uBEATS Teacher's Guide:

Medical Terminology Module #7

Medical Specialists

This teacher guide is a supplementary text to support the use of the uBEATS Medical Specialists Module #7 – Medical Specialists for grades 6-12.

To help students develop the knowledge necessary for an incredible future in health care, we created UNMC Building Excellence in Academics Through STEM (uBEATS), an online health science resource for students.

UNMC uBEATS modules are short (15 minutes or less), interactive online health science modules to support curriculum taught in grades 6 – 12. These do not replace curriculum but provide support for teachers and students incorporating evidence-based information and UNMC expert guided material. Each module is chunked into sections with formative and summative assessments with immediate feedback provided.

Tips on how to utilize uBEATS modules:

- **Internet access is required to view uBEATS modules.**
    - For those who have access to one-to-one technology, modules can be used in or outside of the classroom as a topic introduction, extension, or review. For classrooms without individual student devices, modules can be used in whole group instruction. Formative assessment questions can use the teacher's preferred call-and-response method and summative assessment questions can be displayed on the board and answered individually by students or printed and distributed to students after viewing the module.

Objectives

- Describe the training process of physicians.
- Identify medical specialists and describe their specialties.
- Identify the job descriptions of allied health professionals.

Introduction

Have you ever wondered how much training a person needs to become an “MD” (Doctor of Medicine)? After earning a 4-year undergraduate degree, the student must complete 4 more years of Medical School and then pass the National Medical Board Exam.

After receiving the MD degree, the next step is 3 years of postgraduate training known as Residency Training. Examinations are administered after the completion of each residency program to certify the doctor’s competency in that specialty area.

A physician may then choose to specialize further by doing Fellowship Training. Fellowship programs (lasting 2 to 5 years) train doctors in clinical (patient care) and research (laboratory) skills. For example, a pediatrician may choose fellowship training in the treatment of diseases of children.

No matter how much expert training a physician experiences, they cannot do their work without the support of other specialists. From medical office staff, to nurse practitioners, to radiologic technologists, to physician assistants, the list of Allied Health Specialists goes on and on. Each of these specialties has its own education, certification, and licensing requirements.

In this module you will learn how to identify many unique medical careers.

Prior Knowledge

Before beginning this module, the teacher should understand the Next Generation Science Standards (NGSS) featuring Three-Dimensional Learning.

Disciplinary Core Ideas—Links Among Engineering, Technology, Science, and Society. A Framework for K-12 Science Education

New insights from science often catalyze the emergence of new technologies and their applications, which are developed using engineering design. In turn, new technologies open opportunities for new scientific investigations. Together, advances in science, engineering, and technology can have—and indeed have had—profound effects on human society, in such areas as agriculture, transportation, health care, and communication, and on the natural environment. Each system can change significantly when new technologies are introduced, with both desired effects and unexpected outcomes.

National Academies of Sciences, Engineering, and Medicine. 2012. A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas. Washington, DC: The National Academies Press. https://doi.org/10.17226/13165.

Science and Engineering Practices NGSS

6. Constructing explanations (for science) and designing solutions (for engineering)

8. Obtaining, evaluating, and communicating information

Crosscutting Concepts NGSS

2. Cause and effect

6. Structure and function

Key Terms/Vocabulary

Medical specialist, Doctor of Medicine (MD), undergraduate degree, medical school, National Medical Board Exam, postgraduate training, Residency Training, Fellowship Training, clinical skills, research skills, Allied Health Specialists, anesthesiology, dermatology, emergency medicine, family practice, internal medicine, ophthalmology, pathology, pediatrics, psychiatry, radiology, surgery, endocrinology, gastroenterology, immunology, nephrology, neurology, oncology, surgeon, neurosurgery, oral surgery, orthopedic surgery, plastic surgery, thoracic surgery, vascular surgery, cardiology, congenital heart disease, advanced heart failure, cardiac transplantation, cardiovascular disease prevention, clinical cardiac electrophysiology, interventional cardiology, pediatric cardiology, audiologist, chiropractor, dental hygienist, diagnostic medical sonographer, dietitian, emergency medical technician, first responder, hematologist, home health aide, medical assistant, medical laboratory scientist, nurse anesthetist, occupational therapist, pharmacy technician, phlebotomist, physician assistant, pulmonologist, radiologic technologist, registered nurse, respiratory therapist, speech-language pathologist.

Standards

Nebraska's College and Career Ready Standards for Science 2024 **Nebraska Science Standards**

- SC.HS.6.1 Structure and function
    - Gather, analyze, and communicate evidence of the relationship between structure and function in living things.

National Consortium for Health Science Education **NCHSE**

- Foundation Standard 1. Academic Foundation
    - 1.1. Human Anatomy and Physiology
    - 1.2. Diseases and Disorders

- Foundation Standard 3. Systems
    - 3.1. Healthcare Delivery Systems
- Foundation Standard 4. Employability Skills
    - 4.1. Personal Traits of the Health Professional
    - 4.2. Employability Skills
    - 4.3. Career Decision-making
    - 4.4. Employability Preparation
- Foundation Standard 8. Teamwork
    - 8.1. Healthcare Teams
    - 8.2. Team Member Participation
- Foundation Standard 10. Technical Skills
    - 10.1. Technical Skills
- Foundation Standard 11. Information Technology in Healthcare
    - 11.1. Key Principles, Components, and Practices of Health Information Systems (HIS)

Extensions of the lesson

To help students become more familiar with the Key Terms of this module, the teacher can use the vocabulary list for a classroom Word Wall or integrate the vocabulary into review sessions.

As student misconceptions become apparent, the teacher may need to reinforce these concepts:

- When a person becomes a Doctor of Medicine (MD) by completing 4 years of medical school and passing the national medical board examinations, their training is not finished. They may then begin postgraduate training which lasts 3 or more years. During this Residency Training, they become competent in specific areas of specialty, such as pediatrics or surgery.
- After completion of the residency program, a physician may choose to specialize further by doing Fellowship Training for 2 to 5 years. For example, a surgeon may further specialize in thoracic surgery, neurosurgery, or plastic surgery.
- No matter how much expert training a physician experiences, they cannot do their work without the support of other specialists. Each of these specialties has its own education, certification, and licensing requirements. There are more than 80 Allied Health Professions.

Enrichment

- Take some time to explore UNMC's **Careers in Healthcare** to find out which medical career possibilities catch your attention.
- Search the **Occupational Outlook Handbook** of the U.S. Bureau of Labor Statistics to find additional information about physicians.
- Study the webpage of **ExploreHealthCareers.org**.
- Search the Internet for information about Allied Health Professions.