CLIL Module Plan

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School Grade	○ Primary		○ Middle		◉ High
School Year	○ 1	○ 2	○ 3	○ 4	◉ 5
Subject	Altro - Analisi chimica e strumentale		**Topic**		Chromatography
CLIL Language	◉ English		○ Deutsch		

Personal and social-cultural preconditions of all people involved	This module is carried out in a class of 17 students, 2 females and 15 males , who attend the last year in chemistry specialization. There aren’t students with special needs. They are Italian mother tongue and some of them are used to speak dialect too. Analytical chemistry is a core subject of the curriculum of this specialization and this is the reason why students are highly motivated to learn it in a deep way. This subject is taught for 8 hours/ week(divided in groups of 2 or 3 hours; every lesson time lasts 50 minutes) with 7h of experimental activities in chemistry lab. At the end of their studies, not only will these students be able to describe how we can investigate the matter, but they will also have practiced with analytical instruments and they will be aware of the several applications linked to scientific field .They are interested in scientific subjects and their profile is rather good. This is the second module in CLIL carried out with these students. Their level of English is much more heterogeneous as only some of them has B2 certification. Most of student have an English level between B1and B2 . In the laboratory, with theoretical teacher also works a practical teacher but she doesn’t know English language. For maintenance of instruments and their good working there is also a technician who helps students during instrumental practice

Students' prior knowledge, skills, competencies	Subject	Language
	Knowledge: scientific method, States of matter, mixtures, solutions and separating ingredients using filtration, and distillation, use of balances, pipettes, pH meters, and spectrophotometers. Solution preparation and dilution, preparation, and use of buffers and the use of basic spectrophotometric techniques to study substances such as water and foods. Students should be able to seek information from texts, videos and diagrams, formulate hypothesis and solve, use of ICT ; they can manage laboratory activities with safety, take samples properly, carry out a quantitative analysis by using analytical method s, write a report with the results of their analytical research and using a language suitable for the working context.	Past simple, passive form, basic language to describe a process (first, then, next…) expressing agreement and disagreement, predicting and justifying predictions (about scientific experiment), giving instructions They should be able to listen to a lesson or watch a video in L2 and understand the general meaning, read material such as short text and understand the general meaning, speak with teacher or other students ,in pairs or in small groups, and ask for help and clarifications when it is necessary, write a short report about their laboratory activity using appropriate technical words Students can communicate in L2, interact with pairs, report their laboratory work both orally and in writing

Timetable fit	◉ Module	Length 24 hours of 50 min

Description of teaching and learning strategies	After a short introduction where goals are explained, students are immediately asked to activate their prior knowledge in order to answer to the questions about the topic. They will be helped by a video and guided by the teacher; students should have acquired a short list of obligatory language vocabulary that makes them able to answer and discuss. However, students might not know some specific words and so the teacher will add these new words on the blackboard .Students are also invited to speak and brainstorm in pair or in a little group so that they can warm their speaking skills up and be prepared to use English language in the following part. Also in this specific module students are encouraged to discuss in pair and to make hypothesis on the base of what they have learnt in previous classes on just on the base of what they imagine .In these CLIL lesson students will be involved in cooperative learning using information exchange and information gap activities as well as inquiry-based learning and collaborative and task-based activities to get used both content, specific content glossary and to improve their English in communication.Scaffolding activity is performed when students are asked to do a worksheet and teacher gives the correct answer to check. Worksheets themselves represent a guide for the repetition and the study of the topic at home. Moreover, students are given a list of words and communicative structures in order to help them in the interaction with their classmates and teachersNot less important is the laboratorial experience through which students develop communication and language skills but also other important competences such as team work, problem solving, decision making ,working habits. Multimodality lesson involves visual, spoken, written and practical activities in order to improve understanding.Furthermore, multimodality lesson gives students the opportunity to fit to different learning styles and learning strategies.

Overall Module Plan

Unit: 1 Thin Layer Chromatography and Gas Chromatography **Unit length:** 12hours of 50 minutes	**Lesson 1** Introduction to chromatography and history
	Lesson 2 Thin Layer Chromatography
	Lesson 3 Gas Chromatography. How GC instrument works. The Chromatogram
	Lesson 4 Laboratory: Qualitative and quantitative analysis of a mixture of alcohols
	Lesson 5 Presentation of experiment and discussion

Unit: 2 HPLC **Unit length:** 12hours of 50minutes	**Lesson 1** Introduction to HPLC
	Lesson 2 HPLC: History ,operations and applications
	Lesson 3 Lab activity: Caffeine determination in different samples by HPLC
	Lesson 4 Presentation of experiment and discussion
	Lesson 5 Revision

CLIL Lesson Plan

Unit number	1	**Lesson number**	1	**Title**	Introduction to chromatography and history

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	20 min	The students are able to - refresh separation theory - understand the principles of chromatographic separation -learn specific vocabulary for this module - take notes -elicit the information from the video	The students watch the first part of the video-slides “Chromatography”, and they discuss in pair about separation techniques, and the discovery of chromatography The teacher stops the video when there is a specific word and write it on the board. Students are also allowed to ask for some clarifications	**Skills** L S R W **Key vocabulary** Extraction, crystallization, distillation, filtration, column, distribution coefficient **Communicative structures** How would you explain? Could you repeat?	☑ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• MAT_U1_L1_ALL 1. Video .doc MAT_U1_L1_ALL 1. Video link from 0 to7/- History of the main separation techniques and introduction to chromatography	Partecipation and interest to the activity Knowledge of the argument and use of specific vocabulary
2	30 min	Students are able to understand the text, order the	The students read the mixed paragraphs of a article about	**Skills** L S R W	☑ Whole class	• MAT_U1_L1_ALL 2.doc Task 1.doc	Partecipation and interest to the activity Knowledge of the argument and use of

		paragraphs, elicit the information from the article, know technical words related to the topic	chromatography discover, and they put in the correct order . Teacher shows the correct sequence	**Key vocabulary** Specific vocabulary Capillary, pigments, carotenoids, chlorophylls, absorptive materials, alumina, countercurrent distribution, immiscible, partition chromatography, paper chromatography, column chromatography thin-layer chromatography (TLC), stationary phase **Communicative structures** Can you read…….? Do you mind highlighting….? Can you look them up…..?	☐ Group work ☑ Pair work ☐ Individual work	MAT_U1_L1_ALL 2.doc Task 1 From link Early developments of chromatography. Students read 6 paragraphs and put them in the correct order	specific vocabulary Teacher observes studentduring class discussion

3	50 min	Students are able to discuss about the topic and to rephrase the different events using time transition words Students are able to rephrase and to explain with their words what they have read	Teacher asks the students to write a summary of the main discoveries in the field of chromatography in the correct chronological order. They work in pair and discuss with mates the position of each event using time transition words. Students prepare a summary /presentation in order to explain to their classmates what they have understood about the article. Teacher shows the correct sequence of the discoveries	**Skills** L S R W **Key vocabulary** Specific vocabulary all key words previously listed **Communicative structures** -Question words How would you explain…..? Could you repeat …? Can you explain how…..? Would you mind rephrasing..? What can you say about……? Do you agree with…….?	☐ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• MAT_U1_L1_ALL 4.doc words a.doc • MAT_U1_L1_ALL 3.doc Task 2.doc MAT_U1_L1_ALL 3.doc Task 2 Adapted fromlink discoveries in the correct order ,Students write a summary MAT_U1_L1_ALL 4.doc Words and communicative structures in order to help the conversation and the summary	Teacher observes during class discussion Formative informal assessment of students collaborative work Teacher checks if students have understood making question about their summary/presentation.

CLIL Lesson Plan

Unit number	1	**Lesson number**	2	**Title**	Thin Layer Chromatography

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	20 min	Students are able to elicit the information from the video and know the method of Thin Layer Chromotography and its applications. Students know technical words related to TLC Students are able to discuss about the topic and to rephrase.	The students watch the video “Paper and Thin Layer Chromatography” and discuss about the topic The teacher stops the video when there is a specific word and writes it on the board. Students are also allowed to ask for some clarifications	**Skills** L S R W **Key vocabulary** Specific vocabulary chromatography paper, chromatogram, stationary phase, mobile phase, retention factor **Communicative structures** Sequencing words How would you explain.....? Could you repeat ...? Can you explain how.....? Would you mind rephrasing..? What can you say about.....? Do you agree with.....?	☑ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• MAT_U1_L2_ALL5 video.doc MAT_U1_L2_ALL5 video link A video about Paper and Thin Layer Chromatography | The Chemistry Journey | The Fuse School	Formative assessment and observation during the class activity . Partecipation and interest to the activity Knowledge of the argument and use of specific vocabulary

2	75 min	Students are able to read a method, to understand it and fit it to their analysis Students understand advantages and disadvantages of TLC and can calculate the results of their practical work	Teacher gives students a text which describes the fundamentals of Thin Layer Chromatography and some general advices in order to carry out a simple experiment. If necessary they can ask question. Students fit the procedure to a sample in laboratory They can identify substances by different Rf values and justify the results evaluating sample previously fitted by teacher	**Skills** L S R W **Key vocabulary** Specific vocabulary Mobile phase, carrier, reference standard, solvent front, TLC development chamber, substance spot, starting line, quench **Communicative structures** Could you plan……? Compare……. How would you apply what you learned to plan/develop……? What changes would you make to solve….? How would you adapt….to create a different… How could you determine….? Measure…rewrite	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• MAT_U1_L2_ALL 6.doc task 3.doc MAT_U1_L2_ALL 6.doc Task 3 Adapted from link Laboratory activity: separation of pigments in a mixture by TLC	Formative assessment (feedback during the discussion with students about the procedure

3	25 min	Students are able to apply what they have learned, to repeat and summarize key words, to identify the correct words	Students are given worksheet and they complete the illustration with the help of the text from activity, They get in pairs and compare their results	**Skills** L S R W **Key vocabulary** Specific vocabulary Mobile phase, carrier, reference standard, solvent front, TLC development chamber, substance spot, starting line, quench **Communicative structures** Compare……. How would you apply what you learned to plan/develop……? Measure…rewrite How would you explain…..? Could you repeat …? Can you explain how…..? What can you say about……? Do you agree with…….?	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• MAT_U1_L2_ALL 7.doc task 4.doc MAT_U1_L2_ALL 7.doc Task 4 Adapted fromlink Students complete the illustration with the help of the text from task1. Then get in pairs and compare their results.	Formative assessment and observation during the class activity Teacher observes during class discussion

4	30min	Students are able to apply what they have learned, ,and to give prediction by recognizing the answers Communication of knowledge	The students receive a worksheet with answers on the left side and questions on the right side; they discuss in pairs and match the questions with the correct answers At the end teachers shows the correct answers	**Skills** L S R W **Key vocabulary** All the technical words previously mentioned **Communicative structures** How do you..? Which are...? Why should..? Why must...? How could you -...?	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• MAT_U1_L2_ALL 8.docTask5 .doc MAT_U1_L2_ALL 8.doc Task 5 Adapted from link Students match the correct answer to question	Formative assessment and observation during the class activity

CLIL Lesson Plan

Unit number	1	**Lesson number**	3	**Title**	Gas Chromatography. How GC instrument works. The Chromatogram

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**

1	20 min	Students are able to understand how a GC works, discuss in pair,, memorize technical words, identify correct position in a simple block system, explain the function of each major component of a GC system	The students watch the Video –Gas Chromatography video from t he Royal Society of Chemistry on gas chromatography using a flame ionisation detector (FID) with a brief mention of gas chromatography mass spectrometry (GCMS). During the video the students take notes in order to be able to draw a block diagram of a gas chromatograph	**Skills** L S R W **Key vocabulary** Specific vocabulary Injection port, oven, capillary column, helium gas, detector, flame ionization detector, conductivity,, hypodermic syringe, inlet port, retention time, peak area ,mass spectrometer **Communicative structures** How would you use….? Can you list the parts….? What is the function of….? Based on what you know , how would you explain…..?.	☑ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• MAT_U1_L3_ALL 9 video.doc MAT_U1_L3_ALL 9.video link video from the Royal Society of Chemistry on gas chromatography using a flame ionisation detector (FID) with a brief mention of gas chromatography mass spectrometry (GCMS).	Teacher observes during class discussion
2	20 min	Students know technical words	Teacher gives students a worksheet with some	**Skills**		• MAT_U1_L3_ALL	Teacher observes

		related to the instrument. Students are able to discuss about the topic and to rephrase.	questions and asks students to report their answers, using the information they have obtained from the video	L S R W **Key vocabulary** Specific vocabulary Specific vocabulary Injection port, oven, capillary column, helium gas, detector, flame ionization detector, conductivity,, hypodermic syringe, inlet port, retention time, peak area ,mass spectrometer **Communicative structures** Can you explain how…..? Would you mind rephrasing..? What can you say about……? Can you predict……? Do you agree with…….? Report…….. Which are.. How is	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	10.doctask 6Questions.doc MAT_U1_L3_ALL 10.doc Task 6 Students watch the video and then using the information they have obtained , answer the questions. They get it in pair.	how students discuss in pairs and how they use technical words

3	60min	Students know operating modes and the use of GC instrument. Students can understand the use of different columns They are able to explain the terms and appearance of a typical chromatogram And they are able to apply the concept of the Theoretical Plates theory	Students wach the video “Fundamentals of GC columns”. The teacher stops for additional explanation . At the end teacher asks students to discuss in pair about the features and differences of packed and capillary columns and about the theoretical plates theory. Students read task 7and discuss about the appropriate carrier gas and the different peak position in chromatogram with different column. Teacher help and correct them	**Skills** L S R W **Key vocabulary** Specific vocabulary previously mentioned Packed and capillary column, stationary phase, thick film, noise, elution, capacity, efficiency, flow rate, height equivalent to theoretical plates, eddy diffusion, average linear velocity, molecular diffusion, resistence to mass transfer, resolution **Communicative structures** Can you explain how…..? Would you mind rephrasing..? What can you say about……? Do you agree with…….? Represent……. Compare……. Report…….. Can you list the part…..?	☐ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• MAT_U1_L3_ALL 11.Video https-__youtu.be_uD-29-mV3N0.doc • MAT_U1_L3_ALL 12.docTask 7.doc MAT_U1_L3_ALL 11.Video link Overview of the GC columns. MAT_U1_L3_ALL 12 docTask 7 Suggestion for discussion	Formative assessment and observation during the class activity

CLIL Lesson Plan

Unit number	1	**Lesson number**	4	**Title**	Laboratory: Qualitative and quantitative analysis of a mixture of alcohols

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	100 minutes	Students are able to apply analytical procedure in the chemistry lab, working with order and security, to discuss the phases of experimental activity, to perform experience using gas chromatography, to utilize the instrument with the help of technical teacher	Class is divided into 8 group consisting of two people and teacher asks each group to read some general advices in order to carry out the experiment with a good accuracy and to record the results. Moreover, they have to read the part regarding the report of the results. Students fit the procedure to their sample that is different for each team and then plan the analysis. Students execute their analysis performing a quantitative	**Skills** L S R W **Key vocabulary** Specific vocabulary Procedure -results-conclusion-reference-stock standard-volumetric flask-pipette- COSHH chemicals and all key words previously listed	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• MAT_U1_L4_ALL 13.doc lab.doc MAT_U1_L4_ALL 13.doc Task 8 Papers regarding the procedure foe the analysis of mixture of different alcohols	The teacher evaluates students by crossing data obtained from observing how they work during practical activity.,and observing how they write scientific explanation. Peer Assessment ribric in cooperative group work

			quantitative determination of different alcohols in a mixture	**Communicative structures** Imperative form, impersonal pronouns, Could you plan.. Compare……. Can you propose a method How would you apply what you learned to plan/develop……? What changes would you make to solve….? How would you adapt….to create a different… How could you determine….? Measure…rewrite Develop….. Propose…… Would it be better if….? Can you organize…….? Make your experiment….?			

2	50 minutes	Students are able to collect data,and to write lab report using specific vocabulary.	The students in pairs write the report. The teachers observes how they write scientific assignment linking their hypotheses to the evidence collected during the experience	**Skills** L S R W **Key vocabulary** Specific vocabulary and all key words previously listed **Communicative structures** Sequencing words, impersonal pronouns, comparing and contrasting sentences, Suggestions Expressing opinions and explaining processes Can you assess the importance of….? How would you justify…? What data was used to make the conclusion……? What can you conclude about…..? Can you graph…..? How would you evaluate…?	☐ Whole class ☐ Group work ▣ Pair work ☐ Individual work		The teacher evaluates students by crossing data obtained from observing how they work during practical activity.,and observing how they write.

CLIL Lesson Plan

Unit number	1	**Lesson number**	5	**Title**	Presentation of experiment and discussion

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	100minutes	Students are able to explain lab experiment in front of peers, to discuss about the procedure and compare and evaluate different results	The student are asked to explain the experiment that had been carried out in front of the class. Every grop explains the data obtained from the experience and refers about their practical work. Teacher helps students in the discussion and gives some suggestion	**Skills** L S R W **Key vocabulary** Technical specialist vocabulary and all key words previously listed	☑ Whole class ☐ Group work ☐ Pair work ☑ Individual work	• MAT_U1_L5_ALL 14.docevaluation grid fo.doc MAT_U1_L5_ALL 14.doc evaluation grid for students presentation	Summative assessment regarding practical activity Teacher evaluates how students report scientific experience and how students refer their lab

				Communicative structures Sequencing words, impersonal pronouns, comparing and contrasting sentences, Suggestions, agreeing and disagreeing Can you assess the importance of….? How would you justify…? What data was used to make the conclusion……? What can you conclude about…..? Can you graph…..? How would you evaluate…?			

CLIL Lesson Plan

Unit number	2	**Lesson number**	1	**Title**	Introduction to HPLC

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	30 min	Students know the basics of HPLC, discuss and know technical words related to the topic	The students watch the video and brainstorm on the theme of this unit The teacher guides them in the discussion, the students take notes and discuss in pair. They memorize technical words,	**Skills** L S R W **Key vocabulary** Performance, silica particles, hydrocarbons, polar, non polar, pump, ethane nitrile, load ,,detector wavelength **Communicative structures** Can you explain how.....? Would you mind rephrasing..? What can you say about.....? Can you predict.....? Do you agree with.....?	☒ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• MAT_U2_L1_ALL 1.video.doc MAT_U2_L1_ALL 1.video Video link A chemistry education video from the Royal Society of Chemistry on High Performance Liquid Chromatography (HPLC)	Formative assessment and observation during the class activity

2	55 minutes	Students know about HPLC instrument Students know technical words related liquid chromatography Students are able to discuss about the topic and to rephrase	The teacher presents some slides (25-50) about HPLC instrumentation. Students are given the text of these so they can build a dictionary related the topic with the new words that they will use during the discussion	**Skills** L S R W **Key vocabulary** Solvent reservoir, inlet solvent filter,precolumn,,sample injection port,degasser,mixing vessel ,vacuum pump,flow splitter,pressure gauge,loop **Communicative structures** How would you explain.....? How would you summarise...? How would you rephrase.....? Could you repeat ...? Can you explain how.....? Would you mind rephrasing..?	☒ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• MAT_U2_L1_ALL 2.video Task 1 Slides 25-50.doc MAT_U2_L1_ALL 2.video Task 1 Slides 25-50 from link	Formative assessment (feedback during the class activity)

3	15 min	The students should confirm the use of knowledge about the different components of HPLC	Teacher gives students a picture of HPLC. They complete the block diagram of the HPLC instrument with the correct terms	**Skills** L S R W **Key vocabulary** Technical specialist vocabulary, all key words previously listed **Communicative structures** Suggestions, agreeing and disagreeing What can you say about? Do you agree with.? All communicative structures previously used	☐ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• MAT_U2_L1_ALL 3..doc MAT_U2_L1_ALL 3. Task 2 HPLC apparatus link By WYassineMrabetTalk✉	Formative assessment (feedback during the discussion and the worksheet correction)

CLIL Lesson Plan

Unit number	2	**Lesson number**	2	**Title**	HPLC: History ,operations and applications

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	60 minutes	Students are able to understand the meaning, to reason and evaluate	Teacher gives students an article and they have to fill the gaps using the words below. They discuss in pair and then compare and contrast with another pair	**Skills** L S R W **Key vocabulary** Technical specialist vocabulary, all key words previously listed, permeable layer particles, isocratic elution mode, stainless steel, micro bore, fluorescence, mass spectrometric broiler Normal phase, Reverse Phase, Size-exclusion, Ion-exchange **Communicative structures** All communicative structures previously used	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• MAT_U2_L2_ALL 4.doc HPLC articolo.docx MAT_U2_L2_ALL 4.doc Task 3 Extract of the article- Students fill the blanks link	Formative assessment (feedback during the discussion

2	40 min	Students are able to understand and summarize what they have previously read. Writing a summary	Teacher gives students the article about HPLC and they have to write the abstract using 100 words .One student of each couple will read the summary in front of the class and other students can give opinion about the work	**Skills** L S R W **Key vocabulary** Technical specialist vocabulary, all key words previously listed, **Communicative structures** Can you explain how…..? Would you mind rephrasing..? What can you say about……? Can you predict……? Do you agree with…….? Report……	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• MAT_U2_L2_ALL 5.doc HPLC articolo 1.doc • MAT_U2_L2_ALL 6 doc.doc MAT_U2_L2_ALL5.doc Task 4 Write the abstract of the article using 100 words MAT_U2_L2_ALL 6 doc words and communicative structures in order to help the conversation, and the writing exercise	Teacher observes how students work in pair and has a feedback during the class activity and the worksheet correction

CLIL Lesson Plan

Unit number	2	**Lesson number**	3	**Title**	Lab activity: Caffeine determination in different samples by HPLC

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	150 minutes	Students are able to apply analytical procedure in the chemistry lab, work with order and security and discuss the phases of experimental activity Performing experience using a HPLC instrument (Caffeine determination) They are able to understand how the instrument works Data processing and use of ICT	Class is divided into groups consisting of two people and teacher asks each group to read some general advices in order to carry out the experiment with a good accuracy and to record the results. Moreover, they have to read the part regarding the report of the results. Students execute their analysis working in team. They perform a quantitative determination of caffeine in different samples of drinks.	**Skills** L S R W **Key vocabulary** procedure-results-conclusion-reference-stock standard-volumetric flask-pipette- COSHH chemicals and all key words previously listed	☐ Whole class ☐ Group work ▣ Pair work ☐ Individual work	• MAT_U2_L3_ALL 7 doc caffeina.doc MAT_U2_L3_ALL 7 doc Task 5 adapted by link Caffeine-Determination-by-HPLC	assessment regarding practical activity; Teacher checks if students follow step by step all the given instructions and observes how they work during practical activity,

				Communicative structures Could you plan……? Compare……. Can you propose a method How would you apply what you learned to plan/develop……? What changes would you make to solve….? How would you adapt….to create a different… How could you determine….? Measure…rewrite Develop….. Propose…… Would it be better if….? Can you organize…….? Make your experiment….?			

CLIL Lesson Plan

Unit number	2	**Lesson number**	4	**Title**	Presentation of experiment and discussion

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	50 minutes	Collecting data, writing lab report using specific vocabulary, representing information using graphs and tables	The students in pairs write down the report collecting data and using specific vocabulary, The teachers observes how they write scientific assignement linking their hypotheses to the evidence collected during the experience, helping them when they need	**Skills** L S R W **Key vocabulary** Specific vocabulary all key words previously listed **Communicative structures** Sequencing words, impersonal pronouns, comparing and contrasting sentences, Suggestions Expressing opinions and explaining processes	☐ Whole class ☐ Group work ☑ Pair work ☐ Individual work		Focus on scientific assignement The teacher evaluates how students write scientific report linking their hypothesis to the evidence collected during the laboratorial activity

2	100 minutes	Students are able to refer about their practical work Students are able to explain lab experiment in front of peers, to discuss about the procedure and compare and evaluate different results .S are able to address question to classmates on the subject	Different group of students explain the experiment that had been carried out in front of the class and all together discuss the results, Different data are signed on the board and statistically elaborated Students are given the same grid used by the teachers to evaluate the presentations of their classmates	**Skills** L S R W **Key vocabulary** all key words previously listed **Communicative structures** Can you assess the importance of….? How would you justify…? What data was used to make the conclusion……? What can you conclude about…..? Can you graph…..? How would you evaluate…?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• MAT_U2_L4_ALL8 doc ev.grid.doc MAT_U2_L4_ALL8 doc Evaluation grid for students presentation	Summative assessment regarding practical activity Focus on communication skills: students answer the questions of the teacher and students and practice the vocabulary The teacher evaluates how students report scientific experience linking their hypothesis to the evidence collected during the laboratorial activity

CLIL Lesson Plan

Unit number	2	**Lesson number**	5	**Title**	Revision

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	100 minutes	Students are able to comprehend the meaning of the question, retrieve previous learned information, apply what was learned during the module ,compare different ideas and discuss with classmates Remembering, evaluating, and reasoning	Teacher gives students a summative test. Students answer the questions individually, choosing between different options. They have to give an explanation after discussing in pairs. At the end teacher explains the correct answers.	**Skills** L S R W **Key vocabulary** All key words previously used **Communicative structures** All communicative structures previously used	☐ Whole class ☐ Group work ☒ Pair work ☒ Individual work	• MAT_U2_L5_ALL9 doc test.doc • MAT_U2_L5_ALL10 doc.doc MAT_U2_L5_ALL9 doc Final test MAT_U2_L5_ALL10 doc Evaluation criteria for test	Summative written assessment. The teacher evaluates students by crossing data obtained from the results of the test