CLIL Module Plan

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School Grade	○ Primary		○ Middle		◉ High
School Year	○ 1	○ 2	○ 3	○ 4	◉ 5
Subject	Chimica	**Topic**	Organic chemistry and Biochemistry		
CLIL Language	◉ English		○ Deutsch		

Personal and social-cultural preconditions of all people involved	This lesson is carried out in a class of 25 students, 8 females and 17 males, who attend the last year in chemistry specialization of a technical institute. There aren’t students with special needs. They are Italian mother tongue and some of them are used to speak dialect too. Organic chemistry is a core subject of the curriculum and this is the reason why students are generally motivated to learn it and, on average, the class has quite results. This subject is taught for 4 hours / week (every lesson time lasts 50 minutes) with 2h 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 organic matterand biochemistry, but they will also have practiced with analytical instruments and they will be aware of the several applications linked to scientific field. The class has been previously exposed to CLIL experience and they seem to enjoy this different learning experience. Their English level is heterogeneous as only some of them have B2 certification. Most of student have an English level between B1and B2 with uneven competences in the four abilities, which is their speaking abilities are generally less developed than their reading and writing ones. 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 the experimental activities.

Students' prior knowledge, skills, competencies	

Subject	Language
KNOWLEDGE: Students know: scientific method, structure, properties composition, reactions, and preparation of organic compounds, the basis of biology and genetics, DNA, enzymes, PCR, vectors. SKILLS: Students can: understand a scientific text or video and answer some questions about it; analyse a process; formulate hypothesis and solve a problem COMPETENCIES Students can: give meaningful scientific presentation ; give opinions about the use and the ethics of some scientific techniques, write a report with the results of their analytical research using a language suitable for the working context.	Students know: basic language to describe a process (first, then, next…), general classroom language, how to communicate with teachers and classmates. Students can: ask for help or for clarifications, express their opinions and ideas, make comparisons and contrasts, predict and justify predictions (about scientific experiment), give instructions, organise their job. Students will encounter technical vocabulary throughout the module, however since English scientific language is similar to Italian one, students are expected to understand it without difficulties. Grammar: passive forms, past tenses and basic conditional forms, comparative forms, time connectives. Skills and competencies: Students should be able : to listen to a lesson or watch a video in L2 and understand the general meaning, read and comprehend a short scientific text, speak with the teacher or other students, discuss ideas with classmates, in pair or small groups using a list of communicative structures, write an essay, ask for clarification, understanding the general meaning. Students can report their laboratory work both orally and in writing

Timetable fit	◉ Lesson	Length 100 minutes

Description of teaching and learning strategies	This lesson will be mainly organized following 4 stages: activation, presentation of content, practice and summary. Adaptation of language input: teacher will adapt language input to students level, trying to avoid difficult grammar forms. Interesting short videos can be slowed down, subtitles can be shown and authentic scientific texts can be either shorten or simplified. Code switching (CS): CS will be allowed in order to avoid the loss of fluency or to double-check student's comprehension of a word. When CS occurs, teacher will rephrase the sentence with the correct English words, so that students can repeat and learn new vocabulary. Teacher and student talking time: Since one of the goals of CLIL is to enhance the communication in L2 and especially to improve speaking skills, TTT will be severely reduced in order to increase STT. Teacher will speak to the whole class not more than 10-15 minutes per lesson. Language output: students will always be encouraged to speak in English even if mistakes occur. Correction will not be made while students are speaking but at the end, since interruption could demotivate them. In speaking and writing tasks, students will be first given conversation samples, groups of collocations or useful sentences grouped by theme or communicative functions to facilitate and scaffold the output of students Interaction – Differentiation: In these CLIL lesson students will work predominantly in pairs and groups in order to practice speaking abilities. 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. When students work in groups, differentiation is possible so that smart students will be challenged by more difficult topics while weak students can find satisfaction by working with simpler material even if the

Overall Module Plan

Unit: 1 Introduction to Biotechnology **Unit length:** 3 lessons	**Lesson 1** DNA and Biotechnology

CLIL Lesson Plan

Unit number	1	**Lesson number**	1	**Title**	DNA and Biotechnology

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	15'	Students are able to: - refresh the nature of DNA -take notes - learn specific words for the module - compare - answers, - recall	Students watch a video and they have to brainstorm on the theme of the lesson (TASK 1-) During the video students can take notes; the teacher stops the video when there is a specific word and writes it on the board. At the end a brief guided discussion on the video for stating the topic of the lesson. Students can use communicative structures to speak their mind. They can also use them during the lesson.	**Skills** L S R W **Key vocabulary** biotechnology, DNA, cloning, copy, modify, GMO, genetic engineering, technique **Communicative structures** What do you think about..? would you explain.....? Do you agree..? What happened....? In my opinion... Could you repeat ...?	☑ Whole class ☐ Group work ☐ Pair work ☐ Individual work	- Video: link link - U1_L1_ALL 1.doc Task 1 - U1_L1_ALL 2 .doc Words and communicative structures in order to help discussion	Teacher observes during class discussion Formative informal assessment of students' collaborative work

2	20'	Students are able to read and understand a brief text about recombinant DNA technology, order the paragraphs, elicit the information from the article, know technical words related to the topic They can work in pair and cooperate.	Students have 15 minutes to read a text about recombinant DNA technology topic, put paragraphs in the correct order and give titles to the text and to each paragraph. They work in pair. Then the teacher shows the possible keys of the task on the LIM and students can give their answers and check while evaluating themselves.	**Skills** L S R W **Key vocabulary** Restriction enzyme, transgene, genome, cloning and DNA sequencing, plasmid **Communicative structures** When did this happen? Did this happen before/ after this? Then, later, meanwhile, as a result of	☒ Whole class ☐ Group work ☒ Pair work ☐ Individual work	-U1_L1_ALL 3 .doc Task 2: Read the following paragraphs and put them in the correct order - U1_L1_ALL 4 .doc Text “Invention of Recombinant DNA Technology” adapted from link	Formative informal assessment of students’ collaborative work Self assessment (students check their answers)

3	15'	Students can: write answers to questions about the text previously read	Students individually answer questions about the text and then they swap worksheet witha deskmate that can ask clarification and gives an evaluation about the answers.Then, the teacher shows the correct answers	**Skills** L S R W **Key vocabulary** all key words previously listed **Communicative structures** 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	U1_L1_ALL 5 .doc Task 3: answer the questions	Peer assessment Formative assessment: the teacher checks if students answered correctly to the questions

4	20'	Student can describe the steps of creating a clone	The teacher gives picture about the process of gene transfer and asks students to put the steps in order . Then, the teacher shows the correct answers.	**Skills** L S R W **Key vocabulary** DNA library, digestion, genomic DNA, cleaved DNA, plasmid vector, cleaved vector, growth medium, DNA ligase **Communicative structures** How can you describe the process? When do this happen? Do this happen before/ after this? Then, later,meanwhile, as a result	☑ Whole class ☐ Group work ☑ Pair work ☐ Individual work	U1_L1_ALL 6 .doc Task 4: Look at the picture and put the steps in the correct order link	Formative assessment: the teacher receives a feedback about students' comprehension

5	20'	Student can: think critically about a topic; express their ideas justifying them ; assess their classmates;	Students read a text about biotechnology and ethical questions, they analyze the points , make a list of advantages and disadvantages and rank them. Then students compare their lists in pairs and discuss with their mate in order to agree on the same ranking. Following this, each student gives a mark to their classmate depending on their ability in discussion.The teacher is always available to explain meanings of unknown words and walks around the class and is always available to give suggestions or encourage the starting of discussion. Words and communicative structures can be used if needed	**Skills** L S R W **Key vocabulary** Beer brewing, fermentation, yeast, pennicillin, molds, cystic fibrosis, clinical trial, ethics, advantages, disadvantages,useful, dangerous, harmful, harmless, **Communicative structures** In my opinion….Do you think…? Is this a good or a bad aspect? Do you agree with me? I strongly disagree.I couldn't agree more. What is your opinion? I think that...because of…. As a result of….	☐ Whole class ☐ Group work ☑ Pair work ☑ Individual work	U1_L1_ALL 7 .doc Task 5: Read the text, give opinion, list benefits and disadvantages. Compare with classmate and asses each others link	Formative assessment: the teacher listens to students while speaking and can give tips. Peer assessment: students assess their classmate

6	10'	Students can explain the meaning of a word in L2. They can build a a dictionary with the new words. They can remember one thing they have learned throughout the lesson	The teacher asks students which words they have learned and writes them on the blackboard. Student chooses a word and explains the meaning to their mate. The teacher walks around the class and listens to the students giving help when needed.The teacher also asks to students to say one thing that they remember about the lesson. The teacher especially encourages the students that have not spoken in plenary during the class.	**Skills** L S R W **Key vocabulary** all key words previously listed **Communicative structures** Which words have you learned? Can you tell me the meaning of….? What's the Italian for…? Can you say something about…? Can you repeat..?	☒ Whole class ☐ Group work ☒ Pair work ☐ Individual work	U1_L1_ALL 8 .doc Task 6: Build a dictionary, Say one thing you remember about the lesson	formative assessment: the teacher understands through roundup if students have achieved the outcomes of the class and receives feedback about students comprehension