uBEATS Teacher's Guide:

Medical Terminology Module #6

Medical Prefixes

This teacher guide is a supplementary text to support the use of the uBEATS Medical Terminology Module #6 – Medical Prefixes 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.**
    o   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

Introduction

In addition to roots, suffixes, combining forms, and combining vowels, many medical terms have a word part attached to the <u>beginning</u> of the term. This is called a <u>prefix</u>, and it can change the meaning of a term in important ways. For example, watch what happens to the meaning of the following medical terms when the prefix changes.

- The prefix <u>SUB</u> means "below", the root <u>gastr</u> means "stomach", the suffix -<u>ic</u> means "pertaining to."
    - o **Subgastric** means "pertaining to <u>below</u> the stomach."
- The prefix <u>TRANS</u> means "across", the root <u>gastr</u> means "stomach", the suffix -<u>ic</u> means "pertaining to."
    - o **Transgastric** means "pertaining to <u>across</u> the stomach."
- The prefix <u>RETRO</u> means "behind", the root <u>gastr</u> means "stomach", the suffix -<u>ic</u> means "pertaining to."
    - o **Retrogastric** means "pertaining to <u>behind</u> the stomach."

In this module you will practice using <u>prefixes</u> to modify medical terms.

Prior Knowledge

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

Science and Engineering Practices <u>NGSS</u>

8. Obtaining, evaluating, and communicating information

Crosscutting Concepts <u>NGSS</u>

1. Patterns

6. Structure and function

Key Terms/Vocabulary

Prefix, bradycardia, tachycardia, endocardium, epicardium, extracardiac, hemicardia, hypercardia, intracardiac, paracardial, pericardium, dys-, mal-, hypo-, sub-, epi-, hyper-, con-, syn-, ultra-, meta-, ante-, pro-, pre-, ec-, extra-, endo-, intra-, in-, post-, retro-, re-, antepartum, postpartum, incision, excision, intracranial, extracranial, hypoglycemia, hyperglycemia, malignant, benign, neoplasm, metastasis, metastatic tumor, endometrium, ectopic pregnancy, polydipsia, apnea.

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: Human Anatomy and Physiology
  - 1.1.1. Describe the organization of the human body and directional terms.
  - 1.2.1. Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders.
- Foundation Standard 2. Communications: Medical Terminology.
  - 2.2.1. Use common roots, prefixes, and suffixes to communicate information.

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:

- Medical words are like individual jigsaw puzzles. Once you divide the terms into their component parts and learn the meaning of the individual parts, you can use this knowledge to understand many new terms.
- When analyzing the meaning of medical terms, go to the end of the word and start with the suffix, then go back to the beginning of the term, and finally read across.

- The <u>prefix</u> is a small part added to the <u>beginning</u> of a term.
- The <u>root</u> gives the essential meaning of the term.
- Some prefixes share the <u>same meaning</u> with other prefixes.
    - <u>dys-</u> and <u>mal-</u> both mean *bad*.
    - <u>hypo-</u> and <u>sub-</u> both mean *under*.
    - <u>epi-</u> and <u>hyper-</u> both mean *above*.
    - <u>con-</u> and <u>syn-</u> both mean *with*.
    - <u>ultra-</u> and <u>meta-</u> both mean *beyond*.
    - <u>ante-</u> and <u>pro-</u> (as well as <u>pre-</u>) all mean *before*.
    - <u>ec-</u> and <u>extra-</u> both mean *outside*.
    - <u>endo-</u> and <u>intra-</u> (as well as <u>in-</u>) all mean *within*.
    - <u>post-</u> and <u>retro-</u> (as well as <u>re-</u>) all mean *behind*.
- Some prefixes have meanings that are <u>opposite</u> to others.
    - <u>ante-</u> (*before*) / <u>post-</u> (*after*)
    - <u>brady-</u> (*slow*) / <u>tachy-</u> (*fast*)
    - <u>hypo-</u> (*low*) / <u>hyper-</u> (*high*)
    - <u>in-</u> (*into*) / <u>ex-</u> (*out*)
    - <u>intra-</u> (*inside*) / <u>extra-</u> (*outside*)

Enrichment

- Visit <u>Medical Terminology Games to Boost Student Motivation</u> for ideas about active classroom participation.

- <u>EZmedlearning.com</u> offers a 16-minute video <u>Medical Terminology Made Easy: Prefixes</u>.

- <u>Medicalbillingandmedicalcoding.com</u> provides a comprehensive list of medical prefixes: <u>Medical Terminology: Prefixes</u>.

- Do an online search for "classroom activities medical prefixes" to explore possibilities.

- Do an online search for "videos medical prefixes."