
Medical Interventions Course Outline

Unit One: How to Fight Infection (45 Days)

Lesson 1.1: The Mystery Infection (17 Days)

- Activity 1.1.1 - Medical Interventions Inventory
- Activity 1.1.2 - Investigating an Outbreak
- Problem 1.1.3 - Using DNA to Identify Pathogens
- Activity 1.1.4 - What's the Concentration? (**Optional**, additional 3 days)
- Activity 1.1.5 – ELISA
- Activity 1.1.6 - Final Diagnosis

Lesson 1.2: Antibiotic Treatment (9 Days)

- Activity 1.2.1 - Antibiotic Therapy
- Project 1.2.2 - Attack of the Superbugs
- Activity 1.2.3 - When Antibiotics Fail

Lesson 1.3: The Aftermath: Hearing Loss (10 Days)

- Activity 1.3.1 - Good Vibrations
- Activity 1.3.2 - Can You Hear Me Now?
- Activity 1.3.3 - Cochlear Implant Debate

Lesson 1.4: Vaccination (9 Days)

- Activity 1.4.1 - Disease Prevention Through Vaccination
- Activity 1.4.2 - Vaccine Development
- Activity 1.4.3 - Life of An Epidemiologist

Unit 2: How to Screen What Is In Your Genes (23 Days)

Lesson 2.1: Genetic Testing and Screening (16 Days)

- Activity 2.1.1 - Chronicles of a Genetic Counselor
- Activity 2.1.2 - Copy Your Genes
- Activity 2.1.3 - Test Your Own Genes
- Activity 2.1.4 - Genetic Testing (**Optional**, 3 Days)
- Activity 2.1.5 - Maternal and Child Health

Lesson 2.2: Our Genetic Future (7 Days)

- Activity 2.2.1 - Gene Therapy
- Activity 2.2.2 - Reproductive Technology

Unit Three: How to Conquer Cancer (58 Days)

Lesson 3.1: Detecting Cancer (15 Days)

- Activity 3.1.1 - Who is Affected by Cancer?

Activity 3.1.2 - Diagnostic Imaging Career Activity
Activity 3.1.3 - When Cells Lose Control
Activity 3.1.4 - DNA Microarray
Activity 3.1.5 - Unlocking the Secrets in Our Genes

Lesson 3.2: Reducing Cancer Risk (17 Days)

Activity 3.2.1 - Am I at Risk?
Project 3.2.2 - Skin Cancer Prevention
Activity 3.2.3 - Breast Cancer Screening & Prevention
Activity 3.2.3 – Breast Cancer Screening & Prevention with Electrophoresis
(**Optional** – Alternative for Activity 3.2.3 Breast Cancer Screening & Prevention)
Activity 3.2.4 - Virology Career Activity
Activity 3.2.5 - Routine Screenings

Lesson 3.3: Treating Cancer (12 Days)

Activity 3.3.1 - Diary of a Cancer Patient
Project 3.3.2 - Biofeedback Therapy with EKG
Project 3.3.2 – Biofeedback Therapy with Hand Grip Monitors (Alternative for Project 3.3.2 Biofeedback Therapy with EKG)
Project 3.3.3 - Design of a Prosthetic Arm
Project 3.3.4 - Occupational and Physical Therapy Careers

Lesson 3.4: Building a Better Cancer Treatment (14 Days)

Activity 3.4.1 - Personalized Medicine
Activity 3.4.2 – Nanofuture
Activity 3.4.3 - Clinical Trials
Project 3.4.4 - Tiny Treatment

Unit Four: How to Prevail When Organs Fail (49 Days)

Lesson 4.1: Manufacturing Human Proteins (20 Days)

Activity 4.1.1 - All About Insulin
Activity 4.1.2 - Protein Factories
Activity 4.1.3 - Protein Purification
Activity 4.1.4 - Protein Gel Electrophoresis
Activity 4.1.5 - Careers in Biomanufacturing

Lesson 4.2: Organ Failure (3 Days)

Activity 4.2.1 - Medical Detectives

Lesson 4.3: Transplant (15 Days)

Activity 4.3.1 - Who Should Receive the Organ?
Activity 4.3.2 - Finding a Match
Activity 4.3.3 - Kidney Donation
Activity 4.3.4 - You Be the Surgeon
Activity 4.3.5 - Transplant Team
Activity 4.3.6 - Are All Transplants the Same?

Lesson 4.4: Building a Better Body (11 Days)

Activity 4.4.1 - Replacement Parts
Problem 4.4.2 - The Bionic Human
Activity 4.4.3 – Putting it all Together