

Public District School Board Writing Partnership

Technological Education

Course Profile Medical Technologies

Grade 12
College Preparation
TPT4C

• *for teachers by teachers*

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Acknowledgments

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Course Overview

Medical Technologies, TPT4C, Grade 12, College Preparation

Policy Document: *The Ontario Curriculum, Grades 11 and 12, Technological Education, 2000.*

Prerequisite: Health Care, Grade 11, College Preparation

Course Description

This course focuses on human physiology, pathology, and immunology. Students learn about accepted medical care practices, current technological advances in health care, how to perform various procedures, and how to use tools and equipment in the field of health care. Students also design solutions to common medical and health care problems, investigate career opportunities, and examine legal and safety standards in the health care industry and the industry's impact on the environment.

Course Notes

- In each unit, students identify career options and gain insight into skills required for a variety of related professions in the health care industry. Students also gain knowledge of careers in this area through volunteer work, cooperative education, and job shadowing.
- The teacher addresses health and safety concerns as they pertain to the health care industry both to students and clients.
- The activities provide opportunities for students to engage in both practical activities and research.
- The expectations are assessed in accordance to the four areas identified in the Achievement Chart found in the Technological Education Policy Document. (Knowledge and Understanding, Communication, Thinking and Inquiry, Application)
- The teacher uses a wide range of teaching/learning strategies and provisions.
- This course provides for many cross-curricular opportunities such as science, biology, health, and physical education.

Units: Titles and Time

Unit 1	Human Physiology	20 hours
* Unit 2	Pathology	50 hours
Unit 3	Immunology	40 hours

* This unit is fully developed in this Course Profile.

Unit Descriptions

Unit 1: Human Physiology

Time: 20 hours

Unit Description

Students continue to identify and understand the functions of human physiology. Students examine conditions required for the functioning, identification, and classification of micro-organisms, and mechanisms for micro-biological activities. Students also use appropriate apparatuses and instruments to measure and collect data from the human body.

Unit Overview Chart

Cluster	Learning Expectations	Assessment Categories	Focus
1	TFV.01, TF1.01, TF1.02, TF1.03, TF1.04	Knowledge/Understanding Thinking/Inquiry Communication	Structure, Functions, and Identification of Micro-organisms
2	TFV.01, TF1.05	Knowledge/Understanding Thinking/Inquiry Communication	Impact of Micro-organisms on the Human Physiological Systems
3	TFV.01, SP1.01, SP1.02, SP1.03, SP1.04	Knowledge/Understanding Thinking/Inquiry Application	Collecting and Measuring Data from the Human Body

Unit 2: Pathology

Time: 50 hours

Unit Description

Students learn about and apply accepted practices in medicine for the treatment of disease. Through theoretical and practical sessions, students are introduced to advanced medical terminology, skills, equipment, and specialized careers, which address unique health problems of patients. During all procedures, students adhere to government legislation and health and safety laws that pertain to this area of technology.

Unit Overview Chart

Cluster	Learning Expectations	Assessment Categories	Focus
1	TFV.01, TF1.06, TF2.08, SP2.03, SP2.04, SP2.07	Knowledge/Understanding	Causes of Disease, and the Body's Reaction
2	TFV.01, SP1.03, SP1.04, SP2.01, SP2.04, SP2.05, SP2.06	Knowledge/Understanding Communication Application	Medical Terminology
3	TFV.01, TFV.02, TF2.01, TF2.02, TF2.03, TF2.04, TF2.05, TF2.06, TF2.08, TF2.09, SP2.02, SP2.05, SP2.07	Knowledge/Understanding Thinking/Inquiry Communication	Medical Problems, Intervention, and Protocol
4	TFV.01, SPV.01, SPV.02, SP1.02, SP1.05, SP1.06, SP1.07	Knowledge/Understanding Thinking/Inquiry Communication Application	Health Care Skills
5	TFV.02, ICV.02, IC1.01, IC1.02, IC1.03, IC1.06, IC1.07	Knowledge/Understanding Thinking/Inquiry Communication Application	Legal and Safety Issues
6	ICV.04, IC3.01, IC3.02	Knowledge/Understanding Thinking/Inquiry Communication	Career Opportunities

Unit 3: Immunology

Time: 40 hours

Unit Description

Students learn about immunology and the prevention of the spread of disease. Building from the knowledge acquired in Units 1, Human Physiology and 2, Pathology, students perform health care skills and design solutions to common medical/health problems (e.g., improving methods to prevent the spread of influenza). Students explore environmental impacts and technological advances in the health care field with special emphasis on biotechnology.

Unit Overview Chart

Cluster	Learning Expectations	Assessment Categories	Focus
1	TFV.01, TF1.07, TF1.08	Knowledge/Understanding Thinking/Inquiry Communication	The Immune System
2	TFV.01, TFV.02, TF2.07, SP1.08, IC1.04, IC1.05, IC1.08	Knowledge/Understanding Thinking/Inquiry Communication Application	Preventing Outbreaks
3	TFV.01, ICV.01, IC1.09, IC1.10, IC2.06	Knowledge/Understanding Thinking/Inquiry Communication	Environmental Issues in Health Care
4	TFV.01, ICV.03, SP2.07, IC2.01, IC2.02, IC2.03, IC2.04, IC2.05	Knowledge/Understanding Thinking/Inquiry Application Communication	Biotechnology: Technological Advances in Health Care

Teaching/Learning Strategies

Brainstorming – group generation of initial ideas expressed without criticism or analysis;

Buddy System – linking of students for peer/cross-age support, and presentation of information and ideas clearly and honestly while demonstrating sensitivity to others;

Case Study – investigation of real and simulated issues;

Collaborative/Co-operative Learning – small group learning providing high levels of student engagement and interdependence;

Computer-assisted Learning – learning of new material or review/reinforce material previously learned;

Conferencing/Discussion – student-to-student and teacher-to-student discussions to encourage confidence and present information and ideas clearly and honestly with sensitivity to others;

Examples - model or a sample of student work to provide the standard toward which students are aiming.

Independent Study – exploration and research of a topic of interest to students;

Journal Writing – the practice of expressing ideas, experiences, questions, reflections, personal understanding, or new learning, in written form on a regular basis;

Just-in-time Teaching – theoretical material that is presented to the student at the appropriate stage of the student's project;

Problem Solving – model for helping students to identify and work through problems using a prescribed process involving a number of steps;

Report/Presentation – verbal, visual, and written presentation of researched topic to the class or in the community;

Research – model of investigation;

Socratic Lesson – presentation of information by the teacher whereby students listen actively and critically to understand and learn;

Teacher-directed Class Discussion – encouragement of active participation of students by having them take turns while discussing current issues.

Assessment & Evaluation of Student Achievement

Seventy per cent of the grade will be based on assessments and evaluations conducted throughout the course. Thirty per cent of the grade will be based on a final evaluation in the form of an examination, performance, essay, and/or other method of evaluation.

There are three types of assessment:

- *Diagnostic* – occurs at the beginning of the term or unit of study, or at any point during the course when information about prior learning is useful;
- *Formative* – occurs during the learning process and provides ongoing feedback to the teacher and student about the quality of learning and the effectiveness of instruction;
- *Summative* – carried out at the end of a unit or the course.

Students are assessed using the following strategies:

Paper-and-Pencil

- Quizzes and exams

Performance

- Research project
- Assigned exercises
- Presentation
- Finished product

Personal Communication

- Conferencing
 - Student-teacher
 - Student-peer
 - Teacher-group
 - Client-student
 - Log/journal entries

The following are the assessment tools to use

- Checklists
- Marking schemes
- Project specification sheets
- Rubrics
- Anecdotal comments with suggestions for improvement
- Rating scale

Accommodations

Various accommodations may be made throughout the program to assist exceptional students. Teachers should consult identified students' Individual Education Plans (IEPs) for specific directions on accommodations. Possible program modifications may include:

- adaptation of handouts and timelines;
- the use of alternative activities, assessment/evaluation techniques, and instructional strategies;
- adaptation of physical structures;
- provision of enriched materials and resources;
- specialized equipment, electronic devices, and/or classroom procedures;

Resources

The writers verified the URLs for the websites prior to publication. Given the frequency with which these designations change, the teacher should always verify the websites prior to assigning them for students' use. Units in this Course Profile make reference to the use of specific texts, magazines, films, videos, and websites. The teacher needs to consult board policies regarding the use of any copyrighted materials. Before reproducing materials from printed publications for student use, the teacher needs to ensure that the board has a Cancopy licence and that this licence covers the resources they wish to use. Before screening videos/films with their students, the teacher ensures that board/school has obtained the appropriate public performance videocassette licence from an authorized distributor, e.g., Audio Cine Films Inc. Teachers are reminded that much of the material on the Internet is protected by copyrights. The person or organization that created the work usually owns the copyright. Reproduction of any work or substantial part of any work on the Internet is not allowed without the permission of the owner.

Print Material

Basic Life Support. First Aid Training Manual (available through Canadian Red Cross). ISBN 0-8151-1732-9

Canadian Institute for Environmental Law and Policy. *The Citizen's Guide to Biotechnology*. Toronto: 1995. ISBN 0-9690534-9-5. Email: CIELAP@web.apc.org

Emergency Health Services. *A Lifting and Training Program For Emergency Medical Attendant*. Ottawa: University of Ottawa, 1991.

Emergency Health Services. *Manual of Operational Policy and Procedures*, Section 4.1(3)(f) Ottawa: University of Ottawa, 1991.

Grace, Eric S. *Biotechnology Unzipped*. Toronto: Trifolium Books Inc., 1996. ISBN 1-895579-45-7

Health Canada. *Using the Food Guide*. Ottawa: Ministry of Health, 1997. ISBN 0-662-19649-X

Health and Welfare Canada. *Canada's Food Guide to Healthy Eating*. Ottawa: Ministry of Health, 1992. ISBN 0-662-19648-1

Informational Manual for Designated Officer Preventing and Assessing Exposures to Selected Communicable Diseases. Information Manual for Designated Officers. Toronto: Ontario Ministry of Health.

Kreuzer, Helen and Adrienne Massey. *Recombinant DNA and Biotechnology: A Guide for Teachers*. Washington DC: ASM Press Inc., 1996. ISBN 1-55581-101-9

Kreuzer, Helen and Adrienne Massey. *Recombinant DNA and Biotechnology: A Guide for Students*. Washington DC: ASM Press Inc., 1996. ISBN 1-55581-110-8

Mardels, Elaine N. *Anatomy and Physiology Colouring Book*. 1999. ISBN 0805349138

Marine and Kadeskint. *Foundations of Anatomy and Physiology*. Prentise Hall. ISBN 10135929652

Occupational Health and Safety Act and Regulations for Industrial Establishments. Ontario: Queen's Printer for Ontario, October 1998. ISBN 0-778-79832

Personal Services Setting Protocol Infection Control Program. Ottawa: Ministry of Health, Public Health Branch, January 1998.

Potter & Perry. *Canadian Fundamentals of Nursing*. Toronto: Mosby-Yearbook Inc., 1997. ISBN 0-8151-8901-X

Siebert, Myrtle and Evelyn Kerr. *Food for Life*. Canada: McGraw-Hill Ryerson Ltd., 1994. ISBN 0-07-551544-X

St. John Ambulance. *First on the Scene Manual*. Ottawa: Priory of Canada, 1998. Order Code 6504.

The Body Image Coalition of Peel. *EveryBODY Is A Somebody: Facilitator's Guide*. Ontario Ministry of Health, Canada: Desktop Publishing, 1997.

Tortora, Gerard J., Berdell R. Funke, and Christine L. Case. *Microbiology: An Introduction*, 5th ed. Don Mills, ON: Benjamin/Cummings Publishing Company Inc., 1995. ISBN 0-8053-8496-0

Update Universal Precautions for Prevention of Transmission Immunodeficiency Virus, Hepatitis B Virus and Other Bloodborne Pathogens in Health Care Settings. Atlanta, Georgia: Centers for Disease Control, 1988.

Vital Link. *CPR Training Manual* (available through Canadian Red Cross).

Journals and Magazines

“Regimens: Soap-and-Water Hand Washing Versus Hand Antisepsis With An Alcoholic Hand Gel.” *Infection Control in Hospital Epidemiology*, Vol 21 (2000): 442-8.

Voss, A. and A.F. Widmer. “No Time for Handwashing! Handwashing Versus Alcoholic Rub; Can We Afford 100% Compliance?” *Infection Control in Hospital Epidemiology*, Vol 18 (1997): 205-8.

Zimakoff, L., A.B. Kjelsberg, S.O. Larsen, and B. Holstein. “A Multi-Centre Questionnaire Investigation of Attitudes Towards Hand Hygiene, Assessed by the Staff in Fifteen Hospitals in Denmark and Norway.” *American Journal of Infection Control*, Vol 20 (1992): 58-64.

Videos

Biotechnology. Washington D.C.: National Geographic Society, 1995. ISBN 0-7922-2935-5

Home Safe. StayCom Productions (available through Canadian Red Cross).

Delmar's Dental Assisting Video 3. *Infection Control Techniques*, 1st ed. Delmar, 2000. ISBN/ISSN 0-7668-1035-6

Delmar's Home Care Aide Video Series Tape 8. *Body Mechanics and Positioning*, 2nd ed. Delmar Publishers, 1998. ISBN/ISSN 0-8273-8583-8

Med Com Trainex. *Nursing Assistant Techniques - Measuring Pulse, Respirations and Blood Pressure*. Elora, ON: Directional Learning, 1993.

St. John Ambulance. *First on the Scene*. (set of four videos). Ottawa, Ontario: Priory of Canada, 1994. Order Code 6550.

TV Ontario. *Health Care*. International Tele-Film, 5090 Explorer Drive, Suite 301, Mississauga, Ontario L4W 4T9. Tel: 905-629-3133; Fax 905-629-1211; E-mail: itf0001@ibm.net. BPN 3166B. 10 minutes.

Websites

Contact Canada – <http://ccinfo@ContactCanada.com>
(Comprehensive life science industry, research, and suppliers' guides.)

Ontario's Occupational Health and Safety Website – <http://www.gov.on.ca/lab/ohs/ohse.htm>
(General information and guides, legislation and regulations, reports and projects, health and safety guidelines, engineering data sheets, and hazard alerts.)

Toronto Biotechnology Initiatives – <http://www.torontobiotech.org>
(A non-profit organization for information on the growth of biotechnology in Toronto and the surrounding region.)

Workplace Hazardous Material Information System Website
– <http://www.utoronto.ca/safety/whmis2.htm>
(Canadian Federal and Provincial legislation on the sale of, and importation of controlled products and hazardous materials in the workplace.)

Professionals in Infection Control and Epidemiology – www.apic.org
(News releases on current public health issues.)

U.S. Department of Health – www.healthfinder.gov

(Prevention, wellness, diseases, conditions, alternative medicine, medical dictionaries, encyclopaedias, and journals.)

Telephone Contacts

Allergy Asthma Information Association (416) 679-9521

Allergy Essentials 1-888-850-6051

OSS Considerations

The course is designated as a technological education program. (See *The Ontario Curriculum, Grades 9 to 12, Program Planning and Assessment, 2000* for a description of the different types of secondary school courses.) Students can use the course as one of the additional compulsory credits (one credit from Science [Grade 11 or Grade 12] or Technological Education [Grade 9–12]), or as an optional credit. This course could be part of a School-Work Transition Program – see *Cooperative Education and Other Forms of Experimental Learning, Policies and Procedures for Secondary Schools, 2000*.

Students are introduced to theoretical and practical aspects of Health Care technology. The curriculum provides opportunities for students to undertake hands-on practical activities, as well as conduct research and analysis. There is a wide range of teaching/learning methodologies used to accommodate and meet the needs of all students. This course also addresses social issues such as anti-discrimination education, equity/social justice issues, career goals/cooperative education, conflict resolution/violence prevention, and community partnerships.

Career exploration throughout all units is made available to students with specific reference to *Choices into Action: Guidance and Career Education Program Policy for Elementary and Secondary Schools, 1999*, and *The Ontario Youth Apprenticeship Program (OYAP)*.

Coded Expectations, Medical Technologies, Grade 12, College Preparation, TPT4C

Theory and Foundation

Overall Expectations

- TFV.01** · demonstrate an understanding of human physiology, pathology, and immunology;
- TFV.02** · describe accepted practices in health care.

Specific Expectations

Human Physiology, Pathology, and Immunology

- TF1.01** – describe conditions required for the healthy functioning of microorganisms;
- TF1.02** – explain the difference between various types and families of microorganisms;
- TF1.03** – identify methods of microorganism identification;
- TF1.04** – describe the mechanism of microbiological activity;
- TF1.05** – explain the impact of enzymes in health and medicine;
- TF1.06** – identify causes of various diseases and the body changes related to each;
- TF1.07** – describe the functioning of a healthy immune system and explain what happens in the body when its functioning is impaired;
- TF1.08** – explain how diseases spread and what measures are used to control them.

Accepted Practices in Medical Care

- TF2.01** – explain the evolution of health care practices;
- TF2.02** – identify common medical problems and possible interventions;
- TF2.03** – identify a range of medical services available (e.g., radiation, chemotherapy, and surgery for cancer treatment);
- TF2.04** – describe abnormal values for each type of vital sign and identify appropriate interventions for each of these values;
- TF2.05** – identify the resources needed to implement intervention plans;
- TF2.06** – explain first-aid and cardiopulmonary resuscitation (CPR) procedures;
- TF2.07** – identify preventive health screenings, examinations, and immunizations;
- TF2.08** – describe cultural diversity as it applies to medical care (e.g., the need to respect religious beliefs such as those that preclude after-death care and blood transfusions, and cultural beliefs related to child birth and pain management);
- TF2.09** – describe conventional health practices and alternative health practices (e.g., homeopathic remedies, acupuncture, therapeutic touch).

Skills and Processes

Overall Expectations

- SPV.01** · demonstrate correct techniques for performing various skills and for using the tools and equipment of the health care field;
- SPV.02** · demonstrate an advanced understanding and use of medical terminology and communication techniques specific to health care.

Specific Expectations

Health Care Skills and the Use of Tools and Equipment

- SP1.01 – perform a range of health care skills to meet industry standards (e.g., proper hand-washing techniques, techniques to prevent the contamination of specimens);
- SP1.02 – use tools and equipment in the health care field correctly;
- SP1.03 – use appropriate apparatus and instruments (e.g., microscopes, slides, staining materials) to measure and collect data;
- SP1.04 – apply procedures to identify microorganisms and their products;
- SP1.05 – describe the principles and techniques of medical and surgical aseptic procedures;
- SP1.06 – explain the correct techniques of sterilization in dental and medical processes;
- SP1.07 – follow body substance precautions in handling body substances;
- SP1.08 – design solutions to common medical and health care problems (e.g., improving methods to prevent the spread of flu in a nursing home).

Medical Terminology and Communication Techniques

- SP2.01 – use correct terminology for equipment, tools, and procedures;
- SP2.02 – demonstrate an advanced understanding and use of medical care terminology;
- SP2.03 – demonstrate advanced interviewing techniques;
- SP2.04 – demonstrate communication skills (e.g., reflection, clarification, paraphrasing) to understand the needs of individuals;
- SP2.05 – use language appropriate to specific situations;
- SP2.06 – use the guidelines and methods of the lab or institution in which they are working to send and receive information;
- SP2.07 – use computer technologies effectively to access, process, analyse, and present information.

Impact and Consequences

Overall Expectations

- ICV.01 · describe the impact of the health care industry on the environment;
- ICV.02 · describe the laws and regulations governing health and safety standards in the health care industry;
- ICV.03 · describe the impact of current or recent technological advances in the health care field;
- ICV.04 · describe career opportunities in the health care industry.

Specific Expectations

Legal, Environmental, and Safety Issues

- IC1.01 – describe malpractice and other liability issues;
- IC1.02 – describe existing and potential hazards to themselves, to clients, and to co-workers;
- IC1.03 – describe and, where applicable, follow health and safety policies and procedures required to prevent injury or illness;
- IC1.04 – describe work practices that promote a clean and healthy environment;
- IC1.05 – identify recommended practices to reduce or eliminate pathogenic organisms;
- IC1.06 – explain procedures designed to reduce the risk of infection;
- IC1.07 – prevent the spread of pathogens by cleaning, disinfecting, or sterilizing surface instruments and equipment;
- IC1.08 – maintain a sanitary food services environment and practise proper food handling;
- IC1.09 – describe and, where possible, apply different laws and regulations for waste disposal;
- IC1.10 – describe and, where possible, apply practices for recycling and waste management.

Technological Advances in Health Care

IC2.01 – identify biotechnology products and their contribution to health care;

IC2.02 – explain the increasing role that biotechnology plays in our everyday lives;

IC2.03 – describe treatments that employ biotechnology (e.g., the use of vaccines and antibiotics);

IC2.04 – identify and explain bioethical issues that arise from advances in biotechnology;

IC2.05 – describe the impact on health care of current or recent technological advances;

IC2.06 – explain the environmental impact of technological advances in the health care field.

Education, Training, and Career Opportunities

IC3.01 – identify career opportunities in the health care field;

IC3.02 – describe the education and training required for career opportunities in health care.

Unit 2: Pathology

Time: 50 hours

Unit Description

Students learn about and apply accepted practices in medicine for the treatment of disease. Through theoretical and practical sessions, students are introduced to advanced medical terminology, skills, equipment, and specialized careers, which address unique health problems of patients. During all procedures, students adhere to government legislation and health and safety laws that pertain to medical technology.

Unit Synopsis Chart

Activity	Learning Expectations	Assessment Categories	Tasks
2.1. Causes of Disease and the Body's Reaction to It 10 hours	TFV.01, TF1.06, TF1.08, SP2.03, SP2.04, SP2.07	Knowledge/ Understanding Communication Application	Students working in groups choose and research a common human illness. Students identify how the healthy body responds to that pathogen. Students organize and present their findings to the class.
2.2. Medical Terminology 3 hours	TFV.01, SPV.02, SP1.03, SP1.04, SP2.01, SP2.02, SP2.05, SP2.06	Knowledge/ Understanding Communication	Students research and apply medical words/terms, proper pronunciation, definitions, medical prefixes and suffixes. Students create their own glossary that will be assessed throughout the course and then evaluated at the end of the course.
2.3. Medical Problems and Interventions 15 hours	TFV.01, TFV.02, TF2.01, TF2.02, TF2.03, TF2.04, TF2.05, TF2.08, TF2.09, SP2.02, SP2.05, SP2.07	Knowledge/ Understanding Thinking/Inquiry Communication Application	Students role play a case study of a fictitious client with a disease. Students research medical problems and treatment investigations. Conventional and alternative health practices and cultural background are taken into consideration throughout this cluster.
2.4. Health Care Skills 15 hours	TFV.02, SPV.01, SPV.02, TF2.04, TF2.06, SP1.01, SP1.07	Knowledge/ Understanding Thinking/Inquiry Communication Application	Students demonstrate and apply a range of health care skills. Vital signs, cardiopulmonary resuscitation, and first aid are identified and practised in mock situations.
2.5. Legal and Safety Issues 4 hours	TFV.02, ICV.02, IC1.01, IC1.02, IC1.03	Knowledge/ Understanding Thinking/Inquiry Communication	Students learn about Ontario Occupational Health and Safety Legislation/WHMIS affecting the medical profession. Students identify patient and worker rights, standards of practice, and procedural guidelines.
2.6. Career Opportunities 3 hours	ICV.04, IC3.01, IC3.02	Knowledge/ Understanding Thinking/Inquiry Communication	Students investigate and report on specific employment opportunities and the postsecondary education required in the healthcare system.

Activity 2.1: Causes of Disease and the Body's Reaction

Time: 10 hours

Description

Through research on one chosen anatomical system of the body, students apply their knowledge of human anatomy acquired in the prerequisite course Health Care, Grade 11, College Preparation. Using this knowledge of the human body, combined with information from the Internet, textbooks, and interviews with people who live with disease, students research the causes of common diseases and the body's reaction to them. Students prepare for a presentation in small groups on their particular anatomical system and the diseases associated with it. Students present the information in a visual format that incorporates a choice of presentation software, videos, photographs, charts, or posters.

Note: The "interviews" suggested here may only be possible in those circumstances where a protocol can be developed that protects the interviewee and ensures that specific and detailed direction to the students is provided. Consultation with board officials is advised. A literature search is the recommended alternative.

Strand(s) & Learning Expectations

Strand(s): Theory and Foundation, Skills and Processes

Overall Expectations

TFV.01 - demonstrate an understanding of human physiology, pathology, and immunology.

Specific Expectations

TF1.06 - identify causes of various diseases and the body changes related to each;

SP2.03 - demonstrate advanced interviewing techniques;

SP2.04 - demonstrate communication skills;

SP2.07 - use computer technologies effectively to access, process, analyse, and present information.

Prior Knowledge & Skills

Students have knowledge of:

- effective interpersonal skills;
- human anatomy and physiology from Health Care, Grade 11, College Preparation;
- computer skills;
- Internet skills.

Planning Notes

The teacher:

- ensures that all students have a computer log-in code;
- verifies websites;
- reserves computer lab and library/resource centre time;
- ensures all students are familiar with the board policy on computer/Internet use in the school;
- obtains permission from the medical institution and school board to have students interview patients, where possible;
- locates and books appropriate A/V materials;
- gathers display materials (e.g., bristol board, markers) and has enough available for students.

Teaching/Learning Strategies

1. The teacher introduces the topic by initiating a class discussion of various diseases (such as asthma, allergies, skin conditions) linking each disease to the particular body system: asthma with pulmonary system, allergies to immune system, skin conditions to integumentary system, memory problems to central nervous system.
2. The class brainstorms to complete the list of human anatomical systems with other diseases that are possibly linked to these systems.
3. Through teacher-directed class discussion, the class explores further one common example, such as asthma, using student knowledge of causes and the body's reaction.
4. The teacher hands out the sign up sheet for Causes of Disease and the Body's Reaction. (Appendix 2.1.1).
5. Students form groups (maximum of three people per group) according to interest in an anatomical system or a disease.
6. Building on the communication skills learned in previous years, the students use appropriate communication techniques and demonstrate effective interviewing skills, maintaining rules of confidentiality. The teacher reviews the importance of confidentiality and provides a confidentiality agreement for signature, and a letter of permission if the student is to interview a member of the community (See Note, Unit 2, page 2).
7. Students discuss and document the division of the work between the group members.
8. Students receive a Letter of Permission (Appendix 2.1.3), if the student is to interview a member of the community.
9. Students submit an outline describing the responsibilities of each group member.
10. Students research particular diseases of the assigned body system in the local library, pharmacy, Internet, retirement home, Doctor's office, fundraising agency (such as The Arthritis Society), focusing on cause and reaction of disease.
11. Students brainstorm as to where to find someone to interview, how to appropriately select this person, and how to conduct oneself throughout the interview.
12. Each group develops questions and conducts the interview.
13. From the information gathered from a variety of sources, students present their findings in a presentation to the class.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Achievement Chart Categories
Class discussion	Observation	Diagnostic	Knowledge/Understanding
Causes of Disease and the Body's Reaction Outline	Anecdotal Comments Checklist	Formative	Thinking/Inquiry Communication
Interview Questions	Anecdotal Comments	Formative	Communication Application
Group Presentation	Rubric	Summative	Knowledge/Understanding Communication Application

Accommodations

- Students may complete their segment of the group assignment in a manner of their choice with agreement of the group. For example, they may give a videotaped presentation, use posters and diagrams.
- Students may wish to present their findings solely to the teacher.

Resources

Print Material

Borgstadt, Marcia. *Understanding and Caring for Human Disease*. Scarborough: Nelson, 1997. ISBN 0-8273-6605-1

Informational Manual for Designated Officer Preventing and Assessing Exposures to Selected Communicable Diseases. Information Manual for Designated Officers. Toronto: Ontario Ministry of Health.

Computer Software

OESS: *The Ultimate Human Body 2.0*

Videos

Biology: Changing Nature's Blueprint. Canada: Allegro Production Inc, 1993. 14 min.

Environmental Health. Magic Lantern Communications, 1993. 28 min.

Environmental Illness: Bad Chemistry. Films For the Humanities, 1991. 60 min.

Genetic gamble. Boston: WGH Educational Foundation, 1985. 58 min.

Hazardous waste management: challenge of the decade. Ontario: Federation of Ontario Naturalists, 1987. 35 min.

Lead poisoning. WNET/Thirteen, 1989. 26 min.

Lyme disease: danger in the grass. ABC News, 20/20, 1989. 20 min.

More germs. Toronto: TV Ontario, 1988. 15 min.

STD's Straight Talk (Revised). Image Media 1996. 20 min.

The Rising Threat of Infectious Diseases. McIntyre Films, 1996. 30 min.

Virus! National Geographic Society, 1994. 28 min.

Virus, The: Infection. Filmwest Assoc., 1998. 26 min.

Websites

Ontario's Occupational Health and Safety Website – <http://www.gov.on.ca/lab/ohs/ohse.htm>

Professionals in Infection Control and Epidemiology – www.apic.org

U.S. Department of Health – www.healthfinder.gov

Appendix 2.1.1

Causes of Disease and the Body's Reaction Sign-up List

System	Disease	Name(s)	
Skeletal	_____	_____	_____
Integumentary	_____	_____	_____
Muscular	_____	_____	_____
Respiratory	_____	_____	_____
Digestive	_____	_____	_____
Urinary	_____	_____	_____
Reproductive	_____	_____	_____
Endocrine	_____	_____	_____
Circulatory	_____	_____	_____
Immune	_____	_____	_____
Lymphatic	_____	_____	_____
nervous system	_____	_____	_____

Appendix 2.1.2

Rubric for Presentation of Diseases and Effects on a Human Body

Student Name: _____

Date: _____

Criteria/Categories	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)
Knowledge/Understanding				
Identifies causes of diseases and the body's changes to the disease.	- limited knowledge and understanding of disease and body changes	- some knowledge and understanding of disease and body changes	- considerable knowledge and understanding of disease and body changes	- thorough knowledge and understanding of disease and body changes
Research includes wide range of sources	- uses limited range of medical research	- uses some range of medical research	- considerable knowledge of medical research	- thorough knowledge of medical research
Application				
Applies knowledge of human physiology, pathology and immunology to disease process	- limited ability to apply knowledge of the human body to disease process	- some ability to apply knowledge of human body to disease process	- considerable ability to apply knowledge of human body to disease process	- excellent ability to apply knowledge of human body to disease process
Communication				
Locates and uses resources appropriately	- limited application of medical resources	- some application of medical resources	- considerable application of medical resources	- thorough application of medical resources
Demonstrates communication skills with clarity and organization	- communicates with limited clarity and organization	- communicates with some clarity and organization	- communicates with considerable clarity and organization	- communicates with a high degree of clarity and organization

Note: A student whose achievement is below Level 1 (50%) has not met the expectations for this assignment or activity.

Activity 2.2: Medical Terminology

Time: 3 hours

Description

Students learn new medical terms and use them to communicate clearly and effectively. Students learn medical words, proper pronunciation, definitions, medical prefixes and suffixes, and how to apply them during the activities. Each student creates their own glossary kit throughout the course, continually adding to it, and expanding the definitions as required. Students bring their glossary daily for formative assessment and then summative evaluation at the end of this course.

Strand(s) & Learning Expectations

Strand(s): Theory and Foundation, Skills and Processes

Overall Expectations

TFV.01 - demonstrate an understanding of human physiology, pathology, and immunology;

SPV.02 - demonstrate an advanced understanding and use of medical terminology and communication techniques specific to health care.

Specific Expectations

SP2.01 - use correct terminology for equipment, tools, and procedures;

SP2.02 - demonstrate an advanced understanding and use of medical care terminology;

SP2.05 - use language appropriate to specific situations.

Prior Knowledge & Skills

Students have knowledge of:

- basic vocabulary terms such as *root word*, *suffix*, *prefix*;
- human anatomy and physiology terms from Grade 11 Health Care, College Preparation;
- computer skills, Internet skills, and research skills.

Planning Notes

- The teacher locates and books A/V equipment, and arranges access to computers.

Teaching/Learning Strategies

1. The teacher demonstrates various ways to create glossaries, which allows students to choose one that suits their learning style: index cards kept in small plastic file box, computer generated lists, regular paper cut into quarters, notebooks of various sizes, tape recorder.
2. The teacher explains that the definition is on one side (on the sheet or card) and the medical term on the other.
3. The teacher demonstrates various methods of categorizing, such as the medical terms divided into broad categories (pathology, physiology, immunology) and sub-categories (digestive system, diseases).
4. Students develop a personal system for recording medical terminology as discussed in Planning Notes, understanding that this is an on-going activity, including all new medical words learned throughout the Medical Technologies Course.
5. Using the information learned in Activity 2.1 “Causes of Disease and the Body’s Reaction,” the students return to their original group to develop lists of medical words and their definitions that they discovered during their research and used in their presentation.

6. Groups have a choice of how to present their glossary to the class; overhead, poster or typed handout. Groups work to create this list with the proper spelling, pronunciation, and definition.
7. The groups present their glossaries to the class.
8. Each student adds these words to their individual glossary. Students practise with their glossary, using it as they would the audio/visual flash cards of primary school.
9. Each time a new medical term is used, students add it to their glossary.
10. Students learn proper pronunciation using phonetics (for example, “homeopathy” is pronounced “*home-ee-aw-path-ee*”), and they record this to assist them during practice.
11. Students play games involving certain words whereby they create a coherent sentence with proper usage of terms (e.g., using the medical terms, carcinoma, diagnosis, benign, malignant, chemotherapy, radiation) and shares their knowledge in small groups.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Achievement Chart Categories
Glossary	Checklist	Formative (on-going)	Knowledge/Understanding
Use of Terminology	Rubric	Summative at the end of the unit	Communication

Note: This may be summatively evaluated at the end of the unit using the Rubric provided.

Accommodations

- The glossary may be audio or visually taped.

Resources

Print Material

Informational Manual for Designated Officer Preventing and Assessing Exposures to Selected Communicable Diseases. Information Manual for Designated Officers. Toronto: Ontario Ministry of Health.

Websites

Ontario’s Occupational Health and Safety Website – <http://www.gov.on.ca/lab/ohs/ohse.htm>

Professionals in Infection Control and Epidemiology – www.apic.org

U.S. Department of Health – www.healthfinder.gov

Workplace Hazard Material Information System Website – <http://www.utoronto.ca/safety/whmis2.htm>

Appendix 2.2.1

Rubric for Individual Medical Glossary

Student Name: _____

Date: _____

Criteria/Categories	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)
Knowledge/Understanding				
Demonstrates understanding of the human structure, various diseases, and their prevention SPV.02	- limited knowledge and understanding of the human structure, disease, and prevention	- some knowledge and understanding of the human structure, disease, and prevention	- considerable knowledge and understanding of the human structure, disease, and prevention	- thorough knowledge and understanding of the human structure, disease, and prevention
Communication				
Relates various medical terms to human physiology TFV.01	- limited application of medical terminology	- some application of medical terminology	- considerable application of medical terminology	- thorough application of medical terminology

Note: A student whose achievement is below Level 1 (50%) has not met the expectations for this assignment or activity.

Activity 2.3: Medical Problems and Interventions

Time: 15 hours

Description

Students investigate solutions to medical problems from the diseases they researched in Activity 2.1. Using knowledge of disease causes and symptoms, students create a case study of a fictitious client with one disease. Students identify medical problems then devise a treatment plan for their client, providing the rationale based on prior knowledge of physiology. Interventions must include medical treatments, conventional and alternative health practices, and take into consideration the cultural background of the client.

Strand(s) & Learning Expectations

Strand(s): Theory and Foundation, Skills and Processes

Overall Expectations

TFV.01 - demonstrate an understanding of human physiology, pathology, and immunology;

TFV.02 - describe accepted practices in health care.

Specific Expectations

TF2.01 - identify the evolution of health care practices;

TF2.02 - identify common medical problems and possible interventions;

TF2.03 - identify a range of medical services available (e.g., radiation, chemotherapy, and surgery for cancer treatment);

TF5.05 - identify the resources needed to implement intervention plans;

TF2.08 - describe cultural diversity as it applies to medical care (e.g., the need to respect religious beliefs such as those that preclude after-death care and blood transfusions, and cultural beliefs related to child birth and pain management);

TF2.09 - describe conventional health practices and alternative health practices (e.g., homeopathic remedies, acupuncture, therapeutic touch);

SP2.02 - demonstrate an advanced understanding and use of medical care terminology;

SP2.05 - use language appropriate to specific situations;

SP2.07 - use computer technologies effectively to access, process, analyse, and present information.

Prior Knowledge & Skills

Students have knowledge of:

- anatomy and physiology and health promotion utilizing conventional and alternative therapies from Grade 11 Health Care;
- human physiology from Unit 1;
- causes and symptoms of diseases, medical terminology, and assessing history from Activities 1 and 2.

Planning Notes

The teacher:

- arranges for a classroom with a black/white board or flip chart;
- posts and uses examples of diseases studied in Activity 1 for students to work on solutions to specific medical problems;
- photocopies Appendices 2.3.1 – Dr. Fix-it Does it Again, 2.3.2 – Presentation, 2.3.3 – Sample List of Medical Problems, 2.3.4 – Sample List of Treatment and Intervention Options, and 2.3.5 – Rubric for Evaluation of the Dr. Fix-it Does It Again! Treatment Plan;

Teaching/Learning Strategies

1. The teacher introduces the Medical Problems and Interventions Activity by discussing the evolution of health care practices.
 - i) The teacher describes how health care is evolving and includes these key Theories:
 - *demon* (unknown negative influence) theory and germ theory - to give a historical perspective;
 - *unknown negative influence theory* - the theory that illness is caused by “evil spirits or demons,” from the Middle Ages where there was little knowledge about human physiology;
 - *germ theory* - the theory that illness is caused by “germs”; practised now in health care practices such as hand washing and use of antibiotics.
 - ii) Health care practices are evolving as technology evolves (e.g., computer technology, genetics, and biotechnology are being applied to medicine).
 - iii) Treatments are becoming less invasive and more accurate (e.g., endoscopic surgery- surgery using a scope rather than cutting a large incision; thermometers have progressed from mercury thermometers to highly accurate and fast ear thermometers).
 - iv) New treatments and cures are available as research and technology expands our knowledge of human physiology and disease process (e.g., electromechanical treatments for spinal cord injuries and amputees).
 - v) There is more emphasis on prevention of disease as research is identifying cause and risk factors.
2. Through teacher-directed class discussion, students give examples of treatments and interventions for the various diseases studied in Activity 2.1 that would have been used during the Middle Ages (using unknown negative influence theory), are used now (germ theory), and may be used into the future. In groups of three or four, students choose a disease and time period to act out a five minute skit showing their ideas for treating a disease applying the appropriate theory. Students perform their skits. The student audience tries to identify the time period and the theory demonstrated.
3. The teacher distributes and reviews with the students the project Dr. Fix-it Does It Again! (Appendix 2.3.1). This is a three-part project including the creation of a case study, a treatment plan, and presentation. Using the checklist and rubrics (Appendix 2.3.5) the teacher reviews time management strategies, learning expectations, and evaluation.
4. Working in pairs, students choose one disease that they would like to base their project on. They may wish to continue investigating the same disease from the last activity about diseases or choose a new one. Students work cooperatively to create their case study using prior knowledge of their chosen disease and resource material within the classroom (see Resources). The teacher offers assistance where needed.
5. The teacher presents information about identifying medical problems and their symptoms. Key concepts include definition of medical problems and giving examples (Appendix 2.3.2).
6. Through teacher-directed class discussion, then cooperative learning in small groups, the students ascertain the medical problems by analysing the altered physiology of the system(s) affected by the disease. Students may use the disease models created in Activity 2.1 for identifying the medical problems. Answering the question, “What is stopping this organ from working?” and, “What are the symptoms?” will also help identify medical problems. Students work in pairs on their projects identifying both actual and potential medical problems. The teacher circulates offering assistance as needed.
7. Through brainstorming, the teacher helps students create a web diagram of medical treatments and interventions that may be useful for treating disease. The teacher uses open-ended and leading questions to help students identify a wide range of therapies and approaches for treating not only the disease, but also the underlying causes and symptoms (Appendix 2.3.4). Students work in pairs on their projects, linking up treatments or interventions to identified problems (Appendix 2.3.3). The teacher circulates offering assistance as needed.

8. The teacher presents more information about the medical treatments and interventions by inviting guest speakers, showing videos, and assigning readings from textbooks, articles, and computer websites. Students continue working on their projects, filling in the rationale for their treatment plans answering the question, “Why give this treatment/intervention?”
9. The teacher discusses with the class how cultural and religious diversity affects medical care. Key concepts to include are respect, non-judgemental attitude, and stereotyping. Then, either by teacher-directed class discussion or in small groups, students consider the effects of cultural background on expression of pain, body language, privacy, and acceptance of various treatments including blood products. The teacher may show a video, where available, to demonstrate cultural beliefs and how they affect medical care. **Note:** Teachers will need to be sensitive to the student population when deciding if and when to use this strategy.
10. The teacher places pieces of paper each with a different ethnic background written on it into a container. Students take from the container an ethnic background for their case study. Students research and write two paragraphs on the ethnic group’s cultural beliefs and their possible effects on their case study treatment plan, which they present to the class.
11. The teacher reviews checklists for completion of all components of the case study and care plan before the students work on their presentation. For the presentation, one student acts as the “client,” the other as “Dr. Fix-it” presenting the case. The presenters act or present the symptoms, helping the student audience ascertain which disease the “client” has, then act/present a treatment plan that takes into account cultural influences.
12. The other students take notes to fill in a medical problem/intervention chart (Appendix 2.3.1 for guidelines) for the disease being presented.
13. The students hand in the projects and upon approval by each student, the teacher copies and distributes to the class for resource materials.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Assessment Chart Categories
Skits	Checklist Anecdotal (Appendix 2.3.2)	Formative	Knowledge/Understanding Thinking/Inquiry
Case Study and Care Plan	Checklist (Appendix 2.3.1)	Formative	Knowledge/Understanding Thinking/Inquiry Application
Presentations and Projects	Rubric (Appendix 2.3.5)	Summative	Knowledge/Understanding Thinking/Inquiry Communication Application

Accommodations

- Students may choose to present only to the teacher.

Resources

Human

Guest Speakers: physician, nurse, respiratory technologist, emergency medical services worker.

Print Material

Ellis, J., Nowlis, E., Bentz, P. *Modules for Basic Nursing Skills*. Boston: Houghton Mifflin, 1988. ISBN 039556563

Hegner, B., Caldwell, E., and Needham, J. *Nursing Assistant*. Toronto: Delmar Publishers, 1998. ISBN 0-8273-9058-0

Websites

Canadian Centre for Occupational Health and Safety: Diseases, Disorders and Injuries

– <http://www.ccohs.ca/oshanswers/disease.htm>

Centres for Disease Control and Prevention

– www.cdc.gov/http://www.hc-sc.gc.ca/pphb-dgsp/psp/new-e.html

Videos

Cancer. Scholastic - Tab Public, 1994. 30 min.

Epilepsy: First Aid for Seizures. Coronet/Prentice Hall. 16 min.

Hearts and Arteries in Trouble. Visual Education Centre Limited., 1994. 10 min.

Just Kids. National Film Board of Canada, 1993. 28 min.

Multiple Sclerosis. Canada: Canadian Broadcasting Corp., 1997. 8 min.

Scientific American Frontiers-Program 104. Chedd-Angier Production/Scientific, 1991. 60 min.

Teens with Cancer. Filmfair Communications, 1996. 15 min.

Tourette Syndrome. CTV Productions, 1993. 47 min.

Wisdom of the Heart: Women & Heart Disease. Canada: McNabb & Connelly, 1996. 55 min.

Appendix 2.3.1

Dr. Fix-it Does It Again!

Case Study

Using knowledge of the causes and symptoms of a disease, students work in pairs to write a case study about a fictitious client with one disease and the appropriate medical interventions needed. The case study must include all the risk factors and typical demographics (e.g., age, sex, culture, lifestyle) of a client/patient. The case study must be presented as a word-processed document. Students use the following checklist to organize and complete this section of the project.

Checklist Criteria for Case Study	Check when complete
Includes student name, date, and case study title	
Includes client information: name, age, sex, occupation, body type	
Includes family information: siblings, any history of same disease	
Includes community information: type of residence, location (town, city, rural), support network	
Includes lifestyle factors: diet, drug/alcohol use, stress, exercise, hobbies, environmental factors (exposure to toxins?)	
Includes all symptoms	
Identifies disease	

Treatment Plan Example

Disease	Medical Problems	Solutions (Treatment/Interventions)	Rationale
Arthritis	Pain, inflammation of the joints, decreased mobility in hands, hips, etc., depression.	Medications (analgesics, anti-inflammatory drugs), physiotherapy, massage therapy, assisting devices, emotional support, community agencies able to help with emotional or physical needs.	Detailed reasons for treatments using knowledge of physiology where appropriate.

Appendix 2.3.2

Presentation

For the presentation, one student acts as the “client” and the other as the health care worker presenting the case. Doctor “Fix-it” and the “client” present/act the symptoms. The student audience ascertains what the disease is. The doctor and client then present/act a treatment plan that takes into account cultural influences.

Checklist for self/peer assessment, and teacher evaluation of Student Presentation

Student Name: _____

Evaluator: Teacher: _____ Peer: _____ Self: _____

Criteria/Categories	Peer		Self	
	Yes	No	Yes	No
Communication				
Uses medical terminology				
Demonstrates through role-playing appropriate communication skills				
Thinking/Inquiry				
Presentation encourages audience participation				
Demonstrates creativity in presentation of the case study and treatment plan				
Presentation and report indicates evidence of planning and rehearsal				
Application				
Presentation is well organized and includes: introduction, symptoms, identification of disease, and intervention plan				

Appendix 2.3.3

Sample List of Medical Problems

Definition of Medical Problems - any abnormality in the structure or function of an organ or system causing dysfunction in an organ or system, and any symptom of that dysfunction that creates distress.

1. Altered mental status - a change in thought processes and/or consciousness (e.g., confusion, memory loss or dementia, loss of consciousness)
2. Aneurysm - a sac-like rupture in the wall of an artery, vein or heart (most common site of arterial aneurysm is the aorta)
3. Anoxia - absence of oxygen to the body tissues
4. Bradycardia - abnormally slow heart rate (under 60 beats per minute)
5. Hypercholesterolemia - high blood cholesterol (from genetic predisposition and diet)
6. Decreased mobility - less able to move a body part, or the whole body
7. Dehydration - condition from the loss of water from the body
8. Depression - sad feelings (may be caused by situation such as experiencing pain or loneliness, or because of biochemical imbalance, or both)
9. Dyspnea - difficulty breathing
10. Edema - increased water within cells, symptom of fluid overload or excess circulating fluid
11. Embolism - the obstruction of an artery by a clot (i.e., blood clot, fat globule, air bubble, piece of tissue or clump of bacteria)
12. Fluid overload - excess circulating fluid (due to failure of the fluid pump - the heart, blockage in the lymphatic system, blockage in excreting fluids as urine)
13. Fracture - a broken bone
14. Hemorrhage - bleeding either internally, externally, or into the skin
15. Thrombosis - a blood clot blocking a blood vessel
16. Hyperglycemia - high blood sugar (seen in untreated diabetes)
17. Hypertension - consistently elevated blood pressure with systolic 140 mm of mercury or greater, and the diastolic 90 mm of mercury or greater; a major indicator for the development of cardiovascular, cerebrovascular, and renal disease
18. Hypotension - low blood pressure with systolic 90mm of mercury or lower, and diastolic 60 mm of mercury or lower
19. Hypoglycemia - low blood sugar (from insulin overdose)
20. Hypoxia - decreased oxygen to the body tissues
21. Obstruction - blockage (by tumor, cysts, abscesses, adhesions or scar tissues, herniation - protruding through an abnormal opening, foreign substance)
22. Pain - feeling of distress, suffering, or agony caused by stimulation of nerve endings; perception of pain is highly individual (i.e., it is what the person says it is)
23. Perforation - a hole in the wall of an organ due to erosion, infection, penetrating wound, or excess internal pressure
24. Seizure - a convulsion marked by an interruption of thought and activity which may be accompanied by severe muscle spasms
25. Shock - a condition of sudden peripheral circulatory failure due to loss of circulating fluid (Symptoms include hypotension or dangerously low blood pressure, cold skin, tachycardia or rapid heart rate, anxiety, cyanosis or blue lips and nail beds)
26. Tachycardia - rapid heart rate (over 100 beats per minute; symptom of shock)
27. Tumor - uncontrolled and progressive cell growth, also called neoplasm, may be benign (slow growing and nonspreading) or malignant (spreads to other tissues and organs, cancerous)

Appendix 2.3.4 – Sample List of Treatment and Intervention Options

Medical Treatments

1. Chemotherapy - treatment of disease by use of chemicals (medications)
2. Intravenous therapy - administration of fluids through a vein to replace body fluids or to administer nutrition through fluids (total parenteral nutrition or TPN)
3. Oxygen therapy - administration of oxygen
4. Radiation therapy - treatment for tumors by delivering electromagnetic radiation to a particular area of the body with minimal damage to normal tissues
5. Surgery - treatment of diseases or injuries by operation. The surgeon inspects and fixes diseased or injured organs by draining, removing, replacing, or repairing internal damage

Conventional Health Care Treatments

1. Occupational therapy - the art of restoring self-care, work, and leisure skills to patients recovering from physical injury or illness, or to those have difficulty coping with the tasks of living because of age, poverty, cultural differences, or psychological and social disability.
2. Physical therapy - physical and therapeutic techniques of helping to alleviate suffering from muscle, nerve, joint, and bone diseases and from injuries and to overcome or prevent disabilities. Techniques include exercises, electrical stimulation, ultrasound, self-help devices and instruction, hydrotherapy (use of water as treatment), and the use of heat and cold to relieve pain.

Conventional Health Practice Interventions

1. Assistive devices - a wide range of devices that assist a person with movement or function (e.g., wheel chair, cane, brace, splint, modified tools, hand grips, bathtub bench, etc.)
2. Community resources - helpers within the community (e.g., neighbours, agencies such as Meals on Wheels, home care services, public health nurse, support groups, etc.)
3. Diet - nutrition plan designed to treat or prevent illness e.g., “Low fat” or “No added salt” (NAS) diet to prevent excess fluid (fluid overload) in patients with heart disease, or “diabetic” diet for those with diabetes
4. Education - to identify and decrease or eliminate risk factors for disease
5. Emotional support - using supportive, caring communication skills
6. Exercise - movement of the body to improve health (e.g., range of motion exercises or ROM - exercising each joint to the highest degree of motion of which it is capable to retain mobility or strengthen muscles. (May be “active” - exercises done by patient; or “passive” - exercises done by caregiver)
7. Monitor - to check constantly on a condition (e.g., vital signs)
8. Positioning - moving a patient to a supported position to improve comfort, treat illness, and prevent problems associated with decreased mobility (e.g., elevating the patient’s head and upper body to assist with breathing in a person short of breath, or turning an incapacitated patient from side to side at least every two hours to prevent bed sores or decubitus ulcers)

Alternative Health Practices

1. Acupuncture - Chinese practice of inserting needles into the skin at specific points along the “meridians” of the body (pathways similar to blood circulation where energy flows), to correct the energy flow or “chi” in the body to treat pain, for surgical anesthesia, and for preventative or therapeutic purposes.
2. Chiropractic therapy - the treatment of disease by manipulating the spine to alleviate pressure on the nerves caused by faulty alignment (subluxation) of the bones.
3. Homeopathic remedies - natural products from organic and inorganic sources that have therapeutic properties at very small doses.
4. Massage therapy - treatment of disease by kneading the muscles.

Appendix 2.3.5 – Rubric for Evaluation of the Dr. Fix-it Does It Again! Treatment Plan

Student Name: _____

Date: _____

Criteria/ Categories	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)
Knowledge/Understanding				
Identifies common medical problems TFV.01 TF2.02	- limited knowledge and understanding of medical problems	- some knowledge and understanding of medical problems	- considerable knowledge and understanding of medical problems	- thorough knowledge and understanding of medical problems
Thinking/Inquiry				
Research includes wide range of sources including use of computer technology SP2.07	- limited evidence of medical research using computer technology	- some evidence of medical research using computer technology	- considerable evidence of medical research using computer technology	- thorough evidence of medical research using computer technology
Describes cultural influences on health care TF2.08	- limited description of cultural influences	- some description of cultural influences	- considerable description of cultural influences	- thorough description of cultural influences
Application				
Applies knowledge of medical services and interventions in treatment plan TF2.02	- limited application and rationale of medical services and interventions	- some application and rationale of medical services and interventions	- considerable application and rationale of medical services and interventions	- thorough application and rationale of medical services and interventions
Describes conventional and alternative health practices in treatment plan TF2.09	- limited description of conventional and alternative health practices	- some description of conventional and alternative health practices	- considerable description of conventional and alternative health practices	- thorough description of conventional and alternative health practices
Communication				
Case study and report well organized and word-processed SP2.05, SP2.07, SP2.02	- limited demonstration of communications skills as it pertains to the medical profession	- some demonstration of communications skills as it pertains to the medical profession	- considerable demonstration of communications skills as it pertains to the medical profession	- thorough demonstration of communications skills as it pertains to the medical profession

Note: A student whose achievement is below Level 1 (50%) has not met the expectations for this assignment or activity.

Activity 2.4: Health Care Skills

Time: 15 hours

Description

Students learn, demonstrate, and apply a range of health care skills including vital signs, cardiopulmonary resuscitation, and first aid. Students demonstrate and apply all of their knowledge and skills by acting as paramedics in fictitious accident scenarios.

Strand(s) & Learning Expectations

Strands: Theory and Foundation, Skills and Processes, Impact and Consequences

Overall Expectations

TFV.02 - describe accepted practices in health care;

SPV.01 - demonstrate correct techniques for performing various skills and for using the tools and equipment of the health care field;

SPV.02 - demonstrate an advanced understanding and use of medical terminology and communication techniques specific to health care.

Specific Expectations

TF2.04 - describe abnormal values for each type of vital sign and identify appropriate interventions for each of these values;

TF2.06 - explain first-aid and cardiopulmonary resuscitation (CPR procedures);

SP1.01 - perform a range of health care skills to meet industry standards;

SP1.07 - follow body substance precautions in handling body substances.

Prior Knowledge & Skills

Students have knowledge of:

- health and safety measure from the prerequisite Grade 11 Health Care course;
- human physiology, medical terminology, disease process, medical problems and interventions from previous units of this course.

Planning Notes

The teacher:

- locates blood pressure cuff, thermometers, stethoscopes, watch with second hand, box of non-sterile gloves, assortment of bandages, splints, slings, back board or sand bags, cervical collar, blankets, pillows (these supplies could be obtained from the first aid supplies within the school) and theatrical make up;
- photocopies for each student Appendix 2.4.1 – Health Care Skills Tracking Sheet, Appendix 2.4.2 – Vocabulary for Vital Signs Activity, Appendix 2.4.3 – Vital Signs Information Chart;
- photocopies or prints and laminates procedures for taking each of the vital signs for students to refer to during skills practice;
- obtains videos and contacts guest speakers as needed;
- arranges the classroom to accommodate learning stations for skills practice. It would be helpful to have more stations than groups of students to ensure there is always somewhere for the students to go after completing an activity (e.g., the case studies and rescue situations could each be different stations);

- ensures that any CPR instruction in class is done by a qualified instructor;
- offers an alternative to covering CPR in class, students could take the course after school as a workshop. Students should be aware that having CPR certification is usually required by employers or postsecondary institutions before students are allowed to perform any patient care. The teacher checks off all activities listed under CPR on the tracking sheet upon student completion of the course;
- carefully plans and controls students’ “practice” on one another, so that students and staff feel safe and comfortable. Students must understand the health and safety precautions related to administering CPR and First Aid and taking vital signs from a personal and client point-of-view. It might be advisable to invite experienced outside professionals to do some of this work.

Teaching/Learning Strategies

1. The teacher hands out the Health Care Skills Tracking Sheet (Appendix 2.4.1) and discusses classroom organization and classroom management strategies for this activity (i.e., when a group of students completes their station, they must demonstrate their skill to the teacher and have their tracking sheets signed before progressing to the next station). The Health Care Skills Activity has three sections: Vital Signs, CPR, and First Aid. At the beginning of each section, the teacher provides information using a combination of approaches (e.g., teacher-directed discussion, and demonstration). The teacher provides a mini lesson and/or shows a video about applying the skill. (See Appendix 2.4.2 for Vital Signs Vocabulary, Appendix 2.4.3 for Vital Signs Information Chart, Appendix 2.4.4 for Case Studies and Rescue Situations.)
Note: Specialized information such as taking vital signs or performing cardiopulmonary resuscitation could be presented by a video, printed material or a guest speaker such as a registered nurse or qualified CPR instructor.
2. Students divide into small groups to practise skills. Each station should contain instructions, appropriate equipment, printed material with assigned related reading, and printed procedures for students to refer to.
3. The teacher provides guidance as needed, then signs the tracking sheets as the students demonstrate the appropriate skills.
4. To complete this activity, students demonstrate and apply all of their knowledge and skills by acting as paramedics in mock accident scenes. In groups of three, students create their own accident scene complete with make-up to recreate the injuries. In groups of three, the other students act as paramedics and treat the injuries using all the knowledge and skills learned in this activity.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Achievement Chart Categories
Health Care Skills Tracking Sheet	Observation Conferencing	Formative	Knowledge/Understanding Application
Paramedic Skill Demonstration	Checklist Anecdotal Comments	Formative	Knowledge/Understanding Thinking/Inquiry Communication Application

Accommodations

- Students may choose to demonstrate only for the teacher.

Resources

Print Material

Basic Life Support. First Aid Training Manual (available through Canadian Red Cross).

ISBN 0-8151-1732-9

St. John Ambulance. *First on the Scene Manual*. Ottawa: Priory of Canada, 1998. Order Code 6504

Vital Link. CPR Training Manual (available through Canadian Red Cross).

Videos

Epilepsy: First Aid for Seizures. Coronet/Prentice Hall. 16 min.

Save a Life-Part 1. British Broadcasting Corporation, 1986. 27 min.

Save a life - part 2. British Broadcasting Corporation, 1986. 28 min.

Appendix 2.4.1

Health Care Skills Tracking Sheet

Name: _____ Date Completed: _____

Skill	Date, Check	Comments	Evaluator
Vital Signs Activities			
Blood Pressure			
Pulse			
Respirations			
Temperature			
Vital Signs Chart			
Recording: Flow Sheet			
Case Study –1			
Case Study – 2			
Case Study – 3			
CPR Activities			
Artificial Respiration			
Choking - Conscious			
Choking - Unconscious			
1 Rescuer CPR			
2 Rescuer CPR			
Infant Resuscitation			
First Aid Activities			
First Aid Safety			
Management of Bleeding			
Management of Fractures			
Head Injuries			
Treating Shock			
Burns			
Rescue Situation 1			
Rescue Situation 2			

Appendix 2.4.2

Vocabulary for Vital Signs Activity

Vital Signs (VS)

Those body functions that reflect the state of health of the body, i.e., temperature, pulse rate, respiratory rate (TPR), and blood pressure (BP), are easily measurable. When the body is not functioning normally, the vital signs change.

Normal vital sign values for an adult:

Pulse (P)

The rate the heart is beating (normal range: 60 - 80 regular beats per minute):

- pulse points: the places where arteries are close to the skin over a bony area (i.e., the radial, carotid, brachial, femoral pulse).

Respiration (R)

The process of inhaling and exhaling. Normally, the rate is 16 to 20 breathes per minute.

Key elements to assess:

- rate (per minute);
- rhythm (regular or irregular);
- quality (i.e., strong, weak, laboured, noisy, etc.).

Temperature (T)

The amount of heat in the body:

- the balance between the heat produced and the heat lost (normal - 36.4 to 37.2 degrees Celsius);
- hypothermia: body temperature is greatly below normal;
- hyperthermia: body temperature is greatly above normal;
- sites for taking temperature: oral, axillary, rectal, ear.

Blood Pressure (BP)

The pressure of the blood against the walls of arteries:

- diastolic pressure (relaxation pressure): the pressure of the blood against the artery walls in between contractions of the heart; is read when the tapping sound changes;
- systolic pressure (contraction pressure): the pressure of the blood against the artery walls when the heart is contracting; the first tapping sound heard;
- hypertension: high blood pressure (140/90 and above);
- hypotension: low blood pressure (100/60 and below);
- sphygmomanometer: the instrument used to measure blood pressure.

Five Types of Abnormal Breathing

Dyspnea or difficulty breathing which may be caused by environmental factors such as exercise, digestion, emotional stress, drugs, stimulants, heat, cold, air pollutants, and smoking:

- stertorous respiration: abnormal noises like snoring sounds when patient is breathing;
- abdominal respiration: breathing using mostly abdominal muscles;
- shallow respiration: breathing using only the upper part of the lungs;
- irregular respiration: depth and rate of breathing changes or is not steady;
- cheyne-stokes respiration: abnormal breathing wherein breathing is slow and shallow, then becomes faster and deeper until it reaches a peak, then slows down again and may stop completely, then the cycle repeats itself.

Appendix 2.4.3

Vital Signs Information Chart

Student Name: _____

Date Completed: _____

Vital Sign (VS)	Blood Pressure (BP)	Pulse (P)	Respirations (R)	Temperature (T)
Definition				
Normal range				
Abnormal range				
Possible reasons for abnormal vital sign (Number each possible reason)				
Action to be taken (Number each action to correspond to each of the possible reasons listed above)				

Appendix 2.4.4

Case Studies and Rescue Situations

Sample Vital Signs Case Studies

Students read case study cards, then answer the questions individually or in small groups.

Case Study 1

Mrs. S is a 55-year-old shopkeeper. She smokes half a pack of cigarettes per day and enjoys burgers with french fries. She is 168cm tall and weighs 86kg. She lives with her husband in the country. After an episode of “indigestion,” her husband brings her to the emergency room. You, the assessing nurse, takes her vital signs: T - 37 °C, R - 20 regular, P - 96, BP - 190/100.

Case Study 2

Danny, 20 years old, comes to emergency limping badly. His right foot is edematous, inflamed, and extremely tender to touch. Upon examination, you see a laceration on his heel that has purulent discharge coming from it. Danny reports that he is feeling unwell. You take his vital signs: T - 38.6°C, P - 90, R - 24, BP - 124/80.

Case Study 3

Mr. B. is a 35-year-old construction worker. He is a new father, not sleeping well at night from interrupted sleep. He has had a cold, lingering with a productive cough for five weeks and it seems to be worsening. He complains of shortness of breath and pain upon deep breathing. His sputum is yellow. You check his vital signs: T - 38°C, P - 88, R - 30 shallow, wheezing, BP - 120/76.

For each case study, do the following

1. List the vital signs that are abnormal and the possible reason(s) using correct medical terminology.
2. Identify the possible medical problem based on the information provided.
3. Advise your client as to how to improve his/her health.

Sample First Aid Rescue Situations

In small groups, students read and take turns re-enacting the following scenario(s) and applying first aid using all the materials available. Key points: assess the scene, safety first, then prioritize first aid. Students may make the assumption that they have a cell phone or bystanders to call for help.

Rescue Situation 1

Chuckie Wood was cutting down a tree in his back yard. Witnesses tell you the tree “jumped” and the saw “kicked back and got ‘em”. You find Chuckie lying on the ground with the chain saw still buzzing near by. He has a tree lying across his legs, and a bleeding arm. He is conscious, but pale and his skin is cool to touch.

Rescue Situation 2

A badly dented car is in the ditch with one occupant in it, smelling strongly of alcohol. He is conscious and has lacerations on his forehead bleeding profusely. He states he cannot move his left arm because of extreme pain, but he wants very badly to leave the car.

Appendix 2.4.5

Paramedic Checklist

Name: _____ Date: _____

Evaluator: Teacher _____ Peer: _____ Self: _____

Criteria/Categories	Peer		Self	
	Yes	No	Yes	No
Knowledge/Understanding				
Recognizes and follows body substance safety precautions.				
Communication				
Uses medical terminology and communication techniques appropriate for the situation.				
Thinking and Inquiry				
Prioritizes and identifies first aid following “breathing”, “bleeding”, “brains”, “bones” order for treatment.				
Application				
Demonstrates correct first aid techniques using tools and equipment appropriately.				

Activity 2.5: Legal and Safety Issues

Time: 4 hours

Description

Students learn about legal and safety issues in the health care industry. By identifying patient and worker rights and applying relevant legislation, standards of practice, and procedural guidelines, students analyse both legal/ethical and hazardous work situations.

Strand(s) & Learning Expectations

Strands: Theory and Foundation, Impact and Consequences

Overall Expectations

TFV.02 - describe accepted practices in health care;

ICV.02 - describe the laws and regulations governing health and safety standards in the health care industry.

Specific Expectations

IC1.01 - describe malpractice and other liability issues;

IC1.02 - describe existing and potential hazards to themselves, to clients, and to co-workers;

IC1.03 - describe and where applicable, follow health and safety policies and procedures required to prevent injury or illness.

Prior Knowledge & Skills

Students have knowledge of:

- health and safety from the prerequisite Grade 11 Health Care Course;
- various health care skills;
- body substance precautions.

Planning Notes

The teacher:

- obtains documents about professional practices for any health care profession such as the College of Nurses of Ontario (see Resources for a list of nursing professional practice publications);
- has sample guidelines for worker safety available in the classroom for reference (see Resources);
- photocopies legal/ethical situations (Appendix 2.5.2) and hazardous work situations (Appendix 2.5.3) and cuts into cards for small groups discussion;
- arranges for computer access for researching health and safety guidelines;
- arranges for a classroom with black/white boards and/or flipcharts.

Teaching/Learning Strategies

1. The teacher briefly reviews with the class an outline for the health and safety activities including expectations for learning. The teacher organizes the content into two parts: examining patients' rights (including definitions of criminal acts, standards of practice, and ethics) and examining the health care workers' rights (including the Ontario Occupational Health and Safety Act and various guidelines or procedures to protect workers from work related hazards).
2. The teacher introduces legal and safety issues in health care by having students brainstorm a list of patients' rights. Through leading questions, the teacher assists students in identifying patients' rights throughout the brain storming exercise. A student volunteer writes the "patients' rights" on chart paper to be left on display in the classroom. Students should understand that in following legal/ethical standards, the health care workers promise to give safe, correct care and to do no harm.

3. The teacher explains the difference between law and ethics. Using an overhead showing legal definitions, the teacher reviews all the medical legal terms and assists students to identify examples of each term. (See Appendix 2.5.1 for a list of medical legal terms.) Using real examples of disciplinary action for workers in health care (see Resources for College of Nurses “Discipline Committee Decisions”) or fictitious examples from the suggested text books, the teacher guides students into a discussion about law and ethics in health care. Students should be able to identify illegal and unethical acts using the list of definitions as a guide, and demonstrate higher reasoning in determining appropriate actions in various situations. Students then work in small groups to analyse a variety of situations and report their findings to the class.
4. Using the brainstorming learning strategy, students identify possible hazards for any health care profession. The teacher prompts ideas by suggesting they think about the activities various health occupations perform. (e.g., respiratory technologists deal with maintaining the airway; laboratory technologists handle body fluid specimens; paramedics deal with accident scenes, body fluids, lifting, and more).
5. The teacher presents information about workers rights with reference to the Ontario Occupational Health and Safety Act and use of sample guidelines for hazardous procedures.
6. In small groups, students examine fictitious hazardous situations (Appendix 2.5.3) from a variety of occupations and identify the hazard and possible procedures to limit the danger. The teacher directs students to relevant resources and guides critical thinking by use of probing or leading questions. Students report their findings to the class and promote class discussion.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Achievement Chart Categories
Group Discussion	Observation	Diagnostic Formative	Thinking/Inquiry Communication
Quiz (Appendix 2.5.4)	Marking Scheme	Summative	Knowledge/Understanding

Resources

Print Material

College of Nurses of Ontario. *Advocating for Clients Found Incapable of Making Treatment, Admission of Personal Care Decisions*. Toronto: 1999.

College of Nurses of Ontario. *A Guide to the Health Care Consent and Substitute Decisions Legislation for RNs and RPNs*. Toronto: June 1996.

College of Nurses of Ontario. “Discipline Committee Decisions.” *Communique*. Toronto: 2001 (any issue). (Copies may be ordered from the College of Nurses of Ontario.)

College of Nurses of Ontario. *Mandatory Reporting: Sexual Abuse*. Toronto: 1999.

College of Nurses of Ontario. *Prevention of Abuse of Clients: Expectations for Professional Behavior*. Toronto: September 1994.

College of Nurses of Ontario. *Professional Misconduct for Nurses*. Toronto: 1999.

College of Nurses of Ontario. *Professional Standards for Registered Nurses and Registered Practical Nurses in Ontario*. Toronto: June 1996. ISBN 0-921127-45-6

College of Nurses of Ontario. *Regulated Health Professions Act: An Overview for Nursing*. Toronto: April 1997.

College of Nurses of Ontario. *Resuscitation Standard for Nurses in Ontario*. Toronto: 1999

College of Nurses of Ontario. *Standard for the Therapeutic Nurse-Client Relationship*. Toronto: 1999.

College of Nurses of Ontario. *The Ethical Framework for Nurses in Ontario*. Toronto: 1999.

Hegner, B., Caldwell, E. and Needham, J. *Nursing Assistant*. Toronto: Delmar Publishers, 1998.
ISBN 0-8273-9058-0

Rambo, B. J. and Wood, L. A. *Nursing Skills for Clinical Practice*. Toronto: W. B. Saunders Company, 1982. ISBN 0-7216-7458-5

Websites

Canadian Centre for Occupational Health and Safety – <http://www.ccohs.ca>

Canadian Centre for Occupational Health and Safety: Biological Hazards
– http://www.ccohs.ca/oshanswers/biol_hazards/

Canada’s National Occupational Safety and Health – <http://www.canoshweb.org>

Centres for Disease Control and Prevention – www.cdc.gov/

College of Medical Laboratory Technologists of Ontario – <http://www.cmlto.com>

College of Nurses of Ontario – <http://www.cno.org>

Health Canada: Population and Public Health Branch home page
– <http://www.hc-sc.gc.ca/pphb-dgspsp/new-e.html>

National Centre for Disease Control home page – <http://www.ncdc.gov.au/>

Ontario Ministry of Labour – www.gov.on.ca/lab/main.html

Universal Precautions – <http://www.ccohs.ca/oshanswers/prevention/ppe/universa.html>

Universal Precautions and Laboratory Safety for Medical Technologists and Laboratory Support Staff
– <http://www.upstate.edu/phebotomy/pages/precautions/upl.htm>

Appendix 2.5.1

List of Medical Legal Terms

1. Legal standards - guides to lawful behaviour; when laws are not obeyed the worker is held liable (responsible), and may be punished by fine or imprisonment.
2. Ethical standards - guides to moral behavior (e.g., respect, confidentiality, refusing tips).
3. Standard of care - procedural documents that define performance for safe and competent care for that health care profession.
4. Malpractice - bad or faulty practice; refers to negligence by a professional person.
5. Negligence - failing to give care that is expected or required by the job. To prove negligence the following factors must be shown:
 - i) a standard of care existed to show what should have been done;
 - ii) the person failed to meet the standard of care;
 - iii) the person knew that harm might result from failing to meet the standard;
 - iv) harm occurred.Failure to perform the procedures correctly as outlined in the standards of care, knowing that it could cause harm, and actually causing harm constitutes negligence.
6. Abuse - any act that is deliberate and harmful to a person (e.g., verbal, sexual, physical, psychological abuse).
7. Assault - approaching or handling another person in a way that poses a threat to the person. (e.g., verbal threats, bumping, shaking, or touching others without their consent.)
8. Battery - extension of a threat through violent contact with or forcible restraint of the person (e.g., hitting, pinching, roughness, forcing a patient to take medication or to submit to a procedure or treatment).
9. False imprisonment - when a person is held without just cause (e.g., using restraints to keep a person in bed or locking a person in a room).
10. Invasion of privacy - failing to preserve privacy of a person's body and its function and information about a person's condition (e.g., ways to preserve privacy in a hospital include draping the body for procedures, drawing curtains, closing doors, protecting the person from unwanted visitors, releasing limited information about a person, or obtaining consent before allowing students to observe a procedure on a person).
11. Confidential information - information about a person that is not common knowledge; that should not be shared with other people without the written consent of the person (e.g., medical history, results of tests, or other information in a hospital record).
12. Defamation of character - any written or verbal statement that damages the reputation of another person falsely and without good cause. There are two kinds: slander and libel.
13. Slander - verbal statements that are false or damaging to another's reputation (e.g., statements such as, "that doctor is a butcher, he's not fit to practice medicine").
14. Libel - written statements that are false or damaging to another's reputation (e.g., making false or malicious statements on a patient's hospital chart such as, "patient is a whiner; is addicted to...").

Appendix 2.5.2

Sample Legal/Ethical Situations

For each of the following situations, identify whether laws or ethics were contravened. Identify the appropriate legal terms that apply to each situation. Discuss the appropriate actions for each case.

1. Miss. A, a nursing assistant, knows that Mr. F needs his heart medications, so when Mr. F refuses to take them, the nurse forces them down his throat.
2. Personal support worker Q calms her patient down but doesn't assess her pain level, assuming that some people just scream a lot anyhow.
3. A caregiver asks her client to stay in bed. When the client refuses, she forcibly pushes her down and straps her arms to the bed rails.
4. The personal support worker writes in her chart, "Mr. S is addicted to narcotics, demanding analgesics every hour."
5. Health care worker T says in a condescending manner to his elderly patient who asked if she was dying, "You just let us worry, you don't need to know any more than that."
6. Two health care workers taking a break in a cafeteria, discuss their patient's extensive sexual history. They laugh and agree, "He deserves to have AIDS."
7. Mr. R was pleased with his care. He offers \$5.00 and says, "Let me buy you a coffee to say thanks."
8. Physiotherapist M makes a mistake writing her notes in the chart. She erases her mistake, then starts again to correct it.
9. Mr. X is supposed to receive medication for his heart at 1400 hours. Nurse R was extremely busy and didn't get it to him until 1600 hours. She charts it was given at 1500 hours.
10. You see a co-worker yelling and shaking his fist at a patient saying, "If you don't eat this in the next five minutes, you're not getting any more until tomorrow." Your co-worker says to you, "You didn't see that," then walks away.
11. Health care worker S forgets to turn her bedridden elderly patient for six hours because she has a lot on her mind. When she finally does turn her patient, she discovers broken reddened skin on his right hip.
12. Mr. P requests Dr. X to treat his wife, who repeatedly claims she isn't mentally ill but just upset by her husband's affair with another woman. She refuses hospitalization but is restrained and forcibly given an injection of a sedative by Dr. X. The next thing she remembers is waking up in the hospital a week later and being forced to stay there for another week.
13. Health care worker N takes her client's picture using crutches without his knowledge for use in a promotional pamphlet about her occupation.
14. Dr. X asks nurse B to do a procedure she has never been trained to do. She tries and hopes for the best.
15. Supervisor M assigns excessive work for one health care worker to cope with. The health care worker knows she cannot provide safe and appropriate care for her patients.

Appendix 2.5.3

Sample Hazardous Work Situations

For each of the following situations, identify the real or possible hazard and the action the worker could take.

1. Personal support worker M must provide total care for a 90 kg incapacitated patient.
2. Paramedic Q arrives at an accident scene: A person is covered in blood with a knife sticking out of his chest. A crowd of people quickly gathers around to watch.
3. Nurse R is ordered to collect samples of urine, feces, and blood for diagnostic workup on a patient.
4. Two paramedics have to climb four flights of stairs to get to their client who has collapsed with chest pain. The elevator is broken.
5. Lab technologist W handles samples of blood, sputum, feces, and urine daily for analysis.
6. Personal support worker must care for her invalid client with AIDS.
7. Student health care worker L assists in caring for her client diagnosed with cancer, including accompanying her to X-ray.
8. Respiratory therapist M suctions secretions from her client's breathing tube.
9. Dr. W and nurse M help their patient to deliver a baby.
10. Health care worker A must provide daily care to an uncooperative patient with dementia.

Appendix 2.5.4

Sample Quiz for Legal and Safety Issues in Health Care

Name: _____ Date: _____ Total marks: /22

Expectations: TFV.02, ICV.02, IC1.01, IC1.02, IC1.03.

Categories: Knowledge/Understanding, Thinking/Inquiry, Communication

Directions: Match statement on the right to the most appropriate term on the left.

- | | | |
|----------|---------------------|---|
| _____ 1. | Negligence | a) Making false statements about a person. |
| _____ 2. | Standard of care | b) When a person is held without just cause. |
| _____ 3. | Invasion of privacy | c) Failing to give care that is expected or required by the job. |
| _____ 4. | Assault | d) Writing statements that are false or damaging to another's reputation |
| _____ 5. | Slander | e) Procedural documents that define performance for safe and competent care for that health care profession. |
| _____ 6. | Battery | f) Failing to preserve privacy of a person's body and its function and information about a person's condition. |
| _____ 7. | False imprisonment | g) Hitting, pinching, roughness, forcing a patient to take medication or to submit to a procedure or treatment. |
| _____ 8. | Libel | h) Approaching or handling another person in a way that poses a threat to the person. |

Complete the statement:

9. Every health care worker has a legal and ethical obligation to provide _____ and _____ care and to do _____.

Multiple Choice - circle one answer only

10. The doctor orders a treatment procedure for the patient that the nurse does not know how to perform. The nurse does so anyway and the patient is injured. The person most likely to be accused of negligence is the:
- doctor
 - hospital
 - nurse
 - supervisor
11. A health care worker yells at her patient in frustration. She may be accused of:
- assault
 - battery
 - invasion of privacy
 - slander
12. Which of the following will help the health worker avoid being sued?
- obtaining written consents
 - consistent practising of conscientious care
 - always considering human rights
 - staying within the limits of his/her training
 - all of these
13. List four examples of safety hazards to a health care worker, and beside each one, give the appropriate action for the worker to protect him/herself.
(Answers: c, e, f, h, a, g, b, d, "safe," "correct," "no harm." c, a, e, varies due to student's response)

Activity 2.6: Careers in Health Care Field

Time: 3 hours

Description

Students explore in depth a career in the health care profession, and the postsecondary training or education that is required. Students present their findings in a booth or at a desk, during a “Career Day” in their classroom. They could invite the Grade 10 Career Studies classes to attend as well as presenting to their peers. The focus should be on education and training required and the details of the daily work involved.

Strand(s) & Learning Expectations

Strand(s): Impact and Consequences

Overall Expectations

ICV.04 - describe career opportunities in the health care industry.

Specific Expectations

SP2.07 - use computer technologies effectively to access, process, analyse, and present information;

IC3.01 - identify career opportunities in the health care field;

IC3.02 - describe the education and training required for career opportunities in health care.

Prior Knowledge & Skills

Students have knowledge of:

- effective interpersonal skills;
- computer skills and Internet skills;
- Grade 10 Career Studies.

Planning Notes

The teacher:

- ensures that all students have a computer log-in code;
- arranges for computer lab and library/resource centre time to research career of choice;
- ensures all students are familiar with the board policy on computer/Internet use in the school;
- arranges with the Career Studies teacher to have the Grade 10 students tour the classroom and visit the “booths” explaining possible careers in the health field.

Teaching/Learning Strategies

1. Teacher brainstorms with the students various health careers (Appendix 2.6.1), what they entail, and where one could work.
2. Students sign up for a career that is of interest, and investigate it further on the computer (Appendix 2.6.2) discovering what education/training is required, starting salary, desirable strengths/skills required to succeed, locations of work (self-employed, institution, geographical needs, etc.)
3. Students interview a health care professional in their chosen area and prepare a case study based on what that person does.
4. During the interview, students may request visual aids for their career day booth, such as photographs of the office/equipment, any professional journals, disposal items associated with the occupation such gloves, masks, disposable gowns, suction tips, etc.

5. Students present the information they have learned by setting up their posters on desks around the periphery of the classroom. Information includes a personal example through a case study of someone they know or interviewed. No names are to be used.
6. Classmates tour the various booths to learn more about other health care professionals.
7. To increase their awareness of Health Care Professions, Grade 10 students could be invited to visit the booths and discuss the education requirements and career possibilities.

Assessment & Evaluation of Student Achievement

Task/Product	Tool	Purpose	Achievement Chart Categories
Progress check	Teacher Conference	Formative	Knowledge/Understanding
Poster/Case study	Rubric	Summative	Thinking/Inquiry Application Communication

Accommodations

- Students may conduct their interview by mail, e-mail or telephone.

Resources

Print Material

Case, Betty. *Career Planning for Nurses*. Scarborough: Nelson, 1997. ISBN 0-8273-7165-9

Field, Ben T. and Paul K. Wright. *Better Job Search in 3 Easy Steps*. Scarborough: Nelson, 2000. ISBN 0-7668-1564-1

Anderson, Shirley and Jody Smith. *Delmar's Handbook for Health Information Careers*. Scarborough: Nelson, 1998. ISBN 0-8273-8083-6

Simmers, Louise. *Diversified Health Occupations*, 5th ed. Scarborough: Nelson, 2001. ISBN 0-7668-1820-9

Colbert, Bruce J. *Workplace Readiness for Health Occupations*. Scarborough: Nelson, 2000. ISBN 0-827307781-9

Videos

Diversified Health Occupations Video Series; Tape #1 ISBN 0-8273-8276-6, Tape #2 ISBN 0-8273-8277-4, Tape #3 ISBN 0-8273-8278-2, Tape #4 ISBN 0-8273-8279-0. Scarborough: Nelson, 1998.

Stress management - Staying Balanced Under Pressure Vol. 1 (or 2). Careertrack Publications, 1988. 90 min.

Appendix 2.6.1

Health Career Sign-up Sheet

Choose one career per person unless you can subdivide it. Example: the category “Dental”, which you will find after research on the Internet, can be subdivided into Dental Receptionist, Dental Assisting, Hygienist, Denturist, Dental Lab Technician or Dentist.

Health Career Choice	Student
Biometrics	
Dietary	
Communication Disorders	
Dental careers	
Emergency Medicare	
Medical Laboratory	
Medical Office	
Medical Records	
Medical Health	
Nursing	
Medicine Doctor	
Occupational Therapy	
Pharmacy	
Radiology	
Respiratory Therapy	
Veterinary Sciences	
Vision Care	

Appendix 2.6.2

Health Care Career Occupation: _____

Education/Training (length, location, cost)	
Skills/Duties description	
Salary (beginning and experienced)	
Self-employment Opportunities	
Employment Prospects	
Safety Issues in the Workplace	
Emerging trends (Economic and Societal)	
Other related health care careers	

Appendix 2.6.3

Rubric for Health Care Professional Poster/Booth

Student Name: _____

Date: _____

Criteria/Categories	Level 1 (50-59%)	Level 2 (60-69%)	Level 3 (70-79%)	Level 4 (80-100%)
Knowledge/ Understanding Student has knowledge and understanding of career opportunities in the health care field. ICV.04, IC3.01	- limited knowledge and understanding of opportunities	- some knowledge and understanding of opportunities	- considerable knowledge and understanding of opportunities	- thorough knowledge and understanding of opportunities
Application Thinking/Inquiry Communication Student locates and uses resources appropriately in researching the required education for a particular medical care profession. IC3.02	- limited use of resources to obtain educational information	- some use of resources to obtain educational information	- considerable use of resources to obtain educational information	- thorough use of resources to obtain educational information
Communication Student's case study and booth well-presented, organized and word processed. SP2.07	- limited demonstration of communications skills as it pertains to the health care profession	- some demonstration of communications skills as it pertains to the health care profession	- considerable demonstration of communications skills as it pertains to the health care profession	- thorough demonstration of communications skills as it pertains to the health care profession

Note: A student whose achievement is below Level 1 (50%) has not met the expectations for this assignment or activity.