GEORGIA | PEACH STATE PATHWAYS

Career, Technical, & Agricultural Education

HEALTHCARE SCIENCE

COURSE: 25.562 General Medicine

UNIT: 4.1 Respiratory Therapy

INTRODUCTION

Annotation:

In this unit students will demonstrate understanding of advanced technical skills in respiratory care / respiratory therapy. Students will identify normal versus abnormal respiratory effort. Students will also demonstrate correct use of oxygen devices used for oxygen therapy; describe croup tent usage and maintenance; correct application of pulse oximeter for measuring oxygen levels; assist clients with respiratory management devices; demonstrate suctioning techniques based on facility protocol; and describe/demonstrate tracheostomy care based on facility protocol and guidelines within their scope of practice.

Grade(s):

	9th
	10th
x	11th
x	12th

Time: Ten 50 minute periods

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Additional Author(s): Robyn Vaughn, Special Education

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.

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FOCUS STANDARDS

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

HS-TGM-12: Students will demonstrate understanding of advanced technical skills in respiratory care – Respiratory Therapy.

a. Identify normal and abnormal respiratory effort.

b. Demonstrate correct placement of cannula and mask for oxygen therapy.

c. Describe croup tent usage and maintenance.

d. Correctly apply pulse oximeter for measurement of oxygen saturation and recognize the difference between normal and abnormal readings.

e. Assist clients with respiratory management devices.

f. Demonstrate techniques for suctioning based on facility protocol.

g. Describe and demonstrate care for a tracheostomy based on facility guidelines within their scope of practice.

GPS Academic Standards:

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

National / Local Standards / Industry / ISTE:

UNDERSTANDINGS & GOALS

Enduring Understandings:

- Management of patients with respiratory diseases and disorders may require a variety of devices and equipment.
- It is important for healthcare workers involved in caring for patients with respiratory disorders to understand how to monitor, recognize and report problems in respiratory effort.
- Additionally, the healthcare worker must understand how to operate within their scope of practice and recognize types, use and care of respiratory care device in the safe management of patients with respiratory disorders.

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Essential Questions:

- How do body systems and structures operate to maintain normal functioning of the respiratory system?
- How are patients with disorders or diseases of the respiratory system managed to meet their respiratory care needs?
- What is the role of respiratory therapists, nurses and patient care technicians in providing care for patients with respiratory diseases or disorders?
- How is oxygen therapy provided in a safe and therapeutic manner?

Knowledge from this Unit:

- The differences between normal and abnormal respiratory effort
- Croup tent usage and maintenance
- Types, use and care of various respiratory devices for management of respiratory problems
- Safety issues related to respiratory therapy
- How to monitor and provide care for patients with respiratory system diseases or disorders

Skills from this Unit:

- Oxygen administration via Nasal Cannula
- Oxygen administration via Mask
- Pulse oximetry measurement
- Suctioning patients using the Yankauer device
- Tracheostomy care

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
x Objective assessment - multiple-choice, true- false, etc.
_x_ Quizzes/Tests
_x_ Unit test
____ Group project
____ Individual project
x Self-assessment - May include practice quizzes, games, simulations, checklists, etc.
_x_ Self-check rubrics
__ Self-check during writing/planning process
_x_ 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
x Subjective assessment/Informal observations

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_____ __ Essay tests
_x_ Observe students working with partners
_x_ 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
_x_ Whole group discussions
__ Interaction with/feedback from community members/speakers and business partners
_x___ Constructed Responses
__ Chart good reading/writing/listening/speaking habits
_x_ Application of skills to real-life situations/scenarios
_x___ Post-test

Assessment(s) Title:

- Respiratory Care Written Test
- Oxygen Therapy Skills Test

Assessment(s) Description/Directions:

Attachments for Assessment(s):

- Respiratory Care Written Test
- Oxygen Therapy Skills Test

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-TGM-12: Students will demonstrate understanding of advanced technical skills in respiratory care – Respiratory Therapy.

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

2. Review Essential Questions.

- How do body systems and structures operate to maintain normal functioning of the respiratory system?

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- How are patients with disorders or diseases of the respiratory system managed to meet their respiratory care needs?
- What is the role of respiratory therapists, nurses and patient care technicians in providing care for patients with respiratory diseases or disorders?
- How is oxygen therapy provided in a safe and therapeutic manner?

3. Identify and review the unit vocabulary.

Key Terms/Vocabulary: Accesssory muscles, adenoid, alveoli, asthma, atelectasis, bronchi, bronchioles, bronchitis, bronchospasm, cardiopulmonary, cardiovascular, carina, cilia, conchae, diaphragm, emphysema, empyema, epiglottis, esophagus, hemothorax, hilum, hydrothorax, larygopharynx, larynx, lingual, lungs, medullaoblongata, nasopharynx, nose, pharynx, pleural effusion, pneomothorax, oropharynx, respiration, sinus, sputum, tuberculosis, turbinates, trachea, ventilation, spirometer, SIDS, surfactant, tachypnea, dyspnea, bradypnea, apnea, cheynstokes, tuberculosis, wheezing

4. Assessment Activity.

Lesson One

Opening

a. Have students describe their breathing in terms of work of breathing (how easy/hard is it) on a sheet of paper.

b. Pass out drinking straws to each student in class. Instruct them that they are going to be involved in an activity to simulate breathing difficulties. Tell them that they will be breathing through the straw while pinching their nose closed. Students should be sitting down at this time.

c. Begin the timer and time them for one minute.

d. Ask students to describe their breathing and how they felt during this exercise.

e. Now ask them to do the same exercise while jogging in place. Time them for a minute.

f. Now describe in writing how their breathing felt during this part of the exercise.

g. Write this statement on the board…Think about what it might be like to fight for every breath you took. How would having breathing problems affect everyday living (sleep, eating, activities, going to the bathroom, mowing the grass, washing clothes, working, etc.)

(Statement to make after journal entry) People with respiratory disease often have this scary experience. Respiratory Therapist help people with breathing problems breathe more easily. In this unit we will review the respiratory system, common equipment used to provide respiratory therapy, safety issues in respiratory therapy, what is normal and abnormal respiratory effort, common respiratory modalities used to provide patient care focused on the respiratory system.

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h. Use the multimedia presentation to review the basic structures of the respiratory system.

i. Encourage students to learn the acronym and name the structures through which air passes during inhalation

j. Have students use text to define key terms

k. Place students in small groups and have them review the key terms

l. Wrap-up with a review of the structures

m. Ask students to bring an empty Gatorade bottle for lesson 2 project

Lesson 2

1. Assign a student to review the GPS standards and essential questions
2. Review vocabulary
3. Ask students what factors might affect a person's need for oxygen
4. Ask them if they think other body systems could affect a person's oxygen needs
5. Write answers on the board
6. Discuss factors using multimedia presentation
7. Have students make a working lung with the Gatorade bottle they brought. Give each a copy of the instructions
8. Wrap up by discussing the activity, did their lung work well, what was the problem, could it be fixed?

Lesson 3

1. Assign a student to review the GPS standards and essential questions
2. Review vocabulary
3. Ask students to recall the factors that can affect oxygen needs
4. Ask students what process go on in the lungs that might be altered-a. air moves into and out of the lungs, b. O2 and CO2 are exchanged by capillaries covering the alveoli, c. oxygen is transported to the cells and CO2 is picked up and returned to the lungs
5. What would happen if one of these processes was interrupted?
6. Use multimedia to discuss alterations in respiratory function
7. Assign students a disorder of the lung to research and prepare a multimedia presentation to be presented on _____.

Lesson 4

1. Assign a student to review the GPS standards and essential questions
2. Review vocabulary
3. Ask students to recall what processes can alter respiratory function
4. State when there is a problem with processes what do you think needs to be done?

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5. An assessment needs to be made of the patient
6. Discuss the signs and symptoms of altered respiratory function from the detailed outline
7. The assessment nay need to include diagnostic test such as a chest x-ray, lung scan, bronchoscopy, thoracentesis, Pulmonary Function Tests, Arterial Blood Gases (Refer to the detailed respiratory system outlind for information thes procedures)
8. Wrap up by reviewing the signs and symptoms of altered respiratory function. Ask students to be able to state for lesson 5

Lesson 5

1. Assign a student to review the GPS standards and essential questions
2. Review vocabulary
3. Ask students to recall signs and symptoms of altered respiratory function
4. Place students in small groups and give each group an assignment to prepare their patient for their assigned procedure and explain what is involved to the patient. One member of the group should be the patient. Use the role play rubric to evaluate the group.
5. Wrap up by having the patients describe how they felt about the information that was given them.

Lesson 6

1. Assign a student to review the GPS standards and essential questions
2. Review vocabulary
3. Today you will learn about an additional device that is used to assess the patient-
4. Discuss the Puls Oximeter-notes from detailed outline
5. Demonstrate how to use.
6. Allow students to practice this procedure and check off using the rubric
7. Wrap up by discussing how technology can be very helpful in assessing patients have students prepare for vocabulary quiz part 1- 10 terms.

Lesson 7

1. Assign a student to review the GPS standards and essential questions
2. Vocabulary Quiz
3. Review remaining vocabulary terms
4. Ask a student to recall what the pulse ox tells us and how it should be recorded
5. Ask students to recall normal ranges for pulse ox
6. Discuss how to promote oxygenation by positioning, coughing and deep breathing, and use of the incentive spirometry, demonstrate these procedures
7. Have students practice these techniques in small groups give pulse ox rubric

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8. Discuss oxygen therapy and demonstrate how to set up, have students practice with rubric
9. Wrap up by reviewing information on procedures shared today assign 10 vocabulary words for quiz in lesson 8

Lesson 8

1. Assign a student to review the GPS standards and essential questions
2. Give vocabulary quiz second set of 10 terms, Review remaining vocabulary
3. Discuss assisting with suctioning, demonstrate procedure and allow students to practice
4. Demonstrate use of other respiratory management devices
5. Discuss tracheostomy care
6. Demonstrate trach care and allow student to practice in small groups
7. Check students off using rubric
8. Tell students test will be given with lesson 10 and disease reports will be presented in lesson 9

Lesson 9

1. Assign a student to review the GPS standards and essential questions
2. Review vocabulary
3. Review lessons to this point
4. Discuss use and maintenance of a croup tent
5. Start presentations on disorders

Lesson 10

Administer Respiratory Care Written Test

Allow students to complete reports and skills check offs

- This is a very detailed outline of the respiratory system, including a discussion of disorders

  Normal versus Abnormal Breath Sounds

http://www.emsvillage.com/learning_center/Breath_Sounds/index.cfm

- Go to the following website to learn how to measure lung capacity: Have students make this model and measure various lung capacities.

http://www.smm.org/heart/lessons/lesson9.htm

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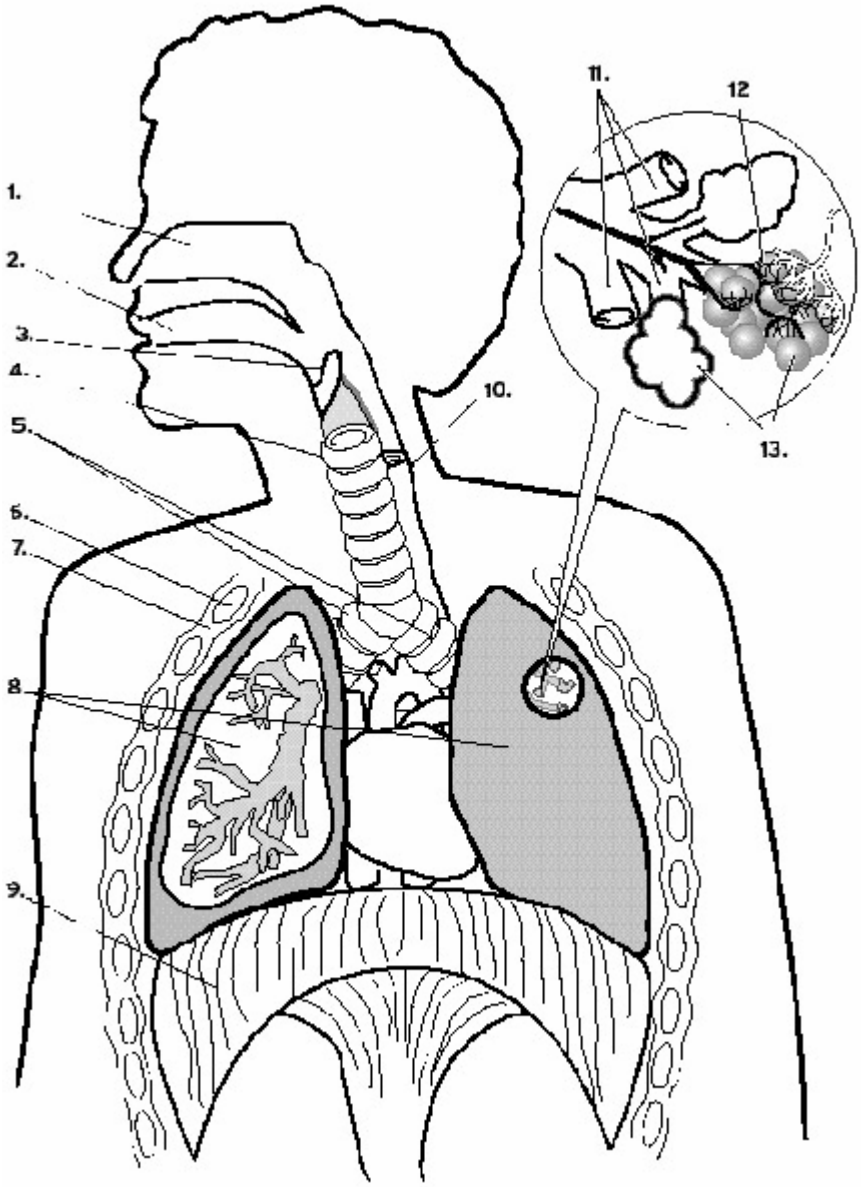
For reinforcement, the student will label a diagram of the lungs then make flashcards of the terminology.



For enrichment, the student will research and report on a **respiratory disease/disorder**.

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Creation of a Working Model of the Lung http://www.smm.org/heart/lessons/lesson7.htm
Website to refer to for working lung model

1. Carefully slice the bottoms off of the Gatorade bottles up to the indentation of the first segment of the bottle. (2 liter coke, DP bottles can be used but the plastic is sometimes too flimsy.)

2. Insert one balloon into the neck of the bottle and pull the lip of the balloon over the lip of the bottle.

3. Place the latex glove over the open base of the bottle.

4. Pull on the fingers to simulate the contraction of the diaphragm and watch the "lung" fill with air.

5. Release the finger of the glove to simulate exhalation.

6. Punch hole in side of bottle to demonstrate a pneumothorax, then place finger over the hole to demonstrate the effectiveness of an occlusive dressing

- Create Jeopardy game questions and participate in game.

Attachments for Learning Experiences:

- Diagram of respiratory system
- Make a working lung activity
- Skills rubrics for setting up oxygen, Pulse Ox, MDI,
- Respiratory System Care detailed outline
- Respiratory system multimedia presentation
- Respiratory System Vocabulary and Disorders

Notes & Reflections:

CULMINATING PERFORMANCE TASK (Optional)

Culminating Unit Performance Task Title:

Culminating Unit Performance Task Description/Directions/Differentiated Instruction:

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Attachments for Culminating Performance Task: Please list.

UNIT RESOURCES

Web Resources:

- **http://education-portal.com/videos/Respiratory_Therapy_Professions_Video_Becoming_a_Respiratory_Care_Professional.html http://www.aarc.org/career/ http://video.google.com/videosearch?q=respiratory+therapy+video&sourceid=navclient-**
- **ff&rlz=1B3GGGL_enUS310US310&um=1&ie=UTF-8&ei=3gUMSvn0NJW-M5OmsJ4G&sa=X&oi=video_result_group&resnum=4&ct=title# (great rap song video from RT students "Let me hear you Huff!)**
- **http://www.mayo.edu/mshs/resp-career.html**
- **http://www.youtube.com/watch?v=flp1ljKucgY&feature=PlayList&p=5A363AD7DE6F5828&index=19**

(Incentive Spirometry Demo Video)

http://www.smiths-medical.com/catalog/lung-expansion/insentive-spirometer/disposable-coach-spirometer.html

(MDI)

http://www.thoracic.org/sections/copd/for-patients/what-do-i-need-to-know-about-the-medication-i-am-taking/what-is-a-metered-dose-inhaler-mdi.html

http://www.thoracic.org/sections/copd/for-patients/what-do-i-need-to-know-about-the-medication-i-am-taking/what-is-a-nebulizer-or-jet-inhaler.html

(pulse ox guidelines)

http://www.rcjournal.com/cpgs/pulsecpg.html

(Video showing how to setup suction)

http://www.wonderhowto.com/how-to/video/how-to-set-up-wall-suctioning-for-oral-care-in-nursing-259855/

(Video on how to suction a newborn with bulb syring)

http://www.wonderhowto.com/how-to/video/how-to-suction-a-newborn-baby-s-nasal-mucus-195394/

(Video on how to suction a trach)

http://www.wonderhowto.com/how-to/video/how-to-suction-though-a-tracheostomy-in-nursing-260015/

(Video on how to administer oxygen via N.C.)

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http://www.wonderhowto.com/how-to/video/how-to-administer-oxygen-therapy-with-a-nasal-cannula-259979/

(Trach care video)

http://patienteducation.tv/trach_video.php

www.scribd.com/doc/3732573/Tracheostomy-Care-Guidelines - 513k -

(Breath sounds)

http://www.medzoom.net/breathsounds.html

(Croup Tent)

http://www.drugs.com/cg/oxygen-tent.html

Attachment(s):

Materials & Equipment:

- Nasal Cannula
- Oxygen Masks
- Tracheostomy Care Tray or supplies needed to provide tracheostomy care
- flowmeter or pictures of flowmeters
- suction catherers
- Yankaeur Suction device,

What 21st Century Technology was used in this unit:

	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	x	Video
	Animation Software		Wiki		Electronic Game or Puzzle Maker
	Email	x	Website		