

Instructional Objectives and Guidelines for the Interpretation of Forms C & C1

A total of 488 instructional objectives have been developed which are grouped under sixteen major areas: air quality, waste management, water management, inspection, land management, environmental health assessment, administration, occupational health, communicable disease control, emergency preparedness, pest control, environmental health advocacy, miscellaneous, lifestyle programs, investigation, research and reporting and communications.

Each of the following instructional objectives is targeted to the individual student who will demonstrate proficiency under standard verbal or written testing conditions. Unless specifically stated in the objective, it is assumed that the student will have access to no resource materials when examined. All the objectives are required to be addressed by all programs. Numbering is for referencing purposes only and does not indicate the level of importance or priority.

1.0 Air Quality

1.1 Ambient Air Quality

- 1.1.1 select what information should be accessed to describe hazard analysis determination and assessment related to toxic gases
- 1.1.2 select what information should be accessed to describe risk analysis determination and assessment related to toxic gases
- 1.1.3 categorize public health toxic gas hazards
- 1.1.4 compare and contrast the strengths and weaknesses of the current method of monitoring gas emissions of each of the following gases: sulphur dioxide, hydrogen sulphide, nitrogen dioxide, carbon monoxide, and ozone
- 1.1.5 compare and contrast the strengths and weaknesses of the current method of monitoring particulates
- 1.1.6 evaluate the adequacy of regulations in controlling gaseous emissions of sulphur dioxide, hydrogen sulphide, nitrogen dioxide, carbon monoxide, and ozone
- 1.1.7 evaluate the adequacy of regulations regarding particulate emissions
- 1.1.8 review the information required to describe gas behaviours
- 1.1.9 review the information required to describe gas dispersion modelling
- 1.1.10 describe the data needed for ambient air quality monitoring
- 1.1.11 propose environmental indicators of various toxic gases (e.g. sulphur dioxide, hydrogen sulphide, nitrogen dioxide, carbon monoxide, and ozone)
- 1.1.12 propose human health indicators of exposure to various toxic gases (e.g. sulphur dioxide, hydrogen sulphide, nitrogen dioxide, carbon monoxide, and ozone)

- 1.1.13 describe how to compile ambient air quality standards from literature reviews
- 1.1.14 assess the health risks and make recommendations on control measures at point of source based on field data provided
- 1.1.15 assess the health risks and make recommendations on control measures for local area air sheds and/or larger regional zones based on field data provided
- 1.1.16 design a risk communications plan to inform various publics (e.g. media, general public, politicians) on ambient air quality issues
- 1.1.17 describe the technologies used to reduce toxic gas emissions
- 1.1.18 develop protocols for ambient air quality investigations
- 1.1.19 identify the levels of indicator gases and make recommendations for monitoring levels of emission using actual field data
- 1.1.20 assess and predict the effects of various emission gases based on actual field data
- 1.1.21 describe, in both high and low pressure situations, the dispersion characteristics of various emission types of toxic gases
- 1.1.22 describe, giving both strengths and limitations, the types of air testing equipment currently used in the field
- 1.1.23 describe the oxides of nitrogen and oxides of sulphur atmospheric cycles and their relationship to acid rain
- 1.1.24 explain the carbon dioxide and methane atmospheric cycles and their relationship to the greenhouse effect
- 1.1.25 explain hydrocarbon sources and cycles
- 1.1.26 describe the variables associated with seasons on air quality
- 1.1.27 describe the sources and contributory amounts of atmospheric contaminants from industries, residential communities and transportation systems
- 1.1.28 describe air pollution monitoring stations and related sampling protocol
- 1.1.29 identify the current methods used to reduce or eliminate air pollutants
- 1.1.30 design a sampling program given a site and situation in regards to ambient air quality
- 1.1.31 design a sampling program given a site and situation in regards to indoor air quality

1.2 Indoor Air Quality

- 1.2.1 describe the types and sources of indoor air quality contaminants in private dwellings
- 1.2.2 describe the types and sources of indoor air quality contaminants in public places
- 1.2.3 describe the types and sources of indoor air quality contaminants in workplace settings
- 1.2.4 develop a protocol for indoor air quality investigations
- 1.2.5 design a survey to be used in indoor air quality investigations
- 1.2.6 describe, giving strengths and weaknesses, the various kinds of indoor air testing equipment in use today

- 1.2.7 make recommendations for a core resource base related to indoor air quality in terms of textbooks, journals and equipment
- 1.2.8 identify and evaluate the kinds of evidence required for court proceedings related to indoor air quality concerns
- 1.2.9 calibrate, use and read indoor air quality testing equipment
- 1.2.10 identify the indicators used in indoor air quality monitoring for each of the following types of buildings: schools, day cares, care facilities, homes, workplaces, theatres, and private dwellings, ice arenas and pools
- 1.2.11 interpret continuous indoor air quality monitoring data
- 1.2.12 identify levels of exposure limits for various gases
- 1.2.13 evaluate various sources of indoor air quality guidelines
- 1.2.14 list common indoor contaminants including particulates, CO₂, CO, VOC's, bioaerosols, formaldehyde and asbestos
- 1.2.15 explain acceptable indoor air quality with respect to temperature and humidity
- 1.2.16 describe the effect of yeasts, molds and pollens on allergy sufferers
- 1.2.17 name aerosols associated with illness, eg. legionnaire's disease
- 1.2.18 name the components of a ventilation system, and the factors required for decision making to adjust air flows
- 1.2.19 describe air filtration systems and cleaning controls for gases, particulates and viable microorganisms
- 1.2.20 define various types of heating systems including forced air, radiant, hot water, steam, and electric
- 1.2.21 describe heat pumps and associated problems
- 1.2.22 explain thermal comfort
- 1.2.23 identify and explain the operation of common instrumentation and data loggers to measure particulates, CO, CO₂, VOC, bioaerosols, formaldehyde, radon, asbestos, temperature, relative humidity and thermal comfort
- 1.2.24 describe the nature and types of radiation
- 1.2.25 explain the *radioactive decay process*
- 1.2.26 identify the typical products of radioactive decay
- 1.2.27 list the exposure routes for radiation
- 1.2.28 compare and contrast man-made and natural radiation
- 1.2.29 calculate the ambient exposure to radiation of model individuals
- 1.2.30 calculate the indoor exposure to radiation of model individuals

2.0 Waste Management

2.1 Solid Waste Disposal

- 2.1.1 itemize the information required by a public health agency on both active and inactive waste management facilities
- 2.1.2 describe the various types of waste management facilities

- 2.1.3 list the public health requirements of siting and developing a new waste management facility
- 2.1.4 identify the various sources and components/categories of the waste stream
- 2.1.5 describe the storage, transportation and disposal requirements of the various components of the waste stream
- 2.1.6 describe the monitoring techniques used to detect migrating gases, leachates and particulates from waste disposal sites
- 2.1.7 define *the reasons for setback requirements*
- 2.1.8 propose an appropriate course of action where illegal land filling has occurred
- 2.1.9 describe the steps involved in inspecting the various types of waste management facilities (e.g. transfer stations, waste sorting stations, etc.)
- 2.1.10 describe the various techniques used in preventing off-site migration of micro-organisms, chemicals, leachates, particulates, gases and vermin
- 2.1.11 appraise the health risks of waste management facilities
- 2.1.12 appraise the environmental impact of waste management facilities
- 2.1.13 formulate remediation standards and methods in land use change for inactive waste management facilities
- 2.1.14 describe the impact of recycling and composting programs to the waste stream and to public health.

2.2 Liquid Waste Disposal [Municipal]

- 2.2.1 describe the volumes, characteristics and composition of liquid municipal waste
- 2.2.2 describe, sequentially, the processes involved in liquid waste treatment employed by various municipalities
- 2.2.3 list the mechanical processes involved in liquid waste treatment employed by various municipalities
- 2.2.4 describe the biological processes involved in liquid waste treatment employed by various municipalities
- 2.2.5 describe the chemical processes involved in liquid waste treatment employed by various municipalities
- 2.2.6 describe the various equipment used in a waste disposal and treatment plant
- 2.2.7 describe the various structures used in a waste disposal and treatment plant
- 2.2.8 describe the acceptable biological requirements for treated liquid waste effluents
- 2.2.9 discuss the acceptable chemical requirements for treated liquid waste effluents
- 2.2.10 assess the environmental and public health problems related to liquid waste collection and treatment systems
- 2.2.11 define *expected levels of treatment* for each of the levels of liquid waste (e.g. primary, secondary and tertiary)
- 2.2.12 describe the disposal methods and public health concerns of storm water and industrial waste water
- 2.2.13 describe some sampling techniques and standard analyses as used in *"Standard Methods for the Examination of Water and Wastewater"*, latest edition.

2.3 Waste Water Treatment and Disposal [Private]

- 2.3.1 outline how sewage disposal systems should be constructed where municipal sewage treatment facilities are not available (e.g. private dwellings, small industry, and small developments)
- 2.3.2 describe the biological processes employed by sewage disposal systems in private dwellings, small industry, and small developments where municipal sewage treatment facilities are not available
- 2.3.3 define the *specifications for construction* (including such things as soil conditions, water tables, construction materials, sizes, slopes, soil depths etc.) of sewage disposal systems where municipal sewage treatment facilities are not available (e.g. private dwellings, small industry, and small developments)
- 2.3.4 outline the steps in installing and approving a sewage disposal system where municipal sewage treatment facilities are not available (e.g. private dwellings, small industry, and small developments)
- 2.3.5 Identify the major problems found with sewage disposal system where municipal sewage treatment facilities are not available (e.g. private dwellings, small industry, and small developments) and describe how these could be corrected
- 2.3.6 describe how to conduct a site evaluation
- 2.3.7 describe how to conduct a percolation test
- 2.3.8 assess the effectiveness of private sewage disposal legislation
- 2.3.9 propose appropriate action where a private sewage treatment system fails
- 2.3.10 identify and describe the function of plumbing fixtures and fittings

2.4 Industrial/Hazardous Waste Disposal

- 2.4.1 compare and contrast industrial and hazardous waste
- 2.4.2 identify the types of non-hazardous industrial waste and their probable sources
- 2.4.3 identify the types of hazardous wastes and their probable sources
- 2.4.4 list the public health requirements for various storage, collection, transportation and disposal of industrial waste
- 2.4.5 list the public health requirements for various storage, collection, transportation and disposal of hazardous waste
- 2.4.6 describe the reclamation methods for inactive non-hazardous industrial waste sites
- 2.4.7 describe the reclamation methods for inactive hazardous industrial waste sites
- 2.4.8 define the acceptable *standards for inactive industrial non-hazardous waste sites*
- 2.4.9 define the acceptable *standards for inactive industrial hazardous waste sites*
- 2.4.10 propose appropriate action where illegal, non-hazardous waste disposal has occurred
- 2.4.11 propose appropriate action where illegal, hazardous waste disposal has occurred
- 2.4.12 list the steps of inspection for industrial non-hazardous waste disposal facilities
- 2.4.13 list the steps of inspection for industrial hazardous waste disposal facilities
- 2.4.14 describe the health risks of industrial non-hazardous wastes

- 2.4.15 describe the health risks of industrial hazardous wastes
- 2.4.16 describe the environmental impact of industrial non-hazardous wastes
- 2.4.17 describe the environmental impact of industrial hazardous wastes
- 2.4.18 describe the equipment used in the storage, handling, transportation, and disposal of non-hazardous industrial waste
- 2.4.19 describe the equipment used in the storage, handling, transportation, and disposal of hazardous industrial waste
- 2.4.20 define *manifests*
- 2.4.21 explain the purpose of *manifests*
- 2.4.22 compare and contrast the roles of environmental departments and health departments in non-hazardous industrial waste management
- 2.4.23 compare and contrast the roles of environmental departments and health departments in hazardous industrial waste management
- 2.4.24 explain WHMIS

2.5 Biological/Biomedical Waste Management

- 2.5.1 list a typical schedule of wastes in the biological/biomedical waste stream
- 2.5.2 describe the level of health risk for the various biomedical wastes and identify the target groups for infection
- 2.5.3 identify the diseases which are transmissible as a result of infection from biomedical waste
- 2.5.4 describe the methods used for the safe storage and disposal of biomedical waste
- 2.5.5 describe the equipment used for the safe distribution and transportation of biomedical waste
- 2.5.6 explain the reasons for manifesting and color-coding biomedical wastes
- 2.5.7 describe the methods used for rendering biomedical wastes non-pathogenic

3.0 Water Management

3.1 Potable Water Quality

- 3.1.1 identify the major water-borne diseases in Canada
- 3.1.2 describe the methods used to ensure that water provided for human consumption is adequately treated and is potable
- 3.1.3 list the equipment used in water treatment
- 3.1.4 explain *cross connections* and identify probable causes
- 3.1.5 describe water sampling techniques
- 3.1.6 demonstrate water sampling techniques given appropriate equipment
- 3.1.7 interpret the results for bacterial and chemical parameters given laboratory analysis reports and the Guidelines for Canadian Drinking Water Quality
- 3.1.8 list the tolerable limits for chemical parameters in drinking water according to the Guidelines for Canadian Drinking Water Quality

- 3.1.9 identify the sources of drinking water
- 3.1.10 list in sequence the procedures to be followed in the case of a water main break
- 3.1.11 describe the processes used in water treatment
- 3.1.12 describe water sampling procedures
- 3.1.13 define the *indicators used in water analysis*
- 3.1.14 list the potential causes of various water odours
- 3.1.15 list the potential causes of various discolorations in water
- 3.1.16 describe the effectiveness and the limitations of the various point-of-use water treatment equipment
- 3.1.17 explain the municipal distribution system for potable water and the breakdowns which may occur
- 3.1.18 design a sampling program given a site and situation in regards to potable water
- 3.1.19 describe some sampling techniques and standard analyses as used in "*Standard Methods for the Examination of Water and Wastewater*", latest edition.

3.2 Recreational Water Quality

- 3.2.1 define the *acceptable bacterial parameters for recreational water*
- 3.2.2 describe the *acceptable upper limits of chemical parameters for recreational water* as defined in the Guidelines for Canadian Recreational Water Quality
- 3.2.3 describe how to alter bacterial parameters in recreational water
- 3.2.4 describe how to alter chemical parameters in recreational water
- 3.2.5 describe the functions of the equipment used in the treatment of recreational water
- 3.2.6 describe the processes used in water treatment
- 3.2.7 describe laboratory procedures for water analysis
- 3.2.8 describe water sampling procedures
- 3.2.9 demonstrate water sampling techniques given the appropriate equipment
- 3.2.10 describe the problems associated with air in indoor pools
- 3.2.11 describe pool safety requirements and identify appropriate checkpoints
- 3.2.12 describe electrical hazards associated with pools
- 3.2.13 describe disinfection procedures for play equipment in pools
- 3.2.14 describe the operation of, and problems associated with, wave pools and water slides
- 3.2.15 describe how to overcome problems associated with wave pools and water slides
- 3.2.16 list the various types of natural outdoor swimming areas
- 3.2.17 identify the problems associated with the various types of natural outdoor swimming areas and how to control them
- 3.2.18 design a sampling program given a site and situation in regards to recreational water

3.3 Surface and Ground Water Quality

- 3.3.1 identify potential sources for the pollution of surface and ground water

- 3.3.2 describe factors influencing the leachability of various chemical and biological surface and ground water contaminants
- 3.3.3 develop plans for a community program to protect surface and ground water from contamination
- 3.3.4 describe algae control measures
- 3.3.5 list the potential sources of nutrients to surface and ground water
- 3.3.6 describe the effects of nutrients on surface and ground waters
- 3.3.7 describe the effects and hazards of using drinking water treatment measures to control elevated levels of nutrients in surface and ground waters
- 3.3.8 list acceptable bacteriological parameters in surface and ground waters intended for human consumption
- 3.3.9 list acceptable chemical parameters in surface and ground waters intended for human consumption
- 3.3.10 describe a typical water system including hydrogeology, mechanical equipment, sanitary seals, screens and distribution lines
- 3.3.11 describe the operation of water softening and its advantages and disadvantages
- 3.3.12 name and explain the various types of point-of-use water systems. Explain their effectiveness.
- 3.3.13 design a sampling program given a site and situation in regards to surface water

4.0 Inspection

4.1 Food Establishments

- 4.1.1 explain the principles underlying food regulations
- 4.1.2 explain the principles underlying *hazard analysis*
- 4.1.3 define *critical control points* and delineate the principles underlying this concept
- 4.1.4 list the requirements in food preparation to prevent food-borne illness
- 4.1.5 list the requirements in food service to prevent food-borne illness
- 4.1.6 list the requirements in food storage to prevent food-borne illness
- 4.1.7 list the symptoms and incubation periods of the various food-borne illnesses
- 4.1.8 identify the types of food contamination, including adulterations
- 4.1.9 describe food equipment requirements
- 4.1.10 describe and demonstrate food sampling techniques
- 4.1.11 describe laboratory food analysis
- 4.1.12 explain the procedures involved in food-borne illness investigations
- 4.1.13 review the protocol and procedures involved in sampling body wastes of food-borne illness victims
- 4.1.14 identify and evaluate the records which should be kept in food-borne illness investigations
- 4.1.15 define *A_w* and describe its significance
- 4.1.16 define *pH* and describe its significance

- 4.1.17 name the primary sources of microorganisms found in foods
- 4.1.18 name the secondary sources of microorganisms found in foods
- 4.1.19 describe what is meant by the temperature "danger zone" in food storage
- 4.1.20 name and compare the effectiveness of common preservation methods for high risk foods
- 4.1.21 outline the methods used in an inspection of a food premises
- 4.1.22 discuss the difference between standards and guidelines used for the operation of food premises
- 4.1.23 define what is meant by a food recall. Describe the process used in food recalls and name the origins of recalls.
- 4.1.24 list the public health concerns to be noted when inspecting food processors such as abattoirs, dairies, fish plants, canneries, cereals, food warehouses and food transportation systems
- 4.1.25 name the common food additives and explain their public health significance
- 4.1.26 name the food types most often associated with food allergies
- 4.1.27 describe the health significance of allergic reactions
- 4.1.28 describe control measures to prevent allergic reactions
- 4.1.29 design a sampling program given a site and situation in a food operation

4.2 Recreational Facilities

- 4.2.1 describe the appropriate terrain for a recreational park or camp
- 4.2.2 explain the natural environmental hazards to which patrons of a recreational park or camp may be exposed

4.3 Housing

- 4.3.1 evaluate the legislation used to control housing problems
- 4.3.2 identify housing problems which have an impact on health
- 4.3.3 identify the government departments/agencies who may be involved in housing complaints and describe the role of each
- 4.3.4 state the health standards that may be used in housing inspections and interventions

4.4 Nuisance and General Sanitation

- 4.4.1 define the term *health nuisance*
- 4.4.2 describe the various kinds of health nuisances which may be reported to an Environmental Health Officer
- 4.4.3 explain how one determines if a health nuisance exists
- 4.4.4 propose a protocol for nuisance abatement choosing any health nuisance as an example
- 4.4.5 identify the legislation in your jurisdiction which regulates health nuisances

4.5 Social Care Facilities (Child Care)

- 4.5.1 define the term *child care facility*
- 4.5.2 list the various kinds of complaints which may be reported to an Environmental Health Officer regarding child care facilities
- 4.5.3 list the health concerns associated with child care facilities
- 4.5.4 explain the steps involved in preventing the spread of a communicable disease in a child care facility
- 4.5.5 identify typical injury control measures used in child care facilities
- 4.5.6 name the types of disinfectants used in various parts of child care facilities and describe the effectiveness of each
- 4.5.7 identify the legislation in your jurisdiction which regulates child care facilities

4.6 Social Care Facilities (Adult Care)

- 4.6.1 define the term *adult care facility*
- 4.6.2 identify the types of adult care facilities which exist
- 4.6.3 describe the various kinds of complaints which may be reported to an Environmental Health Officer regarding adult care facilities
- 4.6.4 list the health concerns associated with adult care facilities
- 4.6.5 explain the steps involved in preventing the spread of a communicable disease in an adult care facility
- 4.6.6 identify typical injury control measures used in adult care facilities
- 4.6.7 name the types of disinfectants used in various parts of adult care facilities and describe the effectiveness of each

4.7 Personal Service Facilities

- 4.7.1 define the term *personal service facilities*
- 4.7.2 list the health concerns associated with personal service facilities
- 4.7.3 identify the types of industries which may be included under the designation of personal service facilities
- 4.7.4 describe disinfection and sterilization procedures required in personal service facilities

4.8 Animal Facilities

- 4.8.1 list the various types of animal facilities
- 4.8.2 describe the public health concerns associated with the various kinds of animal facility operations
- 4.8.3 develop a housekeeping plan for a given animal facility
- 4.8.4 develop a waste control program, which includes the disposal of dead animals, for a given animal facility
- 4.8.5 describe the setback requirements for some kinds of animal facilities and explain the rationale behind these setbacks.

5.0 Land Management

5.1 Land Use Review

- 5.1.1 define *land use review* and the variety of uses anticipated
- 5.1.2 explain the public health rationale behind land use review
- 5.1.3 identify the essential components of a land use review
- 5.1.4 identify the government departments/agencies who may be involved in land use review and describe the role of each
- 5.1.5 identify the factors of public health significance in land use planning
- 5.1.6 describe the setbacks which should be considered in land use planning
- 5.1.7 identify some incompatible developments and/or sites which must be considered in land use planning
- 5.1.8 describe the types of public health and environmental impacts which must be considered in land use planning (e.g. sewer loading, noise, industrial/residential setbacks, storm water drainage, etc.)

5.2 Area Development Plan Review

- 5.2.1 identify the impacts to public health associated with development planning
- 5.2.2 describe the kinds of environmental impacts which must be considered in development planning
- 5.2.3 identify the development incompatibilities which should be considered when planning developments
- 5.2.4 identify setbacks which should be considered in developmental planning
- 5.2.5 explain *ambient air levels* as related to development planning
- 5.2.6 describe *noise level factors* as related to development planning
- 5.2.7 explain the reason for public health intervention in development planning
- 5.2.8 identify the factors which should be considered in planning sewer services in a proposed development
- 5.2.9 identify the factors which should be considered in planning water services in a proposed development

5.3 Subdivision Review

- 5.3.1 identify the impacts to public health associated with subdivision planning
- 5.3.2 describe the kinds of environmental impacts which must be considered in subdivision planning
- 5.3.3 identify the development incompatibles which should be considered when planning a subdivision
- 5.3.4 identify setbacks which should be considered in subdivision planning
- 5.3.5 describe ambient air levels as related to subdivision planning
- 5.3.6 describe noise level factors as related to subdivision planning
- 5.3.7 explain the reason for public health intervention in subdivision planning

- 5.3.8 identify the factors which should be considered in planning sewer services in a proposed subdivision
- 5.3.9 identify the factors which should be considered in planning water services in a proposed subdivision

5.4 Land Reclamation Review

- 5.4.1 describe what is meant by *land reclamation*
- 5.4.2 describe the technological options available for land reclamation
- 5.4.3 develop a protocol for public health intervention with respect to a land reclamation proposal for an old industrial site
- 5.4.4 define the term *site specificity*
- 5.4.5 identify the sources of land reclamation standards and indicate which are superior or inferior
- 5.4.6 describe options for land use as related to land reclamation
- 5.4.7 identify the types of laboratory analysis procedures which should be considered when contaminated sites are involved
- 5.4.8 identify and demonstrate the field testing techniques commonly used when examining contaminated sites
- 5.4.9 list the health impacts which contaminated sites pose
- 5.4.10 describe the environmental impacts which contaminated sites pose
- 5.4.11 outline a plan for storage and disposal of contaminated soils
- 5.4.12 explain land farming of contaminated soils
- 5.4.13 design a sampling program given a site and situation in soil
- 5.4.14 demonstrate the operation of land survey equipment

5.5 Plan Review

- 5.5.1 describe the purpose, process and the elements involved in community planning
- 5.5.2 identify the types of community planning
- 5.5.3 identify the inputs used in community planning
- 5.5.4 describe the public health role in community planning
- 5.5.5 prepare a presentation supporting/opposing a proposed development plan (to be provided)

6.0 Environmental Health Assessment

6.1 Risk Assessment

- 6.1.1 explain the concept of *risk assessment*
- 6.1.2 explain the purpose of conducting a risk assessment

- 6.1.3 explain how health risk assessment relates to regulations
- 6.1.4 identify the components of a health risk assessment
- 6.1.5 explain the concept of *relative risk*
- 6.1.6 explain the concept of *quantitative risk assessment*
- 6.1.7 explain the concept of *qualitative risk assessment*
- 6.1.8 demonstrate how a health risk assessment is used in the environmental health field
- 6.1.9 define environmental monitoring
- 6.1.10 explain the methods and techniques used in environmental monitoring
- 6.1.11 state what is meant by toxicity testing
- 6.1.12 explain the exposure pathways from sources to recipient
- 6.1.13 identify the target organs in humans from given toxic substances
- 6.1.14 identify likely sources of toxic substances in the environment

6.2 Risk Management

- 6.2.1 explain the concept of *risk management*
- 6.2.2 identify, giving the advantages and disadvantages, the risk management options in the environmental health field
- 6.2.3 apply all risk management options, giving the advantages and disadvantages of each option, to a given health risk situation [to be provided]
- 6.2.4 describe the economic considerations of choosing risk management options

6.3 Risk Perception and Risk Communication

- 6.3.1 define *risk perception*
- 6.3.2 list the principles of risk communication
- 6.3.3 define the term *focus group*
- 6.3.4 describe the value of focus groups in assessing risk perception
- 6.3.5 explain the concept of *statistical significance* used with data from community surveys
- 6.3.6 define the term *stakeholder*, identifying key stakeholders to be considered in risk communications.
- 6.3.7 apply the concept of *the right to know* to risk communications

7.0 Administration

7.1 Computer Technology

- 7.1.1 develop a proposal for a personal computer system giving specifications for a hard drive, floppy drives, CD-ROM, keyboards, monitors, printers, modem, cpu, memory, speed, and core software
- 7.1.2 give examples of the basic uses of computers in the field of environmental health
- 7.1.3 define and describe a *local area network* (LAN) and a *wide area network* (WAN)
- 7.1.4 define the terms: *directory, file, hardware, software, file transfer and file deletion*

- 7.1.5 describe procedures that are to be used to protect computer data from viruses
- 7.1.6 list and describe basic software applications
- 7.1.7 demonstrate the use of a basic computer operation
- 7.1.8 define and describe the functions of e-mail
- 7.1.9 define and describe the functions of the internet
- 7.1.10 define and describe the application of GIS / GPS to Public Health

7.2 Policy Development

- 7.2.1 define *policy*
- 7.2.2 describe the basic components of a policy
- 7.2.3 evaluate sample environmental health policies in terms of their impact on health protection
- 7.2.4 design a policy statement which covers adequately an environmental health issue
- 7.2.5 give a rationale for policy development, indicating the purposes for which policies are developed and the potential range of application
- 7.2.6 describe the current health determinants in Canadian Society
- 7.2.7 describe the concerns of population growth, community organization and community development patterns
- 7.2.8 evaluate a neighbourhood development plan
- 7.2.9 distinguish between policy, guidelines and requirements
- 7.2.10 distinguish between health policy and healthy public policy

7.3 Legislation Review

- 7.3.1 describe the process by which legislation is written, reviewed and passed
- 7.3.2 identify the key elements of legislation
- 7.3.3 illustrate the uses of legislation
- 7.3.4 describe the types and authority of legislation
- 7.3.5 describe the process from education to enforcement of legislation
- 7.3.6 describe the process for the laying of charges
- 7.3.7 delineate the essential elements in a case brief
- 7.3.8 describe the criteria used in selecting and using expert testimony
- 7.3.9 describe the role of an expert witness
- 7.3.10 explain the categories of law such as criminal law, torts, contracts, statutory law and duty
- 7.3.11 interpret intent and scope of statutory law
- 7.3.12 describe the types of appeal procedures to orders issued by public health inspectors
- 7.3.13 describe the significance on the enforcement of health laws of human rights and constitutional powers.
- 7.3.14 list the grounds on which statutory law can be challenged

7.4 Public Administration

- 7.4.1 explain how government is organized
- 7.4.2 define the role of politicians, deputy ministers, department heads and program directors
- 7.4.3 outline the roles of health boards, chief executive officers of public health organizations, a medical officer of health and the various components of the public health sector
- 7.4.4 explain the funding process to support public health programs and specifically, environmental health programs
- 7.4.5 compare the mandate of environmental health programs at the federal and provincial, municipal and First Nations levels of government
- 7.4.6 describe the accountability and role of an environmental health program director/manager
- 7.4.7 describe the fundamental role of the EHO in the Public Health Act

8.0 Occupational Health

8.1 Occupational Workplace Inspection

- 8.1.1 identify the primary health risks to workers in selected industries
- 8.1.2 design a work site information system regarding hazardous material
- 8.1.3 describe the effects on worker's health of various industrial exposures
- 8.1.4 identify the major kinds of industrial exposure
- 8.1.5 describe the testing equipment, indicating the mode of operation, used to measure major kinds of industrial exposure
- 8.1.6 use environmental sampling equipment to collect and measure gases and vapours, noise, radiation including light, heat and radon
- 8.1.7 explain *control, mitigation, and amelioration methods* as applied to industrial exposures
- 8.1.8 list the regulatory authorities for industrial concerns and identify the legal instruments used by each
- 8.1.9 recognize the role of occupational hygiene in environmental assessment
- 8.1.10 describe the principles, applications and limitations of various laboratory instrumental methods for analysis of environmental samples or interpretation of data
- 8.1.11 demonstrate competence in the use of all standard field instrumentation including recording devices and dataloggers for the collection and/or measurement of chemical and physical factors
- 8.1.12 identify the best available technology control strategies for chemical and physical factors
- 8.1.13 recognize the importance of evaluating the impact of noise on the individual and on the community

- 8.1.14 explain the concept of risk assessment in dealing with environmental factors
- 8.1.15 discuss the risks to individuals due to exposure to harmful gases, particulates, noise, vibration, lighting, radiation and bioaerosols
- 8.1.16 discuss the jurisdiction of various government agencies and regulations in Occupation Health
- 8.1.17 describe the use of protective equipment including gloves, eye protection, face masks or respirators
- 8.1.18 comprehend common occupational terminology used to describe exposure including TLV, STEL, ppm, TWA, mg/m³
- 8.1.19 describe the basic principles of toxicology

9.0 Communicable Disease Control

9.1 Food-borne/Enteric Diseases

- 9.1.1 classify the common types of food-borne/enteric disease
- 9.1.2 describe the notable/distinguishing symptoms of each of the common food-borne/enteric diseases
- 9.1.3 explain the role of public health agencies in food-borne/enteric disease control
- 9.1.4 list the principles of food-borne/enteric disease control
- 9.1.5 explain the process for taking samples and identify the types of samples to be taken, when investigating food-borne/enteric disease outbreaks
- 9.1.6 describe the purpose and nature of isolation procedures as related to food-borne/enteric diseases
- 9.1.7 describe the purpose and nature of reporting procedures as related to food-borne/enteric diseases
- 9.1.8 name the microorganisms associated with food poisoning and food intoxication
- 9.1.9 describe how these microorganisms are controlled or destroyed.
- 9.1.10 describe the social and economic costs associated with foodborne illness
- 9.1.11 interpret a given laboratory analysis of a food sample

9.2 Waterborne Diseases

- 9.2.1 classify the common types of waterborne disease
- 9.2.2 describe the notable/distinguishing symptoms of waterborne diseases
- 9.2.3 explain the role of public health agencies in waterborne disease control
- 9.2.4 list the principles of waterborne disease control
- 9.2.5 explain the process for taking samples, and identify the types of samples to be taken, when investigating waterborne disease outbreaks
- 9.2.6 describe the purpose and nature of isolation procedures as related to waterborne diseases
- 9.2.7 describe the purpose and nature of reporting procedures as related to waterborne diseases

9.3 Zoonotic Diseases

- 9.3.1 classify the common types of zoonotic disease
- 9.3.2 describe the notable/distinguishing symptoms of zoonotic diseases
- 9.3.3 explain the role of public health agencies in zoonotic disease control
- 9.3.4 list the principles of zoonotic disease control
- 9.3.5 explain the process for taking samples, and identify the types of samples to be taken, when investigating zoonotic disease outbreaks
- 9.3.6 describe the purpose and nature of isolation procedures as related to zoonotic diseases
- 9.3.7 describe the purpose and nature of reporting procedures as related to zoonotic diseases

9.4 Sexually Transmitted Diseases (STD)

- 9.4.1 classify the common STDs
- 9.4.2 describe the notable/distinguishing symptoms of each of the common STDs
- 9.4.3 explain the role of public health agencies in STD control
- 9.4.4 explain the process for taking samples, and identify the types of samples to be taken, when investigating STD outbreaks
- 9.4.5 describe the purpose and nature of isolation procedures as related to STDs
- 9.4.6 describe the purpose and nature of reporting procedures as related to STDs

9.5 Infection Control in Institutions

- 9.5.1 describe the components of an institutional infection control program
- 9.5.2 explain the role of a public health inspector in an infection control program
- 9.5.3 identify institutional personnel responsible for infection control
- 9.5.4 discuss infection control practices which may be utilized in an institution

9.6 Outbreak Control in Institutions

- 9.6.1 define an outbreak
- 9.6.2 identify potential sources
- 9.6.3 identify members of an outbreak team
- 9.6.4 explain the steps involved in the investigation of an institutional outbreak
- 9.6.5 describe measures which may be implemented to control an outbreak

9.7 Diseases of Public Health Significance

- 9.7.1 name current communicable diseases of major public health significance in Canada
- 9.7.2 for each communicable disease, name the causative agent, mode of transmission, incubation period, symptoms and control measures used in public health
- 9.7.3 describe the legal provisions for communicable disease control

- 9.7.4 what are the accountability roles for the control and management of communicable diseases (eg. MOH, PHN, PHI)

10.0 Emergency Preparedness

- 10.1 describe the kinds of emergency situations involving public health agencies
- 10.2 explain the roles and functions of public health agencies in emergency situations
- 10.3 design an environmental health emergency plan, which includes the identification of needed equipment and supplies, to ensure preparedness in the case of an emergency
- 10.4 evaluate environmental health actions taken in a real or mock emergency scenario (to be provided)

11.0 Pest Control

- 11.1 list and classify invertebrates and vertebrates likely to be encountered by citizens engaging in common activities
- 11.2 describe the life cycles of common insect pests
- 11.3 describe the life cycles of common rodent pests
- 11.4 describe the harbourage of common insect pests
- 11.5 describe the harbourage of common rodent pests
- 11.6 describe the methods used to control insects pests
- 11.7 describe the methods used to control rodents pests
- 11.8 describe the methods used to control vertebrate pests other than rodents
- 11.9 list some diseases transmissible to humans from invertebrates common to North America
- 11.10 list diseases transmissible to humans from vertebrates common to North America
- 11.11 use taxonomic keys to identify insects
- 11.12 describe the significance of integrated pest management

12.0 Environmental Health Advisory

12.1 Environmental Health Education

- 12.1.1 explain the purpose of environmental health education
- 12.1.2 describe the range of environmental health education
- 12.1.3 explain the principles of adult education
- 12.1.4 list the steps involved in designing an educational program
- 12.1.5 evaluate a print resource designed for the general public on an environmental health topic
- 12.1.6 design an evaluation process for an educational program

- 12.1.7 list various instructional techniques which may be used to present information, giving the advantages and disadvantages of each
- 12.1.8 conduct a group training session
- 12.1.9 write goals and objectives and a lesson plan for an educational program
- 12.1.10 present the educational program
- 12.1.11 evaluate the program
- 12.1.12 discuss the strategies used in preparing and presenting a media release or interview
- 12.1.13 design a radio spot announcement on health education
- 12.1.14 design a poster on health education

12.2 Community Development

- 12.2.1 define community development
- 12.2.2 define community mobilization
- 12.2.3 describe the mechanics of a public participation process
- 12.2.4 describe how communication theory is used to involve others in planning and decision making
- 12.2.5 describe the role of a group facilitator in motivating group involvement in community action
- 12.2.6 describe the roles of the health professional in community development
- 12.2.7 describe the dynamics of work group processes involved with community development initiatives
- 12.2.8 discuss the methods used to resolve conflict
- 12.2.9 define social planning
- 12.2.10 define social action
- 12.2.11 outline key differences between community development, social action and social planning.
- 12.2.12 define sustainable development and how it applies to Public Health
- 12.2.13 define environmental economics and how it applies to Public Health

12.3 Advocacy

- 12.3.1 define what advocacy means
- 12.3.2 describe the role of advocacy in addressing public health issues and challenges
- 12.3.3 describe when advocacy should be used over other strategies

13.0 Miscellaneous

- 13.1 calibrate, use and read various testing equipment commonly used by public health inspectors
- 13.2 read and interpret blueprints
- 13.3 identify and describe the function of operational equipment used in the industries inspected (i.e. food, water, air)

- 13.4 demonstrate the application of mathematical formula in a public health situation (i.e. disinfection of a well)
- 13.5 describe the basic tenets of TEK (traditional environmental knowledge)

14.0 Lifestyle Programs

- 14.1 describe the public health concerns surrounding life style issues such as substance abuse (alcohol, tobacco, drugs) injury prevention, healthy eating and exercise
- 14.2 identify the role of strategies such as education, engineering of the environment and enforcement of legislation in promoting healthy lifestyles
- 14.3 describe how the outcomes of these strategies could be measured
- 14.4 explain the role of community mobilization in public health programs
- 14.5 list potential partners in health promotion initiatives

15.0 Investigation, Research and Reporting

- 15.1 describe how the epidemiologic process is used in the environmental health field
- 15.2 describe how one conducts a critical literature review
- 15.3 describe the purpose of writing an annotated bibliography
- 15.4 interpret common biostatistical terms such as incidence, prevalence, risk, relative risk, risk ratio
- 15.5 list the key components of an epidemiological study and define their statistical significance
- 15.6 describe the elements to be considered in writing a research proposal
- 15.7 describe the appropriate methods used to conduct an epidemiological research study
- 15.8 list the types of writing a public health inspector may be required to do in an environmental health program
- 15.9 name the characteristics and components of well written materials in the organizational setting (reports, memorandums, letters)
- 15.10 submit a sample of a well-written document (*their own*)

16.0 Communications

- 16.1 effective interpersonal communications
- 16.2 public speaking: one - to - one
- 16.3 public speaking: group situation (town hall forum, classroom etc)
- 16.4 media relations: print
- 16.5 media relations: TV, radio
- 16.6 briefing notes, communiques
- 16.7 cross-cultural awareness