

Physical/Occupational Therapy II

8366 36 weeks / 280 hours

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Course Description

Suggested Grade Level: 11 or 12

Prerequisites: 8365

This course is designed to provide a fundamental understanding of kinesiology and anatomy from a clinical perspective, to include the anatomical basis of common pathological conditions seen by physical/occupational therapists. Instruction is reinforced with hands-on activity labs and

practical experiences. Students continue to explore principles and practices of therapists learned in the Physical/Occupational Therapy I class and participate in clinical observation under the direct supervision of a licensed physical and/or occupational therapist. Clinical skills in the areas of physical therapy and occupational therapy enable students to gain an understanding of rehabilitative care, which is practiced throughout the continuum of care and across the life span of individuals. After successful completion of this course, students may seek higher education for specific degrees/licensure in a variety of fields such as physical therapy, occupational therapy, speech therapy, sports medicine, athletic training, chiropractic medicine, biology, or exercise science.

NOTE: *This course has specific state laws and regulations from a governing medical board or agency. Please contact the Virginia Department of Education, Office of Career and Technical Education Services prior to implementing this course. All inquiries may be sent to cte@doe.virginia.gov.*

Task Essentials Table

- Tasks/competencies designated by plus icons (⊕) in the left-hand column(s) are essential
- Tasks/competencies designated by empty-circle icons (○) are optional
- Tasks/competencies designated by minus icons (⊖) are omitted
- Tasks marked with an asterisk (*) are sensitive.

8366	Tasks/Competencies
Demonstrating Basic Anatomy Concepts	
⊕	Describe body regions and body parts, using medical terminology.
⊕	Locate body regions and body parts, using palpation.
⊕	Identify anatomical positions.
⊕	Demonstrate movement patterns and positions, using planes, axes of motion, major joints, and medical terminology.
⊕	Describe the major joints of the body.
⊕	Locate the major joints of the body, using palpation.
⊕	Classify the major joints of the body.
⊕	Demonstrate an example of each type of therapeutic exercise, including isometric and isotonic exercises.
⊕	Describe the bones and bony landmarks of the human skeleton.
⊕	Locate bones and bony landmarks, using palpation.
⊕	Describe basic muscle morphology from the epimysium to the sarcomere.
⊕	Describe the chain of events that results in muscle contraction.
⊕	Describe each functional role of muscle (e.g., prime mover, synergist, stabilizer, etc.).
⊕	Define general origins, insertions, and actions of muscles throughout the body.
Identifying Anatomy of the Lower Extremity	
⊕	Identify the origin, insertion, action(s), and innervation (nerve) of each lower extremity muscle.
⊕	Identify on a skeleton the bones and major bony landmarks of the lower extremity and pelvis.

8366	Tasks/Competencies
+	Palpate bony landmarks of the lower extremity.
+	Describe the structures and functions of the lower extremity joints.
+	Describe the structure and function of the lumbosacral plexus and its relationship to lower extremity muscular innervation.
+	Outline the arterial supply to the lower extremity.
+	Demonstrate the joint movement when given a lower extremity muscle or muscle group.
○	Investigate the lower extremity musculoskeletal structures.
Identifying Anatomy of the Upper Extremity	
+	Identify the origin, insertion, action(s), and innervation (nerve) of each upper extremity muscle.
+	Describe the structures and functions of the upper extremity joints.
+	Palpate bony landmarks of the upper extremity.
+	Describe the structure and function of the brachial plexus and its relationship to upper extremity muscular innervation.
+	Describe the arterial supply to the upper extremity.
○	Investigate the upper extremity musculoskeletal structures.
Identifying Anatomy of the Head, Neck, and Trunk	
+	Identify the origin, insertion, action, and innervation of each head, neck, and trunk muscle.
+	Identify on a skeleton the bones and major bony landmarks of the skull, vertebral column, and pelvis.
+	Palpate the major bony landmarks of the head, neck, and trunk.
+	Describe the structures and functions of the joints of the spinal column and pelvis.
+	Identify the normal curves of the vertebral column from the lateral view.
+	Describe the structure and function of an intervertebral disc.
+	Compare the anatomical features of the cervical, thoracic, and lumbar vertebrae that enable identification of these vertebrae.
+	Identify the function of the abdominals in inspiration and expiration.
+	Identify the four major muscles of mastication.
+	Describe the general effects of aging and injury on the structure and function of the vertebral column.
○	Investigate the musculoskeletal structures of the head, neck, and trunk.
+	Describe the general effects of aging and injury on the structure and function of the upper extremities.
+	Describe the general effects of aging and injury on the structure and function of the lower extremities.
Preparing for Careers in the Rehabilitation Field	
+	Describe the variety of career fields related to rehabilitation.
+	Explain the differences among the duties of the physical therapist, physical therapist assistant, occupational therapist, and occupational therapy assistant.
+	Describe the requirements for licensure and credentialing in PT and OT.
+	Complete a clinical observation experience.
Describing the Opioid Crisis	

8366	Tasks/Competencies
+	Describe the history and current state of the opioid crisis in the United States.
+	Describe the history and current state of the opioid crisis in Virginia.
+	Define the pharmacological components and common uses of opioids.
Examining the Key Factors of Drug Addiction	
+	Examine the science of addiction.
+	Explain prevention and early intervention strategies.
+	Identify addiction and its behavioral elements, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).
+	Describe the treatment models of addiction therapy.
+	Describe the medication management antidote used to prevent fatal opioid overdoses.
Understanding Pain Management Protocols	
+	Explain the science of physiological and mental pain.
+	Describe the diagnostic tools used in developing pain management plans.
+	Describe pain treatment options available to various populations of patients.
+	Describe the effects of opioid dependency on the human body systems.
+	Explain the mechanism and physical effects of opioids on the human body.
+	Explain the use of opioids in practice settings, the role of opioids in pain management, and risk factors associated with the use of the medication.
+	Describe the withdrawal and tapering side effects of opioid use.
+	Describe storage and disposal options for opioids.
+	Explain community resources for education about opioid use.
Working with Patients and Caregivers	
+	Describe key communication topics involving opioids for patients.
+	Describe communication topics for caregivers and family members.

Legend: + Essential ○ Non-essential - Omitted

Curriculum Framework

Demonstrating Basic Anatomy Concepts

Task Number 39

Describe body regions and body parts, using medical terminology.

Definition

Description should include

- head
- neck
- trunk
- lower extremity
- upper extremity.

Process/Skill Questions

- What are the nine regions of the body cavity?
- What are the locations of the regions of the body cavity?
- What body parts make up the trunk? Upper extremities? Lower extremities?

HOSA Competitive Events (High School)

Health Science Events

- Medical Terminology

Health Professions Events

- Physical Therapy

Teamwork Events

- HOSA Bowl

Task Number 40

Locate body regions and body parts, using palpation.

Definition

Locations should include

- head
- neck
- trunk
- lower extremity
- upper extremity.

Process/Skill Questions

- What body parts can be palpated in an upper extremity examination?
- What body parts can be palpated in a lower extremity examination?
- What body parts can be palpated in an examination of the trunk?

HOSA Competitive Events (High School)

Health Science Events

- Medical Terminology

Health Professions Events

- Physical Therapy

Teamwork Events

- HOSA Bowl
-

Task Number 41

Identify anatomical positions.

Definition

Identification should include the following directional terminology and positioning:

- Superior
- Inferior
- Medial
- Lateral
- Anterior
- Posterior
- Proximal
- Distal
- Contralateral
- Ipsilateral
- Supine
- Prone
- Superficial
- Deep

Process/Skill Questions

- What is anatomical position (vs. fundamental position)?
- How are the hands placed in an anatomical position?
- Why is anatomical position important?

HOSA Competitive Events (High School)

Health Science Events

- Medical Terminology

Health Professions Events

- Physical Therapy

Teamwork Events

- HOSA Bowl
-

Task Number 42

Demonstrate movement patterns and positions, using planes, axes of motion, major joints, and medical terminology.

Definition

Demonstration should include

- flexion
- extension
- abduction
- adduction
- pronation
- supination
- dorsiflexion
- plantarflexion
- internal rotation
- external rotation
- inversion
- eversion.

Process/Skill Questions

- What are the cardinal planes?
- What is the relationship between cardinal planes and joint motions?
- What movements are similar between the shoulder and the hip?
- What is frontal plane motion of abduction and adduction at the wrist called?
- When it is more appropriate to use proximal and distal terms (vs. superior and inferior) to describe direction?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
- Sports Medicine

Task Number 43

Describe the major joints of the body.

Definition

Description should include

- neck
- spine
- shoulder
- elbow
- wrist
- fingers
- pelvis
- hip
- knee
- ankle
- toes.

Process/Skill Questions

- What type of joint is the ankle? Shoulder? Wrist? Knee? Hip? Elbow?
- Why do the shoulders and hips have more movements than the knees and the elbows?

Task Number 44

Locate the major joints of the body, using palpation.

Definition

Location should include

- neck
- spine
- shoulder
- elbow
- wrist
- fingers
- pelvis
- hip
- knee
- ankle
- toes.

Process/Skill Questions

- What bones comprise the shoulder girdle? Pelvic girdle? Atlantoaxial joint?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 45

Classify the major joints of the body.

Definition

Classification should include

- hinge
- ball-and-socket
- saddle
- pivot
- syndesmosis.

Process/Skill Questions

- What are the components of a synovial joint?
- What is unique about a syndesmosis?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy

Teamwork Events

- HOSA Bowl
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Task Number 46

Demonstrate an example of each type of therapeutic exercise, including isometric and isotonic exercises.

Definition

Demonstration should include an analysis of simple movements and determination of whether the principle action is being performed isometrically or isotonicly, and closed chain or open chain.

Process/Skill Questions

- What type of contraction is occurring when you are pushing against a wall?
- How is lifting a barbell an isotonic exercise?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
 - Sports Medicine
-

Task Number 47

Describe the bones and bony landmarks of the human skeleton.

Definition

Description should include the 206 bones of the axial and appendicular skeleton and the bony landmarks.

Process/Skill Questions

- What are the bones of the upper extremity? Lower extremity?
- What are the major bony landmarks used for a postural evaluation?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 48

Locate bones and bony landmarks, using palpation.

Definition

Location should include the bony landmarks of the body and the major bones of the axial and appendicular skeleton.

Process/Skill Questions

- Why is palpating various bony landmarks important?
- What can palpation of bones and landmarks tell us about a structure?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
 - Sports Medicine
-

Task Number 49

Describe basic muscle morphology from the epimysium to the sarcomere.

Definition

Description should include the following:

- Epimysium
- Perimysium
- Fascicles
- Endomysium
- Muscle fibers
- Myofibrils
- Myofilaments (actin and myosin)
- Sarcomere

Process/Skill Questions

- What are the thin and thick muscle filaments?
- What gives skeletal muscle its striated appearance?
- What happens during a concentric contraction? An eccentric contraction?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 50

Describe the chain of events that results in muscle contraction.

Definition

Description should include the role of adenosine triphosphate (ATP) and calcium (Ca^{2+}) in muscle contraction.

Process/Skill Questions

- What is ATP?
- What happens in muscle contraction if you have a low calcium level? Low potassium level?
- What is the sliding-filament model of contraction?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 51

Describe each functional role of muscle (e.g., prime mover, synergist, stabilizer, etc.).

Definition

Description should include

- agonist (prime mover)
- assisting mover
- antagonist
- cocontraction
- synergist
- neutralizer
- stabilizer.

Process/Skill Questions

- Do muscle size and angle of pull help determine whether a muscle is a prime mover or an assisting mover?
- What muscle is the agonist during elbow flexion?
- What muscle is the antagonist during elbow flexion?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 52

Define general origins, insertions, and actions of muscles throughout the body.

Definition

Definition should include muscles in the trunk, upper extremity, and lower extremity.

Process/Skill Questions

- Why is it important to know the origins and insertions of muscles?
- Why is it important to know the cardinal planes when studying joint actions?
- Where is it more common for a muscle to tear—at the origin or the insertion?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Identifying Anatomy of the Lower Extremity

Task Number 53

Identify the origin, insertion, action(s), and innervation (nerve) of each lower extremity muscle.

Definition

Identification on muscle models should include

- **hip**
 - gluteus maximus
 - gluteus medius
 - gluteus minimus
 - adductor magnus
 - adductor brevis

- adductor longus
 - pectineus
 - gracilis
 - sartorius
 - obturator externus
 - obturator internus
 - quadratus femoris
 - piriformis
 - gemellus inferior
 - gemellus superior
 - tensor fascia lata
 - iliopsoas
- **knee**
 - semitendinosus
 - semimembranosus
 - biceps femoris
 - rectus femoris
 - vastus medialis
 - vastus lateralis
 - vastus intermedialis
 - popliteus
- **ankle**
 - plantaris
 - gastrocnemius
 - soleus
 - tibialis posterior
 - peroneus (fibularis) longus
 - peroneus (fibularis) brevis
 - tibialis anterior
 - peroneus (fibularis) tertius
- **foot**
 - extensor digitorum longus
 - extensor digitorum brevis
 - extensor hallucis longus
 - extensor hallucis brevis
 - flexor digitorum brevis
 - abductor hallucis
 - flexor hallucis longus
 - flexor digitorum longus
 - abductor digiti minimi
 - abductor hallucis
 - lumbricalis
 - quadratus plantae

- abductor hallucis
- flexor hallucis brevis
- dorsal interossei
- plantar interossei.

Process/Skill Questions

- What muscles in the lower extremity are responsible for helping a person move from sitting to standing?
- What actions would a person be unable to perform if he/she injured the femoral nerve?
- What is the most common part of the bone in the hip joint to break during a fall?
- What key muscle prevents the knee from buckling?
- What bony landmarks are used to measure knee flexion and extension?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy

Teamwork Events

- HOSA Bowl

Task Number 54

Identify on a skeleton the bones and major bony landmarks of the lower extremity and pelvis.

Definition

Identification should include

- pelvis/innominate bones
- ilium (iliac fossa, anterior superior iliac spine [ASIS], anterior inferior iliac spine [AIIS], posterior superior iliac spine [PSIS], and greater sciatic notch)
- ischium (lesser sciatic notch, ischial spine, ischial tuberosity, superior ramus, and inferior ramus)
- pubis (superior ramus, inferior ramus, pubic symphysis, obturator foramen, and acetabulum)
- femur (head, neck, shaft, greater trochanter, lesser trochanter, medial and lateral condyles, medial and lateral epicondyles, and linea aspera)

- patella (apex, base, and articular surfaces)
- tibia (medial and lateral condyle, tibial tuberosity, tibial spine, shaft, medial malleolus, and tibial plateau)
- fibula (head, shaft, lateral malleolus, and styloid process)
- tarsals (calcaneus, talus, navicular cuboid, and cuneiforms)
- metatarsals (head, shaft, and base)
- phalanges (head, shaft, and base).

Process/Skill Questions

- What is the longest, strongest bone in the body?
- How are the ASIS and PSIS significant landmarks for postural assessment?
- What is the layman's term for *lateral malleolus*?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy

Teamwork Events

- HOSA Bowl

Task Number 55

Palpate bony landmarks of the lower extremity.

Definition

Palpation should include the major bony landmarks and palpable muscles of the lower extremity of a lab partner.

Process/Skill Questions

- What are the major bony landmarks of the lower extremity?
- What muscles attach to the ASIS?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy

Task Number 56

Describe the structures and functions of the lower extremity joints.

Definition

Description should include the ligaments, capsule, bursae, fascia, cartilage, and menisci. Description should also include the osteokinematic and arthrokinematic movements that occur at each lower extremity joint.

Process/Skill Questions

- What is the most common injury for a 16-year-old girl who plays soccer?
- What is the purpose and function of the popliteal bursa?
- Where is the knee position in regard to genu valgum/valgus?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy

Task Number 57

Describe the structure and function of the lumbosacral plexus and its relationship to lower extremity muscular innervation.

Definition

Description should include the various nerves and nerve roots.

Process/Skill Questions

- What is a “Charley horse”?
- During pregnancy, what is the most common complication, which can result in pain down one or both legs?

- What common nerve root(s) is involved with radicular pain from low back to foot?
-

Task Number 58

Outline the arterial supply to the lower extremity.

Definition

Outline should include the major veins and arteries of the lower extremity.

Process/Skill Questions

- Where in the lower extremity can a pulse be located?
- What typically happens in a distal lower extremity with poor arterial supply?

Task Number 59

Demonstrate the joint movement when given a lower extremity muscle or muscle group.

Definition

Demonstration should include the axis of rotation and plane of movement.

Process/Skill Questions

- Which joint of the lower extremity is the most limited in regard to planes of motion?
- Which muscles are activated when ice skating and roller skating?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 60

Investigate the lower extremity musculoskeletal structures.

Definition

Investigation could include use of photographs, drawings, models, or cadavers, as available, to describe the structures.

Process/Skill Questions

- Where does the medial collateral ligament (MCL) attach?
- Which anatomical structure lies in the space between the femoral condyles and the tibial plateau?
- Where is the insertion of the patella tendon?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy

Identifying Anatomy of the Upper Extremity

Task Number 61

Identify the origin, insertion, action(s), and innervation (nerve) of each upper extremity muscle.

Definition

Identification should include

- **shoulder**
 - trapezius
 - rhomboid major
 - rhomboid minor
 - supraspinatus
 - infraspinatus
 - teres major
 - teres minor
 - subscapularis
 - levator scapulae

- pectoralis minor
- serratus anterior
- pectoralis major
- deltoid
- latissimus dorsi
- coracobrachialis

- **elbow**
 - biceps brachii
 - brachialis
 - brachioradialis
 - triceps brachii
 - anconeus
 - supinator
 - pronator teres
 - pronator quadratus

- **wrist**
 - palmaris longus
 - flexor carpi radialis
 - flexor carpi ulnaris
 - extensor carpi radialis longus
 - extensor carpi radialis brevis
 - extensor carpi ulnaris

- **fingers**
 - flexor digitorum superficialis
 - flexor digitorum profundus
 - extensor digitorum
 - extensor indicis
 - extensor digiti minimi
 - abductor digiti minimi
 - dorsal interossei
 - palmar interossei
 - lumbricalis
 - opponens digiti minimi
 - flexor digiti minimi
 - palmaris brevis

- **thumb**
 - flexor pollicis longus
 - extensor pollicis longus
 - extensor pollicis brevis
 - abductor pollicis longus
 - opponens pollicis
 - flexor pollicis brevis

- abductor pollicis
- abductor pollicis brevis.

Process/Skill Questions

- What muscles in the upper extremity are responsible for helping a person move from sitting to standing?
 - What muscles make up the rotator cuff?
-

Task Number 62

Describe the structures and functions of the upper extremity joints.

Definition

Description should include the ligaments, capsule, and accessory joint structures. Description should also include the osteokinematic and arthrokinematic movements that occur at each upper extremity joint.

Process/Skill Questions

- What structure is the “funny bone”?
- What are the characteristics of the muscles needed to bench press 250 pounds?
- What are two common injuries of the shoulder capsule that limit range of motion?
- What bone breaks in a “boxer’s fracture”?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 63

Palpate bony landmarks of the upper extremity.

Definition

Palpation should include the major bony landmarks and palpable muscles of the upper extremity of a lab partner.

Process/Skill Questions

- What are the bony landmarks of the upper extremity?
- What is the location of the anatomical snuffbox?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 64

Describe the structure and function of the brachial plexus and its relationship to upper extremity muscular innervation.

Definition

Description should include the various roots, trunks, divisions, cords, and peripheral nerves.

Process/Skill Questions

- What is a common injury to an infant's upper extremity during birth?
- Which nerve injury will result in a "claw hand"?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 65

Describe the arterial supply to the upper extremity.

Definition

Description should include the major arteries and veins of the upper extremity.

Process/Skill Questions

- Where do you check for a pulse on a newborn?
 - What other areas of the upper extremity can be checked for palpable pulses?
-

Task Number 66

Investigate the upper extremity musculoskeletal structures.

Definition

Investigation could include use of photographs, drawings, models, or cadavers, as available, to describe the structures.

Process/Skill Questions

- What does *MRI* stand for? What is an MRI?
 - What does *CT* stand for? What is a CT?
-

Identifying Anatomy of the Head, Neck, and Trunk

Task Number 67

Identify the origin, insertion, action, and innervation of each head, neck, and trunk muscle.

Definition

Identification should include

- **head**
 - lateral pterygoid
 - masseter
 - medial pterygoid
 - temporalis

- **face**
 - frontalis
 - orbicularis oculi
 - zygomaticus major and minor
 - risorius
 - orbicularis oris
 - platysma
 - mentalis
 - buccinator
 - nasalis
 - corrugator supercilii

- **neck**
 - anterior scalenes
 - middle scalenes
 - posterior scalenes
 - sternocleidomastoid

- **abdomen**
 - transversus abdominus
 - external obliques
 - internal obliques
 - rectus femori

- **trunk**
 - splenius capitis and cervicis muscles
 - serratus posterior muscles
 - erector spinae muscles
 - transversospinalis muscles
 - interspinales muscles
 - intertransversarii muscles
 - obliquus capitis inferior
 - obliquus capitis superior
 - rectus capitis posterior major
 - rectus capitis posterior minor.

Process/Skill Questions

- What is the origin of the masseter?
- What is the “frown muscle”?

- Which muscles extend the neck?
-

Task Number 68

Identify on a skeleton the bones and major bony landmarks of the skull, vertebral column, and pelvis.

Definition

Identification should include

- skull (frontal, parietal, temporal mastoid process, occipital, maxilla, and mandible)
- cervical vertebrae (atlas, axis, odontoid process/dens, and transverse foramen)
- thoracic vertebrae (costal facets)
- lumbar vertebrae
- sacral vertebrae (crest, foramina, and lateral articular surfaces)
- coccygeal vertebrae
- comparative landmarks (vertebral body, spinous processes, transverse processes lamina, pedicle, intervertebral foramen, superior and inferior articulating facets, and vertebral foramen)
- sternum (manubrium, body, xiphoid process, jugular/sterna notch, and sterna angle)
- clavicle (acromioclavicular [AC] and sternoclavicular [SC] joints)
- ribs (seven true, five false, and costal cartilage).

Process/Skill Questions

- What structures are involved with a diagnosis of herniated nucleus pulposus?
 - What structural characteristic facilitates the compressions in CPR?
 - What structural differentiation determines which motions the various segments of the spine exhibit?
-

Task Number 69

Palpate the major bony landmarks of the head, neck, and trunk.

Definition

Palpations should include the major bony landmarks of the skull, spine, and pelvis, and palpable head, neck, and trunk muscles of a lab partner.

Process/Skill Questions

- Where are the major bony landmarks of the head, neck, and trunk?
- Where is the C7 vertebra?
- What is the temporomandibular joint (TMJ)?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 70

Describe the structures and functions of the joints of the spinal column and pelvis.

Definition

Description should include ligaments, capsule, bursa, discs, and fascia. Description should also include the osteokinematic and arthrokinematic movements that occur at the joints of the spinal column and trunk.

Process/Skill Questions

- What are the differences among lordosis, kyphosis, and scoliosis?
 - What are the differences between a bulging disc and a ruptured disc?
-

Task Number 71

Identify the normal curves of the vertebral column from the lateral view.

Definition

Identification should include

- kyphosis
- lordosis
- convex
- concave
- posture/vertebral alignment.

Process/Skill Questions

- What is the difference between a "flat back" and a "sway back" posture?
- What happens to cervical motion when sitting with a forward trunk flexed posture?
- What happens to the position of the pelvis when wearing high-heeled shoes?

HOSA Competitive Events (High School)

Health Professions Events

- Physical Therapy
-

Task Number 72

Describe the structure and function of an intervertebral disc.

Definition

Description should include annulus fibrosus and nucleus pulposus.

Process/Skill Questions

- What is the main function of the intervertebral disc?
 - What percentage of the total length of the vertebral column is comprised of intervertebral discs?
 - What portion/area of the intervertebral is most commonly involved in a herniated nucleus pulposus (HNP)?
-

Task Number 73

Compare the anatomical features of the cervical, thoracic, and lumbar vertebrae that enable identification of these vertebrae.

Definition

Comparison should include

- cervical vertebrae (atlas, axis, odontoid process/dens, and transverse foramen)
- thoracic vertebrae (costal facets)
- lumbar vertebrae
- comparative landmarks (vertebral body, spinous processes, transverse processes lamina, pedicle, intervertebral foramen, superior and inferior articulating facets, and vertebral foramen).

Process/Skill Questions

- Why is the first cervical vertebra (Atlas) named after the Greek mythological figure?
 - What functional purpose does the transverse foramen serve?
 - What other names are used for the facet joints?
-

Task Number 74

Identify the function of the abdominals in inspiration and expiration.

Definition

Identification should include the names, motions, and effect of each muscle during inspiration and expiration.

Process/Skill Questions

- Which muscles are used during pursed-lip breathing?
 - Which muscles assist with abdominal breathing?
-

Task Number 75

Identify the four major muscles of mastication.

Definition

Identification should include

- temporalis
- masseter
- lateral pterygoid
- medial pterygoid.

Process/Skill Questions

- Which muscles raise and lower the jaw?
- What is the difference between the function of the lateral and medial pterygoid?

HOSA Competitive Events (High School)

Teamwork Events

- HOSA Bowl
-

Task Number 76

Describe the general effects of aging and injury on the structure and function of the vertebral column.

Definition

Description should include

- osteoporosis
- degenerative disc disease (DDD)
- herniated nucleus pulposus (HNP)
- arthritis
- spinal stenosis.

Process/Skill Questions

- What happens to the vertebral disc as we age?
 - What is scoliosis?
-

Task Number 77

Investigate the musculoskeletal structures of the head, neck, and trunk.

Definition

Investigation could include use of photographs, drawings, models, or cadavers, as available, to describe the structures.

Process/Skill Questions

- What are the differences among spondylosis, spondylolisthesis, and spondylolysis?
 - What is a “Scotty dog” fracture?
-

Task Number 78

Describe the general effects of aging and injury on the structure and function of the upper extremities.

Definition

Description should include

- arthritis
- bursitis
- tendonitis
- adhesive capsulitis
- rotator cuff tear
- dislocations
- tennis elbow
- fractures
- golfer’s elbow
- carpal tunnel syndrome
- De Quervain’s
- Dupuytren’s contracture
- skier’s thumb
- gamekeeper’s thumb
- swan neck deformity
- boutonniere deformity
- ulnar drift
- mallet finger.

Process/Skill Questions

- What types of activity can delay and sometimes prevent degeneration of upper extremity structures?
 - How can a sedentary lifestyle affect the upper extremities?
 - What physiological changes might become apparent in the upper extremities as aging takes place?
-

Task Number 79

Describe the general effects of aging and injury on the structure and function of the lower extremities.

Definition

Description should include

- arthritis
- bursitis
- tendonitis
- fracture
- dislocation
- Legg-Calve-Perthes
- iliotibial band syndrome
- hip pointer
- genu valgum/varum
- genu recurvatum
- Osgood-Schlatter disease
- chondromalacia patella
- terrible triad
- shin splints
- pes cavus
- pes planus
- hallux valgus
- hammer toe
- mallet toe
- claw toe
- Morton's Neuroma
- turf toe
- plantar fasciitis

Process/Skill Questions

- What types of activity can delay and sometimes prevent degeneration of lower extremity structures?
 - How can a sedentary lifestyle affect the lower extremities?
 - What physiological changes might become apparent in the lower extremities as aging takes place?
-

Preparing for Careers in the Rehabilitation Field

Task Number 80

Describe the variety of career fields related to rehabilitation.

Definition

Description should include

- occupational therapy
- physical therapy
- athletic training
- speech and language pathology
- audiology
- kinesiology
- recreational therapy
- exercise science
- cardiac rehabilitation
- orthotics/prosthetics
- nursing
- biomedical or rehabilitation engineering
- massage therapy
- social work
- respiratory therapy
- rehabilitation counseling.

Many websites offer career exploration resources, including the Virginia Department of Education's [Career Planning Guide](#) and the [Virginia Department of Health Professions](#).

Process/Skill Questions

- What high school courses prepare students for careers related to rehabilitation?
- What higher education and training is required for each career path related to rehabilitation?
- What responsibilities are involved in each career path?
- What tests/checks (e.g., drug, criminal background) may be required of employees in rehabilitation fields?

Task Number 81

Explain the differences among the duties of the physical therapist, physical therapist assistant, occupational therapist, and occupational therapy assistant.

Definition

Explanation should include the roles of physical therapy and occupational therapy in treating clients.

Process/Skill Questions

- What are the differences in the degree requirements between therapists and assistants?
- What are the differences in the fieldwork requirements between therapists and assistants?
- What is required for licensure of therapists? Of assistants?
- What are the prerequisites for entering a postsecondary degree program in physical or occupational therapy?

Task Number 82

Describe the requirements for licensure and credentialing in PT and OT.

Definition

Description should include

- degree (associate for an occupational therapy assistant [OTA] and physical therapy assistant [PTA], masters of occupational therapy, doctorate of occupational therapy [OTD], and doctorate of physical therapy [DPT]) from an accredited program
- application submission for licensure
- passage of national examination (PT passing score is 600; OT passing score is 450)
- licensure renewal requirements and continuing education units (CEUs)
- criminal barriers and background requirements.

Process/Skill Questions

- What are the requirements for National Board for Certification in Occupational Therapy (NBCOT) and American Physical Therapy Association (APTA) relative to licensure?
- What is the application process in Virginia?
- What constitutes a passing score on the national PT/OT examinations?
- How do the criminal barriers differ between the two areas?
- What constitutes unlicensed practice?
- Are there any laws or regulations that would allow unlicensed practice? If so, what are the requirements to work without a license?

Task Number 83

Complete a clinical observation experience.

Definition

Clinical observation experiences may include

- field trips
- volunteering
- mentorship
- other observation experiences in a clinical setting.

Process/Skill Questions

- What equipment is used in the clinical setting?
- What personal characteristics and professional behaviors are important in the clinical setting?
- What are examples of conditions that might be observed in the clinical setting?
- What are examples of therapeutic processes that might be observed in the clinical setting?
- What are the facilities' health requirements for participants (e.g., tuberculosis test, immunizations)?

Describing the Opioid Crisis

Task Number 84

Describe the history and current state of the opioid crisis in the United States.

Definition

Description should include

- the relationship between opioid prescribing and illicit opioid use to overall opioid overdose deaths
- the prevalence of co-occurring mental health disorders
- the shift in attitudes in the 1990s toward pain management and use of opioids, including the role of pharmaceutical marketing
- the stigma associated with addiction and the changing view of addiction from a moral failing to a chronic, relapsing disease
- statistics, trends, and demographics surrounding the crisis
- population health and other public health aspects of the crisis, including its effects on family and neonates, as well as overall health costs.

Process/Skill Questions

- How are opioids created?
- Can opioids be safely prescribed to patients taking psychotropic drugs?
- How does society stereotype individuals with a history of drug addiction?
- What are the current trends that have contributed to the nationwide opioid crisis?
- How has the opioid epidemic affected emergency rooms and the first responder system?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- Creative Problem Solving
- Public Service Announcement

Task Number 85

Describe the history and current state of the opioid crisis in Virginia.

Definition

Description should include

- the relationship between opioid prescribing and illicit opioid use to overall opioid overdose deaths
- the prevalence of co-occurring mental health disorders
- the shift in attitudes in the 1990s toward pain management and use of opioids, including the role of pharmaceutical marketing
- the stigma associated with addiction and the changing view of addiction from a moral failing to a chronic, relapsing disease
- statistics, trends, and demographics surrounding the crisis
- population health and other public health aspects of the crisis, including its effects on family and neonates, as well as overall health costs
- the Virginia Department of Health's [Declaration of a Public Health Emergency](#) on November 21, 2016
- proposed legislation to address the crisis in Virginia (i.e., [House Bill 2161](#) and [Senate Bill 1179](#), which require the secretary of health and human resources to convene a workgroup to establish educational guidelines for training healthcare providers in the safe prescribing and appropriate use of opioids)
- the development of curricula and educational standards regarding opioid addiction.

Resource: [The Opioid Crisis Among Virginia Medicaid Beneficiaries](#)

Process/Skill Questions

- What agencies participated in the governor's task meeting on the opioid crisis?
- What educational organizations will be tasked with providing opioid training to their students?
- What is the benefit of educating future medical professionals about opioid addiction?
- What is the current attitude in society about opioid use and addiction?
- How is the local community affected by the opioid epidemic?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- Creative Problem Solving
 - Public Service Announcement
-

Task Number 86

Define the pharmacological components and common uses of opioids.

Definition

Definition should include

- plant-based opioids (e.g., opium from poppy seeds)
- names of legal and illegal opioids
- [heroin](#)
- names of the most common opioids
- [fentanyl](#)
- medical diagnoses and injuries associated with opioid prescriptions
- [commonly used terms](#).

Resource: [Prescription Pain Medications](#), National Institute on Drug Abuse for Teens

Process/Skill Questions

- For what illnesses are opioids commonly prescribed?
- What is the current medical protocol when opioids are prescribed?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing
-

Examining the Key Factors of Drug Addiction

Task Number 87

Examine the science of addiction.

Definition

Examination should include

- biopsychosocial aspects of addiction
- the role of endorphins and dopamine
- the role of religious beliefs
- behavioral aspects of addiction
- life cycle of addiction
- misuse of opioids.

Process/Skill Questions

- How will understanding the physiological absorption of opioids in the body provide a holistic assessment?
 - What spiritual characteristics might be observed in the science of addiction?
 - What are some genetic explanations for some family members being more prone to addiction?
-

Task Number 88

Explain prevention and early intervention strategies.

Definition

Explanation should include

- risk and protective factors in opioid addiction
- specific populations at risk of addiction
- motivational interviewing and other communication strategies
- naloxone co-prescribing

- roles of family and social institutions in prevention and early intervention.

Resources:

- [Prevention Tip Card](#), Office of the Attorney General of Virginia
- [Prescription Opioids: Even When Prescribed by a Doctor](#) (video), Centers for Disease Control and Prevention (CDC)

Process/Skill Questions

- What are the physiological characteristics of opioid addiction?
- What demographic is most affected by the opioid epidemic? What are some explanations for this?
- How can provision of naloxone and training in its use be sustained financially?
- What obligations do families and society as a whole have in preventing and providing early intervention related to drug addiction?

Task Number 89

Identify addiction and its behavioral elements, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).

Definition

Identification should include

- DSM-5 Criteria for Substance Use Disorders
- American Society of Addiction Medicine (ASAM) Criteria (i.e., The Six Dimensions of Multidimensional Assessment)
- CONTINUUM, The ASAM Criteria Decision Engine
- clinical and behavioral aspects of addiction
- practice-appropriate screening tools, including co-morbidity screening.

Process/Skill Questions

- What are DSM-5 and ASAM and what information do they provide to healthcare professionals?
- What are clinical and behavioral elements of addiction that should be recognized by healthcare professionals?
- Who is responsible for providing the necessary screening tools and training?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Behavioral Health
- Knowledge Test: Medical Law and Ethics

Health Professions Events

- Clinical Nursing
-

Task Number 90

Describe the treatment models of addiction therapy.

Definition

Description should include

- a recognition that addiction is a chronic disease
- evidence-based treatment models for addiction in general and opioid addiction in particular
- medication-assisted treatment
- the continuum of care in opioid addiction treatment
- how and when to make a referral for treatment
- the roles in an interdisciplinary addiction team
- the role of peers in the treatment of addiction
- the difference between a drug culture and recovery culture
- the management of patients in recovery, including factors contributing to relapse.

Process/Skill Questions

- How many treatment models exist for addiction therapy? Why is one model better than the other?
- What are the advantages of evidence-based treatments and models?
- What medication-assisted treatment programs are available? Who provides them?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Behavioral Health
- Knowledge Test: Medical Law and Ethics

Health Professions Events

- Clinical Nursing
-

Task Number 91

Describe the medication management antidote used to prevent fatal opioid overdoses.

Definition

Description should include

- availability and use of naloxone
- naloxone training (e.g., [REVIVE!](#))
- naloxone training agencies
- monitoring of concurrent prescriptions.

Resources:

- [Frequently Asked Questions about Naloxone](#), Virginia Department of Health
- [How to prepare naloxone for administration](#), Virginia Department of Behavioral Health and Developmental Services

Process/Skill Questions

- What is naloxone?
- How much does naloxone cost with health insurance? How much does naloxone cost without health insurance?
- Who should receive naloxone training?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
 - Medical Terminology
 - Knowledge Test: Pharmacology
-

Understanding Pain Management Protocols

Task Number 92

Explain the science of physiological and mental pain.

Definition

Explanation should include

- definition of pain from the International Association for the Study of Pain (IASP)
- neurobiological basis of pain
- biopsychosocial model of pain
- types of pain (e.g., neuropathic)
- acute, sub-acute, and chronic pain, including pain generation
- spinal and brain modulation, behavioral adaptation and maladaptation, and the continuum from acute to chronic disabling pain
- the underlying science of pain relief.

Process/Skill Questions

- What is the IASP definition of pain?
- How can a medical professional get a patient to describe physiological pain?
- What assessment tools can be used to help patients describe physiological pain? How do tools differ for describing mental pain?
- How are pain and levels of pain categorized?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Nutrition
- Knowledge Test: Transcultural Health Care

Teamwork Events

- Community Awareness
 - Creative Problem Solving
 - HOSA Bowl
-

Task Number 93

Describe the diagnostic tools used in developing pain management plans.

Definition

Description should include

- pain-related health history and examination
- understanding the role of family in supporting individuals in need of pain management
- practice-appropriate screening tools that include aspects such as mood and function
- the use and limitations of pain scales
- differential diagnosis of pain and its placement on the pain continuum.

Resource: [Promoting Safer and More Effective Pain Management](#), CDC

Process/Skill Questions

- What are the Wong-Baker, LEGO, and Hospice assessment tools?
- How do pain assessment tools vary across the life span?
- When completing an assessment, is pain considered subjective or objective?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Nutrition
- Knowledge Test: Transcultural Health Care

Teamwork Events

- Community Awareness
- Creative Problem Solving
- HOSA Bowl

Task Number 94

Describe pain treatment options available to various populations of patients.

Definition

Description should include

- special populations in pain management, such as palliative/end-of-life care patients, patients with cancer, pediatric patients, and geriatric populations
- non-pharmacologic treatment of pain, including active care and self-care, evidence- and non-evidence-based approaches, and multimodal pain management
- non-opioid pharmacologic management of pain
- the challenges in discussing the psychological aspects of pain and the role of the central nervous system
- adverse drug event prevention for all pain medications
- the roles in an interdisciplinary pain management team
- the significance of issues such as anxiety, depression, and sleep deprivation in pain management
- the placebo effect
- goals and expectations in the treatment of pain, based on diagnosis and pain continuum
- when to make a pain referral and to whom.

Resources:

- [CDC Fact Sheet for Prescribing Opioids for Chronic Pain](#)
- [CDC Guidelines for Prescribing Opioids for Chronic Pain](#)

Process/Skill Questions

- What pain management resources are available for special populations?
- What are alternative forms of pain management?
- What role does the mind play in pain management?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Nutrition
- Knowledge Test: Transcultural Health Care

Teamwork Events

- Community Awareness
- Creative Problem Solving
- HOSA Bowl

Task Number 95

Describe the effects of opioid dependency on the human body systems.

Definition

Description should include the short- and long-term effects of opioids on the following:

- Nervous system
- Respiratory system
- Circulatory system
- Digestive system
- Skeletal system

Resource: [Drugs and Your Body](#), Scholastic

Process/Skill Questions

- How does the misuse of opioids affect nutrition and weight loss?
- How might opioid misuse be evident in a person's vital signs?
- How do opioids affect the brain as the control center for homeostasis?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- HOSA Bowl
-

Task Number 96

Explain the mechanism and physical effects of opioids on the human body.

Definition

Explanation should include the following:

- Mechanism of action and metabolism of opioids
- Development of tolerance, dependence, and addiction
- Health consequences of drug misuse
 - HIV, hepatitis, and other infectious diseases
 - Cancer
 - Cardiovascular effects
 - Respiratory effects
 - Gastrointestinal effects
 - Musculoskeletal effects
 - Kidney damage
 - Liver damage
 - Neurological effects
 - Hormonal effects
 - Prenatal effects
 - Other health effects
 - Mental health effects
 - Death
- Withdrawal
 - Causes
 - Timeframe (i.e., peaks of withdrawal symptoms)
 - Physical signs (e.g., nausea, diarrhea, vomiting, cold flashes)

Process/Skill Questions

- What are the short- and long-term effects of withdrawal dependence symptoms?
- How long can the human body function while exhibiting the symptoms of withdrawal?
- What are other medical conditions that may arise because of the symptoms of physical dependence?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- HOSA Bowl

Task Number 97

Explain the use of opioids in practice settings, the role of opioids in pain management, and risk factors associated with the use of the medication.

Definition

Explanation should include

- appropriate use of different opioids in various practice settings
- the interactions, risks, and intolerance of prescription opioids
- the role and effectiveness of opioids in acute, sub-acute, and chronic pain
- a reassessment of opioid use based on stage of pain
- contemporary treatment guidelines, best practices, health policies, and government regulations related to opioid use
- use of opioids in pain management of patients with substance abuse disorders, in recovery, and in palliative/end-of-life care.

Process/Skill Questions

- When should risk factors regarding opioids be reviewed with the patient?
- What are the options when treating patients with a history of substance abuse?
- What government regulations and policies are in place to improve the safe administration of opioids?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Pharmacology

Teamwork Events

- Creative Problem Solving
- HOSA Bowl

Task Number 98

Describe the withdrawal and tapering side effects of opioid use.

Definition

Description should include

- characteristics of acute and protracted withdrawal from opioid dependence or addiction
- tapering
- pain contracts or agreements.

Process/Skill Questions

- What are the stages of withdrawal in opioid abuse transition?
- What medications might be needed in the withdrawal stage?
- What information should be included in the pain management contract?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing

Task Number 99

Describe storage and disposal options for opioids.

Definition

Description should include

- medicine take-back options (e.g., [National Drug Take Back Day](#))
- disposal in the household trash and flushing certain potentially dangerous medicines down the toilet.

Resources:

- [Disposal of Unused Medicines: What You Should Know](#), Food and Drug Administration (FDA)
- [Prescription Drug Abuse and Tips for Proper Disposal](#), Office of the Attorney General of Virginia

Process/Skill Questions

- How should medications be stored in the house?
- What is National Prescription Drug Take Back Initiative?
- What is the *black box*?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing

Task Number 100

Explain community resources for education about opioid use.

Definition

Explanation should include key components of and resources for patient education in the use of opioids, including

- risks
- benefits
- side effects
- tolerance
- signs of sedation or overdose
- naloxone, including its storage and disposal.

Process/Skill Questions

- What resources for opioid education are available locally, statewide, and nationally?
- Where should the patient first be informed about the resources available?
- How does social media aid in patient education on opioid addiction?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing
-

Working with Patients and Caregivers

Task Number 101

Describe key communication topics involving opioids for patients.

Definition

Description should include

- benefits and risks of opioids
- opioid risk screening (i.e., taking a social, medical, and financial history)
- risk mitigation (e.g., naloxone, safe storage, pain contracts)
- medication tapers and/or discontinuation of therapy.

Process/Skill Questions

- What are the benefits of using opioids in medicine?
- What is the relationship between demographics and risk of opioid addiction?
- How does culture influence risk factors in opioid abuse?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Health Professions Events

- Clinical Nursing

Task Number 102

Describe communication topics for caregivers and family members.

Definition

Description should include

- basic knowledge about opioids
- signs of addiction
- treatment options for addiction
- naloxone training for caregivers
- legal issues related to misuse.

Process/Skill Questions

- What rights do caregivers have in regard to medical information of the abuser?
- What legal steps might the caregiver or family have to take for treatment?
- Where can the caregiver or family members receive naloxone training? Are children of opioid abusers eligible for training?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Health Professions Events

- Clinical Nursing

SOL Correlation by Task

Describe body regions and body parts, using medical terminology.	
Locate body regions and body parts, using palpation.	
Identify anatomical positions.	Science: BIO.4

Demonstrate movement patterns and positions, using planes, axes of motion, major joints, and medical terminology.	
Describe the major joints of the body.	
Locate the major joints of the body, using palpation.	
Classify the major joints of the body.	
Demonstrate an example of each type of therapeutic exercise, including isometric and isotonic exercises.	
Describe the bones and bony landmarks of the human skeleton.	
Locate bones and bony landmarks, using palpation.	
Describe basic muscle morphology from the epimysium to the sarcomere.	
Describe the chain of events that results in muscle contraction.	
Describe each functional role of muscle (e.g., prime mover, synergist, stabilizer, etc.).	
Define general origins, insertions, and actions of muscles throughout the body.	
Identify the origin, insertion, action(s), and innervation (nerve) of each lower extremity muscle.	
Identify on a skeleton the bones and major bony landmarks of the lower extremity and pelvis.	Science: BIO.4
Palpate bony landmarks of the lower extremity.	
Describe the structures and functions of the lower extremity joints.	
Describe the structure and function of the lumbosacral plexus and its relationship to lower extremity muscular innervation.	
Outline the arterial supply to the lower extremity.	Science: BIO.1
Demonstrate the joint movement when given a lower extremity muscle or muscle group.	
Investigate the lower extremity musculoskeletal structures.	
Identify the origin, insertion, action(s), and innervation (nerve) of each upper extremity muscle.	
Describe the structures and functions of the upper extremity joints.	
Palpate bony landmarks of the upper extremity.	
Describe the structure and function of the brachial plexus and its relationship to upper extremity muscular innervation.	
Describe the arterial supply to the upper extremity.	
Investigate the upper extremity musculoskeletal structures.	
Identify the origin, insertion, action, and innervation of each head, neck, and trunk muscle.	
Identify on a skeleton the bones and major bony landmarks of the skull, vertebral column, and pelvis.	
Palpate the major bony landmarks of the head, neck, and trunk.	
Describe the structures and functions of the joints of the spinal column and pelvis.	
Identify the normal curves of the vertebral column from the lateral view.	
Describe the structure and function of an intervertebral disc.	

Compare the anatomical features of the cervical, thoracic, and lumbar vertebrae that enable identification of these vertebrae.	
Identify the function of the abdominals in inspiration and expiration.	
Identify the four major muscles of mastication.	
Describe the general effects of aging and injury on the structure and function of the vertebral column.	
Investigate the musculoskeletal structures of the head, neck, and trunk.	
Describe the general effects of aging and injury on the structure and function of the upper extremities.	
Describe the general effects of aging and injury on the structure and function of the lower extremities.	
Describe the variety of career fields related to rehabilitation.	English: 11.5, 11.8, 12.5, 12.8
Explain the differences among the duties of the physical therapist, physical therapist assistant, occupational therapist, and occupational therapy assistant.	English: 11.5, 12.5
Describe the requirements for licensure and credentialing in PT and OT.	English: 11.5, 12.5
Complete a clinical observation experience.	
Describe the history and current state of the opioid crisis in the United States.	English: 11.5, 12.5
Describe the history and current state of the opioid crisis in Virginia.	English: 11.5, 11.8, 12.5, 12.8
Define the pharmacological components and common uses of opioids.	English: 11.3, 11.8, 12.3, 12.8
Examine the science of addiction.	English: 11.5, 12.5
Explain prevention and early intervention strategies.	English: 11.5, 11.8, 12.5, 12.8
Identify addiction and its behavioral elements, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).	English: 11.5, 12.5
Describe the treatment models of addiction therapy.	English: 11.5, 12.5
Describe the medication management antidote used to prevent fatal opioid overdoses.	English: 11.5, 11.8, 12.5, 12.8
Explain the science of physiological and mental pain.	English: 11.5, 12.5
Describe the diagnostic tools used in developing pain management plans.	English: 11.5, 12.5
Describe pain treatment options available to various populations of patients.	English: 11.5, 11.8, 12.5, 12.8
Describe the effects of opioid dependency on the human body systems.	English: 11.5, 12.5
Explain the mechanism and physical effects of opioids on the human body.	English: 11.5, 12.5

Explain the use of opioids in practice settings, the role of opioids in pain management, and risk factors associated with the use of the medication.	English: 11.5, 12.5
Describe the withdrawal and tapering side effects of opioid use.	English: 11.5, 12.5
Describe storage and disposal options for opioids.	English: 11.5, 11.8, 12.5, 12.8
Explain community resources for education about opioid use.	English: 11.5, 12.5
Describe key communication topics involving opioids for patients.	English: 11.5, 12.5
Describe communication topics for caregivers and family members.	English: 11.5, 12.5

Opioid Abuse Prevention Education

This [Opioid Abuse Prevention](#) document includes resources for opioid abuse prevention education from kindergarten to 12th grade.

Other Opioid Resources

Virginia Department of Behavioral Health and Developmental Services. Revive! Opioid Overdose and Naloxone Education for Virginia. [Naloxone Fact Sheet](#) (PDF).

Virginia Department of Behavioral Health and Developmental Services. [Revive! Opioid Overdose and Naloxone Education for Virginia](#) (website).

Office of National Drug Control Policy, White House. [Fentanyl: Safety Recommendations for First Responders](#) (PDF).

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Alcohol](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Bath Salts](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Cocaine](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: E-Cigarette](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Heroin](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Marijuana](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: MDMA](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Meth](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Pain Medicine](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Spice \(K2\)](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Tobacco and Nicotine](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Other Drugs People Use and Misuse](#) (website; PDF available)

Appendix: Credentials, Course Sequences, and Career Cluster Information

Industry Credentials: Only apply to 36-week courses

- Certified Physical Therapy Aide (CPTA) Examination
- College and Work Readiness Assessment (CWRA+)
- National Career Readiness Certificate Assessment
- Physical Therapy Aide Certification (PTAC) Examination
- Workplace Readiness Skills for the Commonwealth Examination

Concentration sequences: *A combination of this course and those below, equivalent to two 36-week courses, is a concentration sequence. Students wishing to complete a specialization may take additional courses based on their career pathways. A program completer is a student who has met the requirements for a CTE concentration sequence and all other requirements for high school graduation or an approved alternative education program.*

- Health Assisting Careers (8331/36 weeks)
- Introduction to Health and Medical Sciences (8302/36 weeks)
- Introduction to Health and Medical Sciences (8301/18 weeks)

Career Cluster: Health Science	
Pathway	Occupations
Therapeutic Services	Occupational Therapist Occupational Therapist Aide Physical Therapist Physical Therapist Assistant Physician