

CLIL Module Plan

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School Grade	<input type="radio"/> Primary		<input type="radio"/> Middle		<input checked="" type="radio"/> High
School Year	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input checked="" type="radio"/> 4	<input type="radio"/> 5
Subject	Fisica		Topic	electrostatics	
CLIL Language	<input checked="" type="radio"/> English			<input type="radio"/> Deutsch	

Personal and social-cultural preconditions of all people involved	<p>The class is formed by students with an almost homogeneous background, both from a social-cultural point of view and from the learning point of view. Learning level is satisfactory/good. Students motivation and willingness to study are in average satisfactory. Average language level: B1/B2. Number of students: 19 Learning spaces are excellent (classes, laboratories (physics and computer labs available). Subject taught by the teacher both in Italian and in CLIL: physics.</p>
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Students' prior knowledge, skills, competencies	Subject	Language
	<p>The classe attended a CLIL module in physics last year; therefore students already know a basic vocabulary of technical terms. This educational path has been carefully chosen among many other possibilities, because of a straightforward theory and a consistent part of experimental work . All the students can therefore face both the content and the language involved in the module. I would like to point out that this module is coherent with the two other modules proposed for the classes 3 and 5; all the three modules are meant to introduce the idea of "field" (gravitational, electric and electromagnetic respectively) in a soft, experimental way; moreover, all the three modules give basic information about history of science.</p>	<p>SPEAKING SKILLS: most of the students can make meaning clear; some of them can develop a topic well enough to be followed without difficulty; at times they may not use connectives and discourse markers always appropriately. WRITING SKILLS:in their written tests, the students use an adequate range of structure and vocabulary, even if a number of errors may be present. Ideas are adequately organised, with simple linking devices. Generally speaking, they show a good degree of control of simple grammatical forms. They can write a simple review of a film, book or play. LISTENING SKILLS: Students can understand the main ideas of linguistically complex speech on both concrete and abstract topics, including technical discussions in their field of specialisation. They can follow extended speech and complex lines of argument provided the topic is reasonably familiar,.</p>

Overall Module Plan

Unit: 1 Introduction to electrostatics Unit length: 14	Lesson 1 Introduction
	Lesson 2 Experiments
	Lesson 3 Electric charges
	Lesson 4 Coulomb's law
	Lesson 5 Insulator and conductors
	Lesson 6 Prof. Lewin's lecture
	Lesson 7 Exercises
	Lesson 8 Historical interlude
	Lesson 9 Discussion of the documentary
	Lesson 10 kahoot!

CLIL Lesson Plan

Unit number	1	Lesson number	1	Title	Introduction
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
1	55 min	- To activate prior knowledge and revision of known content - To acquire a specific vocabulary - to motivate students to enjoy the new topic (electrostatics)	Warming up: students are stimulated to share their knowledge about electric charges with their classmates. Teacher writes key words on the blackboard. Students are asked to begin building their own glossary with new words (personalized learning)	Skills <div> <div>L</div> <div>S</div> <div>R</div> <div>W</div> </div> Key vocabulary electric charge- attraction-repulsion- force-insulator- conductor- electrostatics Communicative structures Can you list some effect of electric charges? Could you tell me anything about...? What do you know about... Where can we find electric charges? How is it possible to detect a charged body?	<input checked="" type="checkbox"/> Whole class <input type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work		teacher feedback

CLIL Lesson Plan

Unit number	1	Lesson number	2	Title	Experiments
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
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1	110	<p>-To apply the scientific method (from experiments to theory) - To be able to organize an experimental activity -To be aware of the difficulties in organizing an experimental activity - to be able to explain the experimental results - to observe several phenomena concerning electrostatics</p>	<p>Teacher divides students in groups following the cooperative learning strategies. Students organize the experimental work following the instructions of the worksheet. Students write their observations. Each group perform all the assigned experiments Teacher helps the groups when needed.</p>	<div> <div>Skills</div> <div> <div>L</div> <div>S</div> <div>R</div> <div>W</div> </div> <div> Key vocabulary straws, metallic rod, paper, rubber , soda can, sellotape, electroscope, aluminium foil </div> <div> Communicative structures imperative verbs </div> </div>	<div> <input type="checkbox"/> Whole class <input checked="" type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work </div>	<div> <ul style="list-style-type: none"> electrostatics_experiments.pdf straws, metallic rod, paper, rubber balloon, soda can, plastic bags (the ones used for vegetables), plastic dishes, sellotape, electroscope, wool tissue, aluminium foil </div>	<p>group assessment teachers monitors groups</p>
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CLIL Lesson Plan

Unit number	1	Lesson number	3	Title	Electric charges
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
1	40	- to be able to recognize the main features of a scientific written test - to be able to interpret a scientific written test - to identify main ideas and concepts	Teacher recall the main observations made in laboratory (5 -10 min) Theory is introduced in order to have a full comprehension of the experiments Teacher provides students with a text Students read the text in pairs. They underline the unknown terms.	Skills <div>L S R W</div> Key vocabulary amber- model- like charges-unlike charges-electric fluid-experimental evidence-conservation of charge-spark Communicative structures	<input type="checkbox"/> Whole class <input type="checkbox"/> Group work <input checked="" type="checkbox"/> Pair work <input type="checkbox"/> Individual work	<ul style="list-style-type: none"> Electric_charges.pdf 	Pair assessment

2	15	see activity 1	Plenary. Students are invited to organize new knowledge on the blackboard . Discussion	Skills	<input checked="" type="checkbox"/> Whole class <input type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work		teacher feedback
				<div>L S R W</div>			
				Key vocabulary see activity 1			
				Communicative structures Use of adverbs and conjunctions frequently used in scientific speeches and reports: hence, thus, therefore; so			

CLIL Lesson Plan

Unit number	1	Lesson number	4	Title	Coulomb's law
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
1	30 MIN	- to be able to describe the behaviour of electrical forces -to acquire specific mathematical language - to deepen the properties of the inverse square law - to be aware of similarities and differences of electric force and gravitational force	Teacher introduces Coulomb's law. Teacher outlines the main features of the electric force Teacher compares the electric force with the gravitational force	Skills <div> <div>L</div> <div>S</div> <div>R</div> <div>W</div> </div> Key vocabulary inverse-square law- medium- similarity- difference- infinity Communicative structures mathematical language: the force tends to.... proportional to.... q over r squared...	<input checked="" type="checkbox"/> Whole class <input type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work		teacher feedback

2	25	see activity 1 - to summarize content	Teacher provides students with a worksheet Students work in pairs	Skills	<input type="checkbox"/> Whole class <input type="checkbox"/> Group work <input checked="" type="checkbox"/> Pair work <input type="checkbox"/> Individual work	• Coulomb's law vs Newton's law.pdf	pair assessment
				<div>L S R W</div>			
				Key vocabulary see activity 1			
				Communicative structures			

3	30	see activity 1 - to foster reading skills	Students read the text in pair. Students underline key words and concepts. Students identify Coulomb's role in proposing the law nowadays named after him. Students discuss Coulomb's findings	Skills	<input type="checkbox"/> Whole class <input type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work	• Coulomb's _law.pdf	pair assessment
				<div>L S R W</div>			
				Key vocabulary balance torsion net charge			
				Communicative structures by measuring... to confirm that.. to demonstrate how... a physical quantity depends on.. to note that... to provide experimental results to summarize the results			

4	25	see previous activities -to foster speaking skills	Students discuss the issues outlined in the previous activities Teacher encourages questions	<div data-bbox="918 75 1294 151"> Skills </div> <div data-bbox="918 151 1294 228"> <div>L</div> <div>S</div> <div>R</div> <div>W</div> </div> <div data-bbox="918 228 1294 343"> Key vocabulary sees previous activities </div> <div data-bbox="918 343 1294 783"> Communicative structures How many types of charge exist? Describe the electrostatic force... The force is proportional to.. What sort of experiment.. Explain how... </div>	<input checked="" type="checkbox"/> Whole class <input type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work		teacher feedback
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5	55	<p>-to understand the experimental procedure to verify Coulomb's law - to learn how the torsion balance works</p>	<p>Students watch a brief video introducing the torsion balance experiment If the physics lab is properly equipped (see picture), the teachers carries out the experiment to verify Coulomb's law (step-by-step instructions can be found in italian in the wiki page of Liceo Galilei link). A translation is given in the material</p> <p>Students take notes</p>	<div> <div>Skills</div> <div> <div>L</div> <div>S</div> <div>R</div> <div>W</div> </div> <div> <div>Key vocabulary</div> <div>see previous activities</div> </div> <div> <div>Communicative structures</div> <div>see previous activities</div> </div> </div>	<div> <input type="checkbox"/> Whole class <input type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work </div>	<div> <ul style="list-style-type: none"> experiment_Coulomb's law_pdf.pdf link link </div>	<p>teacher feedback</p>
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CLIL Lesson Plan

Unit number	1	Lesson number	5	Title	Insulator and conductors
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
1	30	- to know about the behaviour of bodies in an electric field - to be able to describe insulators and conductors - to be able to classify bodies as insulators or conductor -to understand the results of the experiments carried out in lesson 2	Teachers give students a brief text describing insulators and conductors Students read in pair. They underline the unknown terms and unintelligible concepts	Skills <div>L S R W</div> Key vocabulary insulator, conductor, metallic conductor, free electrons, neutral object, electrostatic induction Communicative structures	<input type="checkbox"/> Whole class <input type="checkbox"/> Group work <input checked="" type="checkbox"/> Pair work <input type="checkbox"/> Individual work	<ul style="list-style-type: none"> Insulators and conductors.pdf 	pair assessment

2	25	see previous activity	Plenary-Discussion Teacher invites students to describe insulators and conductors. Teacher asks students to explain the results of the experiments carried out in lesson 2	<div data-bbox="1003 92 1355 129"> Skills </div> <div data-bbox="1010 165 1348 210"> <div>L</div> <div>S</div> <div>R</div> <div>W</div> </div> <div data-bbox="1003 247 1355 379"> Key vocabulary see previous lessons and activity </div> <div data-bbox="1003 395 1355 639"> Communicative structures Can you describe..? What is the behaviour.. How would you explain the results obtained..? </div>	<div data-bbox="1377 92 1554 379"> <input checked="" type="checkbox"/> Whole class <input type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work </div>		Teacher assessment:Has each student asked questions? Has each student answered questions? - Have students organized their notes? - Can students pose questions using proper language? - Have the students listened to each other ?can student give an explanation of the experiments?
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CLIL Lesson Plan

Unit number	1	Lesson number	6	Title	Prof. Lewin's lecture
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
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1	55	<p>- to summarize the concepts presented so far - quoting prof. Lewin: "My lectures will in general not be a repeat of your book but they will be complementary to the book. The book will support my lectures. My lectures will support the book. You will not see any tedious derivations in my lectures. For that we have the book. But I will stress the concepts and I will make you see beyond the equations, beyond the concepts. I will show you whether you like it or not that physics is beautiful"</p>	<p>Teacher introduces the video of prof. Lewin, MIT</p> <p>Students watch the lecture on the computer. Students stop the video and ask for help when needed</p> <p>Students can take notes</p>	<div> <div>Skills</div> <div> <div>L</div> <div>S</div> <div>R</div> <div>W</div> </div> <div> Key vocabulary see previous lessons </div> <div> Communicative structures see previous lessons </div> </div>	<div> <input type="checkbox"/> Whole class <input type="checkbox"/> Group work <input checked="" type="checkbox"/> Pair work <input type="checkbox"/> Individual work </div>	link mit802s02_lewin_lec01_01.m4v	Pair assessment
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CLIL Lesson Plan

Unit number	1	Lesson number	7	Title	Exercises
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
1	110	- To be able to apply Coulomb's law - To be aware of the situations where Coulomb's law can be applied - to develop specific skills in problem solving (the questions proposed in the worksheet differ in typology) - To develop specific language	Teacher provides each pair with a worksheet. Students solve problems and answer questions. They discuss the chosen procedure. Teacher monitors students' work	Skills <div>L S R W</div> Key vocabulary see previous lessons Communicative structures	<input type="checkbox"/> Whole class <input checked="" type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work	<ul style="list-style-type: none"> EXERCISES.pdf 	group assessment

CLIL Lesson Plan

Unit number	1	Lesson number	8	Title	Historical interlude
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
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1	25 +30	- to present a historical figure, interesting from a scientific and social point of view - to help students to become aware of the development of science - to increase curiosity in students	STUDENTS READ A SHORT BIOGRAPHY of Benjamin Franklin They work in pair. They underline unknown words Students are asked to move to the computer and read more about Franklin inventions on "the Franklin Institution"site: link Homework: students are asked to watch the documentary about Benjamin Franklin: link Each students is asked to summarize a short part of the film (each	<div> Skills </div> <div> <div>L</div> <div>S</div> <div>R</div> <div>W</div> </div> <div> Key vocabulary - Lightning rod - Bifocals - Swim fins - Franklin stove - Urinary catheter - Glass armonica </div> <div> Communicative structures </div>	<div> <input type="checkbox"/> Whole class <input type="checkbox"/> Group work <input checked="" type="checkbox"/> Pair work <input type="checkbox"/> Individual work </div>	<div> <ul style="list-style-type: none"> Benjamin_Franklin_biography.pdf link </div>	Pair assessment
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CLIL Lesson Plan

Unit number	1	Lesson number	9	Title	Discussion of the documentary
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
1	55	- to foster speaking and writing skills -to use specific language - to "have a break" from physics theory	The documentary on Benjamin Franklin is discussed. Students present their reports Teacher encourages questions and discussion.	Skills	<input checked="" type="checkbox"/> Whole class <input type="checkbox"/> Group work <input type="checkbox"/> Pair work <input type="checkbox"/> Individual work		Teacher feedback
				<div>L</div> <div>S</div> <div>R</div> <div>W</div>			
				Key vocabulary see previous lessons			
				Communicative structures			

CLIL Lesson Plan

Unit number	1	Lesson number	10	Title	kahoot!
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Activity	Timing	Learning Outcomes	Activity Procedure	Language	Interaction	Materials	Assessment
1	55	Teacher provides each pair with a task sheet. Students solve problems and answer questions. They discuss the chosen procedure. Teacher monitors students' work kahoot	- To review ideas acquired so far - To motivate students - To revise contents	Skills	<input type="checkbox"/> Whole class <input type="checkbox"/> Group work <input type="checkbox"/> Pair work <input checked="" type="checkbox"/> Individual work	link	Self assessment Performance ranking is produced by the software
				<div>L S R W</div>			
				Key vocabulary see previous lessons			
				Communicative structures see previous lessons			