Physical and Health Education

Curriculum Guideline

Ontario Academic Courses 1993

Ministry of Education and Training

Ontario

Contents

Course Codes

The course codes for Ontario Academic Courses in physical and health education are as follows:

PPB0A – OAC I – Physical and Health Education: The Bio-Scientific Perspective

PPS0A – OAC II – Physical and Health Education: The Socio-Scientific Perspective

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Preface

The Ontario Academic Courses (OACs) in physical and health education shall be developed in accordance with the ministry's emphasis on excellence, equity, accountability, and the development of partnerships in education. Striving for excellence requires a commitment to ensuring that all students attain the highest possible achievement in developing the skills, knowledge, and values that will equip them for a life of learning, responsible citizenship, and full participation in society. Ensuring equity in education requires that the school system be free from barriers and biases related to gender, race, religion, language, socio-economic status, age, physical condition, and ability. Ensuring accountability requires a commitment to communicating the extent to which the school system is meeting the needs of the students that it serves. The emphasis on partnerships reflects the sharing of responsibility for education in Ontario among the ministry, school systems, students, parents, business, labour, and community institutions.

Physical and Health Education, Ontario Academic Courses, 1993, supersedes the guideline *Supplement to Physical and Health Education, Senior Division, 1975.*

The policies stated in this guideline are in accordance with policies stated in *Ontario Schools, Intermediate and Senior Divisions* (OSIS).[1]

1. Ministry of Education, Ontario, *Ontario Schools, Intermediate and Senior Divisions (Grades 7-12/OACs): Program and Diploma Requirements,* rev. ed. (Toronto: Ministry of Education, Ontario, 1989).

Rationale

The OACs for physical and health education are intended for students who plan to attend university, including those who plan a postsecondary school study of physical and health education; those who will pursue related fields such as nursing, sports medicine, social work, or physiotherapy; and those who simply wish the challenge of developing skills related to the general aims of these OACs (see opposite).

It is important to the future education and personal growth of the students that they continue to develop capabilities and attitudes that contribute to a lifestyle of total fitness. For many, this will be their last formal study of physical and health education. For some, an OAC will be an introduction to new educational pursuits.

The OACs for physical and health education are designed to foster intellectual attributes that will contribute to effective performance in all areas of an individual's personal life. Enthusiasm for an active and healthy lifestyle, an enjoyment and appreciation of physical activity, and effective life practices are the desired outcomes of a process intended to pique intellectual curiosity and to encourage the application of analytical and critical thought to concepts related to human movement and well-being.

Aims

Students taking OACs in physical and health education are expected to acquire the ability to:

- develop connections and relationships between concepts;
- formulate hypotheses and examine their implications;
- detect fallacies in reasoning;
- support a position with convincing evidence;
- articulate ideas with clarity, conviction, and confidence;
- organize and present ideas both orally and in writing;
- read accurately and objectively.

In addition, the OACs for physical and health education will enable students to:

- enjoy and appreciate all dimensions of human movement;
- acquire and extend the knowledge and skills necessary to facilitate and enhance lifestyle management;
- understand and apply new learning;
- analyse and evaluate critical issues related to human movement and well-being;
- incorporate the concept of total fitness into their everyday lives;
- develop an awareness and appreciation of the significance of physical activity and other health practices in Canadian culture.

Planning the Courses

Schools may offer either OAC I – Physical and Health Education: The Bio-Scientific Perspective or OAC II – Physical and Health Education: The Socio-Scientific Perspective, or they may offer both. Each course carries the value of one credit.

The two courses are substantially different in content. Each of the courses, however, shall consist of a total of four units, comprising the following:

- three units based on *core* concepts (the three compulsory core concepts), each representing 25 per cent of the total instructional time of the course
- one unit based on an *optional* concept (chosen from the optional concepts listed for the course), representing 25 per cent of the total instructional time of the course

Students taking an OAC in physical and health education shall have successfully completed *at least* one advanced-level Senior Division physical and health education credit course.

Specific texts have not been prescribed provincially. Resource materials selected for the OACs shall:

- "be free from racial, national or ethnic, religious, cultural, or sex bias or bias towards the aged, the disabled, persons in certain occupations, or individuals belonging to a specific group";[2]
- provide a Canadian perspective;
- provide a broad range of theories and/or views on current issues related to physical and health education;
- present well-researched and legitimate information;
- be adapted, if necessary, for all students who require adapted materials, including students identified by an Identification, Placement, and Review Committee (IPRC) as exceptional.

2. Ministry of Education, Ontario, *Circular 14: Textbooks* (Toronto: Ministry of Education, Ontario, 1991), p. xi.

The Conceptual Approach

There are many ways of studying the discipline of physical and health education. One of these is the conceptual approach. A concept is an abstract general notion formed when elements with similarities are grouped together. For example, the concept of human performance includes the following similar elements: structure and function of the human body, biomechanics, motor learning, skill acquisition, and principles of training and coaching. Concepts connect ideas to form a network of interrelating elements, a classification system to order information and experiences. It is from such a network or schema that insights are generated.

Four concepts shall be explored in each of the OACs in physical and health education. Three of the concepts are the compulsory concepts designated as *core*, and one concept is selected from those designated as *optional*.

The structure of each OAC is represented graphically in figure A. The shaded portion of the diagram represents the totality of physical movement, *moving*, and holistic health, *living*. Each inner circle represents one of the concepts related to living and moving to be studied.

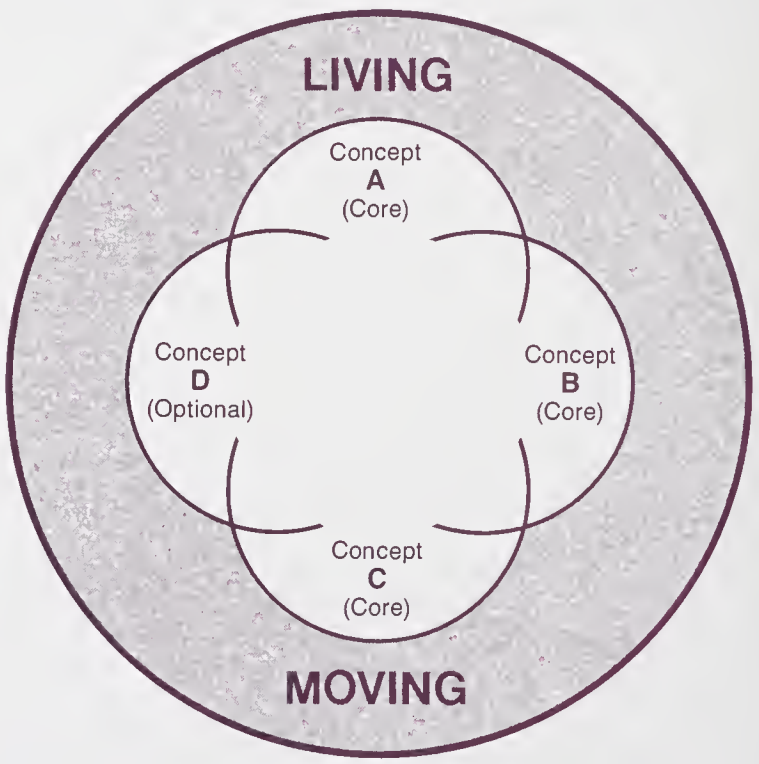

Figure A

In the investigation of each concept, students will progress through four stages (see figure B).

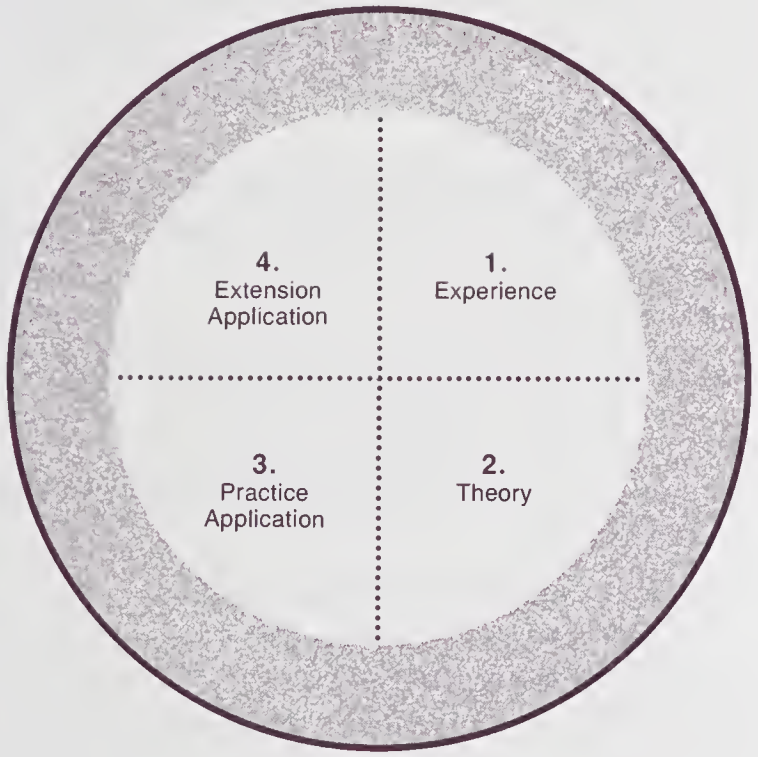

Figure B

In stage 1, the teacher will introduce the concept to the students by means of an experience or activity that will encourage each student to ask the question *why*. This stage is planned to motivate students to learn more about the concept and to serve as a reference point from which they will continue their investigation.

Once the students' curiosity is aroused, the theory underlying the concept is presented and discussed. In stage 2, students link the introductory experience and their existing knowledge with the new information presented. The theory introduced in this stage has been organized into essential and optional elements. The optional elements listed for each concept may be replaced by others that may suggest themselves to the teacher and students. The essential elements shall be taught.

In stage 3, students practise the application of the theory in a personal situation or activity. The students are then ready to extend this process in stage 4 by using the findings of the theory stage in other situations. Thus, in the latter two stages, the students take greater responsibility for the learning process.

The teacher can facilitate growing independence by helping students to plan stage 3 and 4 experiences themselves. The teacher must ensure that the experiences are appropriate to the maturity and level of skill of each student yet also provide for his/her continued growth. The teacher must also ensure that the activities are conducted in the language of instruction of the school. The teacher and the principal shall agree on the level of supervision required for the stage 4 experiences, particularly when they take place off school property or outside regular school hours.

Stage 3 and 4 experiences and activities provide the teacher, in part, with the means of measuring the degree to which students have attained the objectives for each concept. Students should be encouraged to work individually or in small groups, though at times the whole class should work together in stage 3 and 4 activities. When physical activities are suggested for a concept, teachers should encourage the students to apply the theory to a variety of physical activities.

Although the four stages will usually be presented in sequence, it may sometimes be necessary for one or more students, or even the whole class, to review a previous stage. Reviewing or expanding on a previous stage may also be an enriching experience for students.

Stage 4 is the culminating experience in the study of a concept. It is possible, however, that the final extension and application of one concept can become the initial experience of the next concept. It is also possible for the stage 4 activities of several concepts to be combined into a single experience or activity, for example, as the basis for the major project.

OAC I – Physical and Health Education: The Bio-Scientific Perspective

The course Physical and Health Education: The Bio-Scientific Perspective examines and analyses human movement and well-being in the light of physiology (human performance), maturation (growth and development), and health and efficiency (physical fitness and lifestyle). This study of the bases of physical activity and health emphasizes an experimental approach. Through the medium of physical activity, students will develop a greater awareness and understanding of the physiological and biological factors that govern human movement and well-being.

So that the implications and consequences of moving and living in a societal context can be appreciated, optional concepts will allow students to examine and analyse physical activity from either a social or a business point of view. In the third option that can be selected to complete the course, students will have an opportunity to acquire experience in research methodology.

Core Concepts

A. Human Performance

The study of the concept of human performance deals with the factors involved in the efficient movement of the body. The study will lead to an increased ability to analyse, appreciate, and understand human movement.

On completion of the study of this concept, students will be expected to:

1. understand the relationship between the structure and function of the human body and human performance;
2. demonstrate a knowledge of the biomechanics of human performance;
3. have a greater awareness of the processes by which movement skills are learned;
4. be aware of a number of the psychological and physiological principles of coaching and begin to develop a personal philosophy of coaching.

Stage 1. Experience

The introductory experience should expose the students to the elements of human performance through an activity in which the emphasis is on the analysis of a particular skill. Examples of introductory activities are:

- playing a game
- videotaping or filming the class playing a game
- sketching (by hand or computer) someone performing a physical skill
- learning a new skill
- videotaping or filming others learning a new skill

Stage 2. Theory

The study of this concept shall include the following *five essential elements:*

1. structure and function of the human body
   - body systems controlling movement
   - body systems producing energy
   - body systems governing energy utilization
2. biomechanics
   - principles of movement – e.g., for balancing, rotating, swinging, jumping, or landing
   - limitations to movement – e.g., range of motion, joint type, muscle fibre type
   - analysis of movement and skill
   - planes of movement
3. motor learning
   - the learning process – e.g., feedback, transfer of skill, overlearning
   - the learner – e.g., physiological factors, innate factors, motor-related fitness factors, readiness, motivation
   - conditions for learning – e.g., practice, rest, mental practice, imaging
   - individual differences in learning and performance
4. skill acquisition
   - factors facilitating the acquisition of skill
   - factors impeding the acquisition of skill
   - the progressive nature of skill learning
   - measurement of an acquired skill or skills

5. principles of training and coaching
   - frequency, intensity, and time
   - remediation of error
   - whole-part learning
   - group dynamics
   - program design for training and for coaching

The following are examples of *optional elements* that may be used to extend the essential elements listed, when time and interest permit:

- aesthetics
  - relationship between the creative and expressive aspects and the functional aspect of movement
  - evaluation of human performance
  - appreciation of the quality of movement
- technology
  - technological advances leading to improvement of performance
  - technological applications in the measurement of performance
  - equipment design
- stress
  - performance stressors
  - physical and psychological indicators
  - effect on performance
  - stress management
- substance abuse
  - effect of tobacco, alcohol, and other drugs on human performance
- nutrition
  - fuel for efficient movement
  - nutrients and performance
  - dietary practices of athletes
- psychology of training
- safety
  - safety considerations in the acquisition of new skills
  - safety factors in the design of equipment and facilities

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

- analysing a physical skill
- examining the influence on performance of one of the optional elements for this concept

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

- developing a personal plan, including a means of measuring skill improvement, to achieve immediate and long-term goals in a particular physical activity
- planning a skill progression, teaching it to others, and developing a means of measuring skill improvement
- designing and carrying out a survey to analyse motivation for participation in physical activities
- analysing and comparing the quality of skill acquisition by participants in recreational activities versus the quality of skill acquisition by elite athletes
- participating in a technical or theory course in the National Coaching Certification Program (NCCP) and reporting on how the experience prepares an individual for coaching experiences at school and in the community
- assessing the influence of the theory presented in this concept on personal coaching, officiating, managing, or training experiences (past or current)

B. Growth and Development

The study of the concept of growth and development examines the stages that lead to physical maturity and the significance of this maturation for human movement throughout the life stages.

On completion of the study of this concept, students will be expected to:

1. understand the importance of proper nutrition for the optimal growth and development of children and youth, and for the maintenance of good health throughout adulthood;
2. demonstrate an understanding of why children at various ages learn different physical skills or the same skills to different degrees;
3. understand the necessity of physical activity for optimal growth and development, particularly of the skeletal system and the body's metabolic function;
4. understand the need to modify coaching and training techniques according to the stage of development of an individual.

Stage 1. Experience

The introductory experience should illustrate to the students that physical skill matures as an individual grows and develops, and that this process is influenced by such factors as nutrition, heredity, and opportunity for practice. Examples of introductory activities are:

- examining the stages involved in learning a skill from first attempts to mastery of the movement – e.g., in learning how to crawl-walk-run, or in learning a specific skill for an individual sport such as skating, swimming, or skiing
- analysing child growth and development by taking photographs, or making movies or videotapes, at different ages
- examining the effects of nutrition on growth patterns
- attempting a skill while deliberately limiting one's natural ability in some way – e.g., using the non-dominant hand or blindfolding oneself

Stage 2. Theory

The study of this concept shall include the following *three essential elements:*

1. stages of development
   - outline of stages leading to physical maturity
   - factors that facilitate or inhibit optimal development
   - relation of optimal development in childhood and youth to physiological changes and characteristics in adulthood – e.g., delay of onset of physiological ageing, absence of criteria for heart disease
   - correlations among the physical, social, intellectual, emotional, and spiritual aspects of development
2. motor ability
   - definition of terms, including *motor educability*, *motor capacity,* and *motor readiness*
   - effect on skill acquisition
   - testing
   - practices for improvement
3. nutrition
   - differing nutritional needs according to lifestyle, age, or level of participation
   - role of nutritional practices in eating disorders (e.g., anorexia nervosa, bulimia) and in such conditions as malnutrition and osteoporosis

The following are examples of *optional elements* that may be used to extend the essential elements listed, when time and interest permit:

- play
  - definition of play at different life stages
  - role in growth and development
  - acquisition of skill through play
- geriatrics
  - role of activity in maintaining motor ability, self-sufficiency, independence
- factors affecting growth and development
  - rest, exercise, mental and social attitudes, alcohol, drugs
- safety
  - relation of safety to growth and development
  - safety requirements for various life stages

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

- investigating the nutritional policy of the local school board and reporting the findings to the class
- testing the motor ability of different age groups
- observing children of different ages performing physical activities and analysing their levels of motor ability

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

- doing a comparative study of the diets of world-class athletes, high school athletes, and semi-active students
- setting up a nutritional awareness program for the school
- monitoring the physical growth and development of a baby or young child in relation to current age norms
- doing a comparative study of the diet recommended for Canadian children and the diet of children in a Third World country
- designing a program to improve motor ability for a specific age group (this could be a follow-up to the second activity suggested in stage 3)
- analysing a development model or a training program for a specific sport (e.g., tennis, volleyball) in terms of growth and development theory

C. Physical Fitness and Lifestyle

Total fitness is thought of as having at least four aspects: a physical dimension (which in turn is subdivided into health-related and motor-related components) as well as social, emotional, and intellectual dimensions. Some theories encompass a fifth dimension – the spiritual.

The study of the concept of physical fitness and lifestyle deals with those factors that maintain and improve the health of the human body, thereby enabling it to perform its tasks easily and efficiently. The emphasis of the study is on the contribution of physical fitness to an individual's total fitness and healthy lifestyle.

On completion of the study of this concept, students will be expected to:

1. understand the importance of physical fitness in relation to the other aspects of total fitness;
2. have an increased awareness of the reliability and validity of existing fitness appraisal tests;
3. be aware of their own physical fitness levels and demonstrate an increased awareness of and ability to attend to their own personal fitness requirements;
4. be able to develop a personal fitness and lifestyle program or contract.

Stage 1. Experience

The students will be introduced to the concept of physical fitness and lifestyle through an investigation of methods used to measure total fitness, including the methods used in past appraisals of the students' own fitness. Examples of introductory activities are:

- administering a fitness test
- presenting a speaker, film, or videotape to initiate a discussion concerning total fitness
- completing a health behaviour inventory
- conducting a survey of the different scientific instruments and pieces of equipment used to appraise physical fitness and lifestyle

Stage 2. Theory

The study of this concept shall include the following *four essential elements:*

1. health-related components of physical fitness
   - definition of terms
   - contribution to effective life management
   - role in disease prevention
2. motor-related components of physical fitness
   - definition of terms
   - contribution to efficiency of movement
   - contribution to successful participation in physical activity
3. measurement of fitness
   - use of technology, appraisals, inventories, and scales
   - test design
   - interpretation of test results
   - use of results in developing programs
4. significance of physical fitness in a healthy lifestyle
   - role played
   - benefits
   - influence of other factors – e.g., nutrition, attitude, cost, resources

The following are examples of *optional elements* that may be used to extend the essential elements listed, when time and interest permit:

- cost benefits of physical fitness to social and health care programs
- popular myths surrounding physical fitness
- safety

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

- developing a personal physical fitness program that incorporates the theory of stage 2
- taking a field trip to a fitness appraisal centre (e.g., at a university) and reporting the findings to the class
- taking a field trip to a retail outlet to examine fitness equipment and reporting the findings to the class

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

- carrying out the program designed in the first activity suggested in stage 3
- evaluating a field trip experience in the context of the theory presented in the study of this concept
- organizing a fitness class or club with specific physical fitness objectives and measurable outcomes
- planning and conducting a physical fitness unit with a teacher or coach
- organizing, as a class, a fitness activity or event, such as a jump-rope competition or a ten-kilometre run for charity
- evaluating fitness equipment according to selective criteria such as cost, effectiveness, and scientific validity
- developing a remediation or a rehabilitation program with specific objectives and a means of measuring improvement
- speaking to a school assembly about the role of physical fitness in a healthy lifestyle
- organizing a project promoting total fitness and evaluating its impact on the target audience

Optional Concepts

The optional concepts indicate an alternative perspective in the study of physical and health education. In this OAC, the options demonstrate the impact of the social and psychological sciences on the study of the body and human movement.

D. 1. Sport in Society

Ideally, every community should provide its members with the opportunity to lead healthy, active lives. Study of this concept involves examining the relationship between sport and society, including the links between home, the workplace, and the community, on the one hand, and physical activity, on the other.

On completion of the study of this concept, students will be expected to:

1. be able to evaluate the opportunities for physical activity that are available to various members of their community;
2. be able to evaluate current trends and fads associated with physical activity;
3. be able to evaluate the issues that affect the popularity or acceptance of various physical activities in Canadian society.

Stage 1. Experience

The introductory experience should provide the students with an opportunity to observe the nature and variety of physical activities engaged in by different groups in the community (e.g., racial minorities, people with disabilities, and women). Examples of introductory activities are:

- observing the opportunities for physical fitness in a community recreational facility, a senior citizens' facility, or a workplace
- surveying the employee fitness plans of local industries or businesses
- inviting guest speakers from industry or recreational agencies to speak about the opportunities for recreational and physical activities in the workplace or in the community
- compiling an inventory of recreational and sports activities within the community; in the case of a French-language class or school, students would compile an inventory of these activities available in French

Stage 2. Theory

The study of this concept shall include the following *three essential elements:*

1. current trends
   - significance of sport, fitness, or active recreational pursuits in Canadian lifestyles, including the impact of geographical factors
   - reasons for the popularity or obscurity of specific activities, including the increased popularity of sports that reflect the variety of cultures in Canada
   - influence of drugs and drug-related issues on physical activities – e.g., use of anabolic steroids and blood doping, sports drug regulations, drug testing
   - violence in sport
   - ethics in sport
   - equity in sport
2. facilities
   - type, location, and cost
   - relation of preceding factors to frequency of use and use by different age groups

3. role models
   - motivators or inhibitors for participation
   - influence of professional sport on participation
   - influence of events – e.g., Olympic Games – on participation
   - influence of the media on participation
   - "spectatorism"
   - role of sport in various ideologies and cultures
   - parental influence

The following are examples of *optional elements* that may be used to extend the essential elements listed, when time and interest permit:

- employee fitness
  - study of program examples
  - role of health and recreation agencies in the development and promotion of programs
- stereotypes
  - barriers to participation
  - impact of human rights legislation on participation
  - violence in sport

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

- taking part in the physical fitness program of a local business or organization; in the case of a French-language school or class, students would be directed to a company or organization whose programs are conducted in French
- comparing different health or fitness programs in the community in the context of the knowledge gained from the study of the core concepts of the course

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

- conducting, as a class, a survey of a younger age group to determine popular physical activities; organizing an activity meet based on this survey and the knowledge gained from the study of the core concepts of the course; then evaluating the results
- organizing a physical activity for senior citizens and establishing criteria to assess its effectiveness; then evaluating the results
- surveying and evaluating the recreational opportunities available for a particular age group in the community
- comparing the current significance of sport in Canadian society to its role one hundred years ago

In the case of a French-language school or class, the above activities would be conducted in French and would have francophones as their subject.

2. The Business of Sport

The value that our society places on sport is reflected in the vast sums of money it spends on sport. Governments allocate substantial amounts to the development and enhancement of amateur sport and the staging of sports events, while private citizens support a wide variety of sports-related industries and enterprises, both as participants and spectators.

The study of this concept focuses on the profit-making aspect of sport and its consequences for the consumer, as participant or spectator. It will investigate the economics of sport, sport in the market-place, the political forces that shape sports funding policies, and the manner in which health care costs are affected by participation in sport. It will also investigate careers and jobs in the field of physical and health education.

On completion of the study of this concept, students will be expected to:

1. recognize and understand the needs of the physically active consumer and be able to analyse the effects that the design, manufacture, and marketing of sports and health products have on consumer spending;
2. be aware of sports funding policies at various levels of government, the influence of politics on such policies, and instances both in which this influence is a positive factor and in which it is a negative factor in the development of a sport;
3. be able to identify occupations and evaluate employment opportunities in sports fields.

Stage 1. Experience

The introductory experience should demonstrate to the students the considerations involved in making wise consumer decisions regarding sports merchandise or services. Examples of introductory activities are:

- calculating the cost of taking up a new sport by visiting a sporting goods store
- comparing the salaries of professional athletes
- reviewing a financial statement for the staging of a sports event (e.g., the Olympic Games) or the maintenance of a professional team, a local amateur team, or a local facility
- examining the effect of participation in sport on health care costs and services by surveying the literature on the subject

Stage 2. Theory

The study of this concept shall include the following *three essential elements:*

1. sports and health care consumerism
   - benefits of being a wise consumer
   - factors influencing purchases
   - needs for activity and health care products throughout the life cycle
   - factors involved in recognizing, and ways of dealing with, fraud in the market-place
   - role of the media
2. administration of sports programs
   - local, provincial, and federal levels of administration
   - politics of administration
   - funding
   - role of contemporary sports administrators
   - organization of sports programs in other countries
   - organization of sports programs for people with special needs
3. sport as a business
   - business opportunities
   - career opportunities
   - equity

The following are examples of *optional elements* that may be used to extend the essential elements listed, when time and interest permit:

- abuses in sport
  - performance-enhancing drugs
  - gambling
  - parental pressure
  - positive addictions – e.g., the compulsive need to run experienced by some runners
- the professional athlete
  - career length and related considerations (e.g., salary, risk of injury, restricted opportunities for education, life after retirement)
  - societal status (a comparison of the status of amateur and professional athletes should be included)
  - physical, intellectual, social, and emotional dimensions of fitness during career and in retirement
- the preventive focus of the health industry
  - cost of health care to the province, the community, the consumer
  - benefits and disadvantages of a preventive focus
  - current trends in prevention
- the issue of "spectatorism"

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

- determining what clothing or equipment would be most suitable for a person at a given stage in the life cycle for a particular sport or physical activity
- calculating the cost to a family of participating in a selected sport or activity
- interviewing a local politician or government official to determine the amount of money spent on sport and recreation at that level of government
- calculating the cost of administrating a team for a season

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

- making a comparative study of the services, facilities, costs, menus, and personnel at several residential summer camps
- making and selling a sports-related product (such as a track suit) and summarizing what was learned about the design, manufacture, and marketing of the product
- playing the role of the provincial minister for sport and recreation and proposing and justifying the "best" method of funding different sports and recreational organizations at all three levels of government

3. Research

The research done as part of this course shall reflect the scholarly standards expected for an OAC credit, and will assist in providing students with the skills and knowledge necessary for carrying out research tasks in future studies.

The research concept provides for the exploration of a particular topic in depth and the acquisition of experience in research methodology. This option will allow students to undertake, individually or as part of a small group, the scientific and empirical investigation of a particular aspect of one of the core concepts in order to become more familiar with the research skills of observation, identification, data collection, analysis, synthesis, and application.

On completion of the study of this concept, students will be expected to:

1. be more aware of the need to set criteria for judging the value of research methods and findings;
2. be able to read research papers, interpret their findings, and apply them to physical activity;
3. be able to choose a research topic, design a research study, conduct the research, and report on the findings.

Stage 1. Experience

The introductory experience should expose the students to the research skills they will use in studying a topic chosen from one of the core concepts. The following is an example of the kinds of activities that could be used:

- Working in small groups, students select from the literature a research study that deals with an element from one of the core concepts. Each group reports to the class on the issue or problem addressed by the study, and on its methodology, findings, and recommendations.

Stage 2. Theory

The study of this concept shall include the following *five essential elements:*

1. research as a means of obtaining knowledge
2. research skills
3. evaluation of research
4. technology used in research – e.g., computers, systems approaches, electronic equipment, other laboratory equipment
5. supportive research

Stage 3. Practice Application

Each group of students should review the research study on which they initially reported to the class and critically examine the design, methodology, analysis, and findings of the study. The results of their critique should be reported to the class.

Stage 4. Extension Application

The majority of the time spent on this concept should be devoted to this stage. With the guidance of the teacher, the students, working individually or in small groups, should identify a problem suitable for research from the core concepts of the course and then design and carry out a research study. On the basis of their findings, the students will prepare recommendations for action and present and defend their recommendations to a group. Examples of possible studies are:

- surveying the health practices of a particular group of people
- developing a case study for a community problem
- comparing alternative training regimens for a sport or physical activity
- preparing a case study that illustrates the physical activity patterns of students in the school

OAC II – Physical and Health Education: The Socio-Scientific Perspective

The course Physical and Health Education: The Socio-Scientific Perspective examines and analyses human movement and well-being in the light of the quality of life, psychological and social development, and personal habits and activities (lifestyle and fitness) of individuals. This study of the bases of physical activity and health emphasizes an experiential approach. Through the medium of physical activity and an examination of health practices, students will develop a greater awareness and understanding of the social and psychological factors that govern human movement and well-being.

So that the biological and physiological limitations on living and moving can be appreciated, optional concepts will allow students to consider the contributions of bio-scientific knowledge either to adaptation or to physical activities and health practices in general. In the third option that can be selected to complete the course, students will have an opportunity to acquire experience in research methodology.

Core Concepts

A. Wellness

Wellness, total health, positive health, and *holistic health* are more or less synonymous terms that have been coined to define health from a new perspective. The terms connote a view of health as a state of body and mind characterized by more than the mere absence of disease; they suggest a quality of life.

The study of this concept focuses on a better understanding of the elements of total health, or wellness, and on the personal responsibility that one should be prepared to take in matters of one's health. The shift of emphasis in health care from treatment to prevention for those who choose to live by the philosophy of wellness is an important dimension of the study.

On completion of the study of this concept, students will be expected to:

1. have a greater awareness of the responsibility that people can and should take for their own health;
2. understand the increasing importance placed on nutrition in the prevention of degenerative diseases;
3. have a greater understanding of the elements of wellness and how they can be affected by personal decisions about lifestyle;
4. demonstrate an increased awareness of the current shift in health care from a biomedical-technological model to a socio-environmental model and understand the implications of the growing emphasis on personal responsibility in matters of health.

Stage 1. Experience

The introductory experience should acquaint students with some of the elements of health by making them aware of its manifestations in individuals who are physically well (free of disease or ailments). Examples of introductory activities are:

- administering fitness tests and/or health behaviour inventories to the class
- conducting interviews with health care professionals to determine their philosophy regarding the delivery of health services
- surveying the literature pertaining to wellness, total health, positive health, or holistic health

Stage 2. Theory

The study of this concept shall include the following *six essential elements:*

1. health
   - past definitions of health
   - current theories of health – e.g., wellness, total health, positive health, holistic health, health promotion
2. total fitness
   - definition
   - interrelationship of the physical, intellectual, emotional, social, and spiritual dimensions of total fitness
   - correlations between the theories of wellness and total fitness
   - contribution to the quality of life
   - the role of personal responsibility
   - assessment methods
   - programs for improvement
   - appreciation of total fitness as a way of life – e.g., a full commitment to a physically active and healthy lifestyle
3. nutrition
   - nutritional needs for daily living at different life stages
   - nutrition and efficient living and moving
   - maintenance of ideal weight and body composition
   - nutrition and consumerism
   - effect of poor nutrition on body systems

- the bases of sound decisions about, and the importance of assuming personal responsibility for, nutritional practices

4. prevention of disease
   - relation to living and moving
   - disease intervention
   - discussion of diseases variously described as degenerative, lifestyle, chronic, or environmental
   - effect of positive health behaviours on total fitness, prevention of disease, and disease intervention
   - importance of assuming personal responsibility for positive health behaviours
5. excesses and addictions
   - definition of terms
   - areas of concern for wellness – e.g., fitness practices, nutrition, drugs and alcohol
   - effects on wellness
   - need for moderation
   - illustration of moderate practices
6. health care
   - overview of the health care system
   - two models of health care: the biomedical-technological (emphasis on diagnosis, treatment, and cure) and the socio-environmental (emphasis on promotion and prevention)
   - the current trend of shifting to the socio-environmental model
   - attitudinal prerequisites for this shift
   - methods of promoting attitudinal changes
   - implications of the shift in health care model for health care providers and consumers
   - factors promoting and hindering the shift in health care model

The following are examples of *optional elements* that may be used to extend the essential elements listed, when time and interest permit:

- stress
  - holistic effects of stress (topics examined could include: stress and mental health, stress and the family, stress and social health)
  - stress management skills
- the life cycle
  - wellness in childhood, youth, and adulthood into the senior years

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

- examining one's personal health management style and determining whether or not it contributes to wellness
- investigating a degenerative disease such as heart disease, cancer, diabetes, or osteoporosis to ascertain the prognosis for a cure and to determine the currently known interventions
- creating a logo or a slogan for the promotion of wellness and writing a rationale for it

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

- designing a personal model for wellness – e.g., as a follow-up to the first activity suggested in stage 3
- developing a strategy to alter a health care facility in the community to meet the criteria for a wellness model of health care
- writing a speech advocating a wellness model of health care for an audience of health care professionals
- planning and carrying out a strategy to persuade a selected group in the community to adopt the criteria for a wellness model of health care or a lifestyle leading to wellness
- writing a computer program to evaluate the extent to which an individual's lifestyle accords with the criteria for a wellness model

B. Psychological and Social Development

The study of social development deals with physical activity, personal interactions, and the environments in which these interactions take place. The study of psychological development concentrates on the individual and on the ways in which his or her psyche is affected by, and in turn affects, physical activity, health, other people, and the environments in which he or she lives and moves.

On completion of the study of this concept, students will be expected to:

1. be able to relate the actions of the individual and the interactions of group members to effective and ineffective practices pertaining to living and moving in society;

2. be able to describe and practise the interpersonal and group skills necessary for effective group dynamics;
3. understand the accepted theories of motivation and be able to use them to motivate themselves to adopt habits that are necessary for a healthy and physically active lifestyle;
4. understand and be able to apply the accepted theories of leading and following;
5. be able to differentiate between co-operation and competition among people;
6. understand how a physically active and healthy lifestyle can reduce emotional and physical stress.

Stage 1. Experience

The introductory experience should illustrate to the students the interactions between members of a group, as well as the emotional and mental effects of the group's activities on these interactions. Examples of introductory activities are:

- playing a team game
- participating in initiative/challenge tasks
- participating in an outdoor education experience
- investigating an aspect of sport or health or an issue related to sport or health – e.g., violence and sport, socialization through sport, sport and social mobility, the pursuit of excellence, emotional and mental well-being, gender and sport, or personal and family relationships
- keeping a diary of the sports and recreational activities of a family

Stage 2. Theory

The study of this concept shall include the following *four essential elements:*

1. self-image
   - understanding and "knowing" oneself
2. interpersonal and group skills
   - definition of terms
   - communication skills
   - group dynamics (such factors as group process, group maintenance, synergy, and agenda setting should be examined)
   - leadership and followership
   - co-operation and competition
   - pro- and anti-social behaviour in sport
   - support networks
3. motivation
   - current theories
   - "spur" to action or "wall" to block action
   - ways of motivating self and others
   - effect of topics studied concerning interpersonal and group skills on motivation
4. stress
   - psychological and social stressors
   - influence of stress on health, physical activity, and personal interactions, and vice versa
   - current theories
   - stress management
   - psychological and social effects of "burn-out"
   - relevance of emotional and mental well-being

The following are examples of *optional elements* that may be used to extend the essential elements listed, when time and interest permit:

- values
  - significance in psychological and social development
- community sports and clubs
  - relevance to social, emotional, and intellectual fitness needs
- challenge, risk taking, and adventure
  - influence on action and behaviour
  - personal needs
- personal growth and independence
  - determinants of social and emotional maturity

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

- leading, coaching, or observing others in a physical activity or in a health-related situation
- repeating an introductory activity suggested in stage 1 and comparing the two experiences
- designing an activity in which an individual can participate alone, and then modifying it to provide both co-operative and competitive challenges for a group of people
- examining a variety of sports and other physical activities for their contributions to the social, emotional, and intellectual fitness of individuals

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

- conducting an activity or an event that illustrates a component of theory about leadership, about group interaction, or about motivation and analysing it at its conclusion
- analysing an activity suggested in stage 4 of concept C ("Lifestyle and Fitness") for its contribution to psychological and social development
- developing a rationale for a community sports, recreation, and/or health club designed to promote the psychological and social development of its members
- investigating the function of a sport as a social activity during the last century
- evaluating the role of sports and recreational activities in promoting the psychological and social development of family members
- evaluating a student leadership unit, a physical activity program, or a development model for a particular sport for its emphasis on the social, emotional, and intellectual dimensions of total fitness

C. Lifestyle and Fitness

Central to a study of lifestyle and fitness is the correlation between an active, healthy lifestyle and wellness or total fitness. The study of this concept involves investigating the different ways in which people choose to live and move, with a particular focus on their use of leisure time and the role physical activity plays in it. The study addresses such questions as why people play, what they play, and where they play. It is also concerned with the feeling of well-being, the enjoyment of physical exertion, and the individual's personal responsibility in adopting a philosophy of total fitness or wellness, that is, a physically active and healthy lifestyle.

On completion of the study of this concept, students will be expected to:

1. understand the current theories of leisure, play, and recreation and be able to relate their significance to a physically active and healthy lifestyle;
2. be able to analyse and evaluate, in terms of the criteria that define a physically active and healthy lifestyle, the lifestyles of various individuals or groups of people;
3. appreciate the ability of individuals, groups, and agencies to effect changes in lifestyle;
4. be able to extend and apply their new knowledge in the development of model leisure and recreational activities for the individual and the community.

In the case of a French-language school or class, the above activities would be conducted in French and would have francophones as their subject.

Stage 1. Experience

The introductory experience should provide the students with the opportunity to compare a number of active lifestyles. Examples of introductory activities are:

- observing, in film clips, videotapes, or interviews, or on field trips, the different ways in which leisure time is used by people of varying ages and abilities (including those with disabilities) and from various socio-economic levels, geographic locations, and cultural backgrounds
- collecting examples of active, healthy lifestyles depicted in art and literature
- observing people of various occupations at work and at play
- examining current periodicals dealing with lifestyles
- living outdoors for a day
- playing on a creative playground
- conducting a survey to develop definitions of such terms as *leisure, play, work, recreation, sport,* and *lifestyle*

The above activities would be conducted in the language of instruction of the school or class.

Stage 2. Theory

The study of this concept shall include the following *three essential elements:*

1. leisure
   - definition of the term
   - current theories
   - ways in which people use leisure time
   - the work and leisure equilibrium
   - fallacies concerning leisure

2. play and recreation
   - definition of terms
   - role of play and recreation in leisure theory
   - significance of play, recreational activities, and leisure in a physically active and healthy lifestyle
3. promotion
   - personal responsibility
   - the role of support agencies and groups
   - employee fitness programs
   - marketing
   - obstacles and deterrents
   - sedentarism
   - ways of effecting positive change

The following are examples of *optional elements* that may be used to extend the essential elements listed, when time and interest permit:

- role models
- stereotypes in sport
- the volunteer in sport and recreation
- use of leisure time
  - from an historical perspective
  - from a cultural and/or racial perspective

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

- participating, either individually or as part of a group, in a variety of sports and leisure activities that are new to the student – e.g., yoga, large group games, games of low organization, outdoor living experiences, sports activities popular in other countries
- investigating the recreational programs available in the community; in the case of a French-language class or school, the students would compile a list of the recreational programs available in French
- investigating the influence of ParticipACTION on the community, the family, the student, and his or her peers
- analysing one's use of leisure time in relation to the requirements of a physically active and healthy lifestyle

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

- planning, for a specific community group, a recreational program that is designed to promote a physically active, healthy lifestyle
- designing play facilities that promote total fitness for a specific age group
- creating an audio-visual lifestyle promotion campaign for the school and evaluating its impact
- organizing an activity event in the school to promote the concept of total fitness and evaluating its results
- designing and presenting a strategy to establish a new recreational facility to meet local needs
- writing an analysis of the effect, actual or potential, of a major sports event on Canadian lifestyles

Optional Concepts

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The optional concepts indicate an alternative perspective in the study of physical and health education. In this OAC, the options demonstrate the impact of the biological and physiological sciences on the study of people's health and lifestyles.

D. 1. Adaptation

Adaptation is the modification of the environment to meet the needs of one's body and the modification of one's movement in response to the environment. The contribution of bio-scientific knowledge to the understanding of adaptation is the main focus in the study of this concept.

This study will result in a better understanding of the ways in which people adapt to their environment. It will also address society's responsibility to modify the environment to meet the needs of specific groups.

On completion of the study of this concept, students will be expected to:

1. have an increased awareness of the variety of exceptionalities and the limitations and difficulties that may be experienced;
2. realize what steps the community has or has not taken to accommodate individuals and groups with disabilities;

3. have a greater understanding of the ways in which people have modified their lifestyles as a result of changes in the environment in which they move and live;
4. understand better the need to adapt to the changes in our environment predicted by futurists;
5. demonstrate an understanding of the phenomenon of "ageing" and of the adaptations that people make at various stages of the life cycle.

Stage 1. Experience

The introductory experience should involve the students in a situation in which the environment is modified or in which individuals have to adapt to their surroundings. Examples of introductory activities are:

- experiencing the limitations of a physical disability – e.g., spending time in a wheelchair, or blindfolded, or partially deaf (i.e., with cotton balls in the ears), or with one arm immobilized
- experiencing a different environment – e.g., spending time outdoors, in an elementary school, or in a nursing home

Stage 2. Theory

The study of this concept shall include the following *three essential elements:*

1. stages of the life cycle
   - definition of stages – e.g., childhood, youth, adulthood, and senior years
   - growth and development in each stage
   - nutritional needs in each stage
   - total fitness needs appropriate to each stage
   - geriatrics and its importance in the future
2. the environment
   - variables – e.g., climate, season, demography, stressors
   - effect of variables on the various aspects of total fitness and wellness
   - positive and negative personal adaptations to environmental limitations
   - predictions of changes in the environment and possible adaptations
   - environmental alterations to eliminate the need for personal adaptations
3. people with exceptionalities
   - classification of exceptionalities
   - modification or rehabilitation programs
   - motor learning and skill acquisition
   - opportunities to excel physically
   - meeting total fitness needs – e.g., community support systems, specialized facilities, program modifications
   - integration of people with disabilities
   - the elite or highly skilled athlete

The following is an example of an *optional element* that may be used to extend the essential elements listed, when time and interest permit:

- technology
  - equipment designed to enhance moving and living for people with disabilities, for people in different environments, or for people at different stages of the life cycle
  - medical advances that may benefit people with disabilities or help in adaptations to changing environments or to the different stages of the life cycle

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

- practising physical activity skills in the gymnasium or outdoors while deliberately limiting one's natural ability in some way
- participating outdoors in a physical activity that usually takes place indoors
- playing a formal game in an elementary school's general purpose room
- organizing recess play activities for elementary school pupils

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

- spending time with a child, a senior citizen, or a person with a disability and keeping a journal for the purpose of assessing the suitability of the adaptations that the accompanied person makes
- working with a group of children, senior citizens, or people with disabilities and evaluating this experience in terms of the theory studied in this concept

- researching the activity programs available to people with disabilities and comparing them with those available to other groups of people
- researching advances in medicine that eliminate disabilities or help people to surmount a potential disability
- interviewing senior citizens regarding their health care and recreational needs and drawing up recommendations for ways to meet these needs
- developing a scenario for living and moving in a space station

In the case of a French-language school or class, the above activities would be conducted in French and would have francophones as their subject.

2. Scientific Advances and Lifestyle

In the latter half of the twentieth century, society has been dramatically affected by scientific advances. Study of this concept involves examining the bio-scientific advances that have had an effect on people's health and physical activities.

Central to this study is an increased understanding of: the role of scientific research and technological design in changing the ways people move and live; the contribution of bio-scientific advances to lifestyle enhancement, and to the prevention, control, diagnosis, and treatment of disease; and the new ethical considerations raised in health, fitness, and sport as a result of scientific progress.

On completion of the study of this concept, students will be expected to:

1. be able to present others with examples of scientific advances that have resulted in practical ways of enhancing a physically active, healthy lifestyle;
2. understand the scientific method and demonstrate how scientific advances and technological innovations have influenced sport and physical activity;
3. be able to draw comparisons between a biomedical-technological model for health care and a wellness model;
4. be aware of new ethical choices that have been created in the areas of health, sport, fitness, and lifestyle practices by scientific advances.

Stage 1. Experience

The introductory experience should provide the students with opportunities to explore life situations that are affected by advances in science and technology. Examples of introductory activities are:

- determining the progress made by scientific investigation in an area of health, sport, fitness, or lifestyle using research reports, videotapes, or interviews with scientists
- observing the use of technology while visiting a medical clinic, hospital, laboratory, or research facility
- reporting on current scientific investigations in an area of health, sport, fitness, or lifestyle
- researching the scientific discoveries that have influenced the manner in which people move and live
- interviewing public health officials concerning the role of immunization in the eradication of communicable diseases

The above activities would be conducted in the language of instruction of the school or class, and the school would direct students to the appropriate specialists or institutions.

Stage 2. Theory

The study of this concept shall include the following *three essential elements:*

1. research
   - investigative methods
   - types of research
   - pure and applied research
   - use of research in the fields of health, sport, fitness, and lifestyle
   - limitations or constraints of research
2. technology
   - examples of the impact of technology on health, sport, fitness, and lifestyle
   - impact on adaptation
   - impact on rehabilitation following an injury – e.g., decrease in the disabling potential of the injury
3. ethical considerations
   - definition of terms – e.g., bioethics, ethics of sport
   - implications for health and fitness (topics could include euthanasia, genetic engineering, environmental concerns, organ transplants, performance-enhancing drugs)

The following are examples of *optional elements* that may be used to extend the essential elements listed, when time and interest permit:

- science, environment, and wellness
  – relationships between these elements
- disease prevention, treatment, and control
- "spin-offs" from research in other fields
  – developments in plastics and nutrition from space research, cold-weather clothing and clothing for disabled athletes from the Rick Hansen tour

Stage 3. Practice Application

Some suggested activities for the practice application of the concept are:

– tracing the technological development of a personal aid or some product that enhances the enjoyment of a sport – e.g., the pace-maker, contact lenses, prosthesis, ski bindings, sports footwear
– tracing the development of a sports event, noting the impact of research and technology on performance levels and the degrees of skill of the participants – e.g., gymnastics-floor exercise, platform diving, alpine skiing
– researching the history of scientific advances having application to a health-related topic (e.g., immunization) and commenting on the impact of these applications on society
– researching the ethical issues raised by scientific advances in the areas of health, sport, fitness, and lifestyle (topics could include: recombinant DNA, blood doping, anabolic steroids, life-support systems, organ transplants, artificial insemination)

Stage 4. Extension Application

The students, working more independently, will extend the application of the elements explored in the study of this concept. Some suggested activities are:

– writing a report on the latest advances in the diagnosis and treatment of an illness, based on a review of the literature and on interviews with local health professionals, researchers, and people who have benefited from the advances being investigated
– conducting an experiment on some aspect of a health, sports, fitness, or lifestyle practice
– organizing and conducting a public debate on the ethical issues raised by scientific advances in the areas of health, sport, fitness, and lifestyle (see the examples suggested in the fourth activity in stage 3)

3. Research

The research done as part of this course shall reflect the scholarly standards expected for an OAC credit, and will assist in providing students with the skills and knowledge necessary for carrying out research tasks in future studies.

The research concept provides for the exploration of a particular topic in depth and the acquisition of experience in research methodology. This option will allow students to undertake, individually or as part of a small group, the scientific and empirical investigation of a particular aspect of one of the core concepts in order to become more familiar with the research skills of observation, identification, data collection, analysis, synthesis, and application.

On completion of the study of this concept, students will be expected to:

1. be more aware of the need to set criteria for judging the value of research methods and findings;
2. be able to read research papers, interpret their findings, and apply them to total fitness and wellness;
3. be able to choose a research topic, design a research study, conduct the research, and report on the findings.

Stage 1. Experience

The introductory experience should expose the students to the research skills they will use in studying a topic chosen from one of the core concepts. The following is an example of the kinds of activities that could be used:

– Working in small groups, students select from the literature a research study that deals with an element from one of the core concepts. Each group reports to the class on the issue or problem addressed by the study, and on its methodology, findings, and recommendations.

Stage 2. Theory

The study of this concept shall include the following *five essential elements:*

1. research as a means of obtaining knowledge
2. research skills
3. evaluation of research
4. technology used in research – e.g., computers, systems approaches, electronic equipment, other laboratory equipment
5. supportive research

Stage 3. Practice Application

Each group of students should review the research study on which they initially reported to the class and critically examine the design, methodology, analysis, and findings of the study. The results of their critique should be reported to the class.

Stage 4. Extension Application

The majority of the time spent on this concept should be devoted to this stage. With the guidance of the teacher, the students, working individually or in small groups, should identify a problem suitable for research from the core concepts of the course and then design and carry out a research study. On the basis of their findings, the students will prepare recommendations for action and present and defend their recommendations to a group. Examples of possible studies are:

- surveying the health practices of a particular group of people
- developing a case study for a community problem
- preparing a case study that illustrates the play or leisure activities of students in the school

Evaluation

The OACs will be the most rigorous and theoretical of the physical and health education courses offered by a secondary school. To a great extent, their integrity depends on sound assessment and evaluation. To maintain the provincially prescribed emphasis of each course at the local level, teachers will need to be consistent in their assessment strategies.

To be consistent with the allocation of the instructional time and with the course objectives, the evaluation in each OAC shall be apportioned as follows to allow for the assessment of both the theoretical and the practical work:

– written examination(s)	20–40 %
– class work, including activities assessed equally over the three core units and the unit based on an optional concept	20–40 %
– portfolio of assignments, activity projects, and leadership activities	20–40 %
– major project (oral and/or written components)	20–40 %

There shall be no latitude on either side of the 20–40 per cent range stated for the four areas of evaluation and assessment.

Each student will develop a *portfolio*, a collection of his or her own pieces of work that illustrates the student's growth and development through the course. Evaluation shall be based on a minimum of five pieces of the student's work, including at least one piece from each of the three core concepts. Some of the items to be included should always be selected by the student. The work submitted may be in a variety of media; for example, written work, sketches, videotapes, audiotapes, and photographs. Material used in the preparation of the major project should not be included in the portfolio.

The *major project* may include both written and oral components, but only one component is required for evaluation purposes. The project is intended to demonstrate an extension of learning beyond stage 4 activities. Therefore, the subject of the project should incorporate the elements of at least two concepts. The means and strategies for assessing the major project may be determined in consultation with the student; they must be considered carefully to ensure valid results.

All students shall write at least one *examination* in the course, except, where necessary, students identified by an IPRC as exceptional, for whom alternative evaluation procedures will have to be established. The assessment procedures shall require the students to apply the concepts rather than merely to recall content. Examinations should thus reflect the course objectives by requiring the students to use high-level thinking skills, develop a position, select evidence, and apply the elements of each concept to a real situation.

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