GEORGIA | PEACH STATE PATHWAYS

Career, Technical, & Agricultural Education

HEALTHCARE SCIENCE

COURSE: 25.562 Concepts of Emergency Medicine

UNIT: 8.1 Nervous System

INTRODUCTION

Annotation:

This unit will cover the anatomy, physiology, and pathophysiology of the nervous system.

Grade(s):

	9th
	10th
X	11th
X	12th

Time: Two 50 minute periods

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Additional Author(s):

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Students with Disabilities:

For students with disabilities, the instructor should refer to the student's IEP to be sure that the accommodations specified are being provided. Instructors should also familiarize themselves with the provisions of Behavior Intervention Plans that may be part of a student's IEP. Frequent consultation with a student's special education instructor will be beneficial in providing appropriate differentiation.

FOCUS STANDARDS

GPS Focus Standards: Please list the standard and elements covered.

HS-CEM-5. Students will demonstrate knowledge of the different systems of the body and how they relate to patient care.

a. Summarize the importance of the Emergency Medical Services Provider's knowledge of the body's anatomy and physiology in relation to providing competent care and accurate communication to other health care providers.

b. Demonstrate knowledge of the body's anatomy and physiology to provide competent patient care and accurate communication to other health care providers.

GPS Academic Standards:

SAP1. Students will analyze anatomical structures in relationship to their physiological functions.

SAP3. Students will assess the integration and coordination of body functions and their dependence on the endocrine and nervous systems to regulate physiological activities.

ELA11C1. The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.

National / Local Standards / Industry / ISTE:

UNDERSTANDINGS & GOALS

Enduring Understandings:

- Students will understand the anatomy and physiology of the nervous system, common diseases and disorders of the nervous system, how these diseases are treated and how, if possible, each can be prevented.

Essential Questions:

- Why is the nervous system important?
- What are common disorders and diseases related to the nervous system?
- Which nervous system injuries are preventable, and what steps should be taken to do so?

Knowledge from this Unit:

- Student can identify structures of the nervous system.
- Student can explain the function of the nervous system.
- Student can describe the cause(s), signs/symptoms, and treatment of three disorders or diseases related to the nervous system.

Skills from this Unit:

- Student can demonstrate ways to prevent injuries related to the nervous system such as spinal cord injuries and traumatic brain injuries.

ASSESSMENT(S)

Assessment Method Type: Select one or more of the following. Please consider the type(s) of differentiated instruction you will be using in the classroom.

____ Pre-test
____ Objective assessment - multiple-choice, true- false, etc.
__ Quizzes/Tests
__ Unit test
____ Group project
X Individual project
____ Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
__ Self-check rubrics
__ Self-check during writing/planning process
__ Journal reflections on concepts, personal experiences and impact on one's life
__ Reflect on evaluations of work from teachers, business partners, and competition judges
__ Academic prompts
__ Practice quizzes/tests
____ Subjective assessment/Informal observations
__ Essay tests
__ Observe students working with partners
__ Observe students role playing
____ Peer-assessment
__ Peer editing & commentary of products/projects/presentations using rubrics
__ Peer editing and/or critiquing
X Dialogue and Discussion
__ Student/teacher conferences
__ Partner and small group discussions
__ Whole group discussions
__ Interaction with/feedback from community members/speakers and business partners
____ Constructed Responses
__ Chart good reading/writing/listening/speaking habits
__ Application of skills to real-life situations/scenarios
____ Post-test

Assessment(s) Title:

- Brain model scoring checklist.

Assessment(s) Description/Directions:

- Brain model scoring checklist: hand out prior to beginning project so that expectations are clear.
  Note: checklist is printed twice on page; print and cut page in half to save paper.

Attachments for Assessment(s): Please list.

- Brain model scoring checklist.

LEARNING EXPERIENCES

Instructional planning: Include lessons, activities and other learning experiences in this section with a brief description of the activities to ensure student acquisition of the knowledge and skills addressed in the standards. Complete the sequence of instruction for each lesson/task in the unit.

Sequence of Instruction

1. **Identify the Standards. Standards should be posted in the classroom for each lesson.**

HS-CEM-5. Students will demonstrate knowledge of the different systems of the body and how they relate to patient care.

SAP1. Students will analyze anatomical structures in relationship to their physiological functions.
SAP3. Students will assess the integration and coordination of body functions and their dependence on the endocrine and nervous systems to regulate physiological activities.
ELA11C1. The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.

2. **Review Essential Questions.**
   - Why is the nervous system important?
   - What are common disorders and diseases related to the nervous system?
   - Which nervous system injuries are preventable, and what steps should be taken to do so?

3. **Identify and review the unit vocabulary.**

Pre-assign unit by having students read chapter in text and define terms. Have students take self-quizzes on: http://msjensen.cehd.umn.edu/webanatomy/nervous/default.html

Autonomic nervous system	brain	central nervous system	cerebellum
Cerebrospinal fluid	cerebrovascular accident (CVA)		cerebrum
diencephalon	epilepsy	fight or flight response	hypothalamus
Medulla oblongata	meninges	meningitis	midbrain multiple
sclerosis	nerves	neuron	paralysis parasympathetic
quadriplegia	Parkinson's Disease	peripheral nervous systempons	
ventricles	spinal cord	sympathetic	thalamus

4. Assessment Activity.

LESSON ONE

1. Warm-up Activity: After reminding students rules regarding confidentiality, ask students if they know anyone (personally or famous such as Michael J Fox, Mohammed Ali, etc) with an injury or disorder of the nervous system. Briefly discuss.

2. Show slideshow presentation on nervous system and have students take notes. Break up lecture with brief activities at any point such as:

- Test student reflexes by having them hold a 12" ruler in one hand. Drop ruler and see how fast they catch it with other hand (noting distance of catch). Try again by having another student drop it for them. Discuss why it takes longer when playing with two students instead of alone.
- Test balance and discuss role of cerebellum in balance (who can stand on one foot the longest?).
- Hold up cute teddy bear (or similar object). How do students feel? Discuss role of hypothalamus in emotions.

3. Wrap-up Activity: Brainstorm preventable injuries and behaviors that can be avoided such as texting while driving, diving headfirst into lakes, etc. Write these onto the board and discuss.

Attachments for Learning Experiences: **Nervous System Slideshow Presentation**

LESSON TWO

1. Warm-Up Activity: Review sympathetic and parasympathetic/fight or flight response by writing columns on board. (Be certain to erase prior to wrap-up activity).

2. Students are to create models of brain using modeling clay--hand out scoring checklist attached at beginning of project. Use different colors of clay to create each section of the brain. Create a small "flag" out of a toothpick and square of paper with the lobe and its functions labeled. Stick the flag into its corresponding part.

3. When students have completed their brain models, ask them to gently create a small injury (dent) in one section. Ask them to consider what resulting signs and symptoms the person might have from that injury. What permanent damage might result? What types of injuries could cause that type of injury? Could those injuries be prevented? Have students turn to a partner and discuss their answers.

4. Wrap-up activity. Give each student a card that says either "sympathetic" or "parasympathetic." Have students stand when you call out an action that is the duty of the division listed on their card, such as: lowers blood pressure, increases heart rate, prepares body to fight, slows digestion, etc. If a student gets one wrong, he or she is "out." Last student still playing wins.

Attachments for Learning Experiences: Please list.

Notes & Reflections: May include notes to the teacher, pre-requisite knowledge & skills, suggestions, etc.

- Related movies: Tuesdays with Morrie (Lou Gehrig's Disease), Lorenzo's Oil (ALD), Million Dollar Baby (spinal cord injury).
- Books (all on spinal cord injury): Still Me by Christopher Reeves, Rescuing Jeffrey by Richard Galli, Eleven Seconds by Roy Travis.
- Invite chiropractor to speak to class.

CULMINATING PERFORMANCE TASK (Optional)

Culminating Unit Performance Task Title:

Culminating Unit Performance Task Description/Directions/Differentiated

Attachments for Culminating Performance Task

UNIT RESOURCES

Web Resources:

http://msjensen.cehd.umn.edu/webanatomy/nervous/default.html

Refer to nervous system information from Applications of Healthcare Science course for additional resources.

Attachment(s): Supplemental files not listed in assessment, learning experiences, and performance task.

Materials & Equipment:

- Modeling clay in a variety of colors
- Toothpicks
- Paper
- Glue
- Tape
- Paper plates for brain model

What 21st Century Technology was used in this unit:

X	Slide Show Software		Graphing Software		Audio File(s)
	Interactive Whiteboard		Calculator		Graphic Organizer
	Student Response System		Desktop Publishing		Image File(s)
	Web Design Software		Blog		Video
	Animation Software		Wiki		Electronic Game or Puzzle Maker
	Email		Website		