

*Public District School Board Writing Partnership*

# Course Profile

## Health Care

Grade 11

College Preparation

TPA3C

- *for teachers by teachers*

This sample course of study was prepared for teachers to use in meeting local classroom needs, as appropriate. This is not a mandated approach to the teaching of the course. It may be used in its entirety, in part, or adapted.

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### **Acknowledgments**

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## Course Overview

### Health Care, Grade 11, College Preparation, TPA3C

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

#### Course Description

This course focuses on human anatomy, physiology, and basic medical terminology. Students learn about the relationship between lifestyle and personal health, and conventional and alternative methods of disease prevention and treatment. They also investigate healthcare procedures and equipment in nursing, medicine, and dentistry; examine health and safety issues in health care and the environmental and societal impacts of biotechnology; and explore various career opportunities in the health care field.

#### Course Notes

- In each unit students identify career options and are given 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.
- 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.
- 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	Introduction to the Course, The Health Care Industry and Careers	5 hours
Unit 2	Lifestyle and Personal Practices for Healthy Living	20 hours
Unit 3	Health Promotion Utilizing Conventional and Alternative Therapies	25 hours
Unit 4	Anatomy and Physiology	30 hours
* Unit 5	Health and Safety and Environmental and Social Impact	30 hours

\* This unit is fully developed in this Course Profile.

#### Unit Descriptions

##### Unit 1: Introduction to the Course, The Health Care Industry and Careers

**Time:** 5 hours

##### Unit Description

Students are informed about the parameters of this course through an explanation of expectations and assessment strategies. They are introduced to the health care industry and the criteria for a successful career in this industry. Students conduct research and attend presentations by health care professionals in order to develop an understanding of local and regional health care practices and regulations. Students are made aware of cultural and personal differences found in the various regions of Ontario which impact on health care. Students develop and maintain a portfolio including information about health care, facilities, careers and current issues regarding health and health care.

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### Unit Overview Chart – Introduction to the Course

Cluster	Expectations	Assessment	Focus
1	TFV.04, TF4.01	Knowledge/Understanding	- overview of health care industry
2	ICV.03, IC3.01, IC3.02, SPV.01, SPV.02	Knowledge/Understanding Thinking/Inquiry Communication Application	- career opportunities in health care
3	SPV.02	Knowledge/Understanding	- course outline
4	SPV.02, SP2.01, SP2.05	Knowledge/Understanding	- course expectations and assessment
5	ICV.03, IC3.01, IC3.02	Knowledge/Understanding Thinking/Inquiry Communication Application	- portfolio development

### Unit 2: Lifestyle and Personal Practices for Healthy Living

**Time:** 20 hours

#### Unit Description

Students make connections between present personal lifestyle choices and future health and longevity. Students identify and address the importance of nutrition, physical fitness, and exercise to their well being, and how it extends to the well being of others. The use of prescription and non-prescription drugs is discussed in the context of lifestyle choices.

### Unit 2 Overview Chart – Lifestyle and Personal Practices for Healthy Living

Cluster	Expectations	Assessment	Focus
1	TFV.02, TF2.05, TF2.09, SPV.02, SP2.03	Knowledge/Understanding	- nutrition for health
2	TFV.02, TF2.06, TF2.07, TF2.09, IC2.04	Knowledge/Understanding Thinking/Inquiry	- exercise and physical fitness
3	TFV.02, TF2.01, TF2.02, TF2.03, TF2.04, TF2.09	Knowledge/Understanding Thinking/Inquiry Communication Application	- impact on longevity
4	TFV.02, TF2.08	Knowledge/Understanding	- sexual practices
5	TFV.02, TF2.02, TF2.04, TF2.09	Knowledge/Understanding Thinking/Inquiry Communication Application	- use of prescription and non- prescription drugs,- effects of alcohol and tobacco use

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### Unit 3: Health Promotion Utilizing Conventional and Alternative Therapies

Time: 25 hours

#### Unit Description

Through discussion and classroom activities students learn the difference between conventional medicine and societal/cultural alternative medicine, and develop an understanding of the role played by each of these in the health care industry. Building on knowledge acquired in Unit 2 students learn about health promotion and treatment of disease through homeopathic remedies such as therapeutic touch, massage therapy, acupuncture, reflexology, stress management, etc. Students are made aware of the home care and community services available for both conventional and alternative therapies.

#### Unit 3 Overview Chart – Health Promotion Utilizing Conventional and Alternative Therapies

Cluster	Expectations	Assessment	Focus
1	TFV.03	Knowledge/Understanding Communication	- definitions of conventional and alternative therapies
2	TFV.03, TF3.01,	Knowledge/Understanding	- types of alternative therapies
3	TFV.03, TFV.05, TF2.10, TF3.01, SPV.02, SP1.13, SP1.14, SP2.04	Knowledge/Understanding Thinking/Inquiry Communication Application	- treatment and prevention of disease
4	TFV.04, TF3.02	Knowledge/Understanding Thinking/Inquiry Communication	- home care and community health care services

### Unit 4: Anatomy and Physiology

Time: 30 hours

#### Unit Description

Students learn about the structure and function of body systems (e.g., digestive, cardio-respiratory, skin, nervous, endocrine, musculo-skeletal, and cardiovascular). The activities from this unit may be integrated with other subjects, including science, biology, health, and physical education.

#### Unit 4 Overview Chart – Anatomy and Physiology

Cluster	Expectations	Assessment	Focus
1	TFV.01, TF1.01, TF1.02	Knowledge/Understanding Thinking/Inquiry Application	- structure and function of all body systems

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## Unit 5: Health and Safety and Environmental and Social Impact

Time: 30 hours

### Description

In this unit students learn to function safely in a health services work environment. They study and apply Workplace Hazardous Materials Information System (WHMIS) standards, safe body mechanics, infection control, general safety awareness, and bio-hazardous waste management. Emphasis is placed on the fact that the use of safe practices in the workplace benefit the individual, others, the environment, and society in general.

### Unit 5 Overview Chart – Health & Safety and Environmental & Social Impact

Cluster	Expectations	Assessment	Focus
1	TFV.02, TF1.02	Knowledge/Understanding Thinking/Inquiry	Bacteria
2	ICV.02, IC1.02	Knowledge/Understanding Application	Personal hygiene
3	SPV.01, SP1.01	Knowledge Application	How to properly wash hands
4	TFV.05, ICV.02, TF4.02, IC2.04	Thinking/Inquiry	Safety and Sanitation
5	ICV.02, IC2.02	Application Communication	Disposal of Medical Waste
6	TFV.01, TFV.05, SPV.01, ICV.02, TF1.02, IC2.01, IC2.02, IC2.04	Knowledge/Understanding Thinking/Inquiry Application Communication	Safe Lifting Techniques

### Teaching/Learning Strategies

A variety of teaching and learning strategies are used throughout the course, including:

- classroom lessons
- brainstorming
- collaborative and cooperative learning
- student-teacher conferencing
- design processing
- independent study
- demonstrations
- practical applications
- portfolio development
- research
- computer skills

The following chart describes additional teaching/learning and assessment strategies.

<p><b>Teaching/Learning Strategies</b></p> <p><i>Brainstorming</i> – group generation of initial ideas expressed without criticism or analysis;</p> <p><i>Buddy System</i> – linking of students for peer/cross-age support;</p> <p><i>Case Study</i> – investigation of real and simulated issues;</p> <p><i>Teacher-directed Class Discussion</i> – active participation of students by taking turns while discussing current issues;</p> <p><i>Collaborative/Cooperative Learning</i> – small group learning providing high levels of student engagement and interdependence;</p> <p><i>Computer-assisted Learning</i> – learning of new material or review/reinforce material previously learned;</p> <p><i>Conferencing/Discussion</i> – student-to-student discussion and teacher-to-student discussion to encourage confidence and motivation in all learners;</p> <p><i>Problem Solving</i> – model for helping students to identify and work through a problem using a prescribed process involving a number of steps;</p> <p><i>Independent Study</i> – exploration and research of a topic of interest to students;</p> <p><i>Journal Writing</i> – the practice of expressing ideas, experiences, questions, reflections, personal understanding, or new learning in written form on a regular basis;</p> <p><i>Report/Presentation</i> – oral, visual, and written presentation of a researched topic to the class or in the community;</p> <p><i>Research</i> – model of investigation;</p> <p><i>Socratic Lesson</i> – oral presentation of information by the teacher;</p> <p><i>Just-on-time Teaching</i> – theoretical material that is presented to the student at the appropriate stage of his/ her project;</p> <p><i>Exemplar</i> - model or a sample of student work to provide the standard toward which students are aiming.</p>	<p><b>Assessment Strategies</b></p> <p><i>Paper-and-Pencil Tests</i></p> <ul style="list-style-type: none"> <li>• Ongoing quiz, self/peer rubric</li> <li>• Final evaluation of unit (rubric, tests)</li> </ul> <p><i>Performance Assessment</i></p> <ul style="list-style-type: none"> <li>• Research project</li> <li>• Assigned exercises</li> <li>• Log/journal entries</li> <li>• Presentation</li> <li>• Finished product</li> </ul> <p><i>Personal Communication</i></p> <ul style="list-style-type: none"> <li>• Conferencing             <ul style="list-style-type: none"> <li>- Student-teacher</li> <li>- Teacher-group</li> </ul> </li> </ul> <p><i>Self/peer assessment</i></p> <ul style="list-style-type: none"> <li>• Daily log/journal</li> <li>• Ongoing verbal feedback</li> <li>• Critique self/peer</li> </ul> <p><i>Teacher Observation</i></p> <ul style="list-style-type: none"> <li>• Formal/informal</li> </ul> <p><i>Reflection</i></p> <ul style="list-style-type: none"> <li>• Self/peer assessment</li> <li>• Log/journal/portfolio</li> </ul> <p><b>Assessment Tools</b></p> <ul style="list-style-type: none"> <li>• Checklists</li> <li>• Marking schemes</li> <li>• Project specification sheets</li> <li>• Rubrics</li> <li>• Anecdotal comments with suggestions for improvement</li> </ul>
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## Assessment & Evaluation of Student Achievement

Students are assessed using the following strategies:

- 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 student and teacher about the quality of learning and the effectiveness of instruction;
- Summative - usually carried out at the end of a learning process.

Specifically, assessment techniques may include the following:

- communication through journals and classroom presentations;
- self-assessment rubrics;
- student-teacher conferencing;
- written tests;
- formal and informal observation;
- performance assessment rubrics;
- reflective learning including self-assessment;
- learning logs;
- peer assessment rubrics;
- check lists for practical work;
- peer assessment.

## Accommodations

Various accommodations may be made throughout the program to assist students. Possible program adaptation may include:

- adaptation of activities and teaching strategies to meet the students' needs, as identified in their IEPs;
- one-on-one teaching/conferencing;
- adaptation of handouts;
- small group learning;
- peer tutoring;
- the use of alternative activities, Assessment/Evaluation techniques, and instructional strategies;
- adaptation of physical structures;
- making enriched materials and resources available.

## Resources

Various resources used throughout the course include textbooks, trade journals and magazines, software, websites, fashion, fitness, and lifestyle magazines, guest speakers, and videos.

### Print

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

ISBN 0-8151-1732-9

Bird, Doni and Debbie Robinson. *Torres and Ehrlich Modern Dental Assisting*. Toronto: W.B. Saunders, 1976. ISBN 0-7216-7627-8

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.

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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

Sorrentino, Sheila and Bernice Gorek. *Long Term Care Assistance*. Toronto: Mosby Inc., 1999. ISBN 0-323-007-09-0

St. John Ambulance. *First on the Scene Manual*. Ottawa: Priority 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.

Torres, Hazel O., Ann Ehrlich, Doni Bird, and Ellen Dietz. *Modern Dental Assisting*. Toronto: W.B. Saunders, 1995. ISBN 0-7216-5053-8

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).

Wernig, Julie and Sheila A. Sorrentino. *The Homemaker/Home Health Aide*. Toronto: Harcourt Canada, 1989. ISBN 0-8016-5390-8

Zucker, Elana. *Being A Homemaker/Home Health Aide*. New Jersey: Brady Prentice Hall, 1996. ISBN 0-9303-018-X

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## Computer Software

OESS: *The Ultimate Human Body 2.0*

## Journals and Magazines

Boyce, J.M., S. Keliher and N. Vallende. "Skin Irritation and Dryness Associated With Two Hand-Hygiene Regimens: Soap-and-Water Hand Washing Versus Hand Antisepsis With An Alcoholic Hand Gel." *Infection Control in Hospital Epidemiology*, Vol 21 (2000): 442-8.

John, M., "Hand Hygiene: Washing and Disinfection." *Journal of the Canadian Dental Association*, Vol 66 (2000): 546-7.

Larsen E., P. Eke, M.P. Wilder, and B.F. Laughton. "Quantity Of Soap as a Variable in Hand Washing." *Infection Control*, Vol 8 (1987): 371-2.

Rotter, M.L. "Semmelweiss' Sesquicentennial: A Little Noted Anniversary of Hand Washing." *Current Opinions on Infectious Disease*, (1998): 11:457-60.

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.

*Guidelines: Royal College of Dental Surgeons of Ontario*

*Journal of the Canadian Dental Association*

*The Journal: Ontario Dental Nurses and Assistants Association*

## 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

Delmar's Home Care Aide Video Series Tape 5. *Standard Precautions and Infection Control in the Home*, 2nd ed. Delmar Publishers, 1998. ISBN/ISSN 0-8273-8580-3

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.

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## Websites

Contact Canada – <http://ccinfo@ContactCanada.com>

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

Toronto Biotechnology Initiatives - <http://www.torontobiotech.org>

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

Professionals in Infection Control and Epidemiology - [www.apic.org](http://www.apic.org)

U.S. Department of Health - [www.healthfinder.gov](http://www.healthfinder.gov) (This website answers many commonly asked questions.)

Obtain posters and brochures encouraging proper hand washing techniques for use in the classroom - [www.washup.org](http://www.washup.org)

## 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 the ministry document, *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*.

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## Coded Expectations, Health Care, Grade 11, College Preparation, TPA3C

### Theory and Foundation

#### Overall Expectations

- TFV.01 · demonstrate an understanding of human anatomy, physiology, and medical terminology;
- TFV.02 · explain the relationship between lifestyle choices and personal health;
- TFV.03 · compare conventional and alternative methods of disease prevention and treatment;
- TFV.04 · identify patterns and trends in the health care industry;
- TFV.05 · describe types and functions of instruments, equipment, and materials used in the health care industry.

#### Specific Expectations

##### Human Anatomy, Physiology, and Medical Terminology

- TF1.01 – demonstrate an understanding of human anatomy and physiology, including the functioning of body systems;
- TF1.02 – correctly use basic terminology related to health care.

##### Lifestyle and Personal Health

- TF2.01 – explain the relationship among body systems and how they affect personal health (e.g., not taking in sufficient fluids may lead to digestive or urinary problems);
- TF2.02 – identify relationships between lifestyle and the health of individuals of various ages;
- TF2.03 – describe significant changes in the body during the life cycle;
- TF2.04 – explain how lifestyle choices can have great impact on an individual’s health and well-being (e.g., sleep, dietary and exercise habits, the use of tobacco, alcohol, and other drugs);
- TF2.05 – assess a client’s dietary strengths and weaknesses and make appropriate suggestions regarding client needs in terms of Canada’s Food Guide and the nutritional value of foods;
- TF2.06 – describe the benefits of different types of exercise and how physical fitness programs and equipment can promote health;
- TF2.07 – demonstrate an understanding of factors relating to physical fitness by suggesting ways an exercise regimen could be improved;
- TF2.08 – describe how sexual practices (e.g., unprotected sex) can have an impact on health;
- TF2.09 – identify healthier personal lifestyles for themselves by evaluating their own lifestyle choices and habits;
- TF2.10 – describe the organ donation program and its benefits.

##### Disease Prevention and Treatment

- TF3.01 – describe conventional and alternative (e.g., homeopathic remedies, acupuncture, therapeutic touch) methods of preventing and treating disease;
- TF3.02 – analyse various types of home care available in the community in relation to specific patients’ needs.

##### The Health Care Industry

- TF4.01 – identify and describe patterns and trends in the health care industry based on demographic information and changes in lifestyle;
- TF4.02 – identify and determine the purpose of common instruments, equipment, and materials used for client care in the health care industry.

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## Skills and Processes

### Overall Expectations

- SPV.01** · use correct techniques and skills that meet industry standards in the health care field and explain the rationale for each technique;
- SPV.02** · demonstrate effective communication, interpersonal, and teamwork skills.

### Specific Expectations

#### Professional Techniques and Skills

- SP1.01** – perform proper hand-washing techniques at appropriate times;
- SP1.02** – make beds (unoccupied and occupied) and give bed baths, completing each operation in the correct sequence;
- SP1.03** – demonstrate safe feeding, toileting, turning, lifting, or transferring techniques;
- SP1.04** – weigh a client correctly;
- SP1.05** – describe appropriate techniques for dental and denture care;
- SP1.06** – identify conditions requiring sterile procedures;
- SP1.07** – explain what a decubitus ulcer and a contracture are and describe methods to prevent their occurrence;
- SP1.08** – explain the difference between medical and surgical aseptic procedures;
- SP1.09** – describe body substance precautions and other methods to decrease the spread of infection;
- SP1.10** – explain the four types of vital signs and normal values for each;
- SP1.11** – assess vital signs, such as temperature (e.g., by oral, axillary, and tympanic routes); pulse rate, rhythm, and strength (e.g., by apical and radial routes); respiration rate, rhythm, and depth; and blood pressure;
- SP1.12** – explain how vital signs can be an overall reflection of an individual’s health status;
- SP1.13** – document case studies to produce client profiles;
- SP1.14** – research and report on various health care procedures in nursing, medicine, and dentistry.

#### Communication, Interpersonal, and Teamwork Skills

- SP2.01** – demonstrate effective communication, organization, teamwork, and personal management skills;
- SP2.02** – use appropriate techniques of therapeutic communication;
- SP2.03** – demonstrate effective interviewing skills and an ability to communicate client progress;
- SP2.04** – describe professional decorum that is appropriate to specific health care situations (e.g., discrete handling of situations that might be embarrassing to the patient, treating information provided by patients confidentially);
- SP2.05** – explain how to gather health data and the rules of confidentiality.

## Impact and Consequences

### Overall Expectations

- ICV.01** · describe the role and impact of biotechnology on Canadian society, the environment, and the global economy;
- ICV.02** · describe health and safety procedures and their application to health care;
- ICV.03** · identify educational requirements for careers in health care.

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## **Specific Expectations**

### **Effects of Biotechnology**

**IC1.01** – describe the impact of biotechnology, pharmaceuticals, and health care on the economy, the role of government, and public opinion;

**IC1.02** – explain how the health care industry is changing as a result of recent developments in technology;

**IC1.03** – identify products designed to compensate for changes in the environment (e.g., sunscreen, air filtering systems, water purifiers).

### **Health and Safety Procedures**

**IC2.01** – describe health and safety procedures, such as the use of proper body mechanics (e.g., being careful to bend with the knees instead of the back, having a wide base of support when lifting, or turning the full body instead of twisting the upper half of the body), and their application to health care;

**IC2.02** – identify problems in health care caused by potentially unhealthy or unsafe conditions related to equipment, instruments, or materials;

**IC2.03** – describe safe methods for the handling, storage, and disposal of waste, biohazardous materials and equipment, and outdated medication;

**IC2.04** – operate health care and fitness equipment, tools, and materials safely.

### **Education, Training, and Career Opportunities**

**IC3.01** – identify present health care career opportunities and those anticipated in the near future;

**IC3.02** – identify education or training requirements for careers in health care.

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## Unit 5: Health and Safety and Environmental and Social Impact

**Time:** 30 hours

### Unit Description

Students learn to function safely in a health services work environment. They study and apply WHMIS standards, safe body mechanics, infection control, general safety awareness, and bio-hazardous waste management. Emphasis is placed on the fact that the use of safe practices in the workplace benefit the individual, others, the environment, and society in general.

### Unit Synopsis Chart

Activity	Time	Expectations	Assessment	Tasks
5.1. What Bugs You?	180 min	TFV.02 TF1.02	Knowledge Thinking/Inquiry	Learning about bacteria
5.2. Keeping it to Yourself	300 min	ICV.02 IC1.02	Knowledge Application	Observation
5.3. Time to Wash	300 min	SPV.01 SP1.01	Knowledge Application	Learning about good hand washing
5.4. Sterilization and Sanitation	240 min	TFV.05, ICV.02 TF4.02, IC2.04	Thinking/Inquiry Communication	Demonstrating proper techniques
5.5. Disposal of Sharps and Medical Waste	240 min	ICV.02 IC2.02	Application Communication	Presentation on Disposal of Medical Waste
5.6. Protection of Health Service Employees	540 min	TFV.01, TFV.05, SPV.01, ICV.02 TF1.02, IC2.01, IC2.02, IC2.04	Knowledge Thinking/Inquiry Application Communication	Demonstrating proper techniques in the Health Care industry

### Activity 5.1: What Bugs You?

**Time:** 180 minutes

#### Description

Students learn about microbes (e.g., viruses, bacteria, etc.) and pathogen transmission. Students engage in exercises designed to help them to become familiar with terms and definitions pertaining to micro-organisms and disease transmission. Through role play, demonstrations, and hands-on experiences, they learn about effective hand washing and its role in the prevention of the passage of pathogens.

#### Strand(s) & Learning Expectations

##### Overall Expectations

TFV.02 - explain the relationship between lifestyle choices and personal health.

##### Specific Expectations

TF1.02 - correctly use basic terminology related to health care.

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## Prior Knowledge & Skills

- Knowledge of bacteria and viruses as taught in Grade 10 Science.
- Knowledge of personal hygiene as taught in Grade 9 Health and Physical Education.

## Planning Notes

- Prepare a list of vocabulary and terms relating to micro-organisms and pathogen transmission to be distributed to the class (see Appendix 5.1.1 – List of Definitions for a sample vocabulary list).
- Create an overhead of the new vocabulary.
- Create flash cards by copying vocabulary words on one side of index cards or regular sized paper, and definitions on the other.
- Invite a guest speaker (e.g., science teacher, health professional) to discuss bacteria with the class.
- Prepare a quiz for evaluating students (see Appendix 5.1.2 – Infection Control Quiz).
- Prepare for the pathogen transmission role-playing exercise by enlisting the help of three or four students. Ask the students to come to the next class wearing old shirts and bringing several props (e.g., pen or pencil, notebook, pack of gum, toy cell phone). Instruct them on the actions to engage in (e.g., patting each other on the back in greeting, borrowing a pen then putting it in their mouth, shaking hands then putting the hand up to the face to scratch or cough, etc.)
- Prepare for the “blind hand-washing” exercise by collecting the necessary materials (old shirts, water soluble paint, old newspapers, soap, paper towels, scarf for blindfolds). **Note:** this exercise requires the use of a sink with running water.
- Provide ongoing appropriate cautions and ensure clean up with antibacterial soap.

## Teaching/Learning Strategies

1. The teacher instructs the students on microbiology and disease transmission. A guest speaker may be invited to help with this Socratic lesson.
2. Each student is given a copy of the vocabulary list.
3. Students form small groups (i.e., three to five students per group) to learn the vocabulary using the flash cards. To do this exercise, one student takes the top card from the pile of flash cards and holds it up for the others to read, keeping the back definition hidden. The other students take turns to attempt to define the word within 15 seconds. If a student fails to define the word within the time frame, the next person in the group tries. The student who answers correctly receives the card as a token of the win. If no one in the group answers correctly, the card-holder reads the definition from the back of the card, shows it to everyone to read, then places it at the bottom of the pile to be pulled again. The next card is taken from the top of the pile by the next person, and the game continues. (**Note:** the whole class can play the above game by having the teacher hold the cards for all to see. Students take turns answering individually or in small teams.) Students are encouraged to create their own flashcards for study purposes.
4. The passage of pathogens is demonstrated through a role-playing exercise involving the three or four students whose help has been enlisted at an earlier time. Using a different colour for each student, the teacher generously smears the inside of the hands of two of the students with the water-soluble paint (portraying pathogens) just prior to beginning the class. These students go to the front of the class and engage in typical conversation and actions (e.g., greet each other with handshakes and pats on the back, share gum and pens, pass notebooks, toy cell phones. The paint is quickly passed to many surfaces, demonstrating direct and indirect contact, cross-contamination, and cross-infection.

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5. In preparation for the “blind hand-washing” exercise, students form groups of three and choose a hand washer (to be blindfolded), a timekeeper, and a scorekeeper. The scorekeepers are asked to create a scorecard by tracing their hands four times on paper. The four drawn hands are labelled “Very Dirty,” “Dirty”, “Slightly Dirty”, and “Clean.” The hand washers spread generous amounts of paint on their hands and allow it to dry. At the sink the hand-washer is blindfolded and told to follow instructions carefully. The scorekeeper turns on the warm water tap, and the timekeeper tells the hand washer to place the painted hands under water for one second. The timekeeper then gently blots dry the hands, taking care not to rub off any paint. The scorekeeper chooses the appropriately labelled hand on the scorecard and colours it with a marker to match the pattern of paint that is left on the hand washer’s hand. The hand washer washes for five more seconds. Again, the timekeeper gently blots the hands dry while the scorekeeper records on the scorecard the amount of paint remaining on the hands. This sequence is repeated again, two times, with the hand washer washing for 15 seconds each time.
  6. The scorekeeper creates a second score sheet and labels it “With Soap.” The entire exercise is repeated a second time, but this time the hand washer uses soap while washing. The teacher and students compare and discuss the results of washing without soap and with soap.  
(Adapted from [www.washup.org](http://www.washup.org).)

### **Assessment & Evaluation of Student Achievement**

- Infection Control Test (Appendix 5.1.2)
- Learning Skills Checklists for group work (Please see Appendices Grade 10 Personal Services Profile)

### **Accommodations**

- The teacher reviews students’ IEPs and adapts the activity and teaching strategies to meet the students’ needs.
- The phonetic spelling of new words can be made available.
- Difficult words or passages from texts may be recorded on audio tape so that students can listen to the recording as they read the word or passage.

### **Resources**

Larsen E., P. Eke, M.P. Wilder, and B.F. Laughton. “Quantity Of Soap as a Variable in Hand Washing.” *Infection Control*, Vol 8 (1987): 371-2.

A website that promotes proper hand washing techniques - [www.washup.org](http://www.washup.org)

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## Appendix 5.1.1 – List of Definitions

*Microbe* - a living creature that is too small to be seen with the naked eye.

*Bacteria* - a one-celled microbe. Beneficial bacteria help to sustain life and harmful bacterial can cause illness or death. Most bacteria are beneficial and help by fighting pathogenic microbes. There are about 300 different types of bacteria in our mouth alone.

*Aerobes* - a type of bacteria that require oxygen to grow.

*Anaerobes* - a type of bacteria that grow in the absence of oxygen and are destroyed by oxygen.

*Facultative anaerobes* - organisms that can grow in either the presence or the absence of oxygen.

*Virus* - a type of infectious agent that is not bacterial. Viruses are very tiny and must get inside a cell in order to grow and multiply. They are very resistant to death and are capable of mutation.

*Protozoa* - single-celled, microscopic animals without a rigid cell wall. They cannot live on their own in nature as they require a vector to be spread from one place to the next.

*Vector* - something that carries pathogens from the blood of one host to another (e.g., mosquito).

*Fungi* - plants that lack chlorophyll, such as mushrooms, yeasts, and moulds.

*Pathogen* - disease-causing micro-organisms. A small number of microbes are pathogenic.

*Sterilization* - the destruction or removal of all forms of life.

*Disinfecting* - the destruction of most micro-organisms.

*Disinfectant* - a chemical agent applied onto inanimate surfaces in order to destroy micro-organisms.

*Antiseptic* - an agent that is applied to living tissue in order to prevent the growth or action of micro-organisms.

*Cross-infection* - the passage of micro-organisms from one person to another.

*Cross-contamination* - passage of micro-organisms from one person or inanimate object to another.

*Direct disease transmission* - pathogens transferred through direct contact with infectious lesions or infected blood/saliva.

*Indirect disease transmission* - pathogens transferred through contact with contaminated objects such as doorknobs, pens, etc.

*Host* - a living organism in which a foreign organism obtains nourishment and protection.

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## Appendix 5.1.2 – Infection Control Test

Match the term in Column 1 with the definition in Column 2

Column 1	Column 2
1. Antiseptic	A A living creature that is too small to be seen with the naked eye.
2. Cross-contamination	B Passage of micro-organisms from one person to another.
3. Disinfection	C Something that carries pathogens from the blood of one host to another.
4. Cross-infection	D An agent that is applied on living tissue to prevent the growth or action of micro-organisms.
5. Pathogen	E Passage of micro-organisms from one person or inanimate object to another.
6. Fungi	F Destruction of most micro-organisms.
7. Vector	G Disease-causing micro-organisms.
8. Facultative anaerobes	H Plants that lack chlorophyll such as mushrooms, yeasts and moulds.
9. Microbe	I A type of infectious agent that is not bacterial.
10. Virus	J Organisms that can grow in either the presence or the absence of oxygen.

### Answer Key

1. d, 2. e, 3. f, 4. b, 5. g, 6. h, 7. c, 8. j, 9. a, 10. i

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## **Activity 5.2: Keeping It to Yourself**

**Time:** 300 minutes

### **Description**

Students investigate how often and in what situations people usually wash their hands and discover when hands should be washed. Students survey their classmates and a sample of the general school population to determine hand washing habits and record the timing of their own hand washing activities. Through discussion, students learn about appropriate hand washing regimens and about alternatives to using bar soap.

### **Strand(s) & Learning Expectations**

#### **Overall Expectations**

ICV.02 - describe health and safety procedures and their application to health care.

#### **Specific Expectations**

ICI.02 - explain how the health care industry is changing as a result of recent development in technology.

### **Prior Knowledge & Skills**

- Knowledge of bacteria and viruses from Activity 1: What Bugs You? and from Grade 10 Science courses.

### **Planning Notes**

- Create an overhead of vocabulary for review (see Activity 1, Appendix 5.1.1 – List of Definitions).
- Prepare a list of vocabulary and terms relating to micro-organisms and pathogen transmission to be distributed to the class (see Appendix 5.1.2 for a sample vocabulary list).
- Gather items for use during the discussion of the timing of hand washing (i.e., before or after) such as the classroom garbage pail, toy pet or reptile (or live pet or reptile, if available), facial tissue that is made to look used, diaper, full lunch-bag, first-aid kit, money, roll of toilet paper, etc.
- Inform the administration that students will be conducting a survey in the halls or the cafeteria.
- Prepare a survey (see Appendix 5.2.2 – Survey, Student Worksheet) to be distributed to students.
- Obtain samples of alcohol-based hand disinfectant and anti-bacterial hand-soap.

### **Teaching/Learning Strategies**

1. The teacher displays the objects for the discussion of the timing of hand washing, i.e., before or after. Students divide into small groups of two or three and designate one student as the recorder. The group members discuss the activity associated with each object, and decide whether hands should be washed before or after engaging in each, if at all. Discussion results are recorded. Students are also asked to record when they personally wash up (see Appendix 5.2.1 – The Timing of Hand Washing).
2. During the subsequent class discussion, the teacher provides information regarding studies about the frequency of hand washing in the general population.
3. The teacher conducts a Socratic lesson about surveys, including the objective, population, observations, opinion polls, and tabulating results. For demonstration purposes, the teacher conducts several quick polls of the students in the classroom. For example, the teacher asks how many students have part-time jobs that occur only on Saturdays, jobs that include handling money, food, etc.
4. The teacher discusses with students which areas of the school are best for conducting a survey. Students are divided into groups of two or three. Each group is assigned an area in which they will conduct their survey (see Appendix 5.2.2 – Survey: Student Worksheet).

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5. The groups conduct their surveys and return to class after a designated time.
  6. Students tabulate their results.
  7. The students discuss how they can change their personal habits of washing hands.
  8. The teacher demonstrates substitutes for bar soap. New products available include an alcohol-based hand disinfectant that does not require water, and liquid antibacterial soaps.

### **Assessment & Evaluation of Student Achievement**

- Formative assessment using the students' completed work sheets (see Appendix 5.2.1 – The Timing of Hand Washing and Appendix 5.2.2 – Survey: Student Worksheet).
- Learning Skills checklists – see Grade 10 Course Profile.

### **Accommodations**

- The teacher reviews students' IEPs and adapts the activity and teaching strategies to meet the students' needs.
- The phonetic spelling of new words can be made available.
- Difficult words or passages from texts may be recorded on audio tape so that students can listen to the recording as they read the word or passage.
- For enrichment, the results can be shared with the school administration. Students can plan a drive to educate the school population about appropriate hand washing and track the absenteeism in the school before and after the education program.

### **Resources**

Boyce, J.M., S. Keliher, and N. Vallende. "Skin Irritation and Dryness Associated With Two Hand-Hygiene 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.

Grade 10 Personal Services Profile.

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

A website with posters and brochures on proper hand washing techniques that may be obtained for classroom use - [www.washup.org](http://www.washup.org)

## Appendix 5.2.1 – The Timing of Hand Washing

List of activities	Should wash hands before	Should wash hands after	Do you wash before?	Do you wash after?
Woof! Petting a dog or cat				
Time to eat lunch				
Go to the toilet				
Achoo! I think I have a cold				
Thanks for the money. I owe you				
Ouch! That hurt!				
Don't litter				
Phew! Dirty diapers				
Putting in contact lenses				

## Appendix 5.2.2 – Survey: Student Worksheet

Survey to be conducted:

- in the cafeteria;
- near the main office;
- in the hall near the English Department;
- in the hall near the Science Department.

Methodology:

- State your first name and explain that you are doing a random survey of students for your class. Request permission to ask several questions that will take only a minute.
- As they answer, complete the chart with a checkmark in the appropriate spot on chart. Thank them for their help.

### DO YOU WASH YOUR HANDS BEFORE OR AFTER THESE SITUATIONS:

SITUATION	WASH BEFORE	WASH AFTER
Petting a dog or cat		
Eating food		
Coughing or sneezing		
Using a public washroom		
Handling money		
Using the bathroom at home		

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## Activity 5.3: Time to Wash

**Time:** 300 minutes

### Description

Proper hand washing technique is explained, demonstrated, practised, and evaluated. Emphasis is placed on using proper hand washing techniques in the health care profession and in daily life as well.

### Strand(s) & Learning Expectations

#### Overall Expectations

SPV.01 - use correct techniques and skills that meet industry standards in the health care field and explain the rationale for each technique.

#### Specific Expectations

SP1.01 - perform proper hand washing techniques at appropriate times.

### Prior Knowledge & Skills

- Knowledge of bacteria and viruses from Activity 1: What Bugs You? and from Grade 10 Science courses.

### Planning Notes

- **Note:** this activity requires the use of sink space for a number of students at one time. The teacher may need to arrange for students to use sinks in change rooms, washrooms, custodial work rooms, etc.
- Organize supplies for hand washing: paper towels, soap.
- Prepare a copy of Appendix 5.3.1 – Hand Washing Quiz, Appendix 5.3.2 – Hand Washing: Student Information Worksheet, and Appendix 5.3.3 – Hand Washing: Student Competency Checklist, for each student.
- Ensure that no allergies to soap are present among students.

### Teaching/Learning Strategies

1. Students complete the quiz on hand washing (Appendix 5.3.1 – Hand Washing Quiz).
2. The teacher leads a discussion on hand washing techniques and distributes Appendix 5.3.2 – Hand Washing: Student Information Worksheet.
3. A student is selected to read out loud from the worksheet the steps of proper hand washing. The teacher demonstrates each step as it is read by the student.
4. The teacher selects a student to volunteer to demonstrate the proper hand washing technique at the sink, guiding the student with verbal instructions from the worksheet as required. As the student performs each step, the teacher asks for input, assessment, suggestions, and questions from the class.
5. The teacher leads the class in singing the “alphabet song”, timing it so that it takes approximately 30 seconds to complete, i.e. approximately one second per letter. The teacher explains that reciting this song during hand washing ensures that hands will be washed for the minimum of 30 seconds. The class practises singing again, with everyone timing it together to correct the pacing.
6. The teacher distributes Appendix 5.3.3 – Hand Washing: Student Competency Checklist to the class.
7. Students practise hand washing at the sinks in groups of three. One student washes, one student reads the steps, and another student times the wash. Each member of the group ensures the steps are performed correctly by calling out suggestions or giving tips. Each member takes a turn.

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8. The teacher instructs students to evaluate themselves when they feel they have washed correctly, using the self-evaluation column on the checklist.
  9. The students' hand washing technique is evaluated by a peer using the peer-evaluation column on the checklist. The peers are instructed to enter their names in the boxes as each step is correctly performed by their classmate.
  10. Once the first two assessment columns are complete, the teacher evaluates the students' hand washing technique.

### **Assessment & Evaluation of Student Achievement**

- Diagnostic assessment using Appendix 5.3.1 – Hand Washing Quiz.
- Assessment using Appendix 5.3.3 – Hand Washing: Student Competency Checklist.

### **Accommodations**

- The teacher may adapt the exercise as required for students with skin conditions or allergies to soap.
- The teacher reviews students' IEPs and adapts the activity and teaching strategies to meet the students' needs.
- For enrichment, instructional videos may be made by groups of students on proper hand washing technique that can be shown to health classes or at an assembly.

### **Resources**

[www.asmtusa.org](http://www.asmtusa.org) – (this is the website for the American Society for Microbiology.)

U.S. Department of Health – (this website answers many commonly asked questions.)

[www.healthfinder.gov](http://www.healthfinder.gov)

A website with many posters and brochures that may be used for the classroom - [www.washup.org](http://www.washup.org)

Association for Professionals in Infection Control and Epidemiology - [www.apic.org](http://www.apic.org)

Rotter, M.L. "Semmelweis' Sesquicentennial: A Little Noted Anniversary of Hand Washing." *Current Opinions on Infectious Disease*, Vol 11 (1998): 457-60.

John, M. "Hand Hygiene: Washing and Disinfection." *Journal of the Canadian Dental Association*, Vol 66 (2000): 546-7.

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### Appendix 5.3.1 – Hand Washing Quiz

So you think you know how to wash your hands....

Take this quiz and find out if you are missing any information.

Hand Washing Facts	True	False
The water has to be as hot as you can stand it to really clean.		
Bar soap works better than liquid soap.		
Wash for at least 10 seconds.		
No soap is necessary.		
Dry your hands on anything, even your jeans will do.		
You should always use a nail brush.		
It doesn't matter where you wash up, kitchen or bathroom, just do it.		
Three seconds is enough time to wash.		
Don't rub your hands together, just let the water flow over them.		

**Answer Key:** All of the answers are False.

### Appendix 5.3.2 – Hand Washing: Student Information Worksheet

#### Preparing to wash

1. Roll up your sleeves.
2. Check to ensure that paper towels, soap, and a garbage pail are accessible, or that an air dryer is available.
3. Remove any bandages.
4. Remove your watch and ring and place them on a piece of paper towel along with a new bandage.
5. Adjust the water temperature to ensure that it is lukewarm.

#### The Wash

6. Rinse your hands under the running water.
7. Dispense an application of soap into the palm.
8. Roll hands to create lather.
9. Wash the back of the hand, palm, nail area and finger webs with the soap for 30-60 seconds.
10. Repeat this sequence for the other hand.
11. Rinse starting with the hands, with warm, running water.
12. Rinse the hands thoroughly from the wrists to the finger tips, with the water running down, off your fingertips.

#### The Dry

13. Turn off the water. Use a paper towel (if available) to turn off the water in case the handles are dirty.
14. Pat the hands thoroughly using a different paper towel for each hand, or use the air dryer supplied.
15. Use the paper towel to wipe the counter area before throwing the towel away.
16. Cover all cuts with bandages. Replace your ring and watch.

**REMEMBER TO TIME YOURSELF SO THE HAND WASHING TIME WILL NOT BE LESS THAN 30 - 60 SECONDS.**

### Appendix 5.3.3 – Hand Washing: Student Competency Worksheet

Student \_\_\_\_\_

HAND WASHING COMPETENCY

Date \_\_\_\_\_

Performance objective: Students demonstrate the proper hand washing technique in 30 seconds.

Step	Follow each step correctly. Sign the box when you have performed that step correctly. Have your peer sign the boxes as you correctly perform each step. Bring this sheet to the teacher when the first two evaluations are complete and you are ready for testing!	Assessments		
		<i>Self</i>	<i>Peer</i>	<i>Teacher</i>
1.	Roll up sleeves.			
2.	Prepare garbage pail, towels, and soap			
3.	Remove watch, ring(s) and place on paper towel. Get new bandage if needed and place on towel			
4.	Adjust the water temperature to ensure that it is lukewarm.			
5.	Rinse hands under the running water.			
6.	Dispense an application of soap into the palm.			
7.	Roll hands to create a lather.			
8.	Wash the back of hand, palm, nail area and finger webs with the soap for 15 seconds.			
9.	Repeat this sequence for the other hand.			
10.	Rinse starting with the hands, with warm, running water.			
11.	Rinse the hands thoroughly, from the wrists to the finger tips, with the water running down, off your fingertips.			
12.	Turn off the water. Use a paper towel to turn off the water in case the handles are dirty.			
13.	Pat the hands thoroughly, using a different paper towel for each hand.			
14.	Use the paper towel to wipe the counter area before throwing the towel away.			
15.	Cover all cuts with a bandage. Replace ring and watch.			

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## Activity 5.4: Sterilization and Sanitation

**Time:** 240 minutes

### Description

Students learn about the importance of practising proper techniques of sanitation, sterilization, and storage, in order to maintain good health and prevent the spread of disease in a health care setting. Students create posters depicting sterilization equipment, materials, and instruments. Through the use of guest speakers and field trips the students are able to witness this equipment being sterilized and maintained by health care professionals.

### Strand(s) & Learning Expectations

#### Overall Expectations

TFV.05 - describe types and functions of instruments, equipment, and materials used in the health care industry.

ICV.02 - describe health and safety procedures and their application to health care.

#### Specific Expectations

TF4.02 - identify and determine the purpose of common instruments, equipment, and materials used for client care in the health care industry.

IC2.04 - operate health care equipment, tools, and materials, safely.

### Prior Knowledge & Skills

- Knowledge of bacteria and viruses as taught in Unit 5, Activity 1: What Bugs You?

### Planning Notes

- Obtain copies of various professional journals (e.g., Journal of the Canadian Dental Association) from local doctor and dental offices. (**Note:** there are both provincial and federal journals published in all health care fields.) Ensure the health care provider understands that these journals will not be returned but will be used for educational purposes.
- Obtain materials required for making posters (e.g., scissors, glue, markers, poster board, etc).
- Arrange for a guest speaker from a local dental office to discuss and demonstrate issues in sterilization and sanitation. (**Note:** ideally the speaker should be the professional who is responsible for the infection control procedure in the office. This is usually the dental assistant.) Request that the guest speaker bring instruments and smaller pieces of sterilization equipment for discussion and demonstration, if possible, as well as the office policy and procedures manual regarding infection control.
- Obtain copies of the by-laws pertaining to commercial and personal service sanitation and sterilization laws in Ontario, available through the local health unit.
- Arrange for a field trip to a local dental office to observe the various equipment and materials used in sterilization. (**Note:** as most dental offices have some time each week where they are closed, try to arrange the field trip during this time so that the assistant can give undivided attention to students during demonstrations and practice. Failing that, arrange a time when the office is quiet, usually mid-morning, early in the week, during the winter months.)

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## Teaching/Learning Strategies

1. The teacher leads a discussion on the importance of maintaining sterile equipment and sanitary conditions in the health care environment, comparing it to the home environment. For example, at home there may be times when cutlery is not properly washed after eating, or glasses are returned unwashed to the cupboard.
2. The discussion is extended to the public arena, and students are asked to consider the possible results if restaurants did the same and allowed customers to eat off dirty plates. The teacher then relates this to the health care profession, in which equipment must be reused and therefore must be properly sanitized or sterilized.
3. The teacher displays on an overhead a list that contains such items as towels (tea towels, paper towels, hand towels, bath towels), soaps, and other cleansers (for laundry, hands, bath, hair, body, dishwasher, car, floor, toilet). The students discuss with a partner where the various household items are stored.
4. The teacher leads a class discussion about where these items are commonly stored at home and the reasons behind the storage sites, i.e. their purpose, availability, specialty, and safety considerations. The teacher then discusses how, where, and why items are stored in the health care setting (e.g., dirty area, sterile instruments, cleaning area).
5. Students are organized into groups of three. Each group is assigned one of the following topics: sterilization equipment, materials, or instruments.
6. Using the professional journals collected from health care offices, students make a visual display from the many and various advertisements relating to their respective topics. Each poster is explained by the group members and placed around the classroom for future reference.
7. A guest speaker discusses and demonstrates various instruments and smaller pieces of sterilization equipment.
8. The students travel to a local dental office to observe sterilization equipment and practices, as well as instrument maintenance and storage, in the workplace.
9. After the field trip students identify on their posters the equipment and materials that the dental office is using, and discuss why those items are used, where they are stored, and how they are maintained.

## Assessment & Evaluation of Student Achievement

- Peer, teacher, and self-assessment of visual display (see Appendix 5.4.1 – Rubric for Assessment of Knowledge of Sterilization and Sanitation Procedures)
- Learning Skills Checklists (see Grade 10 Health and Personal Service Profile, Appendices)

## Accommodations

- The teacher reviews students' IEPs and adapts the activity and teaching strategies to meet the students' needs.
- Students with allergies to latex products may use glove liners or use rubber (instead of latex) gloves.
- Students may create a video or other visual display rather than a poster.

## Resources

Any issues from the last three years of:

*The Journal: Ontario Dental Nurses and Assistants Association*

*Journal of the Canadian Dental Association*

*Guidelines: Royal College of Dental Surgeons of Ontario*

Allergy essentials 1-888-850-6051

Allergy Asthma Information Association (416) 679-9521

### Appendix 5.4.1 – Rubric for Assessment of Knowledge of Sterilization and Sanitation Procedures

Categories	Level 1 (50 - 59%)	Level 2 (60 - 69%)	Level 3 (70 - 79%)	Level 4 (80 - 100%)
<b>Knowledge</b> Types and functions of instruments and equipment TFV.05	- identifies few pieces of equipment or instruments	- identifies some pieces of equipment or instruments	- identifies most pieces of equipment or instruments	- identifies all or almost all pieces of equipment or instruments
<b>Knowledge</b> Purpose of instruments, equipment, and materials TF4.02	- understands the purpose of few pieces of equipment or instruments	- understands the purpose of some pieces of equipment or instruments	- understands the purpose of most pieces of equipment or instruments	- understands the purpose of all or almost all pieces of equipment or instruments
<b>Knowledge Communication</b> Health and safety procedures ICV.02	- describes the safety and health procedures for few pieces of equipment or instruments	- describes the safety and health procedures for some pieces of equipment or instruments	- describes the safety and health procedures for most pieces of equipment or instruments	- describes the safety and health procedures for all or almost all pieces of equipment or instruments
<b>Application Thinking</b> Problems caused by unsafe or unhealthy conditions IC2.02	- identifies problems caused by unsafe or unhealthy conditions related to few pieces of equipment or instruments	- identifies problems caused by unsafe or unhealthy conditions related to some equipment or instruments	- identifies problems caused by unsafe or unhealthy conditions related to most equipment or instruments	- identifies problems caused by unsafe or unhealthy conditions related to all or almost all equipment or instruments

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

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## Activity 5.5: Disposal of Sharps and Medical Waste

**Time:** 240 minutes

### Description

In groups the students interview a variety of people from the medical profession and visit health care facilities in order to gain knowledge of the techniques used to dispose of potentially hazardous items. Using this information, students make a video outlining the techniques that are used and the regulations that must be followed in the disposal of sharps or medical waste (e.g., WHMIS and Occupational Health and Safety laws and regulations pertaining to the health care industry).

### Strand(s) & Learning Expectations

#### Overall Expectations

ICV.02 - describe health and safety procedures and their application to health care.

#### Specific Expectations

IC2.03 - describe safe methods for the handling, storage, and disposal of waste, biohazardous materials and equipment, and outdated medication.

### Prior Knowledge & Skills

- Knowledge of WHMIS and Occupational Health and Safety learned in Grade 10 Personal Services Technology (see Course Profile, Unit 1, p.10)
- Computer and Internet skills

### Planning Notes

- Review material from Course Profile for Grade 10 Health and Personal Services Technology, Unit 1, page 3.
- Organize a field trip to a pharmacy for demonstrations of disposal of outdated medication and sharps.
- Organize a field trip to a dental office to demonstrate and discuss methods of disposal of hazardous waste materials.
- Invite guest speakers from any or all of the following: a waste disposal company, a pharmacy, a dental or medical office, WHMIS or Industrial Accidents.
- Prepare a list of vocabulary and definitions.
- Obtain a sharps container from a pharmacy. (**Note:** if this is not available, collect materials to create a sharps container: a shoe box, construction paper, markers, and various sharp items such as broken light bulbs, needles, plates, drinking glasses, safety pins.)
- Provide WHMIS labels.
- Ensure that MSDS sheets pertaining to products in the class are readily available and up-to-date.
- Arrange for the use of video equipment.

### Teaching/Learning Strategies

1. The teacher asks students to brainstorm about what they would consider to be medical waste and creates a list of medical waste materials.
2. The teacher leads a discussion about why medical waste needs to be disposed of in certain ways, emphasizing the impact on society and the environment, and explains the purpose of the proper disposal of sharps and waste.

- 
3. Students form groups of two or three in order to collect information about the disposal of waste for the purpose of making an instructional video. Students interview professionals at medical offices and pharmacies about their waste disposal methods, and visit medical and dental offices in order to examine their facilities for waste storage.
  4. Students may also interview guest speakers (see above for ideas) who address the issue of medical waste disposal.
  5. The teacher demonstrates the proper use of a sharps container with sharp items.
  6. Working in their groups, students complete an instructional video. The video must include a description of the professionals interviewed, the disposable items discussed, and the method and rationale of disposal. It must also discuss the impact of the waste disposal on society and the environment.

### **Assessment & Evaluation of Student Achievement**

- Teacher and student assessment of videos (see Appendix 5.5.1 – Rubric for Assessment of Medical Waste Disposal Video)
- Learning Skills Checklists – see Grade 10 Course Profile

### **Accommodations**

- The teacher reviews students' IEPs and adapts the activity and teaching strategies to meet the students' needs.
- Students may work in groups to provide peer tutoring/feedback.

### **Resources**

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

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

*Personal Services Setting Protocol Infection Control Program*. Ministry of Health, Public Health branch, January 1998.

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

### Appendix 5.5.1 – Rubric for Assessment of Medical Waste Disposal Video

Categories	Level 1 (50 - 59%)	Level 2 (60 - 69%)	Level 3 (70 - 79%)	Level 4 (80 - 100%)
<b>Knowledge</b> Health and safety procedures ICV.02	- demonstrates limited knowledge of safe-handling procedures for waste	- describes some procedures for handling of waste	- describes several procedures for handling of waste	- describes all or almost all procedures for handling of waste
<b>Knowledge Thinking/Inquiry</b> Environmental and societal issues ICV.02	- demonstrates limited knowledge of materials waste management	- demonstrates some understanding of materials waste management	- demonstrates a broad understanding of materials waste management	- demonstrates thorough understanding of materials waste management
<b>Knowledge Thinking/Inquiry</b> Disposal of sharps and waste IC2.03	- demonstrates limited knowledge of how to dispose of sharps and medical waste	- demonstrates some knowledge of how to dispose of sharps and medical waste	- demonstrates a broad level of understanding of how to dispose of sharps and medical waste	- demonstrates thorough understanding of how to dispose of sharps and medical waste

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

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## **Activity 5.6: Protection of Health Service Employees**

**Time:** 540 minutes

### **Description**

Students learn and apply practical lifting techniques that are used by professionals in the health care industry. Students are instructed about body mechanics and lifting theory and are given opportunity to practice and develop a thorough understanding of proper lifting techniques. Through the use of guest speakers and a field trip, students are able to witness health care professionals using a variety of equipment and safe work practices.

### **Strand(s) & Learning Expectations**

**Strand(s):** Theory and Foundation, Skills and Process, Impact and Consequences

#### **Overall Expectations**

TFV.01 - demonstrate an understanding of human anatomy, physiology, and medical terminology;

TFV.05 - describe types and functions of instruments, equipment, and materials used in the health care industry;

SPV.01 - use correct techniques and skills that meet industry standards in the health care field and explain the rationale for each technique;

ICV.02 - describe health and safety procedures and their application to health care.

#### **Specific Expectations**

TF1.02 - correctly use basic terminology related to health care;

IC2.01 - describe health and safety procedures such as the use of proper body techniques (e.g., being careful to bend with the knees instead of the back, having a wide base of support when lifting, or turning the full body instead of twisting the upper half of the body) and their application to health care;

IC2.02 - identify problems in health care caused by potentially unhealthy or unsafe conditions related to equipment, instruments, or materials;

IC2.04 - operate health care and fitness equipment, tools, and materials safely.

### **Planning Notes**

- Organize a field trip to a local hospital/land ambulance service.
- Contact a local hospital/land ambulance service to request an in-house presentation about various lifting equipment used in the health care industry during the field trip.
- Invite a physical education teacher to discuss body mechanics.
- Prepare copies of Appendix 5.6.1 – Hospital/Land Ambulance Tour Worksheet, Appendix 5.6.2 – Technique Assessment Checklist.

### **Teacher/Learning Strategies**

1. A physical education teacher speaks to the class about body mechanics.
2. The teacher leads a discussion with the class about proper lifting techniques, having volunteers demonstrate each step as it is discussed.
3. Students study and complete the worksheets describing proper lifting techniques (see Resources.)
4. Students practise the steps of proper lifting in groups of three. Within the group one student is assigned the role of the lead lifter, a second student is the helper, and the third student observes and makes suggestions. The exercise is repeated until each student has had the opportunity to be the lead lifter. The teacher provides continual feedback on the students' lifting techniques through comments and suggestions.

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5. In their groups the students complete the Technique Assessment Checklist (see Appendix 5.6.2.).
  6. Students participate actively in the hospital/land ambulance field trip and submit a written summary of notes taken of various equipment and/or objects being lifted (see Appendix 5.6.1 – Hospital/Land Ambulance Tour Worksheet).

### **Assessment & Evaluation of Student Achievement**

- Teacher assessment of field trip handout (Appendix 5.6.1 – Hospital/Land Ambulance Tour Worksheet)

### **Accommodations**

- The teacher reviews students' IEPs and adapts the activity and teaching strategies to meet the students' needs.
- Students may provide oral responses rather than written responses.
- Students may work in groups to provide peer tutoring/feedback.
- For enrichment, students may videotape and assess their lifting techniques.

### **Resources**

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

*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.

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

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

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

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

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

### Appendix 5.6.1 – Hospital/Land Ambulance Tour Worksheet

- 1.) Name and describe three (3) different types of equipment used to move patients.
  1. \_\_\_\_\_ - \_\_\_\_\_
  2. \_\_\_\_\_ - \_\_\_\_\_
  3. \_\_\_\_\_ - \_\_\_\_\_
  
- 2.) List any possible health and safety concerns for the health care worker that could occur during the use of each of the above.
  1. \_\_\_\_\_ - \_\_\_\_\_
  2. \_\_\_\_\_ - \_\_\_\_\_
  3. \_\_\_\_\_ - \_\_\_\_\_
  
- 3.) While you are touring the hospital /land ambulance centre, make observations of any possible worker situations that you think could be either unsafe in nature, or could possibly be done with more concern for the health of the worker.
   
\_\_\_\_\_
   
\_\_\_\_\_
   
\_\_\_\_\_
   
\_\_\_\_\_
   
\_\_\_\_\_

### Appendix 5.6.2 - Technique Assessment Checklist

In groups of three, after you have completed several trial lifts, have one group member assess a lift done by a partner and yourself. Using the table below, rate the use of your lifting principles and that of your two partners. Compare and discuss your findings with those of your partners.

	Not used	Minimal use	Partial use	Frequent use	Full use
1. Spread the load					
2. Break it down					
3. How low should you go					
4. Overhand grip					
5. Line it up					
6. Lift together					
7. Get a grip on it					
8. Tighten up					
9. Keep it close					
10. Press your partner					
11. Bend don't twist					
12. Stagger your stance					
13. Shrug don't curl					