Chapter 6



Course PHA-5046-1 Physical Education and Health: Adaptation to Physiological Characteristics

Secondary V

Duration: 25 hours

6.1 Introduction

The course *Adaptation to Physiological Characteristics* is designed to make adult learners aware of the advantages and benefits of safe participation in physical activities, while taking into account their handicaps and individual physiological characteristics.

During the course, adult learners learn to apply their motor skills and perform ongoing sequences more efficiently, in terms of both form and execution. In doing so, they must use the appropriate techniques for each specific physical activity. They are also required to prepare a plan of action adjusted to their individual physiological characteristics and their personal project to adopt a healthy, active lifestyle.

6.2 Subject-Specific Competencies

This course targets the development of all three subject-specific competencies.

Overview of the Subject-Specific Competencies, Key Features and Manifestations

Competency 1	Competency 2	Competency 3
Performs movement skills in different physical activity settings	Interacts with others in different physical activity settings	Adopts a healthy, active lifestyle
Analyzes the situation according to the requirements of the setting Considers the constraints of the task and the objective of the activity Identifies the resources necessary to complete the task Establishes connections with other tasks or similar activities Selects different options and examines their consequences Chooses a type of physical preparation (stretching or warming up) or an appropriate recovery process Performs movement skills taking into account the different constraints of the environment Applies the principles of coordination, balance and synchronization Adjusts efforts according to own motor skills and fitness level Pays attention to kinesthetic feedback from the body Adjusts actions according to the demands of the physical activity Uses objects or tools appropriately Varies movement skills and sequences Evaluates own motor efficiency and process in light of the goal pursued Reflects on personal process to complete the task and own results Assesses own choices of movement skills and the effectiveness of the execution Identifies strengths and challenges Decides which improvements to make, if any Recognizes elements that may be applied when practising other physical activities	Prepares a plan of action Accepts assigned roles Considers other points of view Takes into account the requirements of the situation and the goal pursued Works with teammate(s) to set effective rules for the group or team Plans one or more strategies and anticipates the consequences Plans a backup strategy Selects one or more movement skills or tactics for the chosen strategy Carries out a plan of action Applies the strategy Performs movements or tactics according to the chosen strategy Constantly observes teammates' or opponents' positions Adjusts position and actions according to unexpected aspects of the strategy Applies the principles of communication and synchronization Plays different roles with one or more teammates or against one or more opponents Evaluates a plan of action With teammates, examines strategy choices, the effectiveness of their own execution and results or those of a peer or another team Explains the reasons for achievements and difficulties Recognizes the contribution of teammates Recognizes new learning Identifies, with one or more teammates, improvements that can be made Identifies, with one or more teammates, strategies that can be used again in different contexts	Plans a personal project Using observable facts, prepares a summary of own lifestyle habits Chooses which lifestyle habits to maintain or change Begins a process Identifies own tastes and aptitudes Chooses realistic objectives and anticipates the consequences Uses a variety of resources Carries out own project Carries out activities to improve or maintain healthy lifestyle habits Uses the required resources Perseveres in carrying out the project Compiles essential information about changes to own lifestyle habits Evaluates own project and lifestyle habits Using appropriate tools, measures whether own fitness level has been maintained or improved Judges whether the objectives were met, in light of data collected Explains the reasons for difficulties and achievements Reconsiders choice of methods and results obtained Identifies new learning Recognizes work accomplished Makes a decision based on the evaluation

6.3 Reflective Process

The reflective process is divided into four steps. It starts with the adult learner's life experience. Then the adult learner is encouraged to reflect in order to assimilate and integrate knowledge, and prepare to transfer his or her learning to authentic life situations. These steps are related and complementary. They require the adult learner to perform different tasks that are not necessarily sequential. The adult can always return to a previous task.

A diagram of the reflective process is presented in Appendix 2.

6.4 Cross-Curricular Competencies

Although, to a certain extent, this course involves all of the cross-curricular competencies in the Diversified Basic Education Program, it is important to identify those that best meet the requirements of the tasks to be carried out in each of the learning situations developed by the teacher. The cross-curricular competencies are presented in Appendix 1 of the program.

For example, the learning situation *Health Assessment* presented in this course makes use of two cross-curricular competencies: *Solves problems* and *Exercises critical judgment*.

Adult learners *solve problems* when they analyze the situation according to their abilities. They examine the possible solutions available to them, taking into account their individual physiological characteristics. This leads them to reflect on their method, and they persevere in their attempts while acknowledging that they have the right to make mistakes.

Adult learners exercise critical judgment when they analyze the situation using their health assessment. They consider the facts, i.e. the information gathered, in order to verify their accuracy and put them into perspective, based on their age group. They analyze the situation carefully to form an opinion and develop or maintain healthy lifestyle habits.

6.5 Subject-Specific Content

The content of the course enables adult learners to adopt a healthy, active lifestyle, taking into account their handicaps and individual physiological characteristics. It includes three categories of knowledge and related content as well as examples of cultural references.

The compulsory elements: are the subject-specific competencies, key features and manifestations; the categories of knowledge and related content; the families of learning situations; and the cultural references.

Categories of knowledge and related content

The categories of knowledge in this course are:

- Theory
- Skills
- Behaviour

Knowledge consists in the elements of content for each category, and each element is related to one or more subject-specific competencies. The competencies are indicated as follows:

- C1: Performs movement skills in different physical activity settings
- C2: Interacts with others in different physical activity settings
- C3: Adopts a healthy, active lifestyle

The following table presents each category, along with the related content and associated subject-specific competencies.

AD	KNOWLEDGE PAPTATION TO PHYSIOLOGICAL CHARACTERISTICS	Subject- Specific Competencies (C1-C2-C3)
	THEORY	
▶ Anat	omy and physiology of the human body	
• 1	Physiology: cardiovascular system, respiratory system, muscular system	С3
• 1	Body's response to exercise	С3
▶ Kine	sthetic feedback	
	Body segments in stable position or in motion on different planes (sagittal, frontal, horizontal)	C1
• ;	Speed of movement and travel	C1
• 1	Body and body parts in relation to an object or a space	C1
▶ Influ	encing factors of physical fitness	
• (Cardiovascular endurance	C3
• F	Flexibility	С3
• 1	Muscular strength and endurance	СЗ
▶ Rule	s related to physical activities	
•	Rules of ethics	C1-C2
• ;	Safety rules	C1-C2-C3
• (Game rules	C1-C2
▶ Tech	nnical aspects of movement related to activities	
• 1	Example: The classical stride in cross-country skiing. When pushing forward, the upper body is inclined, and the hip, knee and ankle joints are flexed. When gliding forward, body weight is transferred from the pushing ski to the gliding ski. The movement of each arm is synchronized with that of the opposite leg.	C1-C2
▶ Lifes	style habits	
•	Active lifestyle: psychological benefits	
	- Mental relaxation, sleep quality, sustained or improved concentration, positive emotions	C3
• ,	Active lifestyle: physical benefits	
	- Contribution to growth	C3
	- Improved recovery, increased capacity for work and improved physical response to emergency situations	C3
	- Effects on body weight	C3

- Improved muscle mass and tone, posture and flexibility	C3
- Improved coordination and physical efficiency	C3
- Improved cardiovascular endurance	C3
Healthy lifestyle: nutrition	
 Needs according to the intensity of the activity (hydration, food choices before, during and after the activity) 	C3
Healthy lifestyle: personal hygiene	
- Personal benefits	C3
- Benefits for others	C3
Healthy lifestyle: sleep	
- Effects on physical well-being	C3
- Effects on psychological well-being	C3
Healthy lifestyle: stress prevention and management	
Types of stress and impact on daily life	C3
- Physiological reactions to different types of stress	C3
- Impact of poor stress management on health and well-being	C3
Effects of different substances on performance and training (e.g. tobacco, drugs, alcohol, anabolic steroids, dietary supplements, vitamins)	
 Side effects on different systems (e.g. cardiovascular, respiratory, muscular, nervous) in the short and long term 	C3
- Psychological effects	C3
- Effects on lifestyle habits	C3
Excessive use of multimedia technology	
- Psychological effects	C3
- Effects on physical capacity	C3
SKILLS	
▶ Principles of balance (static and dynamic)	
Number of body parts in contact with the floor or surface	C1
Position of body parts used for support	C1
Surface used for support	C1
Position of the centre of gravity	C1
Position of body segments	C1
Movement of body segments	C1
Transfer of weight	C1

Principles of coordin	ation	
 Fluidity in perform 	ning a movement	C1
 Use of an optimal 	number of joints	C1
 Use of joints in an 	appropriate order	C1
 Optimal performar 	nce time	C1
Direction of the me	ovement	C1
Principles of commu	nication	
Recognition of me		C2
Communication of visual cues; touch	of clear messages appropriate to the activity (verbal, acoustic, n; body language)	C2
	of misleading messages appropriate to the activity (verbal, ues; touch; body language)	C2
Principles of synchro	onization	
Throwing an object	ct to hit a moving target	C1-C2
Receiving an objectivity the thrown objectivity.	ect (moving to the point where the object will fall, making contact oject)	C1-C2
 Moving in relation 	to teammates and opponents	C2
Action rules in coope	eration activities	
Positioning onese pyramid)	elf and moving in relation to teammate(s) (e.g. when building a	C2
Varying force, spe those of teammater	eed and direction of movements or movement skills in relation to e(s)	C2
Action rules in comb	at activities	
Using space		C2
Throwing an opportunity	onent off-balance	C2
Feinting		C2
Moving in relation	to space and to an opponent	C2
Varying force, spe	eed and direction of movements	C2
Keeping one's bal	lance	C2
Attacking the opportunity in the opportunity is a second control of t	onent when he or she is off-balance	C2
-	oponent's movements	C2
Action rules in duelli	ng activities	
Recovering		C2
Catching opponer	nts wrong-footed	C2
Feinting		C2

	
Using space	C2
Using playing surface	C2
Attacking at opportune moments	C2
Action rules in group activities	
In a separate space:	
- Attacking the other team's goal; counterattacking	C2
- Recovering	C2
- Passing the object	C2
- Protecting one's space	C2
- Moving in relation to the opponent, teammates and the object	C2
- Using the full width and depth of the playing field	C2
- Moving the object forward	C2
- Attacking the opponent's open spaces	C2
- Varying direction and speed (of movements, of the object)	C2
- Keeping possession of the object	C2
In a common space:	
- Passing the object	C2
- Recovering the object	C2
- Getting back in the defensive zone	C2
- Using the space available	C2
- Moving the object toward the opponent's goal	C2
- Attacking the opponent's goal; counterattacking	C2
- Protecting own team's target or goal	C2
Moving in relation to the goal to be protected, teammates, opponents and the object	C2
- Moving away from the carrier	C2
- Scoring; moving into an open space	C2
- Interfering with the object's progress; keeping possession of the object	C2
- Varying direction and speed (of movements, of the object)	C2
▶ Locomotor skills	
 Walking, running, galloping, jumping, hopping, crossing, spinning, going down, going up, changing direction, braking, going over, rolling, climbing and going around 	C1
➤ Nonlocomotor skills	
Turning, pivoting, pirouetting and maintaining postures	C1

Manipulation skills	
Handling (dribbling, juggling, keeping one's balance)	C1
Projecting (throwing, hitting, shooting)	C1
Receiving (catching, blocking, deflecting)	C1
Regular physical activity	
Characteristics of a physical activity session	
- Pacing and target heart rate	C3
- Regular self-evaluation (cardiovascular capacity and other factors)	C3
- Recovery periods	C3
- Exercises to avoid	C3
- Safety rules for different physical activities	C3
- Prevention of sports injuries	C3
▶ Safe participation in physical activities	
Appropriate clothing (shoes, garments, protective equipment)	C1-C2-C3
Appropriate conduct in potentially dangerous situations	C1-C2-C3
Elements of physical activities (warm-up, action, cool-down)	C1-C2-C3
Compliance with standards and rules set by a sports federation, if applicable	C1-C2
Matching with a partner of similar weight and build, if applicable	C2
► Relaxation techniques	
Variety of techniques (e.g. Jacobson, breathing, mental imagery)	C3
BEHAVIOUR	
▶ Fair play	
• Equity	C1-C2-C3
Respectful attitude toward opponents	C1-C2-C3
Desire to surpass oneself	C1-C2-C3
Appreciation of successes and achievements of teammates and opponents	C1-C2-C3
Dignity and self-control	C1-C2-C3
Respect for others demonstrated in words, body language and facial expressions	C1-C2-C3
Strict observation of playing rules	C1-C2-C3
Respect for equipment and the environment, through actions	C1-C2-C3
Respect for roles, standards and the referee or umpire	C1-C2-C3

Help and mutual assistance	C1-C2
Acceptance of differences	C1-C2
Sense of responsibility	C1-C2
Perseverance in adopting a healthy, active lifestyle	C1-C2

Cultural References

Cultural references encompass everyday realities, such as people, events and heritage objects related to physical activities, sports, leisure, physical education, first aid and health. These references give a cultural dimension to instruction, expand the adult learner's knowledge and make their learning meaningful.

Although the use of cultural references is compulsory, the examples provided in this course are not.

Examples of Cultural References

Scientific or technological activities associated with sport

- Improvements to techniques for manufacturing sportswear and sports equipment and their impact on athletic performance
- Evolution of techniques used in sports

Everyday objects

- Gear, objects, tools and equipment used in physical education and health
- Types of clothing worn to practise sports according to the season and the customs of different nations

Heritage objects

- Ski equipment used in the 1960s
- Snowshoes fashioned by Aboriginals

Events

- History of sports events (e.g. the Olympics, the Jeux de la Francophonie, the Commonwealth Games, sports events held at carnivals)
- Sports- or leisure-related exhibitions (e.g. hall of fame)
- Major news events in connection with physical activity and sports

Architecture

- Facilities designed for sports events (e.g. the Olympic Stadium)
- Facilities designed for practising different sports (e.g. velodrome, diving pool, speed-skating track)

Lifestyles

- Determining factors (social, political, economic) of Québec society regarding lifestyle habits
- Lifestyles in the history of our society
- · Lifestyle habits in other societies
- The health of Quebecers, especially young people
- Physical activity as practised by families, in the community, with friends, in Québec society, outdoors, indoors, in sports or recreational centres
- Leisure and sports activities practised here and elsewhere

Key figures

- Key figures in sports, here and elsewhere
- · Key political figures who have had an impact on amateur and professional sports
- · Olympic and Paralympic medalists

Values

- Values that are promoted in the media (e.g. newspapers, radio, television, cinema) and that influence behaviour
- Sports ethics
- Local, national and international rules

6.6 Families of Learning Situations

Learning situations that are related to each other or share common characteristics are grouped together into families. They provide learning contexts that make learning more meaningful. This course involves the family *Participation in Physical Activities*.

6.7 Broad Areas of Learning

The course *Adaptation to Physiological Characteristics* pursues the educational aims of five broad areas of learning from the program of study. Each broad area of learning is addressed to varying degrees and raises questions that can be used to develop learning situations.

The learning situation *Health Assessment* is related to the educational aim of the broad area of learning Health and Well-Being, which is to *encourage adult learners to take responsibility for adopting good living habits*. The focus of development *Knowledge of the impact of his/her choices on health and well-being* allows adult learners to make connections between the benefits of physical activity and their psychological and physical well-being, while respecting their individual abilities.

6.8 Example of a Learning Situation

Learning situations place adult learners at the heart of the action and help them develop competencies, construct knowledge and mobilize a wide variety of resources. Each situation is based on a pedagogical aim that is connected to different elements of the program and course.

The learning situation below includes:

- 1) a reference to the elements of the program and course
- 2) the context: situational problem
- 3) the pedagogical aim, activities and connections with the subject-specific competencies

The learning situation is entitled *Health Assessment*.

Reference to the elements of the program and the Adaptation to Physiological Characteristics course		
Broad area of learning	Health and Well-Being	
Cross-curricular competencies	Solves problemsExercises critical judgment	
Family of learning situations	Participation in physical activities	
Subject-specific competencies	Performs movement skills in different physical activity settings	
	Interacts with others in different physical activity settings	
	Adopts a healthy, active lifestyle	
Categories of knowledge and their	Theory	
content	Physiology of the human body	
	Influencing factors of physical fitness	
	Lifestyle habits	
	Skills	
	Locomotor skills	
	Regular physical activity	
	Behaviour	
	Sense of responsibility	
	Perseverance in adopting a healthy, active lifestyle	
Cultural references	LifestylesHealth of Quebecers, especially young people	
	- Floatin of Quoboccis, especially young people	

2) Context: Situational problem

If you are to be in good health, you must create the physical and psychological conditions required to meet your needs and carry out your projects.

You are in the process of reviewing your own health assessment, and decide to become fitter, based on your skills and physiological characteristics. You choose walking or hiking as activities, because they are easily accessible and will be good for you, both physically and mentally.

To provide motivation, you choose an appropriate model for your health assessment. For example, you make regular notes of the location and duration of your walks, any obstacles you encounter, the weather, your thoughts and any improvements you observe. You then complete your health assessment and measure the impact of the activity.

3) Pedagogical aim, activities and connections with the subject-specific competencies

Pedagogical aim: Help adult learners consider the importance of participating in physical activities, regardless of their physiological characteristics

Activities	Subject-Specific Competencies
When preparing their health assessment:	Competencies
Adult learners analyze the situation, perform movement skills and evaluate their effectiveness. To do so, he or she:	
 Carries out tests to assess his or her own fitness Identifies the locations and resources necessary for walking or hiking Performs the movement skills required to walk or hike Plans the frequency of the activity, taking into account constraints Identifies own strengths to persevere with the activity 	Performs movement skills in different physical activity settings
Adult learners identify the elements needed to prepare, execute and evaluate a plan of action adjusted to their physiological characteristics. To do so, he or she: Takes into account the requirements of the situation and the goal pursued Performs movements or tactics according to the chosen strategy Applies the principles of synchronization Discusses the effectiveness of his or her own execution Identifies the improvements made	Interacts with others in different physical activity settings
Adult learners identify the elements used to plan, carry out and evaluate their personal project to adopt a healthy, active lifestyle. To do so, he or she: Begins a process Compiles appropriate information and resources Judges whether the objectives were met Reconsiders the choice of strategy and results obtained Makes a decision based on the evaluation	Adopts a healthy, active lifestyle

6.9 End-of-Course Outcomes

To develop the competency *Performs movement skills in different physical activity settings*, adult learners analyze a situation according to the requirements of the setting, while considering the consequences. They communicate appropriately, exercise critical judgment and solve problems in order to select and perform movement skills based on their physical abilities and the constraints of the environment. They respect safety rules at all times. Lastly, they demonstrate their motor efficiency through their ability to perform movement skills smoothly and adjust their movements according to the goal pursued and the results obtained in order to improve their performance. In doing so, they demonstrate consistency in their choice of physical activities.

To develop the competency *Interacts with others in different physical activity settings*, adult learners communicate appropriately, cooperate and solve problems as they participate in developing, carrying out and evaluating a plan of action. They validate the plan by applying strategies in compliance with the action rules they have learned by demonstrating attitudes (behaviours), accepting assigned roles and taking into account the requirements of the situation. They also assess their motor efficiency based on their execution and on their ability to adjust movements and tactics, in compliance with safety rules and taking into consideration the unexpected aspects of the activity. They then identify possible improvements based on their achievements and difficulties. In doing so, they demonstrate efficiency in the performance of physical activities.

To develop the competency *Adopts a healthy, active lifestyle*, adult learners develop a plan designed to maintain or change some personal lifestyle habits. They use creativity and solve problems when carrying out the plan and evaluating the process. They discover that their physical fitness level has improved and that they have integrated an autonomous process. They summarize results, past difficulties and new challenges they would like to face. In light of the data collected, they are able to judge their degree of commitment and decide what elements of the plan to maintain, eliminate or change in the future. Lastly, they make corrections to improve their habits. In doing so, they demonstrate the relevance of adopting a healthy, active lifestyle.

6.10 Evaluation Criteria

To support the learning of adult learners and evaluate subject-specific competencies at the end of the course, the teacher bases his or her judgment on the evaluation criteria.

Competencies	Evaluation Criteria
Performs movement skills in different physical activity settings	Demonstration of consistency in choices
Interacts with others in different physical activity settings	Efficient execution of activities
Adopts a healthy, active lifestyle	Understanding of the relevance of adopting a healthy, active lifestyle

