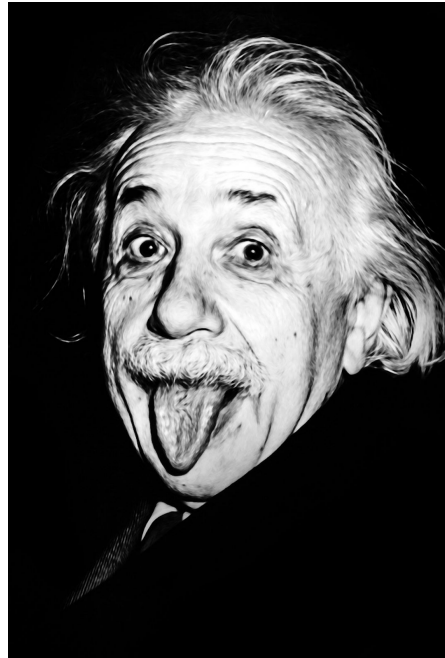




Generalitat de Catalunya
Departament d'Ensenyament

Famous Physicists



Institut Lluís Companys
Anna Torres Fontanals & Marc López Aventín

Plantilla creada pel grup de formadores del Programa GEP (Generació Plurilingüe) del Departament d'Ensenyament. Curs 2018-2019





Generalitat de Catalunya
Departament d'Ensenyament
Generació Plurilingüe (GEP)

Year 1
2018-2019

GEP 1	Task 1: Input & Cooperative /Collaborative learning in CLIL
Title of the lesson or topic	Name a famous physicist
Course / year / age	1st of batxillerat, 2018-2019. Aged 16/17
Timing	4 h (classes)
Collaboration with	Anna Torres (English teacher and head of English Language Department)
Short description of the session/s	<ul style="list-style-type: none">• Session 1: Activity 1: The Physics teacher explains to the class the project they have to do. Activity 2: The English teacher provides some useful verbal language tools to expose an oral presentation whereas the Physics teacher provides some tips on body language. Activity 3: Both teachers organize students in groups of 3-4. Activity 4: The Physics teacher provides some examples, if needed, of famous physicists (Archimedes, Galileo, Newton, Tesla, Faraday, Ohm, Ampere, Huygens, Joule, Watt, Kelvin, Planck, Heisenberg, Schrödinger, Einstein, Feynman, Hawking,...) so that each group can choose one.• Session 2: Activity 1: The English teacher organizes an activity to help students in the language involved in giving a presentation. Activity 2: The students search for information and start making the powerpoint presentation. The Physics teacher helps by explaining to the students the content and the English teacher provides language tools and assistance. Both teachers provide the evaluation grid (rúbrica d'avaluació) in order to help students know what the teachers will be expecting from them.

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- **Session 3:**

Activity 1: The students continue with the activity 2 of the previous session (preparing the powerpoint presentation). The Physics teacher helps by explaining to the students the content and the English teacher provides language tools and assistance.

- **Session 4:**

Activity 1: The groups explain, with the help of a powerpoint presentation, to the class the life and work of the famous physicist they have chosen. The Physics teacher will evaluate the scientific content and the English teacher will evaluate the communicative aspects according to their respective evaluation grids (rúbriques d'avaluació).

The descriptions of the activities below should contain:

1. *type of input,*
2. *questions (explicit, implicit and referential) posed by the teacher to ensure the students' involvement*
3. *dynamic instructions with collaborative and cooperative activities,*
4. *materials used.*

S E S S I O N I	Activity 1	Question: Could you name a famous physicist?
	Activity 2	<p>Physics teacher: Input (audiovisual): Use the following youtube video to help students with the body language used on a good oral presentation: https://www.youtube.com/watch?v=TmbQFWBvTtY</p> <p>Language teacher: Parts of a presentation: Quick look of a youtube video to remind the students the different parts in any oral presentation: https://youtu.be/7NgL2z0HBk4</p> <p>After watching the video, they have to prepare a presentation of about 2 minutes telling their own biographies, on the whiteboard they could read the important points to talk about. After 5 minutes and randomly, 2 or 3 students will present</p>





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		<p>their biographies in front of the class. Peers should listen and assess the right and wrong points in their presentations.</p> <p>Tips: https://docs.google.com/document/d/1VEKmJix1N2zwBWngcnzcellgC4ukas2F_oW0bSrMXpM/</p>
	Activity 3	<p>Instructions:</p> <ol style="list-style-type: none"> 1) Work in groups of 3 or 4 2) Remember what we have just learn about giving oral presentations
	Activity 4	<p>Questions:</p> <ol style="list-style-type: none"> 1) Do you need help making the groups? Has everybody got a working group? 2) Have you decided your famous physicist? Do you need some examples?
S E S S I O N 2	Activity 1	<p>Input (audiovisual, hands-on): Language teacher: activity to learn useful language. Instructions: hands-on activity in groups of 3 or 4 students:</p> <ul style="list-style-type: none"> - the teacher gives each group some useful and common sentences used in the different parts of an oral presentation. - each group has a worksheet divided in grids according to the different parts of an oral presentation and classify between 4 and 5 sentences in each group. <p>http://www.deakin.edu.au/_data/assets/pdf_file/0005/810725/Language-tips-for-oral-presentations_Deakin-Study-Support.pdf</p>
	Activity 2	<p>Input (audiovisual, hands-on): evaluation grids (rúbriques d'avaluació).</p>
S E S S I O N	Activity 1	<p>The students continue working on their assignment (preparing the powerpoint presentation) organized by groups of 3-4 people.</p> <p>Language teacher: Tools / Tips for oral presentations: https://www.gvsu.edu/ours/oral-presentation-tips-30.htm https://www.goconqr.com/en/blog/5-tips-for-doing-excellent-oral-presentations-in-class/</p>





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3					
S E S S I O N 4	Activity 1	<p>The language teacher will use an evaluation grid to evaluate the language used by the students and their communication skills.</p> <p>The Physics teacher will use an evaluation grid to evaluate the scientific content of the presentations.</p>			
	In terms of academic content, what are the students learning and what are they learning to do?	<p>Depending on the scientist they choose, the students will learn different scientific content which can be both curricular and extracurricular.</p> <p>The class will learn how to find, gather, resume and organize information also the use of ICT (Information and Communication Technologies) is being fostered.</p>			
	In terms of language, what are the students practicing or learning to do?	<p>Students will learn that in addition to the verbal communication, there is a non-verbal communication also known as body language which is very important to take into account.</p> <p>Language teacher</p>			
	In what way is this lesson plan a good example of what we learnt in the GEP course session?	<p>The students learn language through a scientific context, so content is not being compromised. They learn language at the same time they learn science both thanks to their work as well as the work done by their peers.</p> <p>Also they take advantage of the collaborative work and the use of ITC.</p>			
Other important information					
ANNEXES (materials, handout, pictures... if not possible to include in the activity section.)	Language: Evaluation grid				
	ITEM	Level 1(2,5)	Level 2 (5)	Level 3 (7,5)	Level 4 (10)
	The intonation and pronunciation.				





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Organization and structure of the presentation.				
Eye contact with the audience/ body language.				
Use of tenses and general grammar points.				
Use of vocabulary.				

Content: **Evaluation grid**

ITEM	LEVEL 1 (2,5)	LEVEL 2 (5)	LEVEL 3 (7,5)	LEVEL 4 (10)
The physicist chosen is famous/relevant enough				
The life of the scientist is well explained				
The importance of the physicist's work is well explained				
The scientific content				





	(experiments, achievements, theories, equations, work,...) is well explained				
	The students put into context the work done by the physicist in regards to the compulsory curriculum and the different parts or topics of Physics (Optics, Mechanics, Thermodynamics, Electromagnetism,..)				

Self assessment Checklist

Task 1 : Input & Cooperative /Collaborative learning in CLIL	YES/NO
1. Students are presented with multimodal and varied input (spoken, written, visual, hands-on...)	Y
2. The input presented is used to help learners understand ideas and construct meaning	Y
3. The input is presented at the right cognitive level and the right language level , i.e. it is neither too challenging in terms of content nor too difficult in terms of language.	Y



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4. Students are helped in some way to understand , i.e. input is made comprehensible	Y
5. Students are helped in some way to process the input presented, i.e. activities or questions make students think and construct meaning.	Y
6. The input and activities presented cater to multiple intelligences	Y
7. Students are presented with good questions (explicit, implicit and referential) that help them process input and that challenge them not only to understand, but to think, create...	Y
8. A variety of collaborative learning strategies are used throughout the session.	Y
9. At least one of the activities presented requires cooperation among students.	Y
10. Students are explicitly taught how to work in groups (or pairs).	Y
11. Students are explicitly guided to succeed in group/pair work discussions and interactions . Clear support to guide their interactions is provided.	Y
12. At least one ICT tool is used to promote digital collaborative learning .	Y

GEP 1	Task 2: Reading, writing and Assessment in CLIL
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Title of the lesson or topic	Tell me more
Author	Marc López Aventín
Course / year / age	1st of batxillerat, 2018-2019. Aged 16/17
Number of sessions	3
Collaboration with...	Anna Torres (English teacher and head of English Language Department)
Main objectives of the sessions	<p>Session 1: The students learn through reading how to write a biography.</p> <p>Session 2: The students use peer criticism as a self-assessment tool in order to improve their work.</p> <p>Session 3: The students share with their peers what they have learnt about a given famous scientist by reading out loud about the physicist's work and life.</p>
Short description of the sessions	<p>Session 1: Activity 1: The Physics teacher explains to the class the project they have to do. Activity 2: The English teacher provides some useful reading materials and tools to write a biography (the 5 w's) and organizes an activity to help students in the grammar involved in writing a biography. Activity 3: The students search for information and start writing the biography individually. The Physics teacher helps by explaining to the students the content and the English teacher provides language tools and assistance.</p>

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Both teachers provide the evaluation grid (rúbrica d'avaluació) in order to help students know what the teachers will be expecting from them.

Session 2:

Activity 1: The students although being in groups, write the biography individually.

Activity 2: Students within the group share their individually written biographies in order to write a common and shared group biography of a famous physicist (co-assessment of the work done so far).

Session 3:

Activity 1: The students continue with the activity 2 of the previous session (writing the biography).

The Physics teacher helps by explaining to the students the content and the English teacher provides language tools and assistance

Activity 2: The groups read their biographies out loud in front of their peers.

The descriptions of the activities below should contain:

1. *collaborative and cooperative activities instructions (including the timing and the language support)*
2. *type of support,*
3. *readings and writings planned,*
4. *assessment tools*
5. *materials used*

S E S S	Activity 1 (5 minutes)	The Physics teacher explains to the class that they will have to read in front of their peers a biography of the chosen scientist and that process will consist on 3 steps: <ol style="list-style-type: none"> a) Individually :write the biography b) Groups assess the work done by their colleagues and write a final, common and shared biography
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I O N I		c) Groups will read out loud in front of their classmates their final version of the biography
	Activity 2 (25 minutes)	<p>The English teacher provides some useful reading materials and tools to write a biography (the 5 w's) and....</p> <p>Input (written, hands-on): biographies cut into pieces.</p> <p>In groups of 4 people each</p> <p>The language teacher, once has divided the groups randomly (the way they are sitting in class, for instance) gives to each group examples of 2 different written texts with biographies of 2 different people.</p> <p>The biography will be cut into different pieces, so students must put the pieces in order trying to guess the order when telling a biography.</p> <p>Once they have decided the order, the teacher will give them the text in order to be checked and compare with their decisions of order. Apart from this, the teacher will ask the students questions to decide which important information must appear in a biography.</p> <p>See in the annexes.</p>
	Activity 3 (25 minutes)	<p>The students search for information and start writing the biography. The Physics teacher helps by explaining to the students the content and the English teacher provides language tools and assistance.</p> <p>Both teachers provide the evaluation grid (rúbrica d'avaluació) in order to help students know what the teachers will be expecting from them.</p> <p>Input (audiovisual, hands-on): evaluation grids (rúbriques d'avaluació).</p>

S E S S I O N 2	Activity 1 (40 minutes)	The students although being in groups, write the biography individually using the information they have gathered thanks to both task 1 and the last activity.
	Activity 2 (15 minutes)	Students within the group share their individually written draft biographies in order to write a common and shared group final biography of a famous physicist (co-assessment of the work done so far) by taking into account specially both evaluation rubrics .



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S E S S I O N 3	Activity 1 (25 minutes)	The students continue with the activity 2 of the previous session (writing the final biography). The Physics teacher helps by explaining to the students the content and the English teacher provides language tools and assistance.
	Activity 2 (30 minutes)	The groups read their biographies out loud in front of their peers. Each member reads a part so that everybody in the group participates.

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In terms of academic content, what are the students learning and what are they learning to do?	Depending on the scientist they choose, the students will learn different scientific content which can be both curricular and extracurricular. The class will learn how to find, gather, resume and organize information also the use of ICT (Information and Communication Technologies) is being fostered.
In terms of language, what are the students practicing or learning to do?	The students will learn the vocabulary, grammar and the structure of a biography.
In what way is this lesson plan a good example of what we learnt in the GEP course session?	The students learn language (vocabulary, grammar and structure of a biography) through a scientific context, so content is not being compromised. They learn language at the same time they learn science both thanks to their work as well as the work done by their peers. Also they take advantage of the collaborative work and the use of ITC. Also students perform assessment on the work done by their peers.
Other important information	Students should remember some language skills, such as pronunciation and intonation while reading.
ANNEXES (materials,	Reading materials:



handout, pictures... if not possible to include in the activity section.)

https://www.jfklibrary.org/sites/default/files/2018-06/Student_Handout-What_to_Look_for_When_You_Read_a_Biography.pdf

<https://www.tes.com/teaching-resource/biography-sentence-starters-11041780>

SHAKESPEARE'S BIOGRAPHY

https://www.myenglishpages.com/site_php_files/reading-william-shakespeare-short-biography.php

MOZART'S BIOGRAPHY

<https://www.biographyonline.net/music/mozart.html>

FREDDIE MERCURY'S BIOGRAPHY

<https://www.imdb.com/name/nm0006198/bio>

Mind maps

Biographies of Shakespeare, Mozart and Freddie Mercury (see links above) cut into pieces.

Language: Evaluation grid (reading)

ITEM	level 1(2,5)	level 2 (5)	level 3 (7,5)	level 4 (10)
Uses a loud voice	The volume is not in the audible range, many words or sentences are barely imperceptible	The intensity is somewhat clear and audible but some words or sentences are barely imperceptible	The intensity is clear and audible most of the time.	The intensity of the voice is clear and audible all through the reading. No fluctuations are perceived
Articulates words clearly.	Difficult to understand, is struggling or mispronounces most words.	Speaks clearly; mispronounces some words.	Pronounces most of the words correctly and speaks clearly.	Pronounces all words correctly and speaks clearly.



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		(more than 5 errors)	(3-4 errors)	(1-2 errors)	
	Reads fluently	Rarely keeps the appropriate speed. Many lapses, hesitation or wavering. Punctuation pauses not are present.	Reads at an appropriate speed most of the time. Some lapses, hesitation or wavering. Punctuation pauses are present some of the time	Reads at an appropriate speed. Few lapses, hesitation or wavering Punctuation pauses are present most of the time	Reads at an appropriate speed. No lapses, hesitation or wavering in the pace. Punctuation pauses are present.
	Uses appropriate gestures and motions. Intonation/Expression	Rarely adequate tone Does sound monotone, artificial or exaggerated	Adequate tone some of the time. Occasionally does sound monotone, artificial or exaggerated	Adequate tone most of the time. Does not overdo it or exaggerate. Does not sound monotone or artificial	The student keeps the required tone. Does not overdo it or exaggerate. Does not sound monotone or artificial

Language: evaluation grid (**writing**)

ITEM	LEVEL 1(2,5)	LEVEL 2(5)	LEVEL 3(7,5)	LEVEL 4(10)
Grammar & spelling	Spelling, punctuation, and grammatical errors create distraction, making reading difficult; fragments, comma splices, run-ons evident. Errors are frequent. 10 errors	Most spelling, punctuation, and grammar correct allowing reader to progress though essay. Some errors remain. 5 errors	Essay has few spelling, punctuation, and grammatical errors allowing reader to follow ideas clearly. Very few fragments or run-ons. 3-5 errors	Essay is free of distracting spelling, punctuation, and grammatical errors; absent of fragments, comma splices, and run-ons. 1-3 errors
Vocabulary	Limited word choice and usage.	Frequent vocabulary errors of choice and usage which obscure meaning	Some variety in vocabulary choice with occasional errors that do not obscure meaning.	Varied and effective vocabulary choice and usage.



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	Paragraph building/ Sentence structure	Writing lacks logical organization. It shows some coherence but ideas lack unity. Serious errors	Writing is coherent and logically organized. Some points remain misplaced and stray from the topic. Transitions evident but not used throughout essay.	Writing is coherent and logically organized with transitions used between ideas and paragraphs to create coherence.	Writing shows high degree of attention to logic and reasoning of points. Unity clearly leads the reader to the conclusion.
	Coherence: content/ topic	Shows some thinking and reasoning but most ideas are underdeveloped and unoriginal.	Content indicates thinking and reasoning applied with original thought on a few ideas.	Content indicates original thinking and develops ideas with sufficient and firm evidence.	Content indicates synthesis of ideas, in depth analysis and evidences original thought and support for the topic.
Content: Evaluation grid					
	ITEM	LEVEL 1 (2,5)	LEVEL 2 (5)	LEVEL 3 (7,5)	LEVEL 4 (10)
	The physicist chosen is famous/relevant enough				
	The life of the scientist is well explained				
	The importance of the physicist's work is well explained				





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	The scientific content (experiments, achievements, theories, equations, work,...) is well explained				
	The students put into context the work done by the physicist in regards to the compulsory curriculum and the different parts or topics of Physics (Optics, Mechanics, Thermodynamics, Electromagnetism,...)				

Self assessment checklist

Task 2 : Reading, writing in CLIL and Assessment	YES/NO
1. Support is provided to help students read and understand texts.	Y
2. Before-, during- and after- reading activities are prepared.	Y





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3. The materials use visuals to support comprehension.	Y
4. The writing process takes place in joint collaboration with the teacher (modelling)	Y
5. Support is provided to help students write (the students are provided with language patterns, language frames, vocabulary banks...)	Y
6. The teacher uses different strategies to help students throughout the process of reading and writing.	Y
7. The teacher has previously predicted the language the students will need when carrying out the different tasks successfully and, therefore, is aware of the content-obligatory language .	N
8. At least the teacher uses 1 type of assessment (self-assessment, teacher assessment or co-assessment)	Y
9. At least teacher used 1 type of designed assessment tool during the sessions (rubric, digital app, checklist, personal dossier...).	Y