Fairfax Collegiate

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Medical Science 7-9 Syllabus

Course Goals

1 Scientific Literacy
Students apply the scientific method to understand diagnoses and treatment plans.

2 Medical Vocabulary
Students use medical terminology.

3 Anatomy and Physiology
Students understand how systems of the body function to achieve a certain goal and recognize when systems are not functioning properly.

4 Immunology and Pathology
Students explain how disease is transmitted, diagnosed, and treated.

5 Laboratory Skills
Students use scientific instruments including microscopes, pipettes, sutures, and scalpels.

Course Topics

1 Introduction to Medical Science and the Human Body
Students learn the basic functions of the human body and are able to use basic medical vocabulary.

2 Musculoskeletal System
Students use games to identify bones and muscles in the body and discover their functions.

3 Nervous System
Students explore brain functions and connect the content to personal experiences and medical diagnoses.

4 Digestive System
Students learn the organs of the digestive system and their function in breaking down food.

5 Sensory System
Students explain sensory phenomena after learning basic functions of the 5 senses.

6 Cardiovascular and Respiratory Systems
Students learn how the heart and lungs work together to support life.

7 Lymphatic System
Students learn how the body identifies and fights off pathogens.

8 Immunology
Students apply their understanding of diseases to consider how disease spreads and is studied on a large scale.

9 Pathology
Students learn how medical tests work and are used to obtain diagnoses and treatment plans.

10 Scientific Method
Students connect their knowledge by testing hypotheses and conducting research.

Course Schedule

Day 1

Icebreakers
Students and the instructor introduce themselves to each other.

Introduction to Medical Science and Course Highlights
Students learn the expectations of the classroom and get an introduction to the course material.

Patient Cases
Students look at published patient case reports before using fact sheets to do their first patient case activity.

Medical Mythbusters
Students take turns reading a medical statement. In teams, the rest of the students guess whether it is true or false.

Day 2

Musculoskeletal System Warm Up
Students try to list as many bones as possible within a time limit.

Bone Stations
Students learn about bones and muscles then identify them.

Flyswatter Game
Students practice the names of bones and muscles by "swatting" the location on a life-size human poster.

Musculoskeletal Simon Says
Students play a large game of Simon Says. Instead of using common names for body parts, Simon uses bones from the notes sheet.

Musculoskeletal Patient Cases
Students solve patient cases through roleplaying as the doctor and patient.

Musculoskeletal Medical Journal
Students use their medical journals to document and solve patient cases.

Day 3

Nervous System Warm Up
Students learn about reflexes and the nervous system.

Brain Parts Notes
Students learn more about the different parts of the brain.

20 Questions
Students use a 20 Questions game to identify parts of the brain.

Brain Hat
Students decorate their own brain hat which shows the parts of the brain.

Synaptic Tag
Students review the neuron firing process then act it out.

Nervous System Patient Cases
Students research different neurological disorders and take turns being the patient and doctor to diagnose the disorders.

Mapping the Brain
Students learn about different types of brain scans and how they inform doctors.

Day 4

Digestive System Warm Up
Students start a life-sized digestive system activity and begin to identify its organs.

Life Size Digestive System
Students explore the digestive system and build upon their warm-up project.

Bile Lab
Students model how bile breaks down fat in the small intestine.

Sensory System Functions
Students discuss the five senses and how they are interpreted in the brain.

Vision Games
Students read about the brain's role in vision while exploring optical illusions.

Eye Dissection
Students dissect a sheep's eye and identify each part of it.

Medical Journal
Students reflect on the digestive and sensory systems. They are invited to consider how dissections can be useful, even when they are of a different species.

Day 5

Cardiovascular System Warm Up
Students demonstrate what they already know about the cardiovascular system.

Cardiovascular and Respiratory Systems Lesson
Students travel around the room to learn the flow of blood through the heart, lungs, and body.
They repeat to learn the flow of air into and out of the lungs.

Heart and Respiration Rate Lab
Students explore how different activities, both mental and physical, alter their heart rate and respiration rate.

Heart Electricity and Life Support
Students learn about the electrical system that allows the heart to pump blood. They go through stations with fact sheets about electrocardiograms, cardiopulmonary recitation, and defibrillators.

Cardiovascular and Respiratory Systems Patient Cases
Students research some diseases before pairing up as doctor and patient to diagnose cardiovascular and respiratory diseases.

Cardiovascular and Respiratory Systems Medical Journal

Students reflect on the day's lesson and patient cases.

Day 6

Lymphatic System Warm Up
Students learn the goal of the lymphatic system and review the systems from the previous week.

Lymphatic System Lesson
Students move around the room to note parts of the lymphatic system and their functions.

Pathogen Patient Cases
Students research common pathogens and create patient cases for each one. Students present different patient cases and attempt to identify the pathogen that has infected the patient.

Blood Smearing Lab
Students observe simulated red and white blood cells and platelets under a microscope.

Lymphatic System Medical Journal
Students reflect on the lymphatic system activity and the blood smearing lab.

Day 7

Bacteria and Virus Warm Up
Students compare and contrast bacteria and viruses using existing knowledge.

Identifying Bacteria and Viruses
Students prepare a poster about an assigned bacteria or virus.

Operation Outbreak
Students role play as public health officials responding to an influenza outbreak investigation.

Diagnostic Testing
Students are introduced to other common forms of medical tests.

Medication Introduction
Students develop a baseline understanding of the purpose of medication to prepare for the lab.

Pathology and Pharmacology Lab
Students conduct simulated flu tests to determine whether patients have the flu or not. Students use product labels from OTC medicines to select the medicines appropriate for patients with the flu, the common cold, or allergies.

Day 8

Warm Up
Students reflect on the progress made in the lab. They use what they learned to modify their procedure to finish the lab.

Pathology and Pharmacology Lab
Students conduct simulated flu tests to determine whether patients have the flu or not. Students use product labels from OTC medicines to select the medicines appropriate for patients with the flu, the common cold, or allergies.

Types of Wounds
Students learn about wound assessment to prepare for the suture lab.

Suture Lab

Students practice suturing technique with suture kits.

The Scientific Method
Students learn about the scientific research process and develop their scientific literacy by reading various research papers and designing an experiment.

Day 9

Warm Up
Students learn about the FDA approval process and read about a clinical trial.

Research and Pharmacology
Students discover each step of the drug trial process and understand why each step is necessary.

Drug Trial Lab
Students conduct simulated laboratory tests and analyze data to determine if a new flu prevention drug is safe and effective.

Drug Trial Medical Journal
Students reflect on the drug trial lab and reconsider what they wrote for the warm up.

Day 10

Warm Up
Students reflect on the course and prepare for the final project.

Patient Case Project
Students use their medical journal notes to create a detailed patient case.

Medical Journal
Students to reflect on their learning and collect their materials to bring home.

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