

Course  
**Orientation in Time**  
**MTH-B114-2**  
Literacy





“There are interminable days, months and years where nothing happens. There are minutes and seconds that contain an entire world.”

Jean D’Ormesson

## Presentation of the Course *Orientation in Time*

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The course *Orientation in Time* is designed to help adult learners deal competently with real-life situations that involve orienting themselves in time.

This course prepares adults to use units of time in everyday situations.

By the end of the course, adult learners will be able to interpret and transmit time-related information expressed orally or in writing. They

will be able to read, write and perform calculations involving units of time (e.g. hours, months, years), in addition to recognizing equivalences among these units. They will also be able to select and perform addition and subtraction operations involving units of time using a calculator and written calculation algorithms.

## Dealing With the Real-Life Situations

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

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



## Class of Situations Addressed by the Course

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This course addresses a single class of situations: *Orienting oneself in time*.

This class consists of real-life situations that require adults to read, write and perform calculations involving units of time. Real-life situations such as using public transportation, preparing a meal or adhering to a work schedule all involve using measures of time. Whether they need to consult a bus schedule, read the best-before date on a food product or make a note of the time spent working, adults are required to orient themselves in time.

These real-life situations address the needs expressed by adults and take their interests into account. The situations can involve the personal, professional, social or cultural aspects of their lives.

Class of Situations	Examples of Real-Life Situations
Orienting oneself in time	<ul style="list-style-type: none"><li>▪ Meeting with professionals (e.g. health, social)</li><li>▪ Planning to develop a new lifestyle</li><li>▪ Using public transportation</li><li>▪ Practising recreational activities</li><li>▪ Organizing their time on a daily basis</li><li>▪ Preparing a meal</li><li>▪ Adhering to a work or course schedule</li><li>▪ Celebrating a birthday</li></ul>

## Categories of Actions

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

Categories of Actions	Examples of Actions
<ul style="list-style-type: none"> <li>▪ Reading time-related information</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reads the hours during which a service is available</li> <li>▪ Reads a digital clock</li> <li>▪ Checks the dates of a cultural event</li> <li>▪ Consults a timetable (course, television, public transportation, film, scheduling of an activity)</li> <li>▪ Consults a calendar</li> <li>▪ Reads the cooking time of a prepared food</li> <li>▪ Reads the best-before date of a food or pharmaceutical product</li> </ul>
<ul style="list-style-type: none"> <li>▪ Writing time-related information</li> </ul>	<ul style="list-style-type: none"> <li>▪ Makes a note of the date of an appointment for themselves or someone close to them</li> <li>▪ Makes a note of the time spent working</li> <li>▪ Makes a note of the information required for a follow-up medical visit (e.g. hours of sleep, date on which given symptoms appeared)</li> <li>▪ Makes a list of the birthdays of family members and friends</li> <li>▪ Writes a date out in numbers on a form</li> </ul>
<ul style="list-style-type: none"> <li>▪ Interacting orally in cases involving time-related information</li> </ul>	<ul style="list-style-type: none"> <li>▪ Presents events in his/her personal life in chronological order</li> <li>▪ Indicates the time of an appointment to someone</li> <li>▪ Informs someone of how long he/she will be absent from work or a course</li> <li>▪ States his/her date of birth in number form</li> <li>▪ Repeats a message containing time-related information</li> </ul>

Categories of Actions	Examples of Actions
<ul style="list-style-type: none"> <li>▪ Determining a measure of time</li> </ul>	<ul style="list-style-type: none"> <li>▪ Converts the number of months worked into days</li> <li>▪ Calculates when the next bus will pass (e.g. every 15 minutes)</li> <li>▪ Plans his/her daily schedule</li> <li>▪ Calculates the time elapsed between two events</li> <li>▪ Starts from a given time, determining when the next dose of medication should be taken (e.g. every four hours)</li> <li>▪ Estimates the time it will take to get from one place to another</li> <li>▪ Times a race</li> <li>▪ Determines an end-of-warranty date (e.g. three-month warranty)</li> </ul>

## Compulsory Elements and End-of-Course Outcomes

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

### Class of Situations

Orienting oneself in time

### Categories of Actions

- Reading time-related information
- Writing time-related information
- Interacting orally in cases involving time-related information
- Determining a measure of time

### Operational Competencies

Thinks logically

- Selects information
- Distinguishes between the ways of expressing time orally and in writing
- Compares different indicators of time
- Uses pertinent examples

Communicates

- Listens attentively
- Decodes the symbols, notations and terms associated with basic arithmetic and time
- Asks for clarifications
- Repeats information to check comprehension
- Uses the symbols, notations and terms associated with basic arithmetic and time
- Writes numbers legibly
- Asks for help, if necessary

### Essential Knowledge

- Time
- Arithmetic operations (addition, subtraction)
- Natural numbers



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

### End-of-Course Outcomes

In order to deal with the real-life situations in the class *Orienting oneself in time*, adult learners master basic time measurement concepts and use their knowledge of numbers and of addition and subtraction operations on natural numbers.

In real-life situations that involve reading, writing and verbal interaction concerning time-related information, adults decode the symbols, notations and terms associated with basic arithmetic and time. They understand the numbers they read or hear and make connections between these numbers and units of time. In their interactions with others, they are concerned with communicating effectively. They listen to time-related information attentively, ask for clarifications if necessary and repeat information to make sure they have understood it. After making sure that the selected information is relevant to the context, they estimate or determine a measure of time.

When the situation requires it, adult learners perform additions or subtractions involving units of time by using a calculator or written calculation algorithms. They recognize equivalences between units of time, thus establishing relationships between periods of time such as days and hours or months and years. If necessary, they use examples to avoid potential errors.

The approach to the learning situation is based on their knowledge of timekeeping, numbers and the arithmetic operations of addition and subtraction. Learners express themselves by using the symbols, notations and terms associated with basic arithmetic and time. They use measuring instruments such as digital watches and stopwatches. They make sure that their written indications concerning time are accurate and legible. They do not hesitate to ask for help if they encounter difficulties.

## Evaluation Criteria

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- Interprets time-related information correctly
- Writes time-related information correctly and legibly
- Interacts orally in an appropriate manner in cases involving time-related information
- Accurately determines a measure of time

## Operational Competencies

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

In this course, only the following operational competencies are addressed: *Thinks logically* and *Communicates*.

### Contribution of the Operational Competency *Thinks logically*

The operational competency *Thinks logically* helps adult learners to organize their thinking and guides them in taking action to deal with real-life situations that involve *Orienting oneself in time*.

Learners select the information they need to accurately represent the real-life situation at hand, whether it is a question of recognizing, estimating or determining a period of time. When using their knowledge of time, adults use this operational competency in order to distinguish between time-related information expressed orally or in writing. This competency also allows adult learners to establish relationships between different periods of time, such as days and hours or months and years. In their calculations, adult learners use relevant examples to validate their work, if necessary.

### Contribution of the Operational Competency *Communicates*

The operational competency *Communicates* makes it possible for adults to exchange meaningful information in their daily lives. It is essential to the effective interpretation and transmission of messages in various real-life situations that involve *Orienting oneself in time*.

When referring to periods of time in their communications with others, adults are concerned with understanding others and being themselves understood. They therefore listen attentively to time-related information. They decode symbols, concepts and terms associated with basic arithmetic and time. If necessary, they ask for clarifications and repeat what they have heard in order to check their understanding. They express themselves by using time-related mathematical language correctly, and make sure they write time-related information legibly. If necessary, they do not hesitate to ask for help from someone close to them, a peer or a resource person in order to overcome a difficulty.

## Essential Knowledge

All of the knowledge shown in the following table is compulsory since it is essential for dealing with a number of situations in the *Orienting oneself in time* class.

The left-hand column shows the essential knowledge that was not covered in previous courses. Where necessary, its scope is shown in parentheses. The right-hand column shows the essential knowledge that was covered in previous courses. Since it is also required to deal with the situations in this course, adult learners must deepen their understanding of this knowledge by adapting it to situations that involve orienting themselves in time.

Since essential knowledge in arithmetic is dealt with only in a context involving orientation in time, this material is covered only partially. In order to present all the aspects of this essential knowledge in a greater range of contexts, it has been made compulsory in other mathematics courses that examine other types of situations.

New compulsory knowledge	Compulsory knowledge acquired in previous courses
<p><b>Time</b></p> <ul style="list-style-type: none"> <li>• Everyday terms related to time (e.g. yesterday, today, tomorrow, the seasons)</li> <li>• Timing</li> <li>• Reading a digital timepiece (e.g. 2:35)</li> <li>• Rules for writing standard time (e.g. 2:35 p.m.)</li> <li>• Estimating duration</li> <li>• Units of time (e.g. second, minute, hour, day, week, month, year)</li> <li>• Equivalences between units of time (e.g. 1 minute = 60 seconds, 1 week = 7 days, 1 year = 52 weeks)</li> </ul> <p><b>Arithmetic operations</b></p> <ul style="list-style-type: none"> <li>• Performing calculations involving addition and subtraction of natural numbers (using a calculator and written calculation algorithms)</li> </ul>	<p><b>Natural numbers</b></p> <ul style="list-style-type: none"> <li>• Natural numbers</li> <li>• Representing natural numbers (using concrete means and the base 10 number system)</li> <li>• Place value of a digit within a number</li> <li>• Composing and breaking down a natural number</li> <li>• Comparing natural numbers</li> <li>• Counting by units</li> <li>• Everyday vocabulary associated with comparing quantities (e.g. as many, equal, the same, similar, more, less, less than, greater than, the largest, the smallest)</li> </ul> <p><b>Arithmetic operations</b></p> <ul style="list-style-type: none"> <li>• Performing calculations involving addition and subtraction of natural numbers (using a calculator and written calculation algorithms)</li> <li>• Equality</li> </ul>

New compulsory knowledge	Compulsory knowledge acquired in previous courses
	<p><b>Arithmetic operations (cont'd)</b></p> <ul style="list-style-type: none"> <li>• Understanding of operations (addition and subtraction)</li> <li>• Everyday vocabulary related to addition and subtraction (e.g. add, plus, in all, total, sum, take away, less, remainder, difference)</li> <li>• Arithmetic tables: additions (0 + 0 to 10+ 10) and the corresponding subtractions</li> </ul>

## Attitudes

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

<b>Confidence in Their Abilities</b>	<b>Perseverance</b>
If they are confident in their abilities, adults spring into action more readily when required by the situation and learn from their mistakes.	Persistent adults make a sustained effort and look for solutions to their difficulties. When needed, they ask for help from a resource person or seek support from a peer.

## Complementary Resources

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

Social Resources	Material Resources
<ul style="list-style-type: none"><li>▪ Public and parapublic organizations</li><li>▪ Community organizations</li><li>▪ Services provided by the training centre</li><li>▪ Commercial establishments (e.g. grocery stores, drugstores)</li></ul>	<ul style="list-style-type: none"><li>▪ Calculator</li><li>▪ Calendar</li><li>▪ Digital clock</li><li>▪ Computer</li><li>▪ Various types of timetables (e.g. bus, television, film, recreational)</li><li>▪ Government documentation</li><li>▪ Product labels</li><li>▪ School planner</li><li>▪ Stopwatch</li></ul>

## Contribution of the Subject Areas

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The contribution of all the subject areas is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

In the Literacy level courses, the examples of real-life situations are similar in some ways and complement the essential knowledge covered in the *Computer Science* program, which also belongs to the Mathematics, Science and Technology subject area, and in the *English, Language of Instruction* program, which belongs to the Languages subject area. This makes it possible to deal with different aspects of a real-life situation and to create cross-curricular learning situations.



## Andragogical Context

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It is evident that one must be able to orient oneself in time in everyday life. To help adults deal with a variety of real-life situations, the *Orienting oneself in time* course covers concepts that are essential to timekeeping in addition to continuing to build on learning related to numbers and arithmetic operations. More specifically, this course helps adults to read, write and determine units of time, and to deal with different situations in which they must apply their knowledge of time. In this regard, this course is essential to helping adults become more autonomous.

Adults are encouraged to play an active role in constructing their knowledge of mathematics. However, given the degree of autonomy needed to read task-related information or instructions, the teacher provides constant support in learning activities. Oral and team work is preferred when the context permits. The concrete materials made available to adults facilitate learning and the construction of knowledge. Frequent reflection on what has been learned allows adults to gauge their progress and to make the necessary

adjustments. The teacher is concerned with creating an atmosphere of confidence that makes learning enjoyable and fuels the adults' determination to persevere. The teacher makes sure adult learners have the necessary resources to explore, understand and organize the data they need in order to plan and take action.

The Literacy level courses are designed to allow for the flexibility needed to adjust to the practical needs of adults. To enable adults to deal competently with real-life situations, the examples examined in the different courses are in some ways similar and involve using what was learned in English, Language of Instruction, Mathematics and Computer Science.

This is how the different facets of a real-life situation can be explored, thereby making it possible to create cross-curricular learning situations. The courses are adapted to adults' level of autonomy with respect to their ability to use written materials.

## Learning Situation

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

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

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

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

- planning learning
- actual learning
- integrating and reinvesting learning

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

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

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

## Example of a Learning Situation

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### How I Organize My Time

*Learning to use a calendar* is an example of a learning situation that can be used in this course. It belongs to the class *Orienting oneself in time* and, more specifically, to the real-life situation *Organization of time on a daily basis*. Throughout this learning situation, adults use the operational competencies *Thinks logically* and *Communicates*.

In order to provide a context for this learning situation, the teacher could ask the following question: Do you often find that you do not have enough time? The teacher leads a brief discussion on how people perceive time followed by a discussion on the difficulty of organizing time from day to day and the stress this could cause. The adult learners are then encouraged to explore the different types of information provided by a calendar and to see how this information can be used to organize everyday life.

The teacher checks what the class knows about years, months, weeks and days. Based on this information, the teacher has the class explore the calendar using the school planner. Each person checks the number of weeks and months in a year as well as the number of days in a week. The adult learners are then asked to note which day is generally the first the day in the week on a calendar and how many days there are in a month. The teacher points out that there is one month that differs from the others because of the number of days it has and has the class name this month. Following this exploration activity, the teacher summarizes and completes the information and writes it on the board. The teacher gives explanations if necessary and each person learns the equivalences

between the different units of time. The next learning activity consists of a short written exercise on the concepts learned. The teacher reads the instructions and provides explanations. Depending on the adult learners' reading ability, this exercise can be done either individually or in pairs. Checking the results of the exercise provides the teacher with an opportunity to monitor adults more closely throughout the learning process.

The learning situation also consists in having adult learners write dates out in numerical form. The teacher reviews the number of months in a year and how they are numbered, and then writes dates out in numerical form, giving the current date as an example. To clarify this, the teacher has adult learners think about a date in the current year that is important to them and has them write this date on a piece of paper. The adult learners take turns reading out the given date and writing it on the board. The teacher corrects the dates and repeats explanations, if necessary. Other adult learners can also be called on to participate in the activity. At the end of this learning activity, adult learners spend a few minutes observing the dates written on the board and where they fall within the year. The adult learners discuss the content of the activity and determine the precise order of these dates by using the calendar in their school planners. In a new written exercise, the teacher suggests new dates to be written out in numerical form. The teacher chooses these dates by using the training centre planner, thus making adult learners aware of some important dates which they write in their planners. The teacher checks each person's work.

In the next learning activity, the teacher gives the adult learners a table showing different instruments for measuring time and the year each one was invented. The teacher leads a discussion on the importance of these measuring instruments in daily life, how these instruments evolved over time and how much time has passed since they were invented. The teacher takes this opportunity to discuss subtraction and has the adult learners calculate how long each instrument has existed. Since this exercise involves subtraction with borrowing and since adult learners may not be fully comfortable with this technique, the teacher takes the time to review it by writing an example on the board. The class corrects this exercise as a group in order to review the subtraction with borrowing algorithm and thereby consolidate their learning.

To conclude the learning situation, the teacher reviews the difficulties of managing time in everyday life. The adults are asked to express their ideas on what they have learned and how they can apply what they have learned in order to better manage their time on a daily basis.

## Elements of the Course Addressed by the Learning Situation

Class of Situations	
Orienting oneself in time	
Learning Situation	
How I Organize My Time	
Categories of Actions	
<ul style="list-style-type: none"> <li>Reading time-related information</li> <li>Writing time-related information</li> <li>Interacting orally in cases involving time-related information</li> <li>Determining a measure of time</li> </ul>	
Operational Competencies	Essential Knowledge
<ul style="list-style-type: none"> <li>Thinks logically</li> <li>Communicates</li> </ul>	<p>Time</p> <ul style="list-style-type: none"> <li>Everyday vocabulary related to the concept of time</li> <li>Units for measuring time</li> <li>Equivalences between units for measuring time</li> </ul> <p>Arithmetic operations</p> <ul style="list-style-type: none"> <li>Addition and subtraction involving natural numbers</li> <li>Mental estimate of the result of an addition or subtraction involving natural numbers</li> </ul>
Complementary Resources	
<ul style="list-style-type: none"> <li>Day planner for each adult</li> </ul>	<ul style="list-style-type: none"> <li>Table of different instruments for measuring time</li> </ul>



