

**COMBLAB Teacher Training Course (Proposal of pilot course)**
**“COMBLAB activities and scientific competencies of inquiry”**

SESSION 1				
Specific goals of session 1		To start with teacher’s own experiences in order to share their previous experiences with MBL and expectations of the course. To improve teacher’s self-confidence in using MBL equipment by using data logging equipment and to discuss about pedagogical and didactic advantages using this tool has. To show the virtual environment where participants share didactic resources and tasks to perform as part of the course.		
Session	Timing	Content	Worksheet	Resources/Methods
1	1 h	Presentation of participants. Previous experience of participants in the use of MBL. Expectations of the course. Attitudes toward MBL and inquiry.	A- COMBLAB TTCQ (Teacher Training Course Questionnaire) about attitudes and knowledge of MBL and inquiry. A-1. “Warming up” What do we know of MBL? What do we expect from the course?	Worksheet A To answer "on line" the TTCQ Questionnaire  Worksheet A-1. Group dynamics so that the participants know each other and share their previous experiences with MBL and expectations of the course.
	1 h	Description of MBL, features and didactic potential of the use of probes. Software guides and sensors.	A-2. "Tools. How does the equipment work? ". General technical aspects of the software using a sensor probe.	Worksheet A-2 Practical exercise to download and to install MBL free software (Vernier, Multilab, etc.), and to practice basic software functions by using a temperature probe.

	30 min	Characteristics and structure of activities COMBLAB. Overview of the list of activities.	A-3. "The activities of the COMBLAB project."	Worksheet A-3 Analysis of the structure of COMBLAB activities. Individual reflection and common sharing.
SESSION 2				
Specific goals of session 2		To analyze two examples of activities in order to help participants to identify the characteristics of inquiry activities and to discuss about inquiry methodology and the inquiry approach through COMBLAB activities. To share strategies to transform activities without inquiry framework into more or less guided inquiry activities. To present the task that participants have to do as autonomous work.		
Session	Timing	Content	Worksheet	Resources/Methods
2	1 h	Building an inquiry framework by analyzing and comparing the differences between the same activity in two different versions (inquiry and not inquiry).	A-4. "Looking for differences"	Worksheet A-4 The participants analyze and compare two versions of an activity. (Not to use COMBLAB activities and better not MBL activities). They look for differences, compare both activities and they arise conclusions about what does inquiry mean.
	30 min	Framework for inquiry. Overview of a general framework for IBSE (guided and open inquire). Classroom management in inquiry activities.	A-5 "Different approaches to inquiry"	Worksheet A-5 Discussion of potential strengths and weaknesses of inquiry. Presentation of an overview of a general framework for IBSE (guided and open inquire) and characteristics of inquiry activities.

	1 h	The inquiry approach through COMBLAB activities. Examples of more or less guided activities.	A-6 "Inquiry in COMBLAB activities"	Worksheet A-6 The participants work in group with different COMBLAB activities. They have to focus in identify and to argument and justify if there is an inquire approach in the activity, and what kind of inquiry approach it is.
<b>SESSION 3</b>				
Specific goals of session 3		To deepen in the structure of COMBLAB activities and its parts by performing 2 examples of activities. To discuss their characteristics and their future integration in a lesson plan.		
Session	Timing	Content	Worksheet	Resources/Methods
3	1 h	COMBLAB activity (1) "Live of yeast"	A-COMBLAB activity	Participants work in small groups to perform the activity.
	1 h	COMBLAB activity (2) "Determining the protein content of milk (part 1)"	A-COMBLAB activity	Participants work in small groups to perform the activity.
	30 min	Reflection and discussion about the activities.	A-7 "Feedback from the activity" "What do you think about the activity? Where and how could you use it"	Worksheet A-7 (1) and Worksheet A-7 (2) Individual reflection and common sharing. Teachers work in small group to reflect about key points of the activity, strengths and how could they implement in their lessons (level, subject...)

SESSION 4				
Specific goals for session 4		To continue deepening in the structure of COMBLAB activities and its parts by performing 2 further examples and then to discuss their characteristics and their integration in a lesson plan. To get and share feedback from the course and to promote keeping in touch by the virtual environment (moodle) in the future for sharing the task that each participant perform at the end of the course and continuing the use of moodle as a way of exchanging and improving the use of MBL.		
Session	Timing	Content	Worksheet	Resources/Methods
4	45 min	COMBLAB activity (3) "Plants and oxigen"	A-COMBLAB activity	Participants work in small groups to perform the activity.
	45 min	COMBLAB activity (4) "Determining the protein content of milk (part 2)"	A-COMBLAB activity	Participants work in small groups to perform the activity.
	30 min	Reflection and discussion about the activities.	A-7 "Feedback from the activity" What do you think about the activity? Where and how could you use it?" (one for each activity)	Worksheet A-7 (3) and Worksheet A-7 (4) Individual reflection and common sharing. Teachers work in small group to reflect about key points of the activity, strengths and how could they implement in their lessons (level, subject...)

	<p>30 min</p>	<p>Design and plan a classroom intervention.          Attitudes and knowledge of MBL and inquiry.           Feedback from the course</p>	<p>A-8 "Tasks of the course. Thinking in my students" (A-8 (A), A-8 (B) and A-8 (C)           COMBLAB TTCQ (Teacher Training Course Questionnaire) about attitudes and knowledge of MBL and inquiry.           A-9 "In which aspects the course helped me?"</p>	<p>Worksheet A-8          Each teacher has to perform a final task of the course. There are 3 options as detailed in the worksheets. Put the task in the virtual environment to share them and to give feedback from the implementation of the activity, if it is the case.          To answer the TTCQ Questionnaire (A- COMBLAB TTCQ)          To answer a standard satisfaction questionnaire, if it is required for the entity that supports the organization of the course.          Worksheet A-9.          Individual assessment of the usefulness and feeling about the course.</p>
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