



## ***CLIL-LIKE AND ERASMUS+ ORIENTATED APPROACH TO PHYSICS***

**CLASS 3 LA**  
school year 2020-2021

***Topic: Physics (Work-Power-Energy).***

***Class: 3 LLa.***

***Period: 20 hours; the beginning of the second term.***

### **1. PURPOSE OF THE COURSE**

Teaching of Physics, as proposed here, is aimed at enhancing knowledge and above all skills and competences of the discipline according to the CLIL model (Content and Language Integrated Learning). The CLIL contributes in three things to a student's understanding. In fact, CLIL permits the students learn specific **subject** and relative **language** in English, but also develops **strategies for learning** in real situations, that is develop the capacity to get information necessary to resolve the problem one have to cope with in English, which – as in that case - is not the language of curriculum teaching. For a CLIL student, listening to English Radio, reading French newspaper, or taking an Engineering or Physics course in Germany aren't daring experiments, because they are the natural continuation of their learning process at secondary school during, for example, lessons of Physics. A CLIL student builds up his/her capacity to learn in other languages and interact with other language/cultural/scientific universes.

What I propose here is going to be the CLIL-like teaching, guided by the topics compatible with the Erasmus+ Project Issues, the class is participating at. The CLIL stands here for the use of English as a language of study, and for the use of manual in English for study and exercises, while "likeness" stands for my choice to consider more important contents of Physics, without neglecting the necessity to promote the learning of English as the L3 language. That is the reason why lessons will be partially given in Italian, as well.

### **2). KNOWLEDGE/SKILLS**

<b>KNOWLEDGE</b>	<b>SKILLS</b>
Acquire: a specific knowledge (see point 3 below) and an English scientific vocabulary related to the proposed topics.	Acquire: an autonomy in solving a problematic situation proposed in English and to be able to apply to this end all the linguistic, mathematical and other knowledge acquired previously.

### **3). SPECIFIC TOPICS IN TERMS OF KNOWLEDGE**

- **Module 1** – *Work, Energy, Power, Conservation of Mechanical Energy.*
- **Module 2** - *Renewable forms of energy.*

#### 4). METHODOLOGIES

- Frontal/dialogue Lessons,
- Problem solving,
- Group activities,
- Listening comprehension & Videos.

#### 5). MATERIALS

- Digital audio and video multimedia sources,
- Student's Presentation,
- Text Book: S. Borracci, E. Anzola, *Physics, vol.1: Mechanics*, Zanichelli 2014.
- [https://www.omnifiladelfia.edu.it/index.php?option=com\\_content&view=article&id=453&Itemid=236&jsmalifib=1&dir=JSROOT/Progetti\\_E-CLIL/Renewable+energy+resources](https://www.omnifiladelfia.edu.it/index.php?option=com_content&view=article&id=453&Itemid=236&jsmalifib=1&dir=JSROOT/Progetti_E-CLIL/Renewable+energy+resources) (for renewable resources of energy).

#### 6). WAYS OF EVALUATING LEARNING

As far as strictly disciplinary knowledge is concerned, the evaluation will be entrusted to a class-test, preferably multiple-choice or with problems requiring the application of the formula with a simple calculation, proposed to the students at the end of each teaching unit. The assessment of each teaching unit will be completed by a short test designed to test the students' mastery of the specific language in the areas studied, both in English and in Italian, as well as their ability to justify in English the solutions to the problems proposed in the class-test (see below for a specific assessment form). If the interest and interventions, in L3 and/or also in L1, will be particularly relevant and lively over time, a grade will be recorded, without explicit verification, however, communicating this to the person concerned. At the end of the course an anonymous feedback form will be proposed to the pupils.

## 7). INTERVENTION TIME SCHEDULE

### Module 1:

Activities in the class room	Mode of work	Time
Construction of the sectorial dictionary with focus on basic concepts	Group work on the provided photocopies; short oral report on the work done by each group. Sharing the work.	2 hours
Organization of the fundamental concepts of the topic	Dialogue and frontal lesson, with demonstration experiments, by the teacher (in English and in Italian), videos.	4 hours
Problem solving.	Group work, frontal/dialogue lesson, exercises on the blackboard and discussion of solutions with the class.	7 hours
Class test	Class-test: a specific task assigned and correction	2 hours
Total:		15 hours

### Module 2:

Activities Plan	
<b>Aim</b>	To develop an awareness of what are the advantages and disadvantages in the use of renewable forms of energy for environment's safeguard.
<b>Topic</b>	Renewable Energy Resources
<b>Communication - Language</b>	<b>Glossary:</b> renewable and non-renewable energy, fossil fuel, photoelectric effect, solar cell, wind turbine, generator, hydroelectric dam, nuclear power station.
<b>Approximate time</b>	5 hours

Plan	Description	Activities
<b>Lesson 1</b>	Introduction to the topic.	The PP Presentation
<b>Lessons 2</b>	Renewable and non-renewable energy resources; advantages and disadvantages: a glossary.	Worksheet: 1-4
<b>Lessons 4-5</b>	Brainstorming activity dedicated the topic: "Different sources of energy. Using energy and resources responsibly".	<a href="https://www.youtube.com/watch?v=Sgm3QOWt6Tc">https://www.youtube.com/watch?v=Sgm3QOWt6Tc</a> <a href="https://www.youtube.com/watch?v=1kUEoBZtTRc">https://www.youtube.com/watch?v=1kUEoBZtTRc</a>

## **CLIL RUBRICS – language skills in L3-L1 & specific knowledge**

**Name:**.....

**Class:**

<b>USE OF SECTORIAL (SCIENTIFIC) LANGUAGE IN L3-L1:</b>	<b>ARGUMENTATION SKILLS AND KNOWLEDGE TO SOLVE A PROBLEMATIC SITUATION PROPOSED IN L3-L1 LANGUAGE:</b>
3: The scientific language is used correctly. 2: The scientific language is not always used correctly. 1: The scientific language is not used correctly. 0: The scientific language is not acquired.	3: very good 2: good 1: sufficient; 0: missing.
Totale score/2:	

**NB.:** an evaluation referred to the School Standards as deliberated by the Council of Teachers.

## Module of the Feedback (Classroom) :

### PLEASE ANSWER THE FOLLOWING QUESTIONS:

1. Please rate from 1 (not clear and difficult) to 5 (clear and understandable) the way of presentation and explanation:

1-2-3-4-5

2. Please rate from 1 (not clear and difficult) to 5 (clear and understandable) the activity of *problem solving* and exercises:

1-2-3-4-5

3. Please rate from 1 (not clear and difficult) to 5 (clear and understandable) the power point presentation and texts used in the class:

1-2-3-4-5

4. Please rate from 1 (not clear) to 5 (very clear) the way of evaluation of the activity as proposed by the teacher:

1-2-3-4-5

5. What did help you most in your study (more choices possible):

- Comprehension exercises
- Presentation
- Teacher's explanation
- Class test
- Other .....

6. You find both modules, as presented in L3:

- Too technical;
- Well balanced
- Too practical

7. Please give your answer [from 1 (definitely not) to 5 (definitely yes)] to the following question: "Would you invite your friend to follow the activities you have done in the class, and dedicated to both modules in question?".

1-2-3-4-5