GEORGIA MIDDLE SCHOOL Instructional Resources

CAREER, TECHNICAL, & AGRICULTURAL EDUCATION

HEALTHCARE SCIENCE

COURSE: Healthcare Science

UNIT 5: Introduction to Medicine

INTRODUCTION

Annotation:

This unit includes lessons on exploring careers in the field of medicine. Students will learn specific educational, licensure, and daily skill performance requirements for physicians, physician's assistants and medical assistants. Through creation of professional name tags, role play, skills practice and internet research, students will have hands on experience which correlates to each explored career in medicine. Medical vocabulary, abbreviations, anatomy, physiology, and use of math in medicine are included in this unit. Two pathophysiologies are also introduced to enhance comprehension of medical specialties and teamwork in the context of patient care.

Grade(s):

	6th
	7th
X	8th

Time:

Ten 50 minute class periods

Author:

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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 appropriately. 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. Many students (both with and without disabilities) who struggle with reading may benefit from the use of text reading software or other technological aids to provide access to printed materials. Many of these are available at little or no cost on the internet.

FOCUS STANDARDS

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

MSHS8-HS-5-- Students will evaluate careers available in the field of medicine.

a) Compare and contrast the roles and responsibilities of physicians, physician's assistants, and medical assistants, along with their education, training requirements, salary ranges, job outlooks, and facilities in which they work.

b) Describe various medical specialties.

c) Sample tasks – Demonstrate at least one of the following:

- Obtaining a history.
- Listing the steps involved in performing a physical exam.
- Performing a 5-minute neurological exam.
- Use of a stethoscope to evaluate lung sounds.
- Removal of sutures.

GPS Academic Standards:

M8P5 – Students will represent mathematics in multiple ways.

M8N1 – Students will understand different representations of numbers including square roots, exponents, and scientific notation.

S8CS4 – Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.

S8CS6 – Students will communicate scientific ideas and activities clearly.

S8L2 – Students will describe the structure and function of cells, tissues, organs, and organ systems.

National / Local Standards / Industry / ISTE:

2.15 – Report relevant information in order of occurrence.

2.18 – Report subjective and objective information.

2.19 – Use medical terminology to communicate information including data and observations.

2.21 – Recognize the elements of oral communication using a sender-receiver process.

2.22 – Apply speaking and active listening skills using reflection, restatement, and clarification techniques.

3.11 – Select appropriate tools for information to be collected.

4.22 – Use equipment and instruments according to the manufacturer's guidelines and accepted safety practice.

4.31 – Compare potential health science career pathways using a variety of health careers within the diagnostic services, therapeutic services, health informatics services, support services, or biotechnology research and development.

4.32 – Recognize levels of education, credentialing requirements, employment opportunities, workplace environments, and career growth potential for a service area.

5.12 – Analyze and report patient and other client response.

6.12 – Analyze information gathered.

UNDERSTANDING & GOALS

Enduring Understandings:

Careers in the field of medicine require educational, technical and ethical development. Organizational structure and teamwork are the key to providing quality healthcare. Development of organizational skills and teamwork skills are important as a middle school student and when working in any career of choice.

Essential Questions:

- Who are the team players in the field of medicine?
- Can you organize the field of medicine team players into an organizational chart?
- What are some of the tools of the trade used by team members in the field of medicine?
- What is a physician specialist?
- What does the inside of the heart look like?
- What's happening when I feel my heart beat?
- What do the heart and an iPod have in common?
- What are ways to assess the heart?
- What makes a team successful?

Knowledge from this Unit:

- Examine careers in the field of medicine.
- Compare and contrast the roles and responsibilities, educational requirements, licensure, salary, facilities of employment and job outlooks for identified careers in medicine.
- Compare and contrast the roles of a general physician and a cardiologist.
- Identify and describe anatomical structures within the heart.
- Describe the physiological actions of a beating heart, to include circulation of blood and conduction of electricity through the heart.
- Define cardiac output.
- Explain responsibilities of healthcare professionals during a patient's visit to a physician's office and admit to the hospital.

Skills from this Unit: Performance.

- Obtain a Health History.
- Palpate and obtain a radial and carotid pulse.
- Use a stethoscope to auscultate heart and lung sounds.
- Calculate cardiac output.
- Write physician's orders.

ASSESSMENTS

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
__ 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
x Subjective assessment/Informal observations
__ Essay tests
_x_ Observe students working with partners
_x_ Observe students role playing
x Peer-assessment
__ Peer editing and commentary of products/projects/presentations using rubrics
_x_ Peer editing and/or critiquing
x Dialogue and Discussion
__ Student/teacher conferences
_x_ 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
____ Post-test

Assessment(s) Title:

Career Exploration for Mastery – Field of Medicine Checklist
Healthcare Name Tag Rubric
Internet Research Questionnaire: Physician specialist: Cardiologist
Coronary Heart Disease (CAD)
Career Related Skills Rubric
Unit Exam: Careers and Terminology in the field of Medicine

Assessment(s) Description/Directions:

Students will use the Career Exploration for Mastery – Field of Medicine Checklist as a guide for completion of requirements in this unit.

Attachments for Assessment(s): Please list.

Career Exploration for Mastery – Field of Medicine Checklist
Healthcare Name Tag Rubric
Internet Research Questionnaire: Physician specialist: Cardiologist
Coronary Heart Disease (CAD)
Career Related Skills Rubric
Unit Exam: Careers and Terminology in the field of Medicine

LESSON PLANS

Sequence of Instruction

- **INTRODUCTION**

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

MSHS8-HS-5: Students will evaluate careers available in the field of medicine.

a) Compare and contrast the roles and responsibilities of physicians, physician's assistants, and medical assistants, along with their education, training requirements, salary ranges, job outlooks, and facilities in which they work.

b) Describe various medical specialties.

c) Sample tasks – Demonstrate at least one of the following:

- Obtaining a history.
- Listing the steps involved in performing a physical exam.
- Use of a stethoscope to evaluate lung sounds.
- Removal of sutures.

2. Review Essential Questions.

- Who are the team players in the field of medicine?
- Can you organize the field of medicine team players into an organizational chart?
- What are some of the tools of the trade used by team members in the field of medicine?
- What is a physician specialist?
- What does the inside of the heart look like?
- What's happening when I feel my heart beat?
- What do the heart and an Ipod have in common?
- What are ways to assess the heart?
- What makes a team successful?

3. Identify and review the unit vocabulary.

Anatomy	Defibrillation	Prescription
Aortic valve	Echocardiogram	Pulmonary
Apical Pulse	EKG	Pulmonary System
Artery	History and Physical (H&P)	Pulmonary valve
Atrium	Intravenous (IV)	Pulmonologist
Asystole	Medical Assessment	Pulse
Cardiac	Medical Assistant (MA)	Radial Pulse
Cardiologist	Medical Doctor (MD)	Sinoatrial Node (SA node)
Cardiopulmonary Resuscitation	Medication	Tricuspid valve
Carotid Pulse	Mitral valve	Vein
Certified Medical Assistant (CMA)	Normal Sinus Rhythm	Ventricle
Circulatory System	Oxygen (O2)	
Complete bed rest	Physician	
Conduction system	Physician Assistant (PA)	
Coronary artery	Physiology	

4. Interest approach – Mental set

Ask students to list any medical shows they watch on TV and describe what they like about the show. Show video clip of Gray's Anatomy. Ask students to compare medical TV shows to what they think an actual day in the life of a MD is like.

Show Video Clip about careers in medicine from Southwest Georgia AHEC's Anatomy of Health Careers DVD

• LESSON 1:

1. Discuss the Essential Question with students: Who are the team players in the field of medicine?
    - Let students brainstorm some possible answers.
    - Complete activity 1 and 2 to answer the essential question.

2. Conduct Activity 1: Teacher power point presentation: Review of Medical Terminology and Abbreviations, Career Exploration for Mastery - Field of Medicine Checklist and accompanying rubrics, internet assignments.

3. Conduct Activity 2: Students will create an outline of education, training requirements, salary ranges, job outlooks and facilities of employment for physicians, physician assistants and medical assistants using Southwest Georgia AHEC's Anatomy of Health Careers DVD as a resource. Conclusion of Lesson: Review career outlines.

4. Review the answer to the Essential Question with class. The team players in the field of medicine are Physician, Physician's Assistant, and Medical Assistant.

• LESSON 2:

1. Discuss the Essential Question with students: Can you organize the field of medicine team players into an organizational chart?
    - Complete activity 1, 2 and 3 to answer the essential question.

2. Conduct Activity 1: Review Rubric for Healthcare Career Name Tag

3. Conduct Activity 2: Using outlines created on Day 1, divide class into three groups, each group should create name tags for one of the three careers in medicine.

4. Conduct Activity 3: Have students attach name tags to bulletin board. At the end of the unit, students will work in pairs and complete a gallery tour of all name tags. First, second, third and honorable mention awards will be assigned to name tags by class.

• LESSON 3:

1. Discuss the Essential Question with students: What are some of the tools of the trade used by team members in the field of medicine?
    - Complete activity 1, 2 and 3 to answer the essential question.

2. Conduct Activity 1: Have students volunteer to discuss a situation when they sought treatment at a physician's office.

3. Conduct Activity 2: Have students list tools of the trade (equipment) used in their care.

4. Conduct Activity 3: Have students work in pairs, using a medical instrument inventory list on a clipboard, tour the lab and match the numbered medical equipment to the inventory list item description. Upon completion; as a group review correct answers. Student pair that has the most correct answers wins! *Use photographs of equipment you do not have in your lab.

5. Review the answer to the Essential Question with class. Refer to list of equipment on inventory for answer.

• LESSON 4:

1. Discuss the Essential Question with students: What is a physician specialist?
    - Complete activity 1 to answer the essential question.

2. Conduct Activity 1: Teacher to share experiences about working with specialists.
   Teacher power point: Review of internet research protocol and research assignment.
   Internet Research:
   Physician Specialist: Cardiologist

3. Review the answer to the Essential Question with class.

• LESSON 5:

1. Discuss the Essential Question with students: What does the inside of the heart look like?
    - Complete activity 1 and 2 to answer the Essential Question.

2. Conduct Activity 1: Display labeled photo of the interior of the heart on projector screen. Have students work in groups of four, give each group stick on labels with heart anatomy terms written on them. Place anatomical models of hearts on each table. Using projected heart image as a reference, have students attach labels to correct anatomical parts.

3. Conduct Activity 2: Upon completion of labeling activity, have groups switch to another table and assess work of previous group.

4. Review the answer to the Essential Question with class. Using projected image, have students' list anatomical terms in their notebook.

• LESSON 6:

1. Discuss the Essential Question with students: What's happening when I feel my heart beat?
    - Let students brainstorm some possible answers.
    - Complete activity 1 and 2 to answer the Essential Question.

2. Conduct Activity 1: Discuss with students the flow of blood through the heart. Access and project the following websites during discussion:
   National Heart Lung and Blood Institute Website:
   http://www.nhlbi.nih.gov/health/dci/Diseases/hhw/hhw_pumping.html
   NOVA Website:
   http://www.pbs.org/wgbh/nova/heart/heartmap.html

3. Conduct Activity 2: Have students palpate their own radial and carotid pulse. Have them count their radial pulse for one minute three times and record their pulse rate.

4. Review the answer to the Essential Question with class. Have students draw a linear diagram of blood flow through the heart.

• LESSON 7:

1. Discuss the Essential Question with students: What do the heart and an iPod have in common?
    - Complete activity 1, 2, 3 and 4 to answer essential the question.

2. Conduct Activity 1: Play music for the class with an iPod. Choose a song that has lyrics that refer to the heart.

3. Conduct Activity 2: Class discussion- Have students brainstorm answers to the Essential Question.

4. Conduct Activity 3: Teacher Brief Lecture Power point- Conduction system of the heart.
   Reference: National Heart Lung and Blood Institute Website:
   http://www.nhlbi.nih.gov/health/dci/Diseases/hhw/hhw_electrical.html

5. Conduct Activity 4: Have students auscultate their own heart beat and lung sounds using a stethoscope.
   Ask: Why would a physician also auscultate lung sounds? Ask: Suppose the heart muscle was weak and could not pump blood efficiently?
   Play audio of coarse crackle lung sounds in a CHF patient. Describe etiology of coarse crackles.
   Resource: Learning Cardiac Auscultation by Cardionics, Inc.

6. Review the answer to the Essential Question with class. Answer: Both must have a source of electricity, both can provide an interesting beat, both can be heard with the human ear.

7. "Staying Alive" with CPR. Show video found at the following link. It explains how the Disco song "Staying Alive" is now being used as a way to keep proper time when giving CPR.
   http://www.necn.com/Boston/Health/Moore-on-Your-Health-Staying-Alive-with-CPR/1225037411.html

• LESSON 8:

1. Discuss the Essential Question with students: What are ways to assess the heart?
    - Let students brainstorm some possible answers.
    - Complete activity 1 and 2 to answer the Essential Question.

2. Conduct Activity 1: Discussion- Review previous activities: palpation and counting of pulse rate and auscultation of heart sounds.
   BREAK CLASS INTO TWO GROUPS FOR ACTIVITY 2 AND 3 THEN ROTATE GROUPS

3. Conduct Activity 2: Math Connection: Students estimate their Cardiac Output using the attachment **Cardiac Output**.

4. Review the answer to the Essential Question with class. Answer: Obtaining a pulse rate, auscultation with a stethoscope and measurement of cardiac output.

• LESSON 9:

1. Discuss the Essential Question with students: SAME AS LESSON 8 (What are ways to assess the heart?)

2. Conduct Activity: Internet Research: Pathophysiology – Coronary Heart Disease (CAD)

   Resources:
   New York - Presbyterian Hospital, Columbia University Medical Center website
   http://www.columbiasurgery.org/pat/cardiac/chd.html
   About.com
   http://heartdisease.about.com/cs/ekgecg/a/ECG.htm

3. Revisit Essential Question: Additional answers include EKG/ECG, echocardiogram, and stress test.

• LESSON 10:

1. Discuss the Essential Question with students: What makes a team successful?
   - Let students brainstorm some possible answers.
   - Complete activity 1 and 2 to answer essential the question.

2. Conduct Activity 1: Role Play: Hand out Case study: Coronary Artery Disease (CAD) script, assign roles, gather props

3. Conduct Activity 2: Read through script and have students rehearse role play.

4. Conduct Activity 3: Peer review- Have student make positive comments and also provide constructive criticism.
   * Role play to include health history and physical exam of CAD patient.

5. Review the answer to the Essential Question: Have students write about role play based on view of patient; include emotional responses to treatment received at the physician's office.

• LESSON 11: REVIEW

1. Conduct Activity 1: Role Play for Peer Assessment

2. Conduct Activity 2: Review for Unit Test

• LESSON 12: UNIT TEST

1. Conduct Activity 1: Unit Test including Vocabulary

2. Conduct Activity 2: Judge career name tags created at the beginning of this unit, and award prizes.

• NOTES & REFLECTION:

Closure:
1. What activity in this unit was your favorite?
2. Do you think this exploration of the field of medicine has changed your view of healthcare?

Transfer out:
During our role play of a visit to the physician's office, we briefly talked about gathering health information from various sources. Our next unit is Introduction to Health Informatics. In this unit we will explore how various uses of health information.

Attachments for Learning Experiences: Please list.

Role Play – Case Study: Coronary Artery Disease (CAD)

Notes & Reflections:

Internet websites included can be used to provide additional learning experiences for more advanced students.

CULMINATING PERFORMANCE TASK

Culminating Unit Performance Task Title:

Completion of Role Play – Case Study: Coronary Artery Disease (CAD)

Culminating Unit Performance Task Description/Directions/Differentiated Instruction:

The role play activity offers an opportunity for students to use explored skills and knowledge in a simulated work place scenario. It also provides an opportunity for students to work as a team and express empathy for patients with a chronic illness. The medical office scenario provides an easy transition into Introduction to Health Informatics.

Attachments for Culminating Performance Task: Please list.

Internet Research Questionnaire: Physician specialist: Cardiologist
Coronary Heart Disease (CAD)
Career Related Skills Rubric
Role Play - CASE STUDY: Coronary Artery Disease (CAD)

UNIT RESOURCES

Web Resources:

National Heart Lung and Blood Institute website:
http://www.nhlbi.nih.gov/health/dci/Diseases/hhw/hhw_pumping.html
NOVA Website:
http://www.pbs.org/wgbh/nova/heart/heartmap.html

National Heart Lung and Blood Institute
Website:
http://www.nhlbi.nih.gov/health/dci/Diseases/hhw/hhw_electrical.html

Science Museum of Minnesota
http://www.smm.org/heart/lessons/lesson2

New York - Presbyterian Hospital, Columbia University Medical Center website
http://www.columbiasurgery.org/pat/cardiac/chd.html

About.com
http://heartdisease.about.com/cs/ekgecg/a/ECG.htm

Attachment(s):

Introduction to Medicine Power Point Presentation

Materials & Equipment:

Southwest Georgia AHEC's Anatomy of Health Careers DVD

Learning Cardiac Auscultation by Cardionics, Inc

What 21st Century Technology was used in this unit?

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