Kentucky PLTW Biomedical Science

Medical Interventions

Foundation Standard 1: Academic Foundation: Understand human anatomy, physiology, common diseases and disorders, and medical math principles. MI1

1.1.2 Identify basic structures and describe functions of human body systems. MI112

1.1.2 a Skeletal MI112A

- A Structures of the skeletal system MI112AA
  - i Distinguish between axial and appendicular skeletons MI112AAI
  - ii Describe long bone anatomy MI112AAII
  - iii Identify joint types and movement MI112AAIII
  - iv Name and classify all bones (206) MI112AAIV
- B Functions of the skeletal system MI112AB
  - i Structure and support MI112ABI
  - ii Muscle attachment and movement MI112ABII
  - iii Mineral storage MI112ABIII
  - iv Hematopoiesis MI112ABIV

1.1.2 b Muscular MI112B

- A Structures of the muscular system MI112BA
  - i Identify types of muscle tissue MI112BAI
  - ii Identify major muscle groups of neck, shoulder, chest, abdomen, back, arms, and legs MI112BAII
- B Functions of the muscular system MI112BB
  - i Body movement MI112BBI
  - ii Posture MI112BBII
  - iii Protection MI112BBIII

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- 1.1.2 c Integumentary MI112C
  - A Structures of the integumentary system MI112CA
    - i Identify integumentary components MI112CAI
    - ii Label the layers of skin MI112CAII
  - B Functions of the integumentary system MI112CB
    - i Vitamin D production MI112CBI
    - ii Sensory organ MI112CBII
    - iii Infection protection MI112CBIII
    - iv Temperature regulation MI112CBIV
    - v UV light protection MI112CBV
- 1.1.2 d Cardiovascular MI112D
  - A Structures of the cardiovascular system MI112DA
    - i Identify cardiovascular organs MI112DAI
    - ii Label the parts of the heart MI112DAII
    - iii Distinguish blood components MI112DAIII
  - B Functions of the cardiovascular system MI112DB
    - i Blood flow through the heart and body MI112DBI
    - ii Transports nutrients, waste, antibodies, hormones, and gases MI112DBII
    - iii Cardiac conduction system MI112DBIII
- 1.1.2 e Lymphatic / Immune MI112E
  - A Structures of the lymphatic system MI112EA
    - i Identify lymphatic organs MI112EAI
  - B Functions of the lymphatic system MI112EB
    - i Provide protection against disease MI112EBI
    - ii Movement of lymph fluid MI112EBII
- 1.1.2 f Respiratory MI112F
  - A Structures of the respiratory system MI112FA
    - i Identify respiratory organs MI112FAI
  - B Functions of the respiratory system MI112FB
    - i Gas exchange MI112FBI

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- 1.1.2 g Nervous System MI112G
  - A Structures of the nervous system MI112GA
    - i Identify organs of the nervous system MI112GAI
    - ii Identify structures of the special sense organs MI112GAII
  - B Functions of the nervous system MI112GB
    - i Sensation MI112GBI
    - ii Movement MI112GBII
    - iii Processing MI112GBIII
- 1.1.2 h Endocrine MI112H
  - A Structures of the endocrine system MI112HA
    - i Identify endocrine glands MI112HAI
  - B Functions of the endocrine system MI112HB
    - i Production of hormones MI112HBI
    - ii Regulation of body processes MI112HBII
    - iii Controls metabolism MI112HBIII
    - iv Regulates growth, development, and maturation MI112HBIV
- 1.1.2 i Digestive MI112I
  - A Structures of the digestive system MI112IA
    - i Identify digestive organs in sequence MI112IAI
    - ii Differentiate between alimentary and accessory organs MI112IAII
  - B Functions of the digestive system MI112IB
    - i Chemical and mechanical digestion MI112IBI
    - ii Absorption of nutrients MI112IBII
    - iii Excretion of waste MI112IBIII
- 1.1.2 j Urinary MI112J
  - A Structures of the urinary system MI112JA
    - i Identify urinary organs MI112JAI
    - ii Identify gross and microscopic anatomy of the kidney MI112JAII
  - B Functions of the urinary system MI112JB
    - i Process of urine formation MI112JBI
    - ii Urine composition MI112JBII
    - iii Homeostatic balance MI112JBIII

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1.1.2 k Reproductive MI112K

- A Structures of the reproductive system MI112KA
  - i Identify female reproductive organs MI112KAI
  - ii Identify male reproductive organs MI112KAII
- B Functions of the reproductive system MI112KB
  - i Formation of gametes MI112KBI
  - ii Production of hormones MI112KBII

1.2.1 Describe etiology, pathology, diagnosis, treatment, and prevention of common diseases and disorders, including, but not limited to the following: MI121

- A Arthritis MI121A
- B Asthma MI121B
- C Cancer MI121C
- D Cataracts MI121D
- E Concussion/Traumatic Brain Injury (TBI) MI121E
- F Cystic fibrosis MI121F
- G Diabetes mellitus MI121G
- H Dementia MI121H
- I Gastric ulcer MI121I
- J Hepatitis MI121J
- K Hypertension MI121K
- L Melanoma MI121L
- M Muscular Dystrophy MI121M
- N Myocardial Infarction MI121N
- O Sexually Transmitted Infection (STI) MI121O
- P Stroke/Cardiovascular Accident (CVA) MI121P
- Q Tuberculosis MI121Q
- R Urinary Tract Infection (UTI) MI121R

1.2.2 Describe biomedical therapies as they relate to the prevention, pathology, and treatment of disease. MI122

- A Gene testing MI122A
- B Gene therapy MI122B
- C Cloning MI122C
- D Stem cell research MI122D

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1.3.1 Demonstrate competency using basic math skills and mathematical conversions as they relate to healthcare. MI131

1.3.1 a Metric system MI131A

- A Kilo- MI131AA
- B Centi- MI131AB
- C Deci- MI131AC
- D Milli- MI131AD
- E Micro- MI131AE

1.3.1 b Mathematical MI131B

- A Average MI131BA
- B Ratios MI131BB
- C Fractions MI131BC
- D Percentages MI131BD
- E Addition/Subtraction MI131BE
- F Multiplication/Division MI131BF

1.3.1 c Conversions MI131C

- A Height (inches/meters) MI131CA
- B Weight/mass (pounds/grams) MI131CB
- C Length (inches/meters) MI131CC
- D Volume (ml/cc) MI131CD
- E Temperature (F/C) MI131CE
- F Household measurements (Tbsp/tsp/cup/oz) MI131CF

1.3.2 Demonstrate the ability to analyze diagrams, charts, graphs, and tables to interpret healthcare results. MI132

Identify basic levels of organization of the human body MI111A

- **A Chemical** MI111AA
- **B Cellular** MI111AB
- **C Tissue** MI111AC
- **D Organs** MI111AD
- **E Systems** MI111AE
- **F Organism** MI111AF

Fo Skip to main content **.1 Model verbal and nonverbal therapeutic communication.** MI211
Co

- A Active listening MI211A

Demonstrate methods of delivering and obtaining information, while communicating effectively. MI2

- B Silence MI211B
- C Summarizing MI211C
- D Reflecting MI211D

2.1.2 Identify common barriers to communication. MI212

- 2.1.2 a Physical disabilities MI212A
  - A Aphasia MI212AA
  - B Hearing loss MI212AB
  - C Impaired vision MI212AC
  - D Developmental level MI212AD
- 2.1.2 b Psychological barriers MI212B
  - A Attitudes MI212BA
  - B Bias MI212BB
  - C Prejudice MI212BC
  - D Stereotyping MI212BD

2.1.3 Distinguish between subjective and objective information. MI213

2.1.5 Modify communication to meet the needs of the patient/client and be appropriate to the situation. MI215

2.2.1 Use common roots, prefixes, and suffixes to communicate information. MI221

2.3.1 Use proper elements of written and electronic communication (spelling, grammar, and formatting). MI231

Foundation Standard 4: Employability Skills Use employability skills to enhance employment opportunities and job satisfaction. MI4

4.2.1 Apply employability skills in healthcare. MI421

- A Chain of command MI421A
- B Communication Skills MI421B
- C Decision making MI421C
- D Flexible MI421D
- E Organization MI421E
- F Problem Solving MI421F
- G Scope of practice MI421G
- H Time Management MI421H
- I Work Ethic MI421I

4.3.1 Research levels of education, credentialing requirements, and employment trends in health professions. MI431

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4.3.2 Distinguish differences among careers within a health science pathway. MI432

- A Biotechnology research and development MI432A
- B Diagnostic services MI432B
- C Health informatics MI432C
- D Support services MI432D
- E Therapeutic services MI432E

Foundation Standard 6: Ethics Understand accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment. MI6

6.1.1 Differentiate between ethical and legal issues impacting healthcare. MI611

6.1.2 Identify ethical issues and their implications related to healthcare. MI612

- A Ethics committee MI612A
- B Euthanasia MI612B
- C In vitro fertilization MI612C
- D Organ donation MI612D
- E Scope of practice MI612E

6.2.1 Discuss religious and cultural values as they impact healthcare. MI621

- A Ethnicity MI621A
- B Gender MI621B
- C Race MI621C
- D Religion MI621D

Foundation Standard 7: Safety Practices Identify existing and potential hazards to clients, coworkers, and self. Employ safe work practices and follow health and safety policies and procedures to prevent injury and illness. MI7

7.1.1 Explain principles of infection transmission. MI711

7.1.1 a Identify classifications of pathogens MI711A

- A Bacteria MI711AA
- B Fungi MI711AB
- C Parasites MI711AC
- D Protozoa MI711AD
- E Viruses MI711AE

7.1.1 b Describe characteristics of microorganisms MI711B

- A Aerobic MI711BA
- B Anaerobic MI711BB
- C Non-pathogenic MI711BC
- D Pathogenic MI711BD

7.1.1 c Recognize chain of infection MI711C

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7.1.1 d Describe mode of transmission MI711D

A Common vehicle (air, food, water) MI711DA

B Direct MI711DB

C Healthcare-associated infections (nosocomial) MI711DC

D Indirect MI711DD

E Opportunistic MI711DE

F Vectors MI711DF

7.1.2 Differentiate methods of controlling the spread and growth of pathogens. MI712

7.1.2 a Asepsis MI712A

A Sanitization MI712AA

B Antisepsis MI712AB

C Disinfection MI712AC

D Sterile technique MI712AD

E Sterilization MI712AE

7.1.2 b Standard precautions MI712B

A Handwashing MI712BA

B Gloving MI712BB

C Personal Protective Equipment (PPE) MI712BC

D Environmental cleaning MI712BD

7.1.2 c Isolation precautions MI712C

A Transmission-based contact MI712CA

7.1.2 d Bloodborne pathogen precautions MI712D

7.1.2 e Vaccinations MI712E

7.2.2 Demonstrate principles of body mechanics during patient care. MI722

A Ambulating MI722A

B Lifting MI722B

C Positioning MI722C

7.2.3 Demonstrate and apply the use of personal protective equipment (PPE). MI723

7.4.1 Observe all safety standards related to the occupational exposure to hazardous chemicals standard (safety data sheets [SDS]). MI741

7.4.2 Comply with safety signs, symbols, and labels. MI742

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Foundation Standard 8: Teamwork Identify roles and responsibilities of individual members as part of the healthcare team. MI8

8.1.1 Evaluate roles and responsibilities of healthcare team members. MI811

8.1.2 Identify characteristics of effective teams. MI812

- A Defined roles MI812A
- B Common purpose MI812B
- C Effective communication MI812C
- D Effective leadership MI812D
- E Measurable processes and outcomes MI812E
- F Mutual respect MI812F
- G Shared goals MI812G

8.2.1 Recognize methods for building positive team relationships. MI821

8.2.2 Analyze attributes and attitudes of an effective leader. MI822

8.2.2 a Characteristics MI822A

- A Focused and driven MI822AA
- B Interpersonal skills MI822AB
- C Motivates and inspires MI822AC
- D Organized and balanced MI822AD

8.2.2 b Types MI822B

- A Autocratic MI822BA
- B Democratic MI822BB
- C Laissez faire MI822BC

8.2.2 c Roles MI822C

- A Communicates vision MI822CA
- B Leads change MI822CB
- C Manages accountability MI822CC

8.2.3 Apply effective techniques for managing team conflict. MI823

- A Communicate assertively MI823A
- B Set clear expectations MI823B
- C Gather the facts MI823C
- D Mediate disputes MI823D
- E Negotiate resolutions MI823E

Foundation Standard 9: He Pr between wellness and

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9.1.1 Promote behaviors of health and wellness. MI911

- A Exercise MI911A
- B Nutrition MI911B

disease. Promote disease prevention and model healthy behaviors. MI9

- C Relationships MI911C
- D Sleep habits MI911D
- E Stress management MI911E
- F Weight control MI911F

9.1.3 Describe strategies for prevention of disease. MI913

- A Community health education outreach programs MI913A
- B Immunizations MI913B
- C Medical, dental, and mental health screenings MI913C
- D Routine physical exams MI913D
- E Stress management MI913E

9.1.4 Investigate complementary and alternative health practices as they relate to wellness and disease prevention. MI914

- A Acupuncture MI914A
- B Eastern medicine MI914B
- C Holistic medicine MI914C
- D Homeopathy MI914D
- E Manipulative therapies MI914E
- F Natural therapies MI914F

Foundation Standard 10: Technical Skills Apply and demonstrate technical skills and knowledge common to health career specialties. MI10

10.1.1 Demonstrate procedures for measuring and recording vital signs including the normal ranges. MI1011

- A Blood pressure MI1011A
- B Temperature MI1011B
- C Oxygen saturation MI1011C
- D Pain MI1011D
- E Pulse MI1011E
- F Respirations MI1011F