

LESSON PLAN TITLE: SYSTOONS

Author: Manuela Gnech

TITLE	SYSTOONS	
Abstract	<p><i>The Present Educational system in a globalised world imposes constant innovations in methodological frameworks and didactic resources. The use of artistic material, such as cartoons, can provide a gratifying environment in the classroom for learning with interest and attention and can make students to think in different ways and encourage them to create something on their own (the highest element in the Bloom's taxonomy pyramid). Cartoon learning can be helpful for initiating debate and focused group discussions in a classroom as it stimulates learners to engage in critical thinking in order to assess and formulate their views and opinions. These kind of activities sustain different intelligences (Gardner, Theory of Multiple Intelligences) such as the logical – mathematical and also the linguistic, visual-spatial (drawing), interpersonal and intrapersonal. In terms of foreign language teaching and learning, different materials such as pictures, concept mapping or diagrams successfully help the students who possess visual-spatial intelligence.</i></p>	
School	Vocational	
Year/class	3	
Topic	Mathematics	
CLIL language	English	
The teacher profile	<p>The teacher's role: Main the teacher Subject taught: Mathematics</p>	
Student group profile	CEFR Level: A2	
	<ul style="list-style-type: none"> Experiences of CLIL Other mother tongue Migrant background SEN (Special educational Needs): ADHD (Attention Deficit Hyperactivity Disorder) ¹ 	
Timetable fit	Module	Previous lessons: Solve linear equations and inequalities in one variable, including equations with coefficients.
		Future lessons: Relationships Between Quantities and Reasoning with System of Equations and

¹ Learning in a video-based context is an effective technique for inclusive classroom. This “outside-of-the-box” approach to learning offers a refreshing change from sitting in a classroom or at a table reading textbooks and gives students a feeling of independence and sense of ownership over their progress, which is a great motivator and confidence builder.

		Their Graphs
Resources & Tools	TOOLS:	
	<ul style="list-style-type: none"> • Smart board or interactive white board • Tablet 	
	WEBSITES:	
	<ul style="list-style-type: none"> • http://tinyurl.com/ocorlfj (Solving systems of equations by Substitutions) • http://tinyurl.com/zhs2mks (Linear equations in the real world) • http://tinyurl.com/o2r84hs (Systems of linear equations in two variables) • http://tinyurl.com/pfa52rq (Solving systems of Equations by Elimination) • http://tinyurl.com/mrevxyx (Why the elimination method works) • http://tinyurl.com/mbj97ha (Inconsistent, Dependent & Independent Systems) • http://tinyurl.com/kjyppgqk (Solving Inconsistent of Dependent Systems) • http://tinyurl.com/kap9b2z (Using systems of equations versus one equation) • http://tinyurl.com/kbolwzy (Three Variable Systems in the Real World - Problem 1) • http://tinyurl.com/lxved3d (Three Variable Systems in the Real World - Problem 2) • http://tinyurl.com/mgneceq (Three Variable Systems in the Real World - Problem 3) • http://tinyurl.com/lca62a2 (Quizlet) • http://puzzlemaker.discoveryeducation.com (Puzzle maker) 	
	APP	
	<ul style="list-style-type: none"> • Half Tone; • G suite • Prezi; • Powerpoint; • Google or Dropbox account (to share files); • ePubEditor. • https://padlet.com • https://bubbl.us 	

	Subject	Language
	<ul style="list-style-type: none"> Students will understand and be able to solve linear multi-step equations for a given variable. Turn a verbal story into an algebraic sentence. Students can graph linear equations with and without technology. Students have learned how to write a linear equation in slope-intercept form. They are able to explain the process they applied in problem-solving exercises and to reflect on the results gained. 	<ul style="list-style-type: none"> Students know the basic terminology in Maths, concerning how to read numbers, symbols and mathematical expressions, BODMAS. Can use specific language to describe functions. Express similarities and differences, predict using conditional tenses Summarize Cooperate during activities (interaction) Share and justify ideas, in the group. Give a presentation (monologue)
Students' prior knowledge, skills, competencies		
Learning Outcomes expected for this lesson	<p><i>Most students will be able:</i></p> <ul style="list-style-type: none"> to classify a system of equations (<i>content and cognition</i>) to solve a system of equations with three methods: elimination, substitution and graphing (<i>content and cognition</i>) to understand that adding a multiple of one equation to another creates a new system of two linear equations with the same solution set as the original system (<i>content and cognition</i>) to create and use systems of equations to model real world problem (<i>content, cognition, communication and culture</i>) to understand, to analyze and to summarize a video related to the topic (<i>content, cognition and communication</i>) to create comic strips in e_book (<i>content, cognition, communication and culture</i>) 	
Lesson plan implementation time	1 lesson of 50 minutes + 4 lessons of 100 minutes	
Methodology	<i>1 lesson activities: (50')</i>	
	<ul style="list-style-type: none"> - Introduction of topics: watching video (understanding-applying); - Brainstorming (remembering-applying); - Creation of Cmap to point out shared ideas (creating) 	

	<i>II lesson activities: (100')</i>
	<ul style="list-style-type: none"> - Introduce scaffolding structure for content vocabulary (remembering-understanding); - Divide class in five groups and assign each group a different task each group (creating-analyzing-applying)
	<i>III lesson activities: (100')</i>
	<ul style="list-style-type: none"> - Divide class in five groups and assign each group a different task each group (creating-analyzing-applying) - Check if students acquired new words (remembering-understanding)
	<i>IV lesson activities: (100')</i>
	<ul style="list-style-type: none"> - Students in the role of teacher (creating-applying) - Students evaluate pair. (understanding-evaluating)
Interdisciplinary connections	<ul style="list-style-type: none"> • ICT • Design & Tecnology

DESCRIPTION OF TEACHING STRATEGIES AND LEARNING ACTIVITIES.

I LESSON

TIMING: 50 minutes

GROUPING STUDENT: a class

CLASSROOM: ICT

CLASSROOM SETUP: two sides

Activity	Introduction of topics: watching video (understanding-applying);
Activity aims	Video is a powerful tool in today's classroom in the warm-up phase. Meaning comes to life and it brings the outside world into the classroom and gives your teaching "reality". Videos also provide all the paralinguistic features of language that audio only can't. We have to provide students with a link so they can watch the video and practice independently outside of classroom time (independence).
Activity Procedure	Watch video that describes the system of linear equations.
Language competencies developed	<u>Listening</u> : the students' English listening comprehension ability increase with videos students have positive attitudes towards using videos in teaching listening skills. <u>Vocabulary</u> : guessing the meaning of new words; introduce the specific language of system of linear equations through an interesting task.
Interaction	Whole class
Materials and Tools	Interactive whiteboard Video: http://tinyurl.com/o2r84hs (Systems of linear equations in two variables)
Timing	10'
Assessment	Teacher explains the formative assessment.

Activity	Brainstorming (remembering-applying)
Activity aims	The mapping activities and exchange of Applying Brainstorming Techniques to system of linear equations related ideas may activate prior knowledge and facilitate linkages with new knowledge. The process is useful for generating creative thoughts and ideas.
Activity Procedure	The role of teacher is to suggest some question like: "What is ...? What is a linear equation? What does system of linear equations mean? From the information given, can you develop a set of instructions to solve a system?"

	The answers are written on the interactive whiteboard using Padlet app.
Language competencies developed	<u>Writing</u> : helpful for the development of students' writing and the facilitation of their creativity. <u>Speaking</u> : interaction with peers and/or teacher; the students rank the ideas, and then they expose and discuss them
Interaction	Whole class
Materials and Tools	Interactive whiteboard https://padlet.com
Timing	25'
Assessment	Informal assessment techniques monitor how students interact with each other or with the teacher, focussing on interpersonal communication skills. See the rubric attached

Activity	Creation of Cmap to point out shared ideas (creating)
Activity aims	The use of mind map in vocabulary teaching can improve students' learning interest together with their English proficiency, exercise their thinking and improve their comprehension abilities.
Activity Procedure	After the brainstorming students realize a concept map that shows how the concepts are interconnected.
Language competencies developed	<u>Speaking</u> : interaction with peers and/or teacher; the students rank the ideas, and then they expose and the discuss <u>Vocabulary</u> : subject-specific terminology
Interaction	Team-idea mapping
Materials and Tools	Interactive whiteboard https://bubbl.us
Timing	15'
Assessment	Informal assessment techniques monitor how students interact each other or with the teacher, focussing on interpersonal communication skills. See the rubric attached

II/III LESSON

TIMING: 100 minutes

GROUPING STUDENT: heterogeneous groups of 4 (1 *high-performance students*, 2 *medium-performance students* and 1 *low-performance students*)

CLASSROOM: ICT

CLASSROOM SETUP: cluster arrangement

Activity	Introduce scaffolding structure for content vocabulary (remembering-understanding);
Activity aims	Reflect and discuss on the language used
Activity Procedure	The teacher notes the new words on the interactive whiteboard during the previous activity and creates a visual organizer
Language competencies developed	<u>Speaking</u> : interaction with peers and/or teacher; the students rank the ideas, and then they expose and the discuss <u>Vocabulary</u> : subject-specific terminology
Interaction	Whole class
Materials and Tools	Interactive whiteboard All materials are prepared by teacher: visual organisers.
Timing	15'
Assessment	Formal assessment http://tinyurl.com/lca62a2 (Quizlet) - flashcards

Activity	Divide class in five groups and assign each group a different work
Activity aims	Introducing subject-specific terminology of the main characteristic of a system of linear equation. Create a cartoon.
Activity Procedure	Teacher assign different tasks to each group (5 groups): <ol style="list-style-type: none">1. System of linear equations and Variable Systems in the Real World;2. Inconsistent, Dependent & Independent Systems;3. Solving systems of Equations by Elimination;4. Solving systems of Equations by Substitution;5. Solving systems of Equations Graphing. Each group has to analyze the materials provided, summarize them and create strips of cartoons using the given app. In the final step students prepare their own part of System of linear equation e_book using the cartoons created.

Language competencies developed	<p><u>Writing</u>: helpful for the development of students' writing and the facilitation of their creativity.</p> <p><u>Speaking</u>: interaction with peers and/or teacher; the students rank the ideas, and then they expose and the discuss</p>
Interaction	<p>Think pair share</p> <p>Group work</p>
Materials and Tools	<p>Individual tablets</p> <ul style="list-style-type: none"> • http://tinyurl.com/ocorlfj (Solving systems of equations by Substitutions) • http://tinyurl.com/zhs2mks (Linear equations in the real world) • http://tinyurl.com/o2r84hs (Systems of linear equations in two variables) • http://tinyurl.com/pfa52rq (Solving systems of Equations by Elimination) • http://tinyurl.com/mrevxyx (Why the elimination method works) • http://tinyurl.com/mbj97ha (Inconsistent, Dependetn & Inependent) • http://tinyurl.com/kjypgqk (Solving Inconsistent of Dependent Systems) • http://tinyurl.com/kap9b2z (Using systems of equations versus one equation) • http://tinyurl.com/kbolwzy (Three Variable Systems in the Real World - Problem 1) • http://tinyurl.com/lxved3d (Three Variable Systems in the Real World - Problem 2) • http://tinyurl.com/mgneceq (Three Variable Systems in the Real World - Problem 3) • Half Tone; • G suite • Prezli; • Powerpoint; • Google or Dropbox account (to share files); • ePubEditor. • https://padlet.com • https://bubbl.us
Timing	85'
Assessment	Teacher moves around the class observing, answering possible questions, and checking for understanding.

II/III LESSON

TIMING: 100 minutes

GROUPING STUDENT: heterogeneous groups of 4 (1 *high-performance students*, 2 *medium-performance students* and 1 *low-performance students*)

CLASSROOM: ICT

CLASSROOM SETUP: cluster arrangement

Activity	Check if students acquired new words (remembering-understanding)
Activity aims	Checking if students understood the meaning of new terms including them in creating cartoon.
Activity Procedure	The student have to complete a crossword and find new terms in hidden message.
Language competencies developed	<u>Vocabulary</u>
Interaction	Individual work
Materials and Tools	Interactive whiteboard All materials are prepared by teacher
Timing	15'
Assessment	Formal assessment: Crossword – Hidden Message

IV LESSON

TIMING: 100 minutes

GROUPING STUDENT: heterogeneous groups of 4 (1 *high-performance students*, 2 *medium-performance students* and 1 *low-performance students*)

CLASSROOM: ICT

CLASSROOM SETUP: cluster arrangement /two sides

Activity	Students in the role of teacher
Activity aims	Feedback
Activity Procedure	To prepare a short report about the results of their tasks (glossaries allowed)
Language competencies developed	<u>Speaking</u> : interaction with peers and/or teacher; the students rank the ideas, and then they expose and the discuss <u>Vocabulary</u> : subject-specific terminology
Interaction	Whole class, Individual work
Materials and Tools	Their own presentation
Timing	50'
Assessment	Informal assessment techniques monitor how students interact each other or with the teacher, focusing on interpersonal communication skills. See the rubric attached

Activity	Students in the role of teacher: peer-assessment and evaluation
Activity aims	Feedback
Activity Procedure	Each group present their report to whole class
Language competencies developed	To encourage student talk. Try to find out if there are any difficulties with subject content
Interaction	Whole class, Group work
Materials and Tools	Students write their observations and the key facts, after sharing ideas with their response partners. Teacher provides visual organisers.
Timing	10 minutes per group
Assessment	See the rubric attached