SOUTH CAROLINA – HEALTH SCIENCE MIDDLE SCHOOL COURSE #1

Introduction to Health Professions- 2839

Course Description: This course provides students with an introduction to many healthcare careers, and the safety procedures and interpersonal communication skills required for them. The course will enable students to receive initial exposure to healthcare skills, attitudes, and responsibilities of today's healthcare provider. Students will be introduced to the five career pathways developed by NCHSE (the National Consortium on Health Science Education): therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development

Course Objectives: Successful completion of this course through project-based learning, technical skills practice, and group activities will provide students with an opportunity to decide if they want to continue this course of study in high school and/or at a post-secondary institution.

Grades: Recommended for grades 7 or 8

This course is recommended for: Students with a desire learn more about Healthcare.

Pre-requisites: None

COURSE STANDARDS

MS Standard 1:   SAFETY PRACTICES AND INFECTION CONTROL:
 (National Foundation Standard 7: Safety Practices)
Students will demonstrate the proper implementation of safe work practices to prevent injury or illness.

- Demonstrate the proper method for hand washing.
- Demonstrate and/or list the correct sequence of body motions for lifting, pushing, and turning.
- Discuss the causes, prevention, and effects of HIV/AIDS and hepatitis.
  When and How to Wash Your Hands | Handwashing | CDC
  HIV and AIDS (for Kids) - Nemours KidsHealth

MS Standard 2: HEALTHCARE COMMUNICATIONS:
(National Foundation Standard 2: Communications)
Students will effectively communicate orally and in writing, applying knowledge of healthcare communications.

- Differentiate between verbal and non-verbal communication and evaluate the components and barriers to effective communication.
- Introduction to basic medical terminology - abbreviations (included below)

MS Standard 3: Personal Traits of the Health Professional:
(National Foundation Standard 4: Employability Skills)
Identify some of the personal traits and attitudes desirable in a member of the career ready healthcare team.

- Dependability
- Discretion
- Enthusiasm
- Honesty
- Patience
- Responsibility
- Self-motivation
- Team player- Define and Recognize methods for building positive team relationships
- Willingness to learn
  HOSA-Leadership-Activities-9.30.pdf

MS Standard 4: HEALTHY BEHAVIORS :
(National Foundation Standard 9: Health Maintenance Practices)
Differentiate between wellness and disease. Promote disease prevention and model healthy behaviors.

- Promote behaviors of health and wellness (including sleep and exercise)
- Strategies for prevention of disease.
  - Routine physical exams
  - Medical and dental health screenings
  - Avoid risky behaviors
    BAM! Body and Mind (cdc.gov)
    Teacher's Guide: Fitness (Grades 6 to 8) (kidshealth.org)

MS Standard 5: HEALTHCARE TEAMS AND LEADERSHIP:
(National Foundation Standard 8: Teamwork)
Identify roles and responsibilities of individual members and leaders as part of the healthcare team.

- Examples of healthcare teams
- Responsibilities of team members
- Benefits of teamwork
- Leadership qualities
- Introduction of HOSA- Future Health Professionals
  HOSA-Leadership-Activities-9.30.pdf

MS Standard 6: HEALTH CAREER PATHWAYS:
(National Foundation Standard 4.3 Career Decision Making
Distinguish differences among careers within health science pathways (diagnostic services, therapeutic services, health informatics, support services, or biotechnology research and development).

- Discuss the focus of each pathway.
- List 3 examples of careers that fall within each pathway.
- Choose at least one career in each pathway to explore in detail.
  - Job Duties
  - Education
  - Places they may be employed
  - Skills and/or courses needed to be successful
  - Salary range
  - Simulate some activities associated with the chosen pathway
  - Students should participate in team activities with sample tasks.
    [Be Something Amazing Front Page | Be Something Amazing](#)
    [Microsoft Word - Health Science Career Specialties 8-2018.doc (healthscienceconsortium.org)](#)

Health Science Pathways and Sample Career Specialties
Updated August 2018

NCHSE — National Consortium for Health Science Education

Sample Career Specialties				
Acupuncturist Anesthesiologist Assistant Art/Music/Dance Therapist(s) Athletic Trainer Audiologist Certified Nursing Assistant Certified Registered Nurse Anesthetist (CRNA) Chiropractor Dental Assistant Dental Hygienist Dental Lab Technician Dentist Dialysis Technician Dietitian/Nutritionist Dietetic Technician Dosimetrist Emergency Medical Technician Home Health Aide Kinesiotherapist Licensed Practical Nurse Massage Therapist Medical Assistant Mortician Nurse Practitioner Occupational Therapist Occupational Therapy Assistant Ophthalmic Technician Orientation & Mobility Specialist Orthotist/Prosthetist Paramedic Perfusionist Personal care aide Pharmacist Pharmacy Technician Physical Therapist Physical Therapy Assistant Physician (MD/DO) Physician Assistant Podiatrist Psychologist Psychiatrist Radiation Therapist Recreational Therapist Registered Nurse Rehabilitation Counselor Respiratory Therapist Social Worker Speech Language Pathologist Surgeon Surgical Technologist Veterinarian Veterinarian Technician Wellness Coach	Audiologist Blood Bank Technician Cardiovascular Technologist Clinical Laboratory Technician Computer Tomography (CT) Technologist Cytogenetic Technologist Cytotechnologists Diagnostic Medical Sonographers Electrocardiographic (ECG) Technician Neurodiagnostic Technologist Exercise Physiologist Genetic Counselor Histotechnician Histotechnologist Magnetic Resonance (MR) Technologist Mammographer Medical Technologist/ Clinical Laboratory Scientist Nuclear Medicine Technologist Nurse Practitioner Nutritionist/Dietitian Occupational Therapist Ophthalmic Technician/Technologist Ophthalmic Dispensing Optician Optometrist Phlebotomist Physical Therapist Polysomnographic Technologist Positron Emission Tomography (PET) Technologist Radiologic Technician Respiratory Therapist	Admitting Clerk Applied Researcher Cancer Registrar Certified Compliance Technician Clinical Account Manager Clinical Account Technician Clinical Coder Clinical Data Miner Clinical Data Management Specialist Clinical Data Specialist Community Services Specialists Data Quality Manager Decision Support Analyst Epidemiologist Ethicist Health Educator Health Information Administrator Health Information Technician Health Information Services Healthcare Administrator Healthcare Finance Professional Information Privacy Officer Information Security Officer Managed Care Contract Analyst Medical Assistant Medical Illustrator Medical Information Technologist Medical Librarian Medical Records Technician Patient Account Manager Patient Account Technician Patient Advocates Patient Information Coordinator Project Manager Quality Management Specialist Quality Data Analyst Reimbursement Specialist Risk Manager Transcriptionist Unit Coordinator Utilization Manager Utilization Review Manager	Behavioral Disorder Counselors Biomedical/Clinical Engineer Biomedical/Clinical Technician Clinical Simulator Technician Central Service Manager Central Service Technician Community Health Worker Dietary Manager Dietary Aide Environmental Services Facilities Manager Healthcare Administrator Healthcare Economist Maintenance Engineer Industrial Hygienist Interpreter Materials Manager Patient Navigator Transport Technician Substance Abuse Counselors	Biochemist Bioinformatics Associate Bioinformatics Scientist Bioinformatics Specialist Biomedical Chemist Biomedical/Clinical Engineer Biomedical/Clinical Technician Biostatistician Cell Biologist Clinical Data Management Associate/ Consultant Clinical Pharmacologist Clinical Trials Monitor Clinical Trials Research Associate Clinical Trials Research Coordinator Geneticist Laboratory Assistant-Genetics Laboratory Technician Medical Editor/Writer Microbiologist Molecular Biologist Pharmaceutical/Clinical Project Mgr. Pharmaceutical Sales Representative Pharmaceutical Scientist Pharmacologist Product Safety Associate/Scientist Process Development Associate/Scientist Processing Technician Quality Assurance Technician Quality Control Technician Regulatory Affairs Specialist Research Assistant Research Scientist Toxicologist
Pathways	**Therapeutic Services**	**Diagnostic Services**	**Health Informatics**	**Support Services**	**Biotechnology Research and Development**

SAMPLE CAREER ASSIGNMENT USING THE PATHWAYS

Therapeutic Services

Individuals pursuing a career in the Therapeutic Services Pathway are focused primarily on changing the health status of the patient over time. Health professionals in this pathway work directly with patients; they may provide care, treatment, counseling and health education information.

Example: INTRODUCTION TO PHARMACY: Students will explore the different careers available in the field of pharmacy.

- Compare and contrast the roles and responsibilities of pharmacists, pharmacy aides, and pharmacy technicians, along with their education, training requirements, salary ranges, job outlooks, and facilities in which they work.
- Maintain mock pharmacy inventory.
- Fill simulated written prescriptions or requests for prescription refills with simulated medications.
- Verify the accuracy and completeness of prescription information. (patient name, date of birth, address, phone number, name of drug, strength of drug, route of drug, directions for taking drug)
    - Prepare prescription labels.
    - List routes of medication administration and their appropriate uses.

Example: INTRODUCTION TO NURSING: Students will assess the career pathways available in the nursing field.

- Compare and contrast the roles and responsibilities of registered nurses, licensed practical nurses, and nursing assistants, along with their education and training requirements, salary ranges, job outlooks, and facilities in which they work.
- Describe the personal characteristics, attitudes, and rules of appearance that apply to individuals in nursing careers.
- Describe how social, religious, ethnic, and cultural beliefs impact patient care.
- Identify moral and ethical issues impacting nursing care.
- Evaluate the roles of advanced practice nurses (e.g., nurse practitioners, nurse anesthetists).
- Perform vision screening and colorblindness screening.
- Sample tasks: Demonstrate at least one of the following:
    - Measuring and recording of height and weight.
    - Measuring and recording of TPR (temperature, pulse, and respiration).
    - Measuring and recording of blood pressure.
    - Patient education brochure.

Diagnostic Services

Individuals pursuing a career in the Diagnostic Services Pathway use tests and evaluations that aid in the detection, diagnosis and treatment of diseases, injuries or other physical conditions

Example: INTRODUCTION TO MEDICAL LABORATORY TECHNOLOGY: Students will assess careers opportunities in the field of medical laboratory technology.

- Compare and contrast the roles and responsibilities of pathologists, medical Laboratory technologists, medical laboratory technicians, medical laboratory assistants, and phlebotomists, along with their education, training requirements, salary ranges, job outlooks, and facilities in which they work.
- Identify and operate the parts of a microscope.
- Distinguish between a red blood cell, white blood cell, and platelet.
- Differentiate between arterial, venous, and capillary blood and ways of obtaining each type of sample.
- Sample tasks: Demonstrate at least one of the following:
    o Cleansing the skin in preparation for a capillary puncture.
    o Placing a tourniquet in preparation for a venipuncture.
    o Testing simulated urine using a reagent strip
    o Measuring blood sugar (glucose) level using simulated blood and a glucose monitor

Health Informatics

Individuals pursuing a career in the Health Informatics Pathway can expect to be involved in many different levels of health care related employment. This pathway includes health care administrators who manage health care agencies as well as those individuals who are responsible for managing all of the patient data and information, financial information, and computer applications related to health care processes and procedures.

Example: INTRODUCTION TO HEALTH INFORMATICS: Students will differentiate careers available in the field of health informatics/healthcare information systems.

- Compare and contrast the roles and responsibilities of healthcare administrators, medical illustrators, health information technologists, medical coders, and health unit coordinators, along with their education, training requirements, salary ranges, job outlooks, and facilities in which they work.
- Identify what information may be kept in a patient's medical record.
- Recognize how technology may be used to improve the delivery of patient care and patient charting.
- Define the term HIPAA and recognize the importance of patient privacy.
- Sample tasks – Demonstrate at least one of the following:
    o Proper phone etiquette and recording of a phone message during simulated
    o phone calls.
    o Proper filing of patient charts (e.g., alphabetically, by patient number).
    o Assigning of diagnostic and procedure codes after reviewing patients' charts.
    o Creation of a medical illustration.
    o Creation of an educational presentation about a healthcare issue or a body system.

<u>**Support Services**</u>

- Individuals pursuing a career in the Support Services Pathway provide a therapeutic environment for the delivery of health care. Support Services offers a full range of career opportunities from entry level to management, including technical and professional careers.

  INTRODUCTION TO CENTRAL SUPPLY: Students will explore the different careers available in the field of central supply.

- Compare and contrast the roles and responsibilities of central supply coordinators, central supply technicians, and central supply assistants, along with their education, training requirements, salary ranges, jobs outlooks, and facilities in which they work.
- Identify the areas of the central supply/processing department.
- Describe the proper flow of instruments and equipment in the central supply department.
- Evaluate potential causes and methods of transmitting infection.
- Compare and contrast clean versus sterile and sterile versus aseptic control.
- Describe the process for handling and storage of sterile and non-sterile items.
- Explain the purchasing process in order to maintain adequate quantities of supplies, equipment, instruments, and medical device
- Tasks:
  - Use simulated tools to wrap as if they were surgical instruments for the autoclave.
  - Define autoclave
  - indicate how you would tell if the instrument has been sterilized
  - What is the average temperature range and length of time it takes for something to be sterilized.
  - Research and list other ways that Central Supply may use to clean reusable medical devices. (Chemical disinfection, ultrasonic unit)

<u>**Biotechnology Research and Development**</u>

Individuals pursuing a career in the Biotechnology Research and Development pathway involve bioscience research and development as it applies to human health. These scientists may study diseases to discover new treatments or invent medical devices used to directly assist patients or to improve the accuracy of diagnostic tests.

  Example: INTRODUCTION TO BIOMEDICAL CAREERS: Students will evaluate career choices in the biotechnology field.

- Compare and contrast the roles and responsibilities of workers in the field of genetics, biomedical engineering, toxicology, microbiology, and forensics, along with their education, training requirements, salary ranges, job outlooks, and facilities in which they work.
- Describe computer applications and biomedical devices in healthcare.
- Explore the structure of DNA and its relationship to the cell.
- Evaluate forensic techniques.
- Analyze the benefits of biomedical research.

- Differentiate the ABO and Rh blood types.
- Sample tasks – Demonstrate at least one of the following:
    - Separating DNA.
    - Testing of simulated blood for ABO and Rh type.
    - Fingerprinting.
    - Identification of bacteria.
    - Researching and debating a selected bioethical issue.

CLASSROOM RESOURCES AND TABLES BELOW

STUDENT GROUP PROJECT

Career Chosen _____

Sample poster objectives:

- Job Duties
- Education
- Places they may be employed
- Skills and/or courses needed to be successful
- Salary range
- Projected job outlook
- Works cited- citation of references used
- Artistic design – appealing to the eye
- Originality
- Extra Credit: - Demonstrate a skill associated with this position or bring a guest speaker.

Present a five (3-5) minute prepared oral presentation to the class. Paper or electronic notecards (on a tablet, smart phone, laptop, etc.) may be used for the oral presentation. The presentation may include but is not limited to why they chose this career/career cluster, what they learned by researching this career/career cluster, what forms of research they used to complete the display, and what they included on the display and why.

Poster Presentation Rubric:
A. Career information presented in a clear and concise manner. **50 points**

B. Oral presentation demonstrates insight and a deep understanding of the career or career cluster. **25 points**

C. Team members were able to share stories, examples, and experiences that illustrate the career or career

cluster, and how the career fits into the healthcare
system**. 25 points**

Medical Terminology Activity:
Using the abbreviations below decipher the instructions for the following orders:

1. EKG in AM to R/O MI
2. S/S: SOB, N/V, HTN
3. OOB TID and ad lib Post-op
4. D/C po meds 24 hours Pre-op
5. EEG stat related to decreased LOC, VS qid, hs, and prn

<u>**Samples of BASIC MEDICAL TERMINOLOGY- Abbreviations**</u>

Morning – before noon: am, AM	discontinue: d/c, dc
Before meals: ac	do not resuscitate: DNR
After meals: pc	dead on arrival: DOA
bedtime: hs	date of birth: DOB
Right ear: AD	date of death: DOD
Left ear: AS	diagnosis: DX, dx
Both ears: AU	electrocardiogram: ECG, EKG
As desired: ad lib	electroencephalogram: EEG
As tolerated: as tol	ear, nose and throat: ENT
ASAP – as soon as possible	fracture: Fx
drop, drops: gt, gtt, gtts	high blood pressure: HBP
Twice a day: bid	Hypertension: HTN (same as HBP)
Three times a day: tid	History: Hx, hx
Four times a day: qid	HIV: human immunodeficiency virus

Body mass index: BMI

(AIDS virus)

Bathroom privileges: BRP

Intake and Output: I&O

Complete Blood Count: CBC

Intensive care unit: ICU

Centers for Disease Control: CDC

Intravenous: IV

Central Nervous System: CNS

Intramuscular: IM

Cardiopulmonary Resuscitation: CPR

Subcutaneous: SQ, SC, sc

Laxative of choice: LOC

as needed: prn

Level of consciousness: LOC

right: rt

Long Term Care: LTC

left: lt, lft

Myocardial Infarction (heart attack): MI

rule out: R/O

Midnight: MN

Range of motion: ROM

Motor Vehicle accident: MVA
RDA

Recommended Daily Allowance:

Not applicable: N/A

Prescription/Take: Rx

No complaints: N/C

Nasogastric tube: NG, ng, N/G

short of breath: SOB

No known allergies: NKA

if necessary: sos

Nausea and vomiting: N&V, N/V

Signs and Symptoms: S&S, S/S

Right eye: OD

Symptom: Sx

Left eye: OS

immediately: stat

Both eyes: OU

temperature, pulse, respiration: TPR

Overdose: od

treatment: tx

Over the counter: OTC

upper respiratory infection: URI

Office Visit: OV

urinary tract infection: UTI

Occupational Safety and Health Administration: OSHA

Out of bed: OOB

ointment: ung

After noon: PM

venereal disease: VD

By mouth: po

verbal order: VO

Personal Protective Equipment: PPE

vital signs: VS

Before an operation: Pre-Op

After an operation: post-op

Within normal limits: WNL

Wheelchair: w/c

Year to date: YTD

Right upper quadrant: RUQ

Right Lower quadrant: RLQ

Left upper quadrant: LUQ

Left lower quadrant: LLQ

Communication

Class Activity

After discussing the components and barriers of communication, divide students into teams or groups of 2-4 students. Give (may post) each team/group the following instructions.

-With your partner/team, write two skits.

-The first skit should demonstrate a health care worker using poor communication skills.

-The second skit should demonstrate a health care worker using good communication skills.

 -At least one of your skit characters must be a health care worker. The other characters may be a patient, visitor, co-worker, etc.

-Write the scenario or background for your skit before you begin writing the script.

-List the elements of good communication and poor communication used in your skits.

-Each skit should be 30 seconds to 1 minute in length.

-Practice the skit several times with your partner. Time your skit while practicing.

-Perform the skit in front of the class.

After the team/group presents their skits, ask the class to describe the good communication and the poor communication demonstrated.

Ask the group that presented to discuss the elements of communication that they had listed related to their skit and compare to class feedback.

Textbook and online RESOURCES

Winger, Blahnik; Goodheart-Willcox; 2016 <u>Introduction to Health Science: Pathways to Your Future.</u>

Simmers-Nartker, Simmers-Kobelak; 2014 <u>Simmers DHO Health Science- 8th edition</u>

National Consortium for Health Science Education – NCHSE; National Healthcare Foundation Standards – <u>Standards | National Consortium for Health Science Education (healthscienceconsortium.org)</u>

South Carolina Health Science – Secondary Standards – for reference
<u>Health Science Education - South Carolina Department of Education - 7/14/21 9:06 AM</u>

<u>www.besomethingamazing.com</u> – Career website created by South Carolina Hospital Association

<u>www.schosa.org</u> – SC HOSA Future Health Professionals

<u>www.hosa.org</u> – National HOSA Future Health Professionals

Health Science Teacher Resources: <u>Resources-for-HS-Teachers-2020.pdf (schosa.org)</u>

HOSA on – demand – learning (Career Exploration, History, Infection Control, Communication Skills, Leadership Skills, etc.) <u>On-Demand Learning Opportunities – HOSA</u>

Georgia Health Science – Middle School Standards -<u>https://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/Healthcare-Science-.aspx</u>

Florida Health Science – Middle School Standards – for reference
<u>www.fldoe.org/academics/career-adult-edu/career-tech-edu/curriculum-frameworks/2021-22-frameworks/health-science.stml</u>

Tennessee: Middle School Health Science-
<u>https://www.tn.gov/content/dam/tn/education/ccte/hlth/cte_std_intro_health_science.pdf</u>