taping procedures learned from lower extremity practical skills to appropriate hip/groin injuries
	4. Demonstrate written and oral conversations using the proper medical terms
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| **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 will be self-directed learners (8.C.1; 8.C.2) when completing the injury flowchart.
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| **Industry Standards and/or Competencies**:* Students can identify important history questions and observation points of the hip/groin.
* Students understand the gross and fine anatomy of the hip/groin and how to palpate major and minor anatomical landmarks.
* Students can perform important special tests of the hip/groin and identify the positive signs of each.
* Students can measure ROMs of the hip/groin with a goniometer and identify normal ROMs.
* Students know the S/S of common and uncommon hip/groin injuries and conditions and the diagnosis and treatment of each.
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* Functions of the skeletal system

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*(Unit 7 – Shoulder/Upper Arm, Unit 8 – Elbow, Unit 9 – Hand/Wrist/Thumb)*

*Suggested Practical Skills for Upper Extremities: Upper Extremity Reflex Testing Shoulder (Anterior and Posterior) Ace Wraps; AC Joint Tape Job; Elbow Hyperextension Tape Job; Hand/Wrist/Thumb Tape Job; Wrist Hyperextension Taping*

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| **Unit 7:** The Shoulder/Upper Arm – Advanced Anatomy, Evaluation, and Injuries | **Total Learning Hours for Unit:** 5  |
| **Unit Summary**: Students recognize and know the relevant anatomy of the shoulder/upper arm. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the shoulder/upper arm along with signs and symptoms of shoulder/upper arm injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of the shoulder/upper arm related to sports injuries.
* Discuss common injuries of the shoulder/upper arm
	1. a. Identify common injuries and a given mechanism of each.
		+ Shoulder
			- AC sprain
			- Labrum tear
			- Rotator cuff strain
			- Dislocation/subluxation
			- Impingement
	2. b. Identify and discuss special tests used to assess injuries of the shoulder/upper arm.
		+ Empty can test
		+ Impingement test
		+ Apprehension test
* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. Research and present a shoulder/upper arm injury of their choice including anatomy, MOI, S/S, diagnosis, and treatment
	2. Review shoulder/upper arm evaluation and teach their classmates an assigned palpation points and special tests
	3. View a surgery of a shoulder/upper arm injury, write a research paper pertaining to the surgery, and present the surgery to their classmates
	4. Apply the taping procedures learned from upper extremity practical skills to appropriate shoulder/upper arm injuries
	5. Demonstrate written and oral conversations using the proper medical terms.
 |
| **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 use systems thinking (2.B.1) when practicing upper extremity evaluation and when applying taping/bracing/splinting to the upper extremity.
 |
| **Industry Standards and/or Competencies**:* Students identify important history questions and observation points of the shoulder.
* Students understand the gross and fine anatomy of the shoulder and how to palpate major and minor anatomical landmarks.
* Students perform important special tests of the shoulder and identify the positive signs of each.
* Students measure ROMs of the shoulder with a goniometer and identify normal ROMs.
* Students understand the S/S of common and uncommon shoulder injuries and conditions and the diagnosis and treatment of each.
 |
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| **Unit 8:** The Elbow – Advanced Anatomy, Evaluation, and Injuries  | **Total Learning Hours for Unit:** 5 |
| **Unit Summary**: Students recognize and know the relevant anatomy of the elbow. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the elbow along with signs and symptoms of elbow injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of elbow related to sports injuries.
* Discuss common injuries of the elbow.
	1. a. Identify common injuries and a given mechanism of each.
		+ Elbow
			- UCL sprain
			- Medial and lateral epicondylitis
			- Olecranon bursitis
	2. b. Identify and discuss special tests used to assess injuries of the elbow.
		+ Elbow valgus stress test
* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. Research and present an elbow injury of their choice including anatomy, MOI, S/S, diagnosis, and treatment
	2. Review elbow evaluation and teach their classmates an assigned palpation points and special tests
	3. View a surgery of an elbow injury, write a research paper pertaining to the surgery, and present the surgery to their classmates
	4. Apply the taping procedures learned from upper extremity practical skills to appropriate elbow injuries
	5. Demonstrate written and oral conversations using the proper medical terms
 |
| **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 guide and lead others (11.A.1; 11.A.2) when teaching their classmates assigned palpation points and special tests.
 |
| **Industry Standards and/or Competencies**:* Students identify important history questions and observation points of the elbow.
* Students understand the gross and fine anatomy of the elbow and how to palpate major and minor anatomical landmarks.
* Students perform important special tests of the elbow and identify the positive signs of each.
* Students measure ROMs of the elbow with a goniometer and identify normal ROMs.
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* Functions of the skeletal system

b. Muscular* Structure of the muscular system
* Functions of the muscular system

g. Nervous* Structures of the nervous system
* Functions of the nervous system

**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication**2.1.3 Distinguish between subjective and objective information.2.1.5 Modify communication to meet the needs of the patient/client and to be appropriate to the situation**2.3 Written Communication Skills**2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting).2.3.2 Prepare examples of technical and informative writing.**Standard 4 Employability Skills**Use employability skills to enhance employment opportunities and job satisfaction.**4.1 Personal Traits of the Health Professional**4.1.1 Identify personal traits and attitudes desirable in a career ready member of a health team.**4.2 Employability Skills**4.2.1 Apply employability/soft skills in healthcare.**Standard 5 Legal Responsibilities**Describe legal responsibilities, limitations, and implications on healthcare workers actions.**5.2 Legal Practices**5.2.1 Apply standards for the safety, privacy, and confidentiality of health information.**Standard 6 Ethics**Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment.**6.2 Cultural, Social, and Ethnic Diversity**6.2.2 Demonstrate respectful and empathetic treatment of all patients/clients/families.**Standard 7 Safety Practices**Identify existing and potential hazards to clients, co-workers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.**7.1 Infection Control**7.1.2 Differentiate methods of controlling the spread and growth of pathogens.**7.2 Personal Safety**7.2.2 Demonstrate principles of body mechanics during patient care.7.2.3 Demonstrate and apply the use of Personal Protective Equipment (PPE).**7.3 Environmental Safety**7.3.1 Apply safety techniques in the work environment.**Standard 8 Teamwork**Identify roles and responsibilities of individual members as part of the healthcare team.**8.1 Healthcare Teams**8.1.1 Evaluate roles and responsibilities of healthcare team members.8.1.2 Identify characteristics of effective teams.**8.2 Team Member Participation**8.2.4 Evaluate why teamwork is an important part of healthcare and how it improves patient care.**Standard 11 Information Technology in Healthcare**Apply information technology practices common across health professions.**11.1 Key principles, components, and practices of health information systems (HIS)** 11.1.1 Identify components of an electronic health record (EHR) and/or electronic medical record (EMR).11.1.3 Create electronic documentation that reflects timeliness, completeness, and accuracy.11.1.4 Examine information systems policies, procedures, and regulations as required by national, state, and local entities. |
| **Unit 6 Human Anatomy and Physiology: Discussion on the Following Body Systems**6.2 Skeletal6.3 Nervous6.6 Muscular**Unit 7 Understanding Basic Taping, Wrapping and Bracing for Injuries**7.3 Identify the types of marketed and fabricated bracing devices as well as techniques.7.4 Debate the advantages and disadvantages of taping versus wrapping.7.5 Determine which elastic wraps and wrapping procedures are most appropriate for specific scenarios. 7.6 Differentiate between different types of adhesive and cohesive tape, and determine what application is best for a specific scenario.**Unit 9 Identifying Basic Tissue Response and Common Injuries**9.1 Describe and illustrate the three phases of the healing process as it pertains to various soft tissue structures, including cartilage, ligament, muscle, tendon, and nerve.9.2 Explain the physiology and psychology of pain.9.3 Differentiate between sprains and strains, and differentiate between 1st, 2nd, and 3rd degree injuries.9.4 Illustrate various types of fractures and explain the forces required to produce each one.9.5 List the mechanical properties of tissue as they pertain to the stress-strain curve.9.6 Illustrate and describe the 5 types of tissue loading.**Unit 11 Determining Appropriate Emergency Injury Management**11.2 Investigate the acute injury management techniques11.3 List and describe the signs and symptoms of a concussion and demonstrate the recognition of them.**Unit 15 Fundamental Concepts of Evaluation**15.1 Differentiate between HOPS and SOAP |
| **Aligned Washington State Academic Standards** |
| Science | HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems thatprovide specific functions within multicellular organisms. |
| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Developing and Using ModelsAnalyzing and interpreting dataObtaining, evaluating, and communicating informationAsking questions (for science) and defining problems (for engineering) | LS1.A: Structure and Function  | Systems and System Models |

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| **Unit 9:** The Hand/Wrist/Thumb– Advanced Anatomy, Evaluation, and Injuries  | **Total Learning Hours for Unit:** 5  |
| **Unit Summary**: Students recognize and know the relevant anatomy of the hand/wrist/thumb. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the hand/wrist/thumb along with signs and symptoms of hand/wrist/thumb injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of the hand/wrist/thumb related to sports injuries.
* Discuss common injuries of the hand/wrist/thumb.
	1. a. Identify common injuries and a given mechanism of each.
		+ Hand/Wrist/Thumb
			- Carpal tunnel
			- Gamekeeper’s thumb
			- Boxer’s fracture
			- Finger deformities
	2. b. Identify and discuss special tests used to assess injuries of the hand/wrist/thumb.
	3. c. In student groups, complete the tasks below for at least one of the injuries in 2.a.
* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. Research and present a hand/wrist/thumb injury of their choice including anatomy, MOI, S/S, diagnosis, and treatment
	2. Review hand/wrist/thumb evaluation and teach their classmates an assigned palpation points and special tests
	3. Apply the taping procedures learned from upper extremity practical skills to appropriate hand/wrist/thumb injuries
	4. Demonstrate written and oral conversations using the proper medical terms.
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| **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 will produce results [10.B.1 (a-h)] when they present a hand/wrist/thumb injury project.
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| **Industry Standards and/or Competencies**:* Students can identify important history questions and observation points of the hand/wrist/thumb.
* Students understand the gross and fine anatomy of the hand/wrist/thumb and how to palpate major and minor anatomical landmarks.
* Students can perform important special tests of the hand/wrist/thumb and identify the positive signs of each.
* Students can measure ROMs of the hand/wrist/thumb with a goniometer and identify normal ROMs.
* Students know the S/S of common and uncommon hand/wrist/thumb injuries and conditions and the diagnosis and treatment of each.
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| **National Health Science Standards** **Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases, and medical math principles**1.1 Human Anatomy and Physiology**1.1.1 Describe the organization of the human body and directional terms.d. Use directional terms1.1.2 Identify basic structures and describe functions of human body systems.a. Skeletal* Structures of the skeletal system
* Functions of the skeletal system

b. Muscular* Structure of the muscular system
* Functions of the muscular system

g. Nervous* Structures of the nervous system
* Functions of the nervous system

**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication**2.1.3 Distinguish between subjective and objective information.2.1.5 Modify communication to meet the needs of the patient/client and to be appropriate to the situation**2.3 Written Communication Skills**2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting).2.3.2 Prepare examples of technical and informative writing.**Standard 4 Employability Skills**Use employability skills to enhance employment opportunities and job satisfaction.**4.1 Personal Traits of the Health Professional**4.1.1 Identify personal traits and attitudes desirable in a career ready member of a health team.**4.2 Employability Skills**4.2.1 Apply employability/soft skills in healthcare.**Standard 5 Legal Responsibilities**Describe legal responsibilities, limitations, and implications on healthcare workers actions.**5.2 Legal Practices**5.2.1 Apply standards for the safety, privacy, and confidentiality of health information.**Standard 6 Ethics**Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment.**6.2 Cultural, Social, and Ethnic Diversity**6.2.2 Demonstrate respectful and empathetic treatment of all patients/clients/families.**Standard 7 Safety Practices**Identify existing and potential hazards to clients, co-workers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.**7.1 Infection Control**7.1.2 Differentiate methods of controlling the spread and growth of pathogens.**7.2 Personal Safety**7.2.2 Demonstrate principles of body mechanics during patient care.7.2.3 Demonstrate and apply the use of Personal Protective Equipment (PPE).**7.3 Environmental Safety**7.3.1 Apply safety techniques in the work environment.**Standard 8 Teamwork**Identify roles and responsibilities of individual members as part of the healthcare team.**8.1 Healthcare Teams**8.1.1 Evaluate roles and responsibilities of healthcare team members.8.1.2 Identify characteristics of effective teams.**8.2 Team Member Participation**8.2.4 Evaluate why teamwork is an important part of healthcare and how it improves patient care.**Standard 11 Information Technology in Healthcare**Apply information technology practices common across health professions.**11.1 Key principles, components, and practices of health information systems (HIS)** 11.1.1 Identify components of an electronic health record (EHR) and/or electronic medical record (EMR).11.1.3 Create electronic documentation that reflects timeliness, completeness, and accuracy.11.1.4 Examine information systems policies, procedures, and regulations as required by national, state, and local entities.. |
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*Head/Neck/Torso- Analyze anatomy, muscular structure, tests, injury, as well as prevention and treatment of Head/Neck/Torso.*

*(Unit 10 – Lumbar Spine, Unit 11 – Abdomen/Thorax, Unit 12 – Head/Face and Cervical Spine)*

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| **Unit 10:** The Lumbar Spine – Anatomy, Evaluation, and Injuries  | **Total Learning Hours for Unit:** 10  |
| **Unit Summary**: Students recognize and know the relevant anatomy of the lumbar spine. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the lumbar spine along with signs and symptoms of lumbar spine injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of the lumbar spine as related to sports injuries.
* Identify the bones and bony landmarks related to injuries of the lumbar spine
	+ - L1-L5
* Identify soft and connective tissues related to injuries of the lumbar spine and their respective functions.
	+ - Latissimus dorsi
		- Iliopsoas
		- Paraspinals
		- Intervertebral disks
		- Ligaments
* Identify the nerves related to injuries of the lumbar spine.
	+ - Spinal cord
		- L1 spinal nerve
		- L2, L3 and L4 spinal nerves
		- L5 spinal nerve
		- Sciatic nerve
* 2. Discuss common injuries of the lumbar spine.
1. Identify common injuries and a given mechanism of each.
	* + Lower back pain
		+ Lumbar stenosis
		+ Spondylolisthesis
		+ Vertebral compression fracture
		+ Sciatica
		+ Herniated disk
		+ Lumbar lordosis or “swayback”
		+ Muscle spasm
		+ Degenerative disk disease
2. Identify and discuss special tests used to assess injuries of the chest and abdomen.
* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. Complete an injury flowchart for lumbar spine injuries
	2. Evaluate their classmates for various lumbar spine injuries using a HOPS form and provide proper immediate treatment for each (e.g. PRICE, taping, rehabilitation)
	3. Apply the taping procedures learned from lower extremity practical skills to appropriate lumbar spine injuries
	4. Demonstrate written and oral conversations using the proper medical terms.
 |
| **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 will be flexible (7.B.1; 7.B.2) when practicing evaluations of lumbar spine injuries and documenting findings using the HOPS format.
 |
| **Industry Standards and/or Competencies**: * Students can identify important history questions and observation points of the lumbar spine.
* Students understand the gross and fine anatomy of the lumbar spine and how to palpate major anatomical landmarks.
* Students can perform important special tests of the lumbar spine and identify the positive signs of each.
* Students know the S/S of common lumbar spine injuries and conditions and the diagnosis and treatment of each.
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| **National Health Science Standards** **Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases, and medical math principles**1.1 Human Anatomy and Physiology**1.1.1 Describe the organization of the human body and directional terms.d. Use directional terms1.1.2 Identify basic structures and describe functions of human body systems.a. Skeletal* Structures of the skeletal system
* Functions of the skeletal system

b. Muscular* Structure of the muscular system
* Functions of the muscular system

g. Nervous* Structures of the nervous system
* Functions of the nervous system

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| **Aligned Washington State Academic Standards** |
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| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Developing and Using ModelsAnalyzing and interpreting dataObtaining, evaluating, and communicating informationAsking questions (for science) and defining problems (for engineering) | LS1.A: Structure and Function  | Systems and System Models |

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| **Unit 11:** The Abdomen/Thorax – Anatomy, Evaluation, and Injuries | **Total Learning Hours for Unit:** 15  |
| **Unit Summary**: Students recognize and know the relevant anatomy of the abdomen/thorax. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the abdomen/thorax along with signs and symptoms of abdomen/thorax injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of the chest and abdomen as related to sports injuries.
	1. a. Identify the bones and bony landmarks related to injuries of the chest and abdomen.

• Xyphoid process• Sternoclavicular joint (SC joint)• Ribs* 1. b. Identify soft and connective tissues related to injuries of the chest and abdomen and their respective functions.

• Intercostals • Obliques• Abdominals • Pectorals* 1. c. Identify the organs related to injuries of the chest and abdomen.

• Spleen • Heart• Appendix • Diaphragm• Lungs • Kidneys* 2. Discuss common injuries of the chest and abdomen.
	1. a. Identify common injuries and a given mechanism of each.

• Abdominal strains • Rib fractures• Pectoralis strains • Sternoclavicular (SC) joint sprain• Solar plexus • Hypertrophic cardiomyopathy• Sports hernias • Sudden death syndrome in athletes• Pneumothorax • Internal organ contusions* 1. b. Identify the signs and symptoms of internal bleeding.

• Tenderness • Drop in blood pressure• Swelling • Restlessness• Deformity • Excessive thirst• Cold and clammy skin • Vomiting blood• Rapid and weak pulse • Blood in urine and feces* 1. c. Identify and discuss special tests used to assess injuries of the chest and abdomen.

• Quadrant assessment• McBurney’s point• Rib compression• Kehr’s sign* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. In assigned groups, create a life-sized model of an assigned body system. Students will present their body system to their classmates in a symposium setting
	2. Create and label anatomically correct hearts out of Play-Doh
	3. Listens to guest speaker presenting information regarding EKGs and students will analyze sample EKGs and present their findings to their classmates
	4. Apply the taping procedures learned from lower extremity practical skills to appropriate abdomen/thorax injuries
	5. Demonstrate written and oral conversations using the proper medical terms.
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| **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 implement innovations (1.C.1) when creating life-size models of a body system. Students will be responsible to others (11.B.1) when presenting their models of a body system in a symposium format.
 |
| **Industry Standards and/or Competencies**:* Students know the 11 systems of the human body and the functions of each.
* Students know and can identify the major organs of the human body as well as their functions and body system.
* Students can identify the 4 quadrants of the abdomen and the organ contents of each.
* Students can trace the blood flow through the heart beginning with the vena cava.
* Students understand the gross and fine anatomy of the abdomen/thorax and how to palpate major and minor anatomical landmarks.
* Students can perform important special tests of the abdomen/thorax including ROMs and identify the positive signs of each.
* Students know the S/S of common and uncommon abdomen/thorax injuries and conditions and the diagnosis and treatment of each.
 |
| **National Health Science Standards** **Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases and disorders, and medical math principles.* 1. **Human Anatomy and Physiology**

1.1.1 Describe the organization of the human body and directional terms.d. Use directional termse. Identify body cavities f. Identify the components of the abdominal quadrants1.1.2 Identify basic structures and describe functions of human body systems.a. Skeletal* Structures of the skeletal system
* Functions of the skeletal system

b. Muscular* Structures of the muscular system
* Functions of the muscular system

c. Integumentary* Structures of the integumentary system
	+ Identify integumentary components
	+ Label the layers of the skin
* Functions of the integumentary system
	+ Infection protection
	+ Sensory organ
	+ Temperature regulation
	+ UV light protection
	+ Vitamin D production

d. Cardiovascular* Structures of the cardiovascular system
	+ Distinguish blood components
	+ Identify cardiovascular organs
	+ Label the parts of the heart
* Functions of the cardiovascular system
	+ Blood flow through the heart and body
	+ Cardiac conduction system
	+ Transports nutrients, waste, antibodies, hormones, and gases

e. Lymphatic / Immune* Structures of the lymphatic system
	+ Identify lymphatic organs
* Functions of the lymphatic system
	+ Movement of lymph fluid
	+ Provide protection against disease

f. Respiratory* Structures of the respiratory system
	+ Identify respiratory organs
* Functions of the respiratory systems
	+ Gas exchange

g. Nervous* Structures of the nervous system
* Functions of the nervous system

h. Endocrine * Structures of the endocrine system
	+ Identify endocrine system
* Functions of the endocrine system
	+ Controls metabolism
	+ Production of hormones
	+ Regulation of body processes
	+ Regulates growth, development, and maturation

i. Digestive* Structures of the digestive system
	+ Differentiate between alimentary and accessory organs
	+ Identify digestive organs in sequence
* Functions of the digestive system
	+ Absorption of nutrients
	+ Chemical and mechanical digestion
	+ Excretion of waste

j. Urinary* Structures of the urinary system
	+ Identify gross and microscopic anatomy of the kidney
	+ Identify urinary organs
* Functions of the urinary system
	+ Homeostatic balance
	+ Process of urine formation
	+ Urine composition

k. Reproductive* Structures of the reproductive system
	+ Identify female reproductive organs
	+ Identify male reproductive organs
* Functions of the reproductive system
	+ Formation of gametes
	+ Production of hormones

**1.2 Diseases and Disorders**1.2.1 Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders,**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication**2.1.3 Distinguish between subjective and objective information.2.1.5 Modify communication to meet the needs of the patient/client and to be appropriate to the situation**2.3 Written Communication Skills**2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting).2.3.2 Prepare examples of technical and informative writing.**Standard 4 Employability Skills**Use employability skills to enhance employment opportunities and job satisfaction.**4.1 Personal Traits of the Health Professional**4.1.1 Identify personal traits and attitudes desirable in a career ready member of a health team.**4.2 Employability Skills**4.2.1 Apply employability/soft skills in healthcare.**Standard 5 Legal Responsibilities**Describe legal responsibilities, limitations, and implications on healthcare workers actions.**5.2 Legal Practices**5.2.1 Apply standards for the safety, privacy, and confidentiality of health information.**Standard 6 Ethics**Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment.**6.2 Cultural, Social, and Ethnic Diversity**6.2.2 Demonstrate respectful and empathetic treatment of all patients/clients/families.**Standard 7 Safety Practices**Identify existing and potential hazards to clients, co-workers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.**7.1 Infection Control**7.1.2 Differentiate methods of controlling the spread and growth of pathogens.**7.2 Personal Safety**7.2.2 Demonstrate principles of body mechanics during patient care.7.2.3 Demonstrate and apply the use of Personal Protective Equipment (PPE).**7.3 Environmental Safety**7.3.1 Apply safety techniques in the work environment.**Standard 8 Teamwork**Identify roles and responsibilities of individual members as part of the healthcare team.**8.1 Healthcare Teams**8.1.1 Evaluate roles and responsibilities of healthcare team members.8.1.2 Identify characteristics of effective teams.**8.2 Team Member Participation**8.2.4 Evaluate why teamwork is an important part of healthcare and how it improves patient care.**Standard 11 Information Technology in Healthcare**Apply information technology practices common across health professions.**11.1 Key principles, components, and practices of health information systems (HIS)** 11.1.1 Identify components of an electronic health record (EHR) and/or electronic medical record (EMR).11.1.3 Create electronic documentation that reflects timeliness, completeness, and accuracy.11.1.4 Examine information systems policies, procedures, and regulations as required by national, state, and local entities. |
| **National Athletic Trainers Association Standards:****Unit 6 Human Anatomy and Physiology: Discussion on the Following Body Systems**6.1 Integumentary6.2 Skeletal6.3 Nervous6.4 Cardiovascular6.5 Endocrine6.6 Muscular6.7 Lymphatic6.8 Respiratory6.9 Urinary6.10 Excretory6.11 Reproductive6.12 Digestive6.13 Immune**Unit 7 Understanding Basic Taping, Wrapping and Bracing for Injuries**7.3 Identify the types of marketed and fabricated bracing devices as well as techniques.7.4 Debate the advantages and disadvantages of taping versus wrapping.7.5 Determine which elastic wraps and wrapping procedures are most appropriate for specific scenarios. **Unit 9 Identifying Basic Tissue Response and Common Injuries**9.1 Describe and illustrate the three phases of the healing process as it pertains to various soft tissue structures, including cartilage, ligament, muscle, tendon, and nerve.9.2 Explain the physiology and psychology of pain.9.3 Differentiate between sprains and strains, and differentiate between 1st, 2nd, and 3rd degree injuries.9.4 Illustrate various types of fractures and explain the forces required to produce each one.9.5 List the mechanical properties of tissue as they pertain to the stress-strain curve.9.6 Illustrate and describe the 5 types of tissue loading.**Unit 11 Determining Appropriate Emergency Injury Management**11.2 Investigate the acute injury management techniques**Unit 15 Fundamental Concepts of Evaluation**15.1 Differentiate between HOPS and SOAP15.3 Differentiate between manual muscle testing and resistive range of motion testing |
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| **Unit 12:** The Head/Face and Cervical Spine – Anatomy, Evaluation, and Injuries  | **Total Learning Hours for Unit:** 15  |
| **Unit Summary**: Students recognize and know the relevant anatomy of the head/face and cervical spine. Through observation, case studies and/or participation in mock and/or simulated settings, students will identity and understand advanced history questions, observation points, gross anatomy and palpation points, and special tests of the head/face and cervical spine along with signs and symptoms of head/face and cervical spine injuries and conditions as well as the diagnosis and treatment of each.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Review and recognize the specific anatomy of the head and spine related to sports injuries.
* Identify bones and bony landmarks related to head and spine injuries.
	+ Temporal bone • Orbit (orbital socket)
	+ Mastoid process • Nasal bones (generic)
	+ Occipital bone • Vertebral spinous processes
* Identify the soft and connective tissues related to head and spine injuries and their respective functions.
	+ Intervertebral discs
	+ Sternocleidomastoid
	+ Trapezius
	+ Latissimus dorsi
* Identify the nerve tissues related to head and spine injuries.
	+ Spinal cord
	+ Brain
	+ Cranial nerve
	+ Brachial plexus
	+ Central nervous system
	+ Peripheral nervous system
* Discuss the common injuries of the head and spine.
	+ - Identify the common injuries and a given mechanism of each.
	+ Skull fractures
	+ Concussions
	+ Epidural and subdural hematoma
	+ Vertebral fractures
	+ Spinal sprains and strains
	+ Vertebral disc dysfunction
	+ Spinal cord injuries
		- Identify and discuss special tests used to assess injuries to the head and spine.
		- Pen-light assessment
		- Balance error scoring system (BESS) testing
		- Bilateral sensation and motor function
* Through observation, case studies and/or participation in mock and/or simulated settings, students:
	1. Complete an injury flowchart for head/face and cervical spine injuries
	2. Evaluate their classmates for various head/face and cervical spine injuries using a HOPS form and provide proper immediate treatment for each (e.g. PRICE, taping, rehabilitation)
	3. With a partner, create and label skulls and brains with Play-Doh
	4. View a surgery of a head/face and cervical spine injury, write a research paper pertaining to the surgery, and present the surgery to their classmates
	5. Learn the 12 cranial nerves and participate in a lab to explore how to test the functions of each
	6. Listen to a guest speaker to educate students about concussions and the return to play process following a concussion for student athletes
	7. Participate in an exploratory lab to test out various concussion tests and how they could determine if an athlete is suffering from a concussion
	8. Apply the taping procedures learned from upper extremity practical skills to appropriate head/face and cervical spine injuries
	9. Demonstrate written and oral conversations using the proper medical terms
* *Suggested Practical Skills: Cranial Nerve Testing; Helmet and Shoulder Pad Fitting; Assessing PEARL*
 |
| **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 will demonstrate health literacy (12.D.1; 12.D.5) when participating in an exploratory lab to test out various concussion tests and how they are used to determine if a person is suffering from a concussion.
 |
| **Industry Standards and/or Competencies**:* Students understand the anatomy of the skull and brain including the meninges.
* Students understand the anatomy of the eye, ear, and the teeth.
* Students know the 12 cranial nerves, each of their functions, and how to assess each one.
* Students can identify important history questions and observation points of the head/face.
* Students understand the gross and fine anatomy of the head/face and cervical spine and how to palpate major and minor anatomical landmarks.
* Students can perform important special tests of the head/face and cervical spine including ROMs and identify the positive signs of each.
* Students know the S/S of common and uncommon head/face and cervical spine injuries and conditions and the diagnosis and treatment of each.
* Students understand the various means that a cerebral concussion is diagnosed, the current best practices for treatment, and the current best practices for return to play.
* Students know how to use various sideline concussion diagnostic tools.
* Students understand the implications of second impact syndrome.
* Students know what CTE is and how it has changed the care of cerebral concussions.
* Students understand the Zackery Lystedt Law and how it changed concussion management in the state of Washington.
 |
| **National Health Science Standards** **Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases, and medical math principles**1.1 Human Anatomy and Physiology**1.1.1 Describe the organization of the human body and directional terms.d. Use directional terms1.1.2 Identify basic structures and describe functions of human body systems.a. Skeletal* Structures of the skeletal system
* Functions of the skeletal system

b. Muscular* Structure of the muscular system
* Functions of the muscular system

g. Nervous* Structures of the nervous system
* Functions of the nervous system

**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication**2.1.3 Distinguish between subjective and objective information.2.1.5 Modify communication to meet the needs of the patient/client and to be appropriate to the situation**2.3 Written Communication Skills**2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting).2.3.2 Prepare examples of technical and informative writing.**Standard 4 Employability Skills**Use employability skills to enhance employment opportunities and job satisfaction.**4.1 Personal Traits of the Health Professional**4.1.1 Identify personal traits and attitudes desirable in a career ready member of a health team.**4.2 Employability Skills**4.2.1 Apply employability/soft skills in healthcare.**Standard 5 Legal Responsibilities**Describe legal responsibilities, limitations, and implications on healthcare workers actions.**5.2 Legal Practices**5.2.1 Apply standards for the safety, privacy, and confidentiality of health information.**Standard 6 Ethics**Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment.**6.2 Cultural, Social, and Ethnic Diversity**6.2.2 Demonstrate respectful and empathetic treatment of all patients/clients/families.**Standard 7 Safety Practices**Identify existing and potential hazards to clients, co-workers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness.**7.1 Infection Control**7.1.2 Differentiate methods of controlling the spread and growth of pathogens.**7.2 Personal Safety**7.2.2 Demonstrate principles of body mechanics during patient care.7.2.3 Demonstrate and apply the use of Personal Protective Equipment (PPE).**7.3 Environmental Safety**7.3.1 Apply safety techniques in the work environment.**Standard 8 Teamwork**Identify roles and responsibilities of individual members as part of the healthcare team.**8.1 Healthcare Teams**8.1.1 Evaluate roles and responsibilities of healthcare team members.8.1.2 Identify characteristics of effective teams.**8.2 Team Member Participation**8.2.4 Evaluate why teamwork is an important part of healthcare and how it improves patient care.**Standard 11 Information Technology in Healthcare**Apply information technology practices common across health professions.**11.1 Key principles, components, and practices of health information systems (HIS)** 11.1.1 Identify components of an electronic health record (EHR) and/or electronic medical record (EMR).11.1.3 Create electronic documentation that reflects timeliness, completeness, and accuracy.11.1.4 Examine information systems policies, procedures, and regulations as required by national, state, and local entities. |
| **National Athletic Trainers Association Standards:****Unit 6 Human Anatomy and Physiology: Discussion on the Following Body Systems**6.2 Skeletal6.3 Nervous6.6 Muscular**Unit 7 Understanding Basic Taping, Wrapping and Bracing for Injuries**7.1 List considerations to be given when properly fitting headgear.7.2 Debate the advantages and disadvantages of customized versus commercial protective devices.7.3 Identify the types of marketed and fabricated bracing devices as well as techniques.7.4 Debate the advantages and disadvantages of taping versus wrapping.7.5 Determine which elastic wraps and wrapping procedures are most appropriate for specific scenarios. **Unit 9 Identifying Basic Tissue Response and Common Injuries**9.1 Describe and illustrate the three phases of the healing process as it pertains to various soft tissue structures, including cartilage, ligament, muscle, tendon, and nerve.9.2 Explain the physiology and psychology of pain.9.3 Differentiate between sprains and strains, and differentiate between 1st, 2nd, and 3rd degree injuries.**Unit 11 Determining Appropriate Emergency Injury Management**11.2 Investigate the acute injury management techniques11.3 List and describe the signs and symptoms of a concussion and demonstrate the recognition of them.**Unit 15 Fundamental Concepts of Evaluation**15.1 Differentiate between HOPS and SOAP15.3 Differentiate between manual muscle testing and resistive range of motion testing |
| **Aligned Washington State Academic Standards** |
| Science | HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.HS-PS2-3. Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision |
| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Asking questions (for science) and defining problems (for engineering)Developing and using models Planning and carrying out investigations Analyzing and interpreting dataEngaging in argument from evidence Constructing Explanations and Designing Solutions | Structure and FunctionForces and MotionDefining and Delimiting Engineering Problems | Systems and System ModelsStructure and FunctionStability and ChangeCause and Effect |

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| **Unit 13:** Introduction to Exercise Science (Exercise Physiology, Kinesiology, and Biomechanics)  | **Total Learning Hours for Unit:** 10  |
| **Unit Summary**: Students understand the anatomy of a skeletal muscle and the concept of the sliding filament theory. Students learn the different types of joints and their various locations in the human body. Students understand the planes of motion and how to perform basic movement analysis of open and closed kinetic chain exercises. |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Students create and label a 3D model of muscle anatomy using licorice to depict the sliding filament theory
* Students dissect a long bone using computer software
* With a partner, students will pick a 30 second dance clip. They will analyze muscle contraction, usage, and movement of the dance clip and present the information in a PowerPoint presentation
* Students determine the VO2max of one of their classmates using several predictive equations
* Using their FITT projects designed in Sports Medicine I, students analyze their use of Strength and Conditioning principles and with the knowledge they have from Exercise Science, they determine which changes they would make to their projects
* Students investigate the history and science behind common diagnostic imaging tools.
 |
| **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 manage products (10.A.1; 10.A.2) and produce results (10.B.1 [a-h]) when analyzing their prior FITT project and making appropriate changes based on their new knowledge of strength and conditioning.
 |
| **Industry Standards and/or Competencies**:* Students know the anatomy of a skeletal muscle and can identify structures of skeletal muscle tissue
* Students understand the sliding filament theory.
* Students know the 3 muscle fiber types and characteristics of each.
* Students know the 3 basic energy systems of the body and their mechanisms of energy transfer.
* Students can perform and interrupt the results of various fitness tests for cardiorespiratory endurance, muscular strength and endurance, and flexibility.
* Students understand what an individual’s VO2max is and how it is calculated.
* Students know the different types of joints and the characteristics of each.
* Students know the different types of diarthrosis joints and can identify various joints in the body of each type.
* Students understand the anatomical planes and how they apply to motion.
* Students know the difference between an open kinetic chain and closed kinetic chain and can identify movements that are of type.
* Students understand levers and can identify them in the human body.
* Students can perform a basic movement analysis.
* Students have a basic understanding of motion analysis and how they can be used in athletic performance and research.
* Students have a basic understanding of force plates and how they can be used in research.
 |
| **National Health Science Standards****Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases and disorders, and medical math principles.* 1. **Human Anatomy and Physiology**
		1. Describe the organization of the human body and directional terms.

e. Identify body planes1.1.2 Identify basic structures and describe functions of human body systems. a. Skeletal * Structures of the skeletal system
* Functions of the skeletal system
1. Muscular
* Structures of the muscular system
* Functions of the muscular system

**1.3 Medical Mathematics**1.3.2 Demonstrate the ability to analyze diagrams, charts, graphs, and tables to interpret healthcare results. |
| **National Athletic Trainers Association Standards: (Reinforce and Apply knowledge from Sports Medicine 1)****Unit 4 Understanding the Basics of Training and Conditioning Techniques**4.1 Investigate the roles of the athletic trainer and the strength and conditioning coach on an athlete’s fitness.4.2 Explain the principles of conditioning.4.4 Design goals of a training and conditioning program for a specific sport/position on a team.4.5 List the equipment needed for a comprehensive training and conditioning program.4.6 Differentiate between types of stretching and determine which is best in a given scenario.**Unit 6 Human Anatomy and Physiology: Discussion on the Following Body Systems**6.2 Skeletal6.6 Muscular**Unit 9 identifying Basic Tissue Response and Common Injuries**9.1 Describe and illustrate the three phases of the healing process as it pertains to various soft tissue structures, including cartilage, ligament, muscle, tendon, and nerve.9.5 List the mechanical properties of tissue as they pertain to the stress-strain curve.9.6 Illustrate and describe the 5 types of tissue loading. |

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| **Aligned Washington State Academic Standards** |
| Science | 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 cellsHS-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 moleculesHS-LS1-7. Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energyHS-PS4-1. Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various mediaHS-PS4-4. Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matterHS-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 modelsConstructing Explanations and Designing Solutions | LS1.A: Structure and FunctionLS1.C: Organizations for Matter and Energy Flowin Organisms | Systems and System ModelsEnergy and MatterStructure and Function |

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| **Unit 14:** Introduction to Research Methods | **Total Learning Hours for Unit:** 10 |
| **Unit Summary**: Students understand evidence-based practice, why it is important to the medical field, and how to identify the various levels of evidence in scientific writing as well as utilize scientific writing techniques.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Students analyze a research article to determine the level of evidence and its use of evidence-based practice
* Students write a 1-page research paper with scientific writing and proper APA formatting
* Students create a professional resume and cover letter to use for job and college applications
 |
| **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 independently (8.B.1) to complete a 1-page research paper with scientific writing and proper APA formatting.
* Students make judgements and decisions (2.C.1; 2.C.2; 2.C.4) when analyzing research articles to determine level of evidence.
 |
| **Industry Standards and/or Competencies**:* Students understand what evidence-based practice is and why it is important to the medical field.
* Students can identify the various levels of evidence in scientific writing.
* Students know what plagiarism is and the ramifications of having any in their work.
* Students can utilize scientific writing techniques.
* Students understand APA formatting including source dependent in-text citations and works cited.
* Students know strategies for writing effective, professional emails.
* Students can write professional, job-specific cover letters and resumes.
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| **National Health Science Standards****Standard 1 Academic Foundation**Understand human anatomy, physiology, common diseases and disorders, and medical math principles.**1.2 Diseases and Disorders**1.2.2 Describe biomedical therapies as they relate to the prevention, pathology, and treatment of disease. **1.3 Medical Mathematics**1.3.1 Demonstrate competency using basic math skills and mathematical conversions as they relate to healthcare. 1.3.2 Demonstrate the ability to analyze diagrams, charts, graphs, and tables to interpret healthcare results.**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.2 Medical Terminology**2.2.1 Use common roots, prefixes, and suffixes to communicate information. 2.2.2 Interpret common medical abbreviations to communicate information.**2.3 Written Communication Skills**2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting). 2.3.2 Prepare examples of technical and informative writing.**Standard 4 Employability Skills**Use employability skills to enhance employment opportunities and job satisfaction.**4.4 Employability Preparation**4.4.1 Develop components of a personal portfolio. * Community service/Service learning
* Credentials
* Leadership examples
* Mock interview
* Oral report
* Personal statement
* Professional/student organization memberships
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| **Aligned Washington State Academic Standards** |
| Science |  |
| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Engaging in argument from evidence Obtaining, evaluating, and communicatinginformation |  |  |

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| **Unit 15:** Advanced Modalities in Sports Medicine  | **Total Learning Hours for Unit:** 15  |
| **Unit Summary**: Students understand the indications and contraindications of various therapeutic modalities as well as application techniques of each and their usage in the field of Sports Medicine.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Students produce a review game of non-penetrating modalities that can be played by their classmates
* Students produce a research paper about a theory of pain using APA formatting
* Students participate in an exploratory lab regarding the usage of kinesiotape, cupping, and scraping
* Students review how to educate and fit injured individuals for crutches using their classmates as patients
* *Practical Skills: Crutch Fitting; Donut Pad Fitting*
 |
| **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 think creatively (1.A.1; 1.A.3) to make a review game of non-penetrating modalities.
 |
| **Industry Standards and/or Competencies**:* Students know the difference between an indication and a contraindication.
* Students know the 4 different means of thermal energy transfer.
* Students understand what cryotherapy is, when it is indicated, when it is contraindicated, and the various application techniques.
* Students understand what thermotherapy is, when it is indicated, when it is contraindicated, and the various application techniques.
* Students can define pain and identify various sources of pain.
* Students know the difference between afferent and efferent nerve fibers and how they play a role in the transmission of pain signals.
* Students can define the various theories of pain and how they apply to therapeutic modalities.
* Students understand the indications, contraindications, and parameters of electric stimulation as well as the application methods for various injuries and conditions.
* Students understand the indications, contraindications, and parameters of therapeutic ultrasound as well as the application methods for various injuries and conditions.
* Students understand the indications and contraindications of low-level laser therapy, dry needling, and cryotherapy.
* Students can identify the indications and contraindications of a massage and perform the 5 strokes of a sports massage.
* Students know the theories behind kinesiotape and can perform basic application techniques.
 |
| **National Health Science Standards** **Standard 1 Academic Foundation**Explain human anatomy, physiology, common diseases and disorders, and medical math principles**1.1 Human Anatomy and Physiology**1.1.1 Describe the organization of the human body and directional terms. 1.1.2 Identify basic structures and describe functions of human body systems. **1.2 Diseases and Disorders**1.2.1 Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders, including, but not limited to the following: **Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication** 2.1.1 Model verbal and nonverbal therapeutic communication. 2.1.5 Modify communication to meet the needs of the patient/client and to be appropriate to the situation. **2.2 Medical Terminology**2.2.1 Use common roots, prefixes, and suffixes to communicate information. **Standard 4 Employability Skills**Use employability skills to enhance employment opportunities and job satisfaction.**4.1 Personal Traits of the Health Professional**4.1.2 Summarize professional standards as they apply to hygiene, dress, language, confidentiality, and behavior. **Standard 5 Legal Responsibilities**Describe legal responsibilities, limitations, and implications on healthcare worker actions.**5.2 Legal Practices**5.2.1 Apply standards for the safety, privacy, and confidentiality of health information.5.2.4 Differentiate informed and implied consent. 5.2.5 Describe the concept of scope of practice.  |
| **National Athletic Trainers Association Standards:****Unit 9 Identifying Basic Tissue Response and Common Injuries**9,2 Explain the physiology and psychology of pain. **Unit 13 Introduction to Rehabilitation and Modalities**13.1 List the safety procedures with each type of modality.Investigate the various types of therapeutic modalities. |

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| **Aligned Washington State Academic Standards** |
| Science | HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.HS-PS4-1. Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various mediaHS-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 (for science) and defining problems (for engineering)Planning and carrying out investigationsAnalyzing and interpreting dataConstructing explanations (for science) and designing solutions (for engineering)Developing and Using ModelsObtaining, evaluating, and communicating information | Structure and FunctionStructure and Properties of MatterPS4.A Wave PropertiesPS4.C Information Technologies and Instrumentation | Energy and MatterStability and ChangeCause and Effect |

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| **Unit 16:** Advanced Rehabilitation in Sports Medicine  | **Total Learning Hours for Unit:** 15  |
| **Unit Summary**: Students understand the importance of rehabilitation in terms of an athletic injury and be able to identify the major components of a rehabilitation program. Students understand the phases of rehabilitation, their goals, appropriate exercises of each as well as exercise progressions, and the various criteria for returning an athlete to play following rehabilitation from injury. Students identify advanced rehabilitation techniques and apply them appropriately throughout a rehabilitation protocol.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Students participate in an exploratory lab pertaining to PNF, joint mobilizations, and myofascial release
* With a partner, students create a research paper and rehabilitation program for a severe assigned athletic injury
* *Practical Skill: Girth Measurements*
 |
| **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 interact effectively with others (9.A.1; 9.A.2) to create their research papers and rehabilitation programs.
 |
| **Industry Standards and/or Competencies**:* Students can identify the importance of rehabilitation in terms of athletic injury and identify the major components of a rehabilitation program.
* Students know the phases of rehabilitation as well as the goals and appropriate exercises of each and exercise progressions to the next phase.
* Students understand the various criteria for returning an athlete to play following rehabilitation from injury.
* Students can prescribe and demonstrate various appropriate range of motion, strength, and balance rehabilitation exercises for a variety of athletic injuries.
* Students know special considerations that pertain to rehabilitation.
* Students understand the benefits of aquatic exercise and how it can be implemented into a rehabilitation program.
* Students know the various methods of Proprioceptive Neuromuscular Facilitation and how to apply them to stretching and exercise.
* Students know the difference between a convex and concave joint surface and how to apply this knowledge to joint mobilizations.
* Students understand what myofascial release is and how to utilize it in a rehabilitation program.
* Students can design a rehabilitation program for injuries or conditions of various severities of both the upper and lower extremity.
 |
| **National Health Science Standards****Standard 1 Academic Foundations**Understand human anatomy, physiology, common diseases and disorders, and medical math principles.**1.2 Diseases and Disorders**1.2.1 Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.1 Concepts of Effective Communication**2.1.5 Modify communication to meet the needs of the patient/client and to be appropriate to the situation. 2.1.6 Describe appropriate interactions with patients throughout various stages of psychosocial development.**Standard 5 Legal Responsibilities**Describe legal responsibilities, limitations, and implications on healthcare worker actions.**5.2 Legal Practices**5.2.5 Describe the concept of scope of practice. **Standard 9 Health Maintenance Practices**Differentiate between wellness and disease. Promote disease prevention and model health behaviors.**9.1 Health Behaviors**9.1.4 Investigate complementary and alternative health practices as they relate to wellness and disease prevention. |
| **National Athletic Trainers Association Standards:****Unit 13 Introduction to Rehabilitation and Modalities**13.2 Investigate the role of various rehabilitation professionals.13.3 Understand the five phases of rehabilitation.Identify and discuss the primary components of a rehabilitation program. |
| **Aligned Washington State Academic Standards** |
| **Science** | HS-PS1-5. Apply scientific principles and evidence to provide an explanation about the effects of changingthe temperature or concentration of the reacting particles on the rate at which a reaction occurs.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** |
| Asking questions (for science) and defining problems (for engineering)Analyzing and interpreting dataObtaining, evaluating, and communicating informationConstructing Explanations and Designing Solutions | Structure and FunctionChemical Reactions | Stability and ChangePatterns |

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| **Unit 17:** Introduction to Pharmacology in Sports Medicine  | **Total Learning Hours for Unit:** 10  |
| **Unit Summary**: Students understand the indications and contraindications of selected medications in Sports Medicine. Students understand how drug testing is performed and the possible ramifications for using banned substances as an athlete.  |
| **Performance Assessments**:(Districts to complete for each unit)*Example assessments for this unit include:** Students research, create, and present an informational medium regarding a common prescription drug
* Students research and present on drug testing for various amateur and professional athletic organizations
* A guest speaker presents on the opioid crisis in the United States
 |
| **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 will access information (4.A.1; 4.A.2) and use and manage information (4.B.1; 4.B.3) when researching and creating an informational medium regarding a common prescription drug.
 |
| **Industry Standards and/or Competencies**:* Students understand basic terminology associated with pharmacology (e.g. pharmacokinetics, half-life, efficacy).
* Students know the legal concerns when it comes to dispensing drugs.
* Students know the indications and contraindications of selected therapeutic drugs.
* Students know the positive and negative effects of several performance-enhancing substances.
* Students understand how drug testing is performed on athletes and what the possible ramifications for using illegal substances as an athlete are.
 |
| **National Health Science Standards****S00tandard 1 Academic Foundations**Understand human anatomy, physiology, common diseases and disorders, and medical math principles.* 1. **Diseases and Disorders**

1.2.2 Describe biomedical therapies as they relate to the prevention, pathology, and treatment of disease. * 1. **Medical Mathematics**

1.3.1 Demonstrate competency using basic math skills and mathematical conversions as they relate to healthcare.**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.2 Medical Terminology** 2.2.1 Use common roots, prefixes, and suffixes to communicate information. **Standard 5`Legal Responsibilities**Describe legal responsibilities, limitations, and implications on healthcare worker actions.**5.2 Legal Practices**5.2.1 Apply standards for the safety, privacy, and confidentiality of health information. **Standard 6 Ethics**Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment.**6.2 Cultural, Social and Ethnic Diversity**6.2.2 Demonstrate respectful and empathetic treatment of all patients/clients/families. **Standard 8 Teamwork**Identify roles and responsibilities of individual members as part of the healthcare team.**8.1 Healthcare Team**8.1.1 Evaluate roles and responsibilities of healthcare team members. **Standard 11 Information Technology in Healthcare**Apply information technology practices common across health professions.**11.1 Key Principles, components, and practices of health information systems (HIS)** 11.1.4 Examine information systems policies, procedures, and regulations as required by national, state, and local entities. |
| **National Athletic Trainers Association Standards:****Unit 12 Investigating the Psychological Aspects of Injury**12.1 Investigate the psychological reactions one may see in the ill or injured athlete.12.4 Determine the reasons why social support is important in an injured athlete.12.3 Describe the role a health care provider plays when dealing with various psychological reactions.12.4 Differentiate between a counselor, a psychologist, and a psychiatrist.**Unit 14 Basic Pharmacology**14.1 Describe the difference between over-the-counter medications and prescription medications14.2 Discuss the different classifications of common medications.14.3 Identify safety guidelines associated with proper medication use.14.4 List socially used drugs and problems associated with athletics and performance. |
| **Aligned Washington State Academic Standards** |
| Science | HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems thatprovide specific functions within multicellular organismsHS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintainhomeostasis.HS-PS1-2. Construct and revise an explanation for the outcome of a simple chemical reaction based on theoutermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemicalproperties |
| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Planning and Carrying Out InvestigationsConstructing Explanations and Designing Solutions | Structure and FunctionStructure and Properties of Matter | Stability and ChangePatterns |

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| **Unit 18:** General Medical Conditions  | **Total Learning Hours for Unit:** 10  |
| **Unit Summary**: Students understand the common signs and symptoms, the diagnosis, and treatment of various general medical conditions.  |
| **Performance Assessments**:(Districts to complete for each unit) *Example assessments for this unit include:** Students research, create, and present an informational medium regarding a general medical condition of choice
* Students create media projects outlining skin conditions common in contact sports.
 |
| **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 will apply technology (6.A.1) when researching general medical conditions for their presentation.
 |
| **Industry Standards and/or Competencies**:* Students know the S/S of common and uncommon skin conditions and the diagnosis and treatment of each.
* Students know the S/S of common and uncommon viruses and the diagnosis and treatment of each.
* Students know the S/S of common and uncommon bacterial infections and the diagnosis and treatment of each.
* Students know the S/S of an asthma attack and the management of an attack.
* Students know the S/S of various types of cancer and the diagnosis and treatment of each.
* Students know the S/S of additional general medical conditions of the respiratory system, muscular system, nervous system, and endocrine system.
 |
| **National Health Science Standards****Standard 1 Academic Foundations**Understand human anatomy, physiology, common disease and disorders, and medical math principles.**1.1 Human Anatomy and Physiology**1.1.1 Describe the organization of the human body and directional terms.**1.2 Diseases and Disorders**1.2.1 Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders, including, but not limited to the following:**Standard 2 Communications**Demonstrate methods of delivering and obtaining information, while communicating effectively.**2.2 Medical Terminology**2.2.1 Use common roots, prefixes, and suffixes to communicate information.  |
| **National Athletic Trainers Association Standards:****Unit 5 Assessing Environmental Factors That Lead to Injury**5.3 Determine an appropriate SPF for specific individuals5.6 Determine the risks associated with repeated overexposure to the sun. **Unit 6: Human Anatomy and Physiology: Discussion on the Following Body Systems**6.1 Integumentary6.3 Nervous 6.4 Endocrine6.6 Muscular6.7 Lymphatic6.8 Respiratory**Unit 10 Recognizing and Preventing the Spread of Blood Borne Pathogens**10.1 Investigate various blood borne pathogens.10.4 Explain basic wound care procedures.**Unit 11 Determining Appropriate Emergency Injury Management**11.5 Recognize the common causes of cardiopulmonary complications in sports.**Unit 14 Basic Pharmacology**14.1 Explain the difference between over-the-counter medications and prescription medications14.2 Discuss the different classifications of common medications14.3 Identify safety guidelines associated with proper medication use.14.4 List socially used drugs and problems associated with athletics and performance. |
| **Aligned Washington State Academic Standards** |
| Science | HS-LS3-1. Ask questions to clarify relationships about the role of DNA and chromosomes in coding theinstructions for characteristic traits passed from parents to offspring |
| **Science and Engineering Practice** | **Disciplinary Core Idea** | **Crosscutting Concept** |
| Asking Questions and Defining Problems | Structure and FunctionInheritance of Traits | Cause and Effect |