Program of Study

Relationship with the Environment

Subject Area: Mathematics, Science and Technology

Secteur de la formation professionnelle et technique et de la formation continue

CCBE
COMMON CORE BASIC EDUCATION

Direction de l'éducation des adultes et de l'action communautaire

Québec

Program of Study

Relationship with the Environment

Subject Area: Mathematics, Science and Technology

Secteur de la formation professionnelle et technique et de la formation continue

CCBC
COMMON CORE BASIC EDUCATION

Direction de l'éducation des adultes et de l'action communautaire

Development Team

Coordination

Fidèle Medzo, Basic Education Coordinator

Direction de la formation générale des adultes (DFGA)

Louise Laroche and Michel Ruel, Subject Area Coordinators, DFGA

Content Development

Jacques Lamarche, Commission scolaire des Draveurs

Frédérique Voyer, Commission scolaire de la Région de Sherbrooke

Collaboration in Research and Content Development

Pierre Campeau, Commission scolaire de Montréal

Maryse Lacasse, Commission scolaire du Lac-Abitibi

Consultation

Carmen Allison, Education Consultant

Domenico Masciotra, Education Consultant

Isabelle Nizet, Education Consultant

Michel Ruel, Commission scolaire des Découvreurs

English Version

Direction de la production en langue anglaise

Secteur des services à la communauté anglophone

Ministère de l'Éducation, du Loisir et du Sport

Ministère de l'Éducation, du Loisir et du Sport, 2007—07-00487
ISBN 978-2-550-50553-2 (print version)
ISBN 978-2-550-50554-9 (PDF version)
Legal deposit – Bibliothèque et Archives nationales du Québec, 2007

Subject Area: Mathematics, Science and Technology
Relationship with the Environment

Courses

Presecondary

Ecological Issues: Resource Waste — TSC-P101-2

Secondary Cycle One

Environmental Ethics — TSC-2101-2

Table of Contents

Presentation of the Program of Study

The *Relationship with the Environment* program comprises a total of 100 hours of courses divided into two levels: Presecondary and Secondary Cycle One. Its aim is the same as that of all the programs in Common Core Basic Education, which is to help adults deal competently with real-life situations.

The *Relationship with the Environment* program places adult learners in situations that will help them improve their understanding of the environment and their relationships with its constituent elements. The philosophy underlying the two courses in the program focuses on the construction of scientific knowledge from a critical, ethical and cooperative standpoint. The program is conducive to an approach that uses current events to extrapolate information about major ecological issues and relate it to the adults' lives. Adult learners thus observe their immediate environment from different angles in order to identify the resources they can use to inspire their actions. The situations dealt with raise ethical questions, which can help lead to a more respectful attitude toward the environment and to a desire to protect it. This program is designed to raise awareness of the fact that our condition depends on that of the other elements of the environment.

In this program, adults develop their critical and ethical judgment, which can be applied to making realistic decisions and taking pertinent action. This competency is useful for analyzing the vast quantity of information conveyed by the media and other sources such as the Internet, and for identifying feasible ethical actions. Observation of the environment, necessary for comparing and differentiating among the different elements, helps adult learners identify the relationships between these elements. It then becomes easier to determine the impact of certain human interventions on natural conditions. Adult learners who gradually come to realize that they are part of the environment tend to examine their choices more closely. This enables them to make a connection between their view of the environment and their habits. Cooperation with peers and other people in the community increases the effectiveness of their actions and encourages them in their social involvement.

The Courses of the Program of Study

The table below lists the courses in the *Relationship with the Environment* program of study.

Relationship with the Environment

Presecondary Course	Duration	Secondary Cycle One Course	Duration
Ecological Issues: Resource Waste	50 hrs	Environmental Ethics	50 hrs

At the Presecondary level, adult learners realize that they have a vested interest in environmentally sound waste management aimed at protecting the resources on which their lives depend. The course *Ecological Issues: Resource Waste* provides an opportunity for adult learners to realize that they themselves are part of the environment. The class of situations dealt with in the course involves the use of recyclable waste. It encourages adult learners to identify sound ways of managing such waste. The operational competency *Exercises critical and ethical judgment* will help them clarify their choices, while the operational competency *Thinks logically* will enable them to make simple connections between everyday actions and their impact on the environment.

At the Secondary Cycle One level, adult learners are introduced to major ecological issues and identify examples in their immediate environment. They examine the components of their immediate environment and their interrelationships, and observe whether or not they are in balance. They are introduced to a problem-solving approach in which they propose ways of dealing with the symptoms of the imbalances identified. A wide range of situations can be dealt with in this course. The relationships between the elements of the environment could be examined more or less in depth depending on the complexity of the problems observed: soil degradation, resource depletion, natural balance, etc. The course makes use of the operational competencies *Exercises critical and ethical judgment* and *Cooperates.* It should be noted that although the Secondary Cycle One course *Environmental Ethics* is not a continuation of the Presecondary course *Ecological Issues: Resource Waste*, per se, the essential knowledge explored in the Presecondary course can nevertheless be examined more closely in the Secondary Cycle One course.

Links Between the Program of Study and the Broad Areas of Learning

The *Relationship with the Environment* program deals with relationships between living organisms and their different environments in different contexts.

In the broad area of learning *Environmental and Consumer Awareness*, the program brings to light the environmental and social characteristics of our consumer society. In their relationship with the environment, adult learners cannot ignore sociocultural practices such as consumption. Although it contributes to a certain quality of life, consumption can lead to serious social and environmental problems. That is why enlightened and responsible behaviours reduce waste and its undesirable impact on the environment. Vigilance with respect to industrial practices forces decision-makers to limit soil contamination and air and water pollution.

Contribution of the Program of Study to the Orientations of the *Government Policy on Adult Education and Continuing Education and Training*

This program of study addresses the orientations of the *Government Policy on Adult Education and Continuing Education and Training* by promoting cultural awareness, improvement in the quality of language, the exercise of citizenship rights and responsibilities, and the integration of information and communications technologies.

Cultural Awareness

The *Relationship with the Environment* program recognizes the importance of cultural diversity as well as biodiversity. Their protection represents a challenge for humankind. The different aspects of communities in an environment are the very basis for the science of ecology, which promotes the integrity of species, landscapes and populations. Lifestyle habits, survival strategies and a concern for preserving our heritage can affect our relationships with society and the environment.

Quality of Language

The subtleties of language differ depending on the type of discourse: persuasive, expressive, informative. The different media, for example, enable adult learners to distinguish between fact and opinion and to open up to other points of view, as well as to analyses designed to define environmental problems. In dealing competently with the situations, adult learners can practise various forms of oral and written expression. The competency *Exercises critical and ethical judgment* in both courses stimulates the need to exchange ideas with others and enables adult learners to express their thoughts using precise vocabulary.

Both courses in this program help improve language quality in many ways. Acquiring vocabulary associated with the essential knowledge enables adult learners to improve their written and oral expression skills and their environmental literacy. Product labels, brochures, the Internet and the different media are all sources of current vocabulary and environmental terminology.

Citizenship

Concern for the viability of an environment includes citizens' participation in individual, social and environmental relationships. Self-knowledge, needed to construct one's identity, fosters self-confidence, autonomy and the desire to build a harmonious society. Establishing their position with respect to the environment and recognizing the interrelationships between the different constituent elements helps individuals and societies take responsibility for their actions, which enables them to transform relationships with a view to achieving balance and well-being. Although human intervention is obviously important in dealing with environmental situations, social relationships and solidarity also have a role to play. For example, resource waste can be successfully recycled if citizens participate. To help adult learners adopt an environmental code of ethics, the program calls into question consumer habits and technological

developments and raises issues associated with personal and social choices and behaviours. This aspect of the program enables adult learners to adopt behaviours consistent with environmental principles, to promote participatory democracy with a view to influencing decisions and to express their opinions, consent or disagreement.

Integration of Information and Communications Technologies

E-mail and Web sites containing excerpts of journal articles and encyclopedias and statistics accompanied by graphs and maps could prove useful in this program. Certain software applications can also be used to format texts and other documents. Access to different sources of information enables adult learners to better interpret and understand environmental problems. Some government departments and community organizations provide Internet access to up-to-date information and statistics on current topics. Adults can also enjoy museum and interpretation centre collections without ever leaving home. Vast data banks are accessible on the Web and special interest groups provide information on their sites. In addition, a variety of CD-ROMs contain a wealth of information about the environment.

Discussions are not always possible in person and may take place by e-mail, conference call or newsgroup. Virtual collaboration with adults in different education centres or with special interest groups can help learners carry out various projects and procedures.

Course

Ecological Issues: Resource Waste

TSC-P101-2

Presecondary

“For all things share the same breath—the beast, the tree, the man, they all share the same breath.”

Seattle, Chief of the Squamish and Duwamish nations (ca. 1786-1866)

Presentation of the Course *Ecological Issues: Resource Waste*

The course *Ecological Issues: Resource Waste* is designed to help adult learners deal competently with real-life situations involving ecological issues related to the accumulation of consumer waste.

It helps them manage their resource waste in light of ecological issues.

By the end of the course, adult learners will understand that they are an integral part of the environment and that their actions have an impact. By thinking about the advantages of preserving an environmental balance, they will make connections between waste, pollution, consumption and resources. The interdependence of the answer to their personal needs and waste management will encourage them to adopt environmentally friendly behaviour on a daily basis.

Dealing With the Real-Life Situations

Dealing effectively with real-life situations is based on actions. These actions are grouped into categories and make use of a set of resources that include operational competencies and essential knowledge. During the learning process, adults are expected to construct knowledge related to these resources in order to be able to deal appropriately with their real-life situations.

The class of situations, categories of actions, operational competencies and essential knowledge constitute the compulsory elements of the course. These elements are explained in detail under their respective headings.

Class of Situations Addressed by the Course

This course addresses a single class of situations: *Resource waste management*.

All human activity involving the consumption of natural resources and technological products generates residual material. The environmental management of natural resources such as water, air and soil, as well as of products that meet various needs, is an everyday personal challenge and a major social issue.

The situations dealt with in this course involve household waste collection, home heating, transportation, clothing recycling, the type of school supplies used, recreational equipment, consumption of water and household cleaners, etc.

Class of Situations	Examples of Real-Life Situations
Resource waste management	▪ Household waste collection (e.g. packaging, food) ▪ Consumption of water and personal hygiene products ▪ Gardening practices ▪ Workplace practices (e.g. waste disposal, consumption of energy and materials) ▪ Clothing recycling ▪ Renovations and woodworking ▪ Family meals ▪ Use of recreational equipment and resources ▪ Type of school supplies used (e.g. paper, printer cartridges) ▪ Consumption of water and household cleaners

Categories of Actions

The *categories of actions* are groups of actions that are appropriate for dealing with the real-life situations adressed in the course. *Examples of actions* are provided to illustrate the scope of the category in a variety of contexts.

Categories of Actions	Examples of Actions
▪ Listing types of resource waste	▪ Lists the contents of his/her garbage can ▪ Evaluates his/her consumption of water in daily activities ▪ Lists substances discharged into the sewer system ▪ Identifies air pollutants ▪ Recognizes certain characteristics of resource waste
▪ Examining the impact of resource waste on the environment	▪ Relates resource waste to consumer needs ▪ Evaluates certain effects on water, air and soil ▪ Recognizes activities involving the overexploitation of resources ▪ Evaluates the life cycle of a product
▪ Adopting environmentally friendly behaviours	▪ Establishes his/her consumer criteria ▪ Chooses recyclable packaging ▪ Organizes separate waste collection ▪ Reuses clothing or objects ▪ Organizes composting ▪ Uses environmentally friendly personal hygiene and household cleaning products ▪ Looks for products containing recycled materials ▪ Considers a recreational activity with minimal impact on the environment ▪ Reduces waste discharged to the air and the sewer system

Compulsory Elements and End-of-Course Outcomes

The compulsory elements are those that the teacher must absolutely take into account when designing learning situations.

Class of Situations

Resource waste management

Categories of Actions

- Listing types of resource waste
- Examining the impact of resource waste on the environment
- Adopting environmentally friendly behaviours

Operational Competencies

Exercises critical and ethical judgment

- Verifies the reliability of information
- Identifies the advantages and disadvantages of certain practices
- Takes into account the value of the elements of the environment to be preserved
- States the reasons for adopting ethical behaviour
- Is aware of his/her influence

Thinks logically

- Identifies the characteristics of different types of resource waste
- Classifies different types of resource waste
- Makes connections between the accumulation of waste, its characteristics and certain pollutants
- Anticipates the impact of certain types of resource waste management on the quality of the environment
- Plans appropriate and consistent actions

Essential Knowledge

- Personal guidelines
- Characteristics of resource waste
- Impact of resource waste on the environment
- The three R's: reduce, reuse, recycle

The end-of-course outcomes describe how adults make use of the compulsory elements to deal with the real-life situations addressed in the course.

End-of-Course Outcomes
In order to deal with the class of situations *Resource waste management*, adult learners adopt a systematic and critical approach that will enable them to make relevant gestures to protect the environment. Adult learners list the types of resource waste, identify their characteristics and classify them. They examine their impact on the quality of the environment based on information gathered from news reports and other sources whose reliability has been verified. They make connections between the accumulation of waste, its characteristics and certain pollutants. Finally, they identify the advantages and disadvantages of certain resource waste management practices so that they can determine their impact on the environment. Aware of their influence, adult learners plan appropriate and consistent actions that take into account the value of the elements of the environment to be preserved and that involve reducing, reusing or recycling resource waste. Based on their personal guidelines, they clearly state their reasons for adopting ethical behaviour.

Evaluation Criteria

- Systematically lists types of resource waste
- Methodically examines the impact of resource waste on the environment
- Plans consistent actions to protect the environment

Operational Competencies

The contribution of each operational competency is described in terms of the actions that are appropriate for dealing with the real-life situations in this course. These operational competencies are addressed in other courses and therefore all of the courses taken together contribute to their development.

In this course, only the following operational competencies are addressed: *Exercises critical and ethical judgment* and *Thinks logically*.

Contribution of the Operational Competency *Exercises critical and ethical judgment*	
The operational competency *Exercises critical and ethical judgment* consists in understanding the personal and social needs and problems addressed in the real-life situations. Adult learners assess the appropriateness of their choices based on the impact they have on the environment. This operational competency enables them to open up to points of view that differ from their own reference points and observations in order to form an opinion.	Adult learners verify the reliability of the information gathered by consulting more than one source. They identify the advantages and disadvantages of certain recovery practices and qualify their explanations. They state the reasons that motivate them to adopt ethical behaviour and how this behaviour is consistent with environmental principles. They have an accurate perception of their influence on the situation and take into account the value of the elements of the environment that are being threatened.

Contribution of the Operational Competency *Thinks Logically*	
The operational competency *Thinks logically* helps adult learners develop a rational understanding of the connections between resource waste and the quality of the environment. After doing research and making observations and analogies, they are able to use resources rationally.	Adult learners compare the different types of resource waste and their characteristics. They classify them by determining what the different categories have in common. They anticipate the impact of certain types of resource waste management on the quality of the environment, making connections between the accumulation of waste, its characteristics, and water, air and soil pollution. They plan appropriate and consistent actions based on rational arguments.

Essential Knowledge

Personal guidelines

- Consumer needs, constraints, points of view
- Consumer habits and criteria

Characteristics of resource waste

- Recyclable materials: paper, cardboard, glass, plastic, textiles, metal
- Animal, plant and mineral substances that can be composted
- Waste that cannot be reused, recycled or composted
- Concept of renewable natural resources

Impact of resource waste on the environment

- Interdependence of the elements of the environment: erosion, eutrophication, degradation, introduction of species, acidification, greenhouse effect, contamination
- Environmental nuisances: visual pollution, odours, noise, etc.
- Hygiene issues: bacteria (coliforms), viruses, parasites
- Hazardous waste (pesticides, fertilizers, heavy metals, pharmaceutical waste, pseudohormones, detergents, chlorine): toxicity, concentration
- Impact of human activities on water, air and soil quality

The three R's: reduce, reuse, recycle

- Reduce: overpackaging, waste, disposable products, overconsumption (needs, quality), rental, concept of sustainable development (society, economy, environment)
- Reuse: returnable items, recovery, reuse (used clothing stores, flea markets, garage sales, secondhand stores)
- Recycle: sorting, separate waste collection, pictographs, recycling, composting

Attitudes

The following attitudes are provided as suggestions only. The development of these attitudes can help adults to become more competent in dealing with the real-life situations in this course.

Responsibility	Realism
Adult learners develop a sense of responsibility as they become aware of the social and environmental impact of their everyday actions.	Adult learners act realistically: each person can make a difference.
Open-mindedness	
By being open-minded, adult learners see solutions they had previously missed. By opening up to others, they develop the solidarity needed to act effectively.	

Complementary Resources

The following resources are provided as suggestions only and consist of references that may be consulted in learning situations.

Social Resources	Material Resources
▪ Recycling and sorting centres ▪ Ecocentres ▪ Used clothing stores ▪ Local water treatment plants ▪ Resource people, staff members, adult learners and other people at the education centre ▪ Community organizations ▪ Organizations that recycle clothing ▪ Health-care professionals and environmental experts ▪ Government services ▪ Private and public services ▪ Neighbours	▪ Camera ▪ Recycling bins ▪ Crop farming, organic farming ▪ Documentation on the environment ▪ Packaging, logos and product labels ▪ Fertilizer ▪ Excerpts of regulations respecting water, air, soil and noise pollution ▪ Films about ecological issues ▪ Electricity, gas or oil bills ▪ Computer, environmental protection and recycling Web sites

Contribution of the Subject Areas

The contribution of other subject areas, in particular knowledge related to Languages and to Mathematics, Science and Technology, is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

Subject Area: Languages
Program of study: *English, Language of Instruction*
▪ Oral interaction to exchange information, advice and opinions on resource management (e.g. water use, hazardous materials disposal) ▪ Listening to informative discourse (e.g. news reports, talk shows, documentaries, public presentations) on resource management ▪ Reading informative texts (e.g. public notices, pamphlets, schedules, posters, newspaper articles) providing information, instructions and advice on resource management ▪ Writing informative texts (e.g. letters of inquiry/complaint/opinion, records and logs of resource use)

Subject Area: Mathematics, Science and Technology

Program of study: *Mathematics*

- Interpreting and inferring information involving numbers
- Interpreting and organizing qualitative or quantitative data
  - Classifying, comparing and grouping together elements
  - Using set notions
- Estimating percentages
- Estimating distance
- Using proportions
- Interpreting a map to locate a place or situate an event

Program of study: *Computer Science*

- Searching for information on the Internet or in a data bank
  - Using a search engine
  - Consulting newspapers and other media
- Producing and transmitting information about the environment
- Corresponding by e-mail

Andragogical Context

Every day, the media address ecological issues related to waste management: unwanted smells, inadequate recycling, the “not-in-my-back-yard” syndrome, management of landfills, accumulation of hazardous waste, etc. The course *Ecological Issues: Resource Waste* encourages adult learners to follow the news in order to make their learning more interesting and meaningful.

The suggested learning situations are related to resource waste management at the adult learner’s home, as well as at the education centre. The best incentives for learning are example and experience.

The course *Ecological Issues: Resource Waste* encourages adult learners to take concrete action. They may, for example, become involved in a paper and plastic recycling campaign in the centre, launch a campaign to compost food scraps in the cafeteria, or set up a used clothing store. Adult learners who apply their learning assimilate it more effectively. At home, adult learners can adopt more environmentally friendly behaviours and make more enlightened consumer choices.

Since learning in this course touches on geography, biology and sociology, it is a good idea to take every opportunity to develop a multidisciplinary approach to the issues addressed. Such an approach provides adult learners with an opportunity to examine different aspects of the real-life situations, based on a diversity of knowledge.

This course enables adults to learn problem solving. It focuses on an approach developed by the adult learners with the teacher’s help. By addressing problems as challenges, adult learners are stimulated in their critical approach and may be more inclined to do research. The teacher supports them in their reflections and guides them in the construction and mobilization of the necessary resources.

Teachers facilitate investigation, reflection and action, which consolidate the adult learners’ responsibility. Adult learners make connections between the concepts and phenomena addressed in the course. The teacher may raise questions that lead them to reflect on their consumer needs and habits in order to open up to different points of view. They receive the support they need to evaluate their work methods. They are encouraged to regularly review their consumer choices and their everyday behaviour. Finally, the course promotes individual actions so that each adult learner feels that he or she can adopt environmentally responsible behaviour.

Learning Situation

The learning situation that follows is provided as an example to show teachers how the principles of the education reform can be applied in the classroom.

It is authentic in the sense that it addresses a real-life situation (taken from the class of situations in the course) that adults may find themselves in. It is sufficiently open and comprehensive to allow adult learners to explore several important aspects related to dealing with this real-life situation.

The examples of actions presented in the course help the teacher to identify those actions that an adult would take to deal with the real-life situation. The teacher can then refer to these examples in order to develop pertinent learning activities.

The learning situation is organized in terms of the three steps of the teaching-learning process, which are as follows:

- planning learning
- actual learning
- integrating and reinvesting learning

These steps highlight the principles of the education reform insofar as they encourage adults to be active, to reflect on their learning and to interact with their peers when the learning context is suitable. They include learning activities and may also include evaluation activities intended to support adults in the learning process.

These activities help learners to construct knowledge related to the compulsory elements of the course that are targeted by the learning situation concerned: one or more categories of actions, essential knowledge and the actions of the operational competencies associated with the categories of actions.

The example provided also refers to certain teaching strategies—pedagogical methods and techniques—that can be selected according to the learners, the context and the learning environment. Certain learning strategies may also be suggested, as well as a variety of material and social resources.

Example of a Learning Situation

Food-Related Resource Waste

In the course *Ecological Issues: Resource Waste*, adult learners explore real-life situations involving family meals and household waste collection.

The teacher takes advantage of the recent publication of an article on municipal recycling in a newspaper or magazine to present certain problems and difficulties encountered by recovery plant staff and to spark a discussion of the responsibility of every citizen to manage his or her own recycling. Adult learners become aware of the value of their actions, each person's management having an impact on the success of the community process. To contextualize the learning situation, the teacher proposes inviting an expert on municipal recycling to a community meal to answer questions raised during the above-mentioned discussion. Participants are told that they must inventory the resource waste created at the meal. This activity is related to knowledge of the characteristics of resource waste and is intended to reduce its impact on the environment. The learning situation proposed at the end of the meal enables adult learners to apply the operational competencies *Exercises critical and ethical judgment* and *Thinks logically*.

To plan the meal, the adult learners choose a menu and make a list of all the ingredients and equipment they will need. An expert is invited to speak about the characteristics of recyclable materials. He or she explains the procedure for facilitating municipal recycling operations. After the presentation and with the teacher's help, the adult learners construct a table of characteristics of resource waste: solid, liquid, natural resource, biodegradable, recyclable. The table is discussed and reviewed with the expert and the teacher, which enables the adult learners to briefly explain the impact of each type of resource waste on the environment.

Then the adult learners clean up. In teams, they inventory the types of resource waste created by the meal and, after discussing their characteristics, place them in different bins. Each team completes the table created earlier.

The following learning activity is a guided Web search (<http://www.recyc-quebec.gouv.qc.ca/client/fr/accueil.asp>). The adult learners associate each type of resource waste created by the meal with actions related to the three R's (reduce, reuse, recycle) and create a table. The appropriateness of the actions will be corroborated or refuted during a group discussion supervised by the teacher. After a brainstorming session, the class draws up a list of feasible actions based on the meal, and on their meals at home. To justify and support the actions chosen, the adult learners explain how these solutions are environmentally friendly and feasible, based on their newly constructed knowledge.

To generalize the adult learners' knowledge about recycling to situations other than meals, the teacher has them pursue their reflection at home. Over a period of seven days, they must inventory their own resource waste and fill out a waste log, available on the following Web site: <http://www.reseauressourceries.org/pdf/journaldesdechets.pdf>. They must find ways of reducing the impact of each type of waste.

To validate the information gathered, adult learners share it with their peers and the teacher. Each person makes observations and

shares his or her experience. Such discussion reinforces the adult learners' awareness of the value of recycling and reassures them in their choices.

Elements of the Course Addressed by the Learning Situation

Class of Situations

Resource waste management

Learning Situation

Food-Related Resource Waste

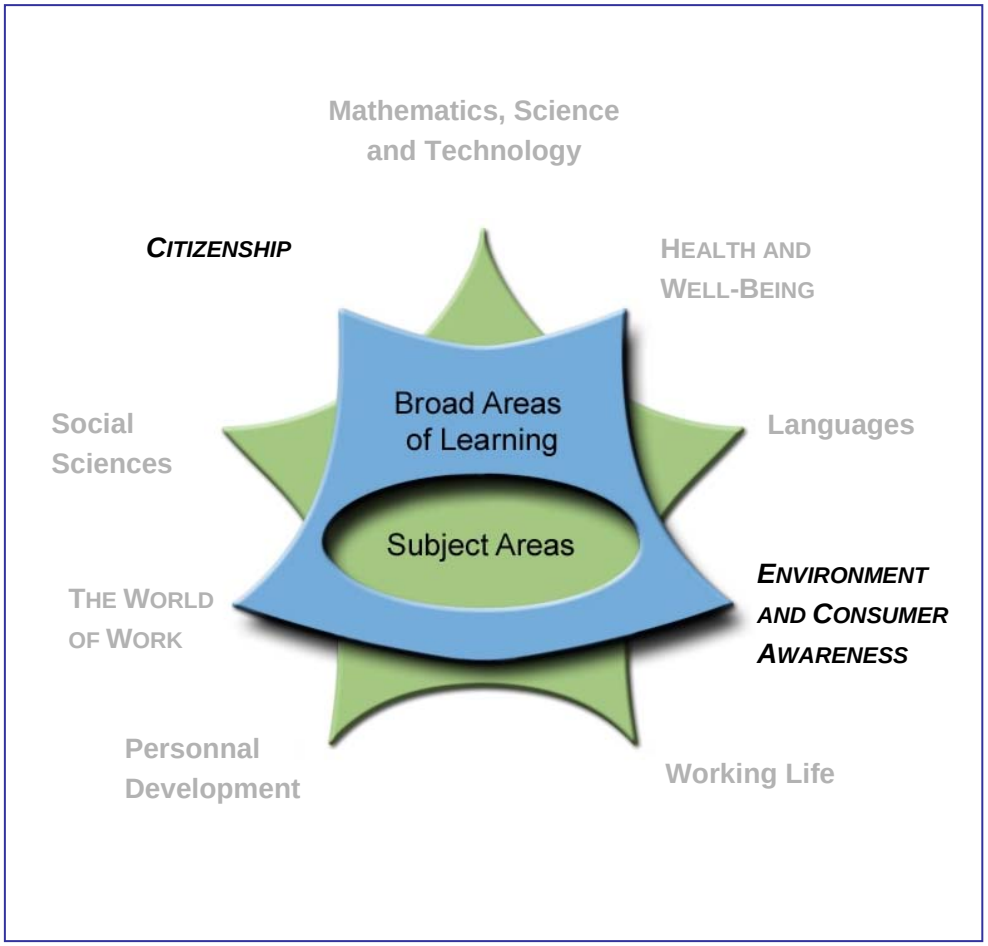
Categories of Actions

- Listing types of resource waste
- Examining the impact of resource waste on the environment
- Adopting environmentally friendly behaviours

Operational Competencies	Essential Knowledge
▪ Exercises critical and ethical judgment ▪ Thinks logically	▪ Personal guidelines ▪ Characteristics of resource waste ▪ Impact of resource waste on the environment ▪ The three R's: reduce, reuse, recycle

Complementary Resources

- Resource people, staff members, adult learners and other people at the education centre
- Health-care professionals and environmental experts
- Private and public services
- Recycling bins
- Documentation on the environment
- Packaging, logos and product labels
- Computer, environmental protection and recycling Web sites



Course

Environmental Ethics

TSC-2101-2

Secondary Cycle One

“The world faces a full-scale climate emergency that threatens the future of civilization on earth.”

Al Gore

Presentation of the Course *Environmental Ethics*

The course *Environmental Ethics* is designed to help adult learners deal competently with real-life situations that raise ecological issues whose impact they can see.

It encourages adult learners to consider the impact of human activities on the environment and to act accordingly. It enables them to determine the value they place on the environment and to understand the advantages of environmental balance, harmony and beauty.

By the end of the course, adult learners will have acquired essential scientific knowledge about the environment and will be aware that they are an integral part of it and that their actions have an impact on it. With a greater appreciation for the environment, they are more likely to act in an enlightened, appropriate, responsible, ethical and cooperative fashion.

Dealing With the Real-Life Situations

Dealing effectively with real-life situations is based on actions. These actions are grouped into categories and make use of a set of resources that include operational competencies and essential knowledge. During the learning process, adults are expected to construct knowledge related to these resources in order to be able to deal appropriately with their real-life situations.

The class of situations, categories of actions, operational competencies and essential knowledge constitute the compulsory elements of the course. These elements are explained in detail under their respective headings.

Class of Situations Addressed by the Course

This course addresses a single class of situations: *Ethical environmental choices*.

These situations raise ecological issues, encouraging adult learners to examine their behaviour in terms of environmental ethics. The ecological issues may be climatic phenomena, human activities or technological incidents that come up in real-life situations such as maintaining a home, hiking, participating in a sport and choosing a means of transportation.

Class of Situations	Examples of Real-Life Situations
Ethical environmental choices	▪ Evaluating the greenhouse gas emissions produced by his/her car ▪ Maintaining a home ▪ Family meals ▪ Consumption ▪ Nature interpretation walk ▪ Choosing a means of transportation

Categories of Actions

The *categories of actions* are groups of actions that are appropriate for dealing with the real-life situations addressed in the course. *Examples of actions* are provided to illustrate the scope of the category in a variety of contexts.

Categories of Actions	Examples of Actions
▪ Studying major ecological issues	▪ Becomes aware of the impact of international environmental policies ▪ Does research on the impact of technology on the environment ▪ Identifies the consequences of climate change ▪ Analyzes the relationships between the economy and environmental imbalances ▪ Explains the causes of the disappearance of certain species ▪ Detects the signs of an environmental problem
▪ Observing indicators of an environmental imbalance in his/her immediate environment	▪ Explores the characteristics of environmental components and conditions ▪ Discovers the wealth of an environment ▪ Inventories the plant species in an environment ▪ Recognizes plant and animal species as environmental indicators ▪ Observes the effects of certain food production methods ▪ Perceives the changes in human behaviour related to environmental imbalance ▪ Detects sources of pollution in his/her environment ▪ Determines the natural resources essential to the survival of living organisms ▪ Situates the environment geographically and historically ▪ Calculates his/her ecological footprint

Categories of Actions	Examples of Actions
▪ Contributing to the balance of the environment	▪ Takes his/her values and choices into account ▪ Plans emergency measures in the event of a natural disaster ▪ Plans the environmentally friendly use of consumer goods and resources ▪ Determines whether his/her activities have an impact on the balance of the environment ▪ Adopts voluntary simplicity ▪ Boycotts a product or merchant ▪ Stops using phosphates at home ▪ Takes public transportation ▪ Organizes an awareness campaign

Compulsory Elements and End-of-Course Outcomes

The compulsory elements are those that the teacher must absolutely take into account when designing learning situations.

Class of Situations

Ethical environmental choices

Categories of Actions

- Studying major ecological issues
- Observing indicators of an environmental imbalance in his/her immediate environment
- Contributing to the balance of the environment

Operational Competencies

Exercises critical and ethical judgment

- Compares information from different sources
- Uses precise criteria to evaluate the seriousness of a problem
- Bases his/her conclusions and position on an analysis of the problem
- Adopts ethical behaviour
- Takes appropriate action based on his/her values and choices

Cooperates

- Identifies everyday individual actions that contribute to the collective effort to protect the environment
- Develops common strategies
- Works toward the achievement of common goals

Essential Knowledge

- Concepts related to ecology
- Environmental problems and their effects
- Ethical use of resources
- Ways of dealing with major ecological issues

The end-of-course outcomes describe how adults make use of the compulsory elements to deal with the real-life situations addressed in the course.

End-of-Course Outcomes
In order to deal with the class of situations *Ethical environmental choices*, adult learners adopt a critical and cooperative approach that enables them to construct knowledge in the area of ecology and to understand local, national and international environmental problems and their effects, put them in perspective and take appropriate and ethical action. When studying an environmental problem, adult learners compare information from different sources in order to form an opinion. They use their scientific knowledge to understand the issues at stake. When observing the indicators of an environmental imbalance in their immediate environment, they use precise criteria to evaluate the seriousness of the problem and to understand the issues related to the ethical use of resources and the protection of the quality of the environment. They base their conclusions and position on an analysis of the facts, determining possible solutions and deciding which behaviours to adopt and which ones to avoid. To contribute to the balance of the environment, adult learners use their scientific knowledge and news reports to identify everyday individual actions that contribute to the collective effort to protect the environment. They take appropriate action based on their choices and values. They work toward the achievement of common goals. Thus, they participate in the global effort to deal with environmental problems and the issues at stake. They share their knowledge, ideas and thoughts and explain what motivates them to adopt ethical behaviour. With their family and the community, they develop strategies to preserve the balance of the environment.

Evaluation Criteria

- Studies environmental problems objectively
- Closely observes indicators of an environmental imbalance in their immediate environment
- Contributes appropriately to the balance of the environment

Operational Competencies

The contribution of each operational competency is described in terms of the actions that are appropriate for dealing with the real-life situations in this course. These operational competencies are addressed in other courses and therefore all of the courses taken together contribute to their development.

In this course, only the following operational competencies are addressed: *Exercises critical and ethical judgment* and *Cooperates.*

Contribution of the Operational Competency *Exercises critical and ethical judgment*	
The operational competency *Exercises critical and ethical judgment* consists in evaluating the personal and social problems addressed in the real-life situations with discernment and respect. It enables adult learners to open up to points of view that differ from their own points of reference and observations in order to form an opinion. It contributes to adult learners' representation of the problem, enabling them to decide whether a given intervention is justified. This competency is all the more important since these complex situations involve social as well as ecological issues.	Faced with an environmental problem, adult learners compare information from different sources and use precise criteria to assess the seriousness of the problem threatening the integrity of the environment and to determine priority actions. Adult learners use recognized scientific knowledge and an analysis of the facts to draw conclusions and take a position. In addition to looking for objective information, adult learners compare their values and judgment with the viewpoints of others or those conveyed in the media. They consider the advantages and disadvantages of certain practices in order to adopt ethical behaviour and take appropriate action based on their values and choices.

Contribution of the Operational Competency *Cooperates*	
The operational competency *Cooperates* helps adult learners deal effectively with situations affecting the community. Every individual action contributes to managing and developing solutions to collective problems. This competency enables adult learners to cooperate in situations in which individual action is unlikely to succeed, in which synergy makes all the difference, in which the sharing of tasks, skills and responsibilities is essential. This competency makes it possible to coordinate actions within the family and the community.	Adult learners identify everyday individual actions that contribute to the collective effort to protect the environment. They take others' viewpoints into account and adjust their behaviour. Faced with an environmental problem, they share ideas to develop joint strategies and work to achieve common goals.

Essential Knowledge

Concepts related to ecology

- Environmental balance, ecosystem, food chain
- Biotic and abiotic factors
- Ecological indicators of the quality of the environment
- Ecological relationships within and between species
- Photosynthesis, water cycle, carbon cycle, oxygen cycle
- Ecological footprint

Environmental problems and their effects

- Climate change (energy consumption, greenhouse effect and global warming, desertification, droughts, natural disasters)
- Chemical and biological pollutants and their effects
- Air, water and soil quality

Ethical use of resources

- Energy conservation, biodiversity, overexploitation, sustainable development, introduction of undesirable species, overpackaging, impact of plastic bags on the environment, genetically modified organisms, genetic contamination

Ways of dealing with major ecological issues

- National and international movements, local and individual ethical movements

Attitudes

The following attitudes are provided as suggestions only. The development of these attitudes can help adults to become more competent in dealing with the real-life situations in this course.

Responsibility	Respect
Adult learners develop a sense of responsibility as they become aware of the social and environmental impact of their everyday actions.	Respect for the environment begins with respect for others in one's everyday actions.
Open-mindedness	
By being open-minded, adult learners see solutions they had previously missed. By opening up to others, they develop the solidarity needed to act effectively.	

Complementary Resources

The following resources are provided as suggestions only and consist of references that may be consulted in learning situations.

Social Resources	Material Resources
▪ Health-care professionals and environmental experts ▪ Resource people and other people at the education centre ▪ Government services ▪ Public services ▪ Community organizations ▪ Family members ▪ Neighbours	▪ Nature interpretation guides ▪ Maps ▪ Maps of natural environments ▪ Diagrams of relationships in an ecosystem ▪ Observation and measuring instruments ▪ Camera ▪ Woodworking and gardening tools ▪ Art supplies ▪ Survey sheet ▪ Sheet for calculating ecological footprints ▪ Excerpts of zoning regulations ▪ Documentation on the environment ▪ Exhibitions, gardens, parks ▪ Crop farming, organic farming ▪ Horticultural, gardening and renovation centres ▪ Water purification plants ▪ Films about ecological issues ▪ Environmental protection Web sites

Contribution of the Subject Areas

The contribution of other subject areas, in particular knowledge related to Languages and to Mathematics, Science and Technology, is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

Subject Area: Languages
Course (Secondary): *Informed Choices* ▪ Categories of actions related to environmental issues in the class of situations *Using language to explore current issues in the media*

Subject Area: Mathematics, Science and Technology
Program of Study: *Mathematics* ▪ Interpreting and inferring information based on statistical data, histograms or diagrams ▪ Interpreting and organizing qualitative or quantitative data · Classifying, comparing and grouping together elements related to the environment ▪ Using percentages ▪ Using geometry to obtain more accurate information · Estimating distance and surface measurements · Using proportions ▪ Interpreting a map or scale drawing to locate an environment or situate an event **Program of Study: *Computer Science*** ▪ Searching for information on the Internet or in a data bank · Using a search engine or portal · Consulting newspapers and other media · Making requests ▪ Producing and transmitting information about the environment ▪ Corresponding by e-mail

Andragogical Context

The course *Environmental Ethics* enables adult learners to construct scientific knowledge in the area of ecology in order to assess the issues at stake in environmental imbalances. It enables them to determine where they stand as members of a community, responsible for maintaining the natural balance of the environment at the local, national and global levels. This course encourages adult learners to adopt a critical approach and to use their analytical skills to find solutions to environmental problems. It focuses on investigation, reflection and cooperation and encourages them to adopt attitudes of accountability and commitment.

Adult learners adopt a more accurate representation of the natural environment, which enables them to act in an enlightened and respectful manner. They are required to develop their sense of observation to perceive signs of imbalance in their immediate environment, for example a change in the geographic distribution of a species, an algae bloom or the early arrival of a species in spring or unprecedented heat waves. Thus, they find information to support their understanding of environmental concepts. The teacher facilitates investigation, reflection, analysis and action, which consolidate the adult learner's approach. He or she may raise questions that encourage the adults to reflect on their use of critical judgment in their consumer habits and their everyday behaviour. The course focuses on synergy and cooperation. Adult learners are encouraged to consider the personal and social problems addressed in the real-life situations with discernment and respect. They open up to other viewpoints in order to form an opinion.

Adult learners acquire scientific concepts in the area of ecology by gathering, interpreting and comparing data. They enhance the information in order to better define the problems and evaluate them scientifically. They develop critical and ethical judgment in assessing individual and collective actions aimed at maintaining a global environmental balance. The education centre becomes a centre of action, since the course encourages adult learners to react appropriately to environmental problems. They exchange viewpoints and knowledge and collaborate with their peers on the shared goal of preserving nature. All of this collaborative work strengthens adult learners' sense of belonging to the environment.

Learning Situation

The learning situation that follows is provided as an example to show teachers how the principles of the education reform can be applied in the classroom.

It is authentic in the sense that it addresses a real-life situation (taken from the class of situations in the course) that adults may find themselves in. It is sufficiently open and comprehensive to allow adult learners to explore several important aspects related to dealing with this real-life situation.

The examples of actions presented in the course help the teacher to identify those actions that an adult would take to deal with the real-life situation. The teacher can then refer to these examples in order to develop pertinent learning activities.

The learning situation is organized in terms of the three steps of the teaching-learning process, which are as follows:

- planning learning
- actual learning
- integrating and reinvesting learning

These steps highlight the principles of the education reform insofar as they encourage adults to be active, to reflect on their learning and to interact with their peers when the learning context is suitable. They include learning activities and may also include evaluation activities intended to support adults in the learning process.

These activities help learners to construct knowledge related to the compulsory elements of the course that are targeted by the learning situation concerned: one or more categories of actions, essential knowledge and the actions of the operational competencies associated with the categories of actions.

The example provided also refers to certain teaching strategies—pedagogical methods and techniques—that can be selected according to the learners, the context and the learning environment. Certain learning strategies may also be suggested, as well as a variety of material and social resources.

Example of a Learning Situation

Calculating His/Her Ecological Footprint

The situation proposed in the class *Ethical environmental choices* is an assessment of the impact of the adult learner's personal consumer habits on nature. This learning situation focuses on a study of the impact of human activities on environmental balance. Dealing with this situation requires the use of the operational competency *Exercises critical and ethical judgment.* In the course Environmental Ethics, adult learners explore the categories of actions *Studying major ecological issues* and *Contributing to the balance of the environment*.

This learning situation is authentic, since adult learners look for facts in order to exercise critical judgment and assess the impact of their personal actions on nature, and choose personal behaviours to adopt or avoid. It also makes it possible to adopt a cooperative approach in order to take measures to reduce the negative impact on the education centre.

The teacher takes advantage of recent articles in different newspapers or magazines to spark an informal discussion about climate change. This discussion will bring the adult learners up to date on the causes of global warming. Then, in a formal lecture, the teacher explains the scientific principles underlying the greenhouse effect and how certain human behaviours are partly responsible.

The adult learners are then able to briefly inventory the things they own (e.g. lawnmower, chain saw, car, furnace) that emit greenhouse gases. Thus they become aware that their own actions have an impact on the environment. The teacher takes this opportunity to explain the concept of ecological footprint as an indicator of a person's influence. This learning situation enables adults to use the operational competency *Exercises critical and ethical judgment*.

Then, the adult learners assess their ecological footprint by consulting Web sites of government agencies, lobby groups, scientific journals, recognized scientists and other individuals. With the teacher's help, they construct a summary table of the elements used in the evaluation of the ecological footprint: housing, transportation, purchases, waste, etc. Each element in the table is discussed and reviewed with the teacher, which enables the adult learners to understand the impact of certain behaviours on nature.

A group discussion makes it possible to add to the list of effective behaviours. Each participant can choose behaviours to adopt and individual and collective actions to take at home and at the education centre.

Elements of the Course Addressed by the Learning Situation

Class of Situations

Ethical environmental choices

Learning Situation

Calculating His/Her Ecological Footprint

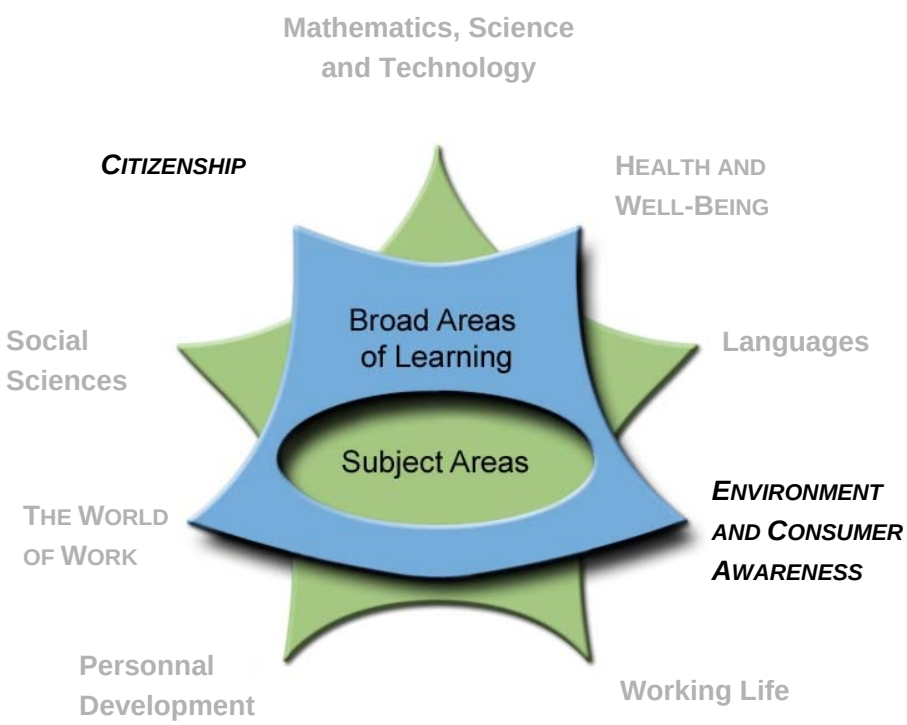
Categories of Actions

- Studying major ecological issues
- Contributing to the balance of the environment

Operational Competencies	Essential Knowledge
▪ Exercises critical and ethical judgment ▪ Cooperates	▪ Concepts related to ecology ▪ Environmental problems and their effects ▪ Ethical use of resources ▪ Ways of dealing with major ecological issues

Complementary Resources

- Newspaper and magazine articles
- The Internet



Bibliography

Brundtland, G.H. (ed.). *Our Common Future.* The World Commission on Environment and Development. Oxford: Oxford University Press, 1987.

Callard, Sarah, and Diane Millis. *The Complete Book of Green Living: A Practical Guide to Eco-Friendly Living.* Andre Deutsch Ltd., 2001.

Cirade. *Journée de discussion sur l'éducation relative à l'environnement : documents de référence.* Montréal: Université du Québec à Montréal, 1988.

Dupuis-Tate, Marie-France, and Bernard Fischesser. *Le guide illustré de l'écologie.* Paris: Martinière, 2007.

Giolitto, Pierre, and Maryse Clary. *Profession enseignant : Éduquer à l'environnement.* Paris: Hachette, 1994.

Goffin, Louis. *L'environnement comme éco-sociosystème : Population et développement; une approche globale et systématique.* Louivain-La-Neuve: Academia-Bruylant/L'Harmattan, 1988.

Hault, Paul. *L'écologie au quotidien.* Paris: Eyrolles, 2006.

Lafleur, Marcel, and Jean Robitaille. *Terre comprise : trousse éducative pour un avenir viable.* Québec: Recyc-Québec and CEQ, 1996.

Mason, Adrienne. *La classe verte : 101 activités pratiques sur l'environnement.* Montréal: Chenelière, 1991.

Mongeon, Serge. *La Simplicité volontaire.* Montréal: Écosociété, 1998.

Mongeon, Serge. *L'écosophie ou la sagesse de la nature.* Montréal: Écosociété, 1994.

Panafieu, Jean-Baptiste. *Écologie : La planète vivante.* Paris: Gallimard, 2003.

Québec. Ministère de l'Éducation. *Québec Education Program: Preschool Education, Elementary Education.* Québec: Gouvernement du Québec, 2001.

Québec. Ministère de l'Éducation. *Québec Education Program: Secondary School Education, Cycle One.* Québec: Gouvernement du Québec, 2004.

Recyc Québec. *Recyc-Québec.* <http://www.recyc-quebec.gouv.qc.ca/client/fr/accueil.asp> (13 October 2007).

Reseau des ressourceries du Québec. *Réseau des ressourceries du Québec.* <http://www.reseauressourceries.org/pdf/journaldesdechets.pdf> (13 October 2007).

Sauvé, Lucie. *Pour une éducation relative à l'environnement : Éléments de design pédagogique, guide de développement professionnel à l'intention des éducateurs.* Montréal: Guérin, 1994.

Sauvé, Lucie. *Éducation relative à l'environnement à l'école secondaire. Modèles d'intervention en éducation relative à l'environnement.* Outremont: Les Éditions Logiques, 2001.

Sauvé, Lucie, et al. *L'éducation relative à l'environnement. École et communauté : une dynamique constructive.* Montréal: Hurtubise HMH, 2001.

Sauvé, Lucie. *Le projet EDAMAZ : une communauté d'apprentissage et de recherche.* Actes du 16e Colloque international de l'Association internationale de pédagogie universitaire-AIPU. Montréal, 1999.

Sources. *Recueil de solutions écologiques.* Montréal: La Plume de feu, 2005.

Unesco. *Educating for a Sustainable Future: Commitments and Partnerships.* Unesco, 2004.

Unesco-UNEP. *International Strategy for Action in the Field of Environmental Education and Training for the 1990s.* Paris: Unesco, 1988.

Éducation,
Loisir et Sport
Québec

41-6018-A