



## HEALTHCARE SCIENCE

**COURSE:** 25.562 Concepts of Emergency Medicine

**UNIT:** 23.1 Environmental Emergencies



## INTRODUCTION

### Annotation:

In this unit students will learn how to manage environmental emergencies. After the unit is introduced by the teacher, students will assume the role of teachers as they plan, develop and present a mini lesson on an environmental emergency. They will develop review questions for their assigned topic. Students will be able to describe signs, symptoms, and treatments for cold injuries, heat injuries, water-related injuries and bites and stings.

### Grade(s):

<input type="checkbox"/>	9 <sup>th</sup>
<input checked="" type="checkbox"/>	10 <sup>th</sup>
<input checked="" type="checkbox"/>	11 <sup>th</sup>
<input checked="" type="checkbox"/>	12 <sup>th</sup>

**Time:** Five 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

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

**HS-CEM-11.**

**Students will accurately assess and treat emergencies of a medical, environmental, and behavioral nature.**

- a). Integrate the knowledge and skills necessary to assure the provision of necessary assessment of medical, respiratory, diabetic, environmental, and behavioral emergency patients, including but not limited to: seizures; upper airway obstruction and lower airway diseases; administration of oral glucose and assessment of blood glucose; heat/cold exposure; water-related emergencies; altered mental status; stroke; and psychological crisis.
- b). Demonstrate the skills necessary to provide emergency care of the patient suffering from (including but not limited to) seizures; upper airway obstruction and lower airway diseases; hypoglycemia and hyperglycemia; heat/cold exposure; water-related emergencies; altered mental status; stroke; and psychological crisis.
- c). Discuss the First Responder's role in the provision of emergency care and relief during weather disasters including tornado relief and shelters and hurricane/flood evacuations.

**GPS Academic Standards:**

**National / Local Standards / Industry / ISTE:**

**COGNITIVE OBJECTIVES**

- 4-7.1 Describe the various ways that the body loses heat.(C-1)
- 4-7.2 List the signs and symptoms of exposure to cold.(C-1)
- 4-7.3 Explain the steps in providing emergency medical care to a patient exposed to cold.(C-1)
- 4-7.4 List the signs and symptoms of exposure to heat.(C-1)
- 4-7.5 Explain the steps in providing emergency care to a patient exposed to heat.(C-1)
- 4-7.6 Recognize the signs and symptoms of water-related emergencies.(C-1)
- 4-7.7 Describe the complications of near drowning.(C-1)
- 4-7.8 Discuss the emergency medical care of bites and stings.(C-1)

**PSYCHOMOTOR OBJECTIVES**

- 4-7.9 Demonstrate the assessment and emergency medical care of a patient with exposure to cold.(P-1,2)
- 4-7.10 Demonstrate the assessment and emergency medical care of a patient with exposure to heat.(P-1,2)
- 4-7.11 Demonstrate the assessment and emergency medical care of a near drowning patient.(P-1,2)
- 4-7.12 Demonstrate completing a pre-hospital care report for patients with environmental emergencies.(P-2)



# UNDERSTANDINGS & GOALS

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## **Enduring Understandings:**

- Students will understand that environmental disasters and emergencies can happen anywhere at anytime, so they should always be prepared.
- Students will understand the emergency care for different environmental emergencies.

## **Essential Questions:**

- How should care be provided for patients with environmental emergencies?
- What safety precautions should be practiced in handling environmental emergencies?

## **Knowledge from this Unit:**

- The steps in providing emergency medical care to a patient with an exposure to cold.
- The steps in providing emergency medical care to a patient with an exposure to heat.
- The steps in providing emergency medical care to a patient in a water-related emergency.
- The steps in providing emergency medical care to a patient with a bite or sting
- Effects of heat and cold on the body.
- The various ways the body loses heat.
- How to prevent environmental emergencies.
- How to identify environmental emergencies.
- How to provide for personal safety and the safety of others.

## **Skills from this Unit:**

- Demonstrate the steps in providing emergency medical care for cold emergencies.
- Demonstrate the steps in providing emergency medical care for heat emergencies.
- Demonstrate the steps in providing emergency medical care for water-related emergencies.
- Demonstrate the steps in providing emergency medical care for bites and stings.



## 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
- ☐ 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
- ☐ 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:**

Environmental Emergency Preparedness

**Assessment(s) Description/Directions:**

Students will create educational material and a lesson that describes all of the pertinent information for environmental emergencies. A rubric is attached for grading the project. The topics to be assigned by the teacher include heat related emergencies, cold related emergencies, water related emergencies, bites and stings emergencies.

A written assessment will be developed by the teacher from the 10 review questions each group will submit as part of their assignment.

### **Attachments for Assessment(s):**

Environmental Emergency Group Project and Rubric



## **LEARNING EXPERIENCES**

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**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.

**2. Review Essential Questions.**

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

- Active rewarming
- Air embolism
- Central rewarming
- Conduction
- Convection
- Decompression sickness
- Drowning
- Evaporation
- Hyperthermia
- Hypothermia
- Local cooling
- Passive rewarming
- Radiation
- Respiration
- Toxins
- Venom
- Water chill
- Wind chill

**4. Assessment Activity**

## **Lesson 1**

- a). Introduce Environmental Emergencies and relate them to everyday life (football player and heat, snakebites, etc.)
- b). Discuss the different types of environmental emergencies: heat, cold, water-related, bites and stings
- c). Divide students into 4 groups and distribute the Environmental Emergencies Group Project and go over directions.
- d). Allow the students to begin research and organization. Monitor student's progress and teamwork.

## **Lesson 2**

- a). Identify the Standards. Standards should be posted in the classroom for each lesson.
- b). Review Essential Questions.
- c). Identify and review the unit vocabulary.
- d). Once the groups have completed work on their projects begin presentations and mini – lessons.
- e). Evaluate using the attached rubric.

### **Attachments for Learning Experiences:**

- Environmental Emergency Group Project
- Environmental Emergency Group Project Rubric

### **Notes & Reflections:**

The success of this lesson is dependent upon the quality of the students' work and presentations. Be sure to supplement any important information that is not covered in the students' lessons. Information may need to be clarified if not presented clearly. Part of the group assignment is to create 10 test questions. You may compile these questions to create the unit exam.



## UNIT RESOURCES

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### Web Resources:

[www.ems.gov](http://www.ems.gov)

### Attachment(s):

### Materials & Equipment:

- Will vary according to students' plans
- May include: computer, LCD projector, poster board, copier, printer, etc.

### What 21st Century Technology was used in this unit:

<input checked="" type="checkbox"/>	Slide Show Software
<input type="checkbox"/>	Interactive Whiteboard
<input type="checkbox"/>	Student Response System
<input type="checkbox"/>	Web Design Software
<input type="checkbox"/>	Animation Software
<input type="checkbox"/>	Email

<input type="checkbox"/>	Graphing Software
<input type="checkbox"/>	Calculator
<input type="checkbox"/>	Desktop Publishing
<input type="checkbox"/>	Blog
<input type="checkbox"/>	Wiki
<input checked="" type="checkbox"/>	Website

<input type="checkbox"/>	Audio File(s)
<input checked="" type="checkbox"/>	Graphic Organizer
<input type="checkbox"/>	Image File(s)
<input type="checkbox"/>	Video
<input type="checkbox"/>	Electronic Game or Puzzle Maker