Course "Use of open educational resources for CLIL". José Antonio Gutiérrez Flores (based upon a model by Isabel Pérez Torres. 2009)

Template to design a CLIL didactic unit (Activity 3.1: Planning our CLIL didactic unit)

SECTIONS 1, 2 AND 3 IN THIS TEMPLATE WERE FILLED IN ACTIVITY 1.3. IN THIS ACTIVITY WE HAVE TO FINISH OUR CLIL DU PLANNING BY FILLING SECTIONS FROM 4 TO 8. IF YOU PREFER, YOU CAN START A NEW PLANNING TEMPLATE FROM SCRATCH.

Teacher: Eva Gómez Llanos	Course/Level: 3 ESO
Subject: Technology	DU Title: Simple machines. Inclined planes, levers and pulleys
Observations (if necessary):	

1. Learning outcomes / Evaluation criteria	1. To acquire the necessary knowledge and use it in the understanding and analysis of machines and technical systems. 2. To describe machines, their operation and the elements that compose it. 3. To identify and calculate the quantities related to machines.
2. Subject Content	1. Machines and mechanical systems: basic elements and types. 2. Use of simulators to check and recreate the operation of mechanisms. 3. Analysis of the function that play in the different types of machines. 4. Assembly and experimentation of characteristic mechanisms.
3. Language Content / Communication	
Vocabulary	● Nouns: machines, mechanism, levers, pulleys, plane, ramp, unit of measure, magnitude, moment, force, load, resistance, fulcrum, distance, elements, engine. ● Verbs: calculate, describe, observe, experience, apply, describe. ● Adjectives: technical, mechanical, circular, inclined, lifted. ● Prepositions: in, on, under, beside, next.
Structures	**Routines:** Have you ever heard anything about machines? Do you know something about measurement units? Have you ever used a pulley, an inclined plane or a lever? **Grammar contents:** Present simple. Comparatives: (smaller, bigger, more, less, lower, higher…). Passive voice (Is used). **Classroom management**: Listen carefully. Do you understand? Could you explain it to your classmates?

Discourse type	Argument. Exposition and description. Dialogue.
Language Skills	Writing texts and forms. Reading texts. Speaking, oral presentations and dialogues with classmates. Listening videos and teacher explanations. Social interaction, work in groups.
4. Contextual (cultural) elements	Knowing basic elements about machines and engines that are useful in our lives.
5. Cognitive (thinking) processes	Analysing different mechanisms and machines. Comparing their main characteristics and understanding how they work.
6a. Task/s	Work in pairs. Speaking in every session about previous ideas and acquired knowledge in other sessions. Work with simulators and interactive materials. Work with multimedia resources: video and audio. Work with different types of texts. Writing and worksheets. Work on a project. Students must make a chained effects machine with different recycled materials. Oral presentation. Assessment activities and rubrics.
6b. Activities	1. Work in pairs. Brainstorming about technology with texts. Videos about technology. *Andamiaje de recepción.* 2. Search on the internet and write definitions of simple machine, inclined plane, lever and pulley. *Andamiaje de transformación.* 3. Assessment activity with Quizlet. 4. Watch a video and visit a website to learn concepts about inclined plane. *Andamiaje de recepción.* 5. Work with an inclined plane simulator. Filling the gaps activity with technical words. *Andamiaje de transformación.* 6. Assessment activity with Quizmaker. 7. Work with a video, a listening and a reading with definitions about levers. *Andamiaje de recepción.* 8. Work and play with a lever simulator. *Andamiaje de transformación.* 9. Work in pairs about what machines contain levers. *Andamiaje de producción*. 10. Assessment activity with Kahoot. 11. Work with videos about pulleys and an easy writing activity about comparatives. *Andamiaje de recepción.* 12. Work with a pulley simulator. *Andamiaje de transformación.* 13. Individual speaking activity. Students explain to their classmates what is a pulley and how it works. Passive voice. *Andamiaje de producción.* 14. Assessment activity with Educaplay.

	15. Project. Make a chained effects machine with the studied simple machines. 16. Oral presentation about the machines and the construction process. Presentation with GoogleApps for education or Libreoffice. *Andamiaje de producción*. 17. Group assessment activity. About presentation. *Andamiaje de producción*. 18. Self assessment about language skills with a rubric.
7. Methodology	
Organization and class distribution / timing	The methodology will be active. The student activity is fundamental. Students will work in small groups, in pairs and individually. Timing: 7 sessions of 50 minutes. 1 session: activities 1 to 3. 2 session: activities 4 to 6. 3 session: activities 7 to 10. 4 session: activities 11 to 14. 5 and 6 sessions: project. Activity 15. 7 session: activity 16, oral presentations, about 5 minutes each group, and assessment activities 17 and 18.
Resources / Materials	● Videos. ○ What is Technology? | Basic Technology ○ What are Simple Machines - More Real World Science on the Learning Videos Channel ○ Simple Machines: The Inclined Plane ○ The mighty mathematics of the lever - Andy Peterson and Zack Patterson ○ Need a Lift? Try a Pulley! ○ What is a Pulley? - Simple Machines | Science for Kids | Educational Videos by Mocomi ○ Máquina de efectos encadenados. Chain reaction machine. 1ESO ● Audio. ○ Listening. https://drive.google.com/file/d/1zEi6myoZE9fJy0cJD2l__FKHNqeS3aHi/view?usp=sharing ● Web resources. ○ Wikipedia. Simple machine. Inclined plane. Lever. Pulley. ○ Plano inclinado. https://kids.kiddle.co/Inclined_plane ○ Class levers. https://www.bbc.co.uk/bitesize/guides/zxkr82p/revision/1 ○ Simulators: ■ Inclined plane. http://gateway.golabz.eu/embed/apps/26187a16-494b-4325-98a0-4e4e77c94743/app.html

	■ Lever. https://phet.colorado.edu/sims/html/balancing-act/latest/balancing-act_en.html ■ Pulley. http://www.oercommons.org/courses/atwood-s-machine/view ○ Flashcards. Quizlet. https://quizlet.com/653452767/flashcards ○ Quizmaker. http://www.quiz-maker.com/QAH2DTJR3 ○ Kahhot. https://create.kahoot.it/share/technolgy/b2eb5bcf-14e2-40b6-84ae-93eded4a2d10 ○ Educaplay open activities. https://es.educaplay.com/recursos-educativos/9322091-simple_machines_parts.html ● Google apps for education. ○ Documents. ○ Presentations. ● Free software. ○ Libreoffice. ■ Documents. ■ Presentations. ● Adapted texts from wikipedia.
Key Competences	● Communication in mother tongue / foreign language. Students will learn and work in mother tongue and in foreign language. ● Cultural awareness and expression. Students will learn historic knowledge about technology and their uses in their lives. ● Learning to learn. Students will search for information on the internet, and they will use it for a new creation. ● Digital competence. They will search for information and free software on the internet, and they will use simulators as specific applications. Moreover, they will use google apps to do an oral presentation. ● Social and civic competence. Students will work in group. They will have to listen and to discuss each other. ● Sense of initiative and entrepreneurship. Students will create a composition, an oral presentation, will take decisions… ● Mathematical competence and basic competences in science and technology. Students will use technology, and they learn about technology.
8. Evaluation (criteria and instruments)	● Criteria: Students should be able to ○ Distinguish different simple machines. Inclined plane, lever and pulley. ○ Know how these machines work. ○ Explain something about technology and simple machines in their own words.

	○ Make a inclined plane, a lever or a pulley. ○ Know technical words about technology. ○ Use ICT to spread knowledge. ● Instruments: ○ Direct observation. ○ Oral questions. ○ Texts and writings. ○ Presentations. ○ Assessment activities on the Internet. ○ Rubrics.

Puedes usar este modelo de plantilla con total libertad. Gracias por citar la fuente.

Notas bibliográficas y créditos:

Un primer modelo de esta plantilla ha sido publicado en:
Pérez Torres, I. 2009. *Apuntes sobre los principios y características de la metodología AICLE*, en V. Pavón, J. Ávila (eds.), *Aplicaciones didácticas para la enseñanza integrada de lengua y contenidos*. Sevilla: Consejería de Educación de la Junta de Andalucía-Universidad de Córdoba.171-180.

Está basada sobre todo en la experiencia práctica a la hora de diseñar unidades y conversaciones con expertos y compañeros. También he tenido en cuenta la teoría de las 4 Cs de Do Coyle, expuesta en numerosas publicaciones, como por ejemplo: Coyle, D., Hood, P. and Marsh, D., 2010. *Content and Language Integrated Learning*. Cambridge University Press.