CORSO IN METODOLOGIA CLIL – INGLESE –

Scuola secondaria di secondo grado

– Prima edizione –

LESSON PLAN: *Systems of Equations*

Benini Claudia

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Author: Claudia Benini

Lesson plan Title:
Systems of Equations

School	High
Year / Class	2 / 3
Subject	Mathematics
Topic	Systems of Equations
CLIL language	English

The teacher profile	**The teacher's role**: Main The teacher **Subject taught:** Mathematics

Student group profile (general)	CEFR Level: A2

	• Experiences of CLIL
	• Other mother tongue
	• Migrant background
	• Special Educational Needs (most common):
	  ○ learning disabilities
	  ○ emotional and behavioural disorders

Timetable fit	Module	**Previous lessons:** Solving linear equations
		Future lessons: Solving "word problems" using systems of linear equations

Resources & tools	• Interactive whiteboard
	• One PC for each group (about 6)
	• Websites:
	  ○ http://tinyurl.com/psbxrak (Video: Systems of Equations)
	  ○ http://tinyurl.com/pr99fos (Video: Types of solutions)
	  ○ http://tinyurl.com/zxpuzo2 (Video: Substitution Method)
	  ○ http://tinyurl.com/lq5m5hm (Explanation: Substitution Method)
	  ○ http://tinyurl.com/hkbnxrr (Exercises: Substitution Method)
	  ○ http://tinyurl.com/jupwcwv (Video: Elimination Method)
	  ○ http://tinyurl.com/mk3qevx (Explanation: Elimination Method)
	  ○ http://tinyurl.com/zt8mb23 (Exercises: Elimination Method)
	  ○ http://tinyurl.com/gtwbnlp (Video: Graphing Method)

	○ http://tinyurl.com/czmd423 (Explanation: Graphing Method) ○ http://tinyurl.com/jkbpql3 (Exercises: Graphing Method) • App: ○ "edu.buncee.com" ○ " Google Drive" ○ "https://bubbl.us/mindmap

	Subject	***Language***
Students' prior knowledge, skills, competencies	Students should be familiar with manipulating equations to solve a given variable. They should be proficient in simplifying expressions, and graphing linear equations by hand and with technology.	Students should understand sentences and frequently used expressions related to the mathematical area, in particular to linear equations. They should be able to communicate in simple tasks requiring exchanges of information. They should be able to describe in simple terms aspects of mathematical area related to linear equations.

Learning Outcomes expected for this lesson	*Most learners will:* • Be able to solve a system of equations using three methods: substitution, elimination, graphing *(→Content and Cognition)* • Be able to apply math concepts transferring from concrete thinking to abstract thinking and apply their knowledge of systems of equations to real-world problems *(→Cognition and Culture)* • Be aware of the relevance of math concepts to everyday life *(→Culture)* • Be able to understand the main points of videos and articles related to the topic *(→Content, Cognition, Communication)* • Be able to understand and use specific terminology and notation related to the topic *(→Content, Communication)* • Be able to interact with classmates and the The teacher in groups and in classroom discussions related to the topic *(→Content, Cognition, Communication)* • Be able to explain graphics and diagrams related to the topic *(→Content, Cognition, Communication)* • Be able to summarize a video or an article related to the topic *(→Content, Cognition, Communication)* • Be able to create a multimedia presentation including all the required elements related to the topic *(→Content and Communication)* • Be able to answer questions related to facts in the presentation and processes used to create it *(→Content, Cognition, Communication)*

	• Be able to explain clearly all the information contained in the presentation related to the topic *(→Content, Cognition, Communication)* • Be able to hypothesise which solving method is to be preferred *(→Content, Cognition, Communication)*

Methodology	Activity 1→ Activate prior knowledge: group discussion *(Remembering)* Activity 2→ Share ideas: whole-class guided debate *(Understanding)* Activity 3→ Introduce scaffolding structure for content vocabulary *(Remembering – Understanding)* Activity 4→ Introduction of the topic: watching videos + Think Pair Share *(Analyzing - Applying)* Activity 5→ Summarise to consolidate a full comprehension of the topic *(Analyzing)* Activity 6→ Internet-based research *(Evaluating)* Activity 7→ Take ownership of their own learning: create a meaningful project *(Creating)* Activity 8→ Students become The teacher *(Creating - Applying)* Activity 9→ Homework: be aware of the relevance of math concepts to everyday life *(Evaluating)*

Interdisciplinary Connections	• Physics • Chemistry • Economics • IT

Activity 1

Activity aims	Activate prior knowledge *(Remembering)*
Activity Procedure	Warm up phase starts from the question "What is a linear equation? What could be a system of equations?" written on the board. Students are asked to discuss in groups of four what they already know about equations and then to predict what the new topic is about. The teams are expected to debate these issues from multiple perspectives and to attempt to come to an agreement.
Language competencies developed	Speaking → Spoken interaction with peers: develop communication skills such as discussing with one another their ideas, answering questions, synthesising important concepts, building consensus, providing assistance if needed.
Interaction	Student to student → learners discuss in teams of four. The arrangement of the cooperative groups will be based on the abilities of each student in order to balance the needs for diversity, active participation and cohesion. The teacher may need to group weaker students together with talented ones that could help. All the members should feel a sense of personal responsibility for the success of their own team. The teacher to student → during group discussion learners will probably use code switching, the The teacher will then circulate and listen to the conversations taking place in order to respond accordingly, also encouraging peer to peer interactions within the group and fostering debates to facilitate making judgment calls.
Materials	Interactive whiteboard
Timing	5 minutes
Assessment	Students will be assessed informally as they interact with each other or with the The teacher. Type → formative Focus → cognitive skills, communication skills, attitudes to learning, collaborative work skills Criteria → see rubric attached

Activity 2

Activity aims	Share ideas *(Understanding)*
Activity Procedure	Once the groups have talked about their opinions and shared their ideas, The teacher expands the discussion into a whole-class guided debate: each team chooses one learner who will represent their thoughts and questions to the The teacher and to the rest of the class. The teacher takes note of the key-contents and the key-words on the Whiteboard using the web-based platform "edu.buncee.com" adding, if needed, audio with pronunciation, photos, additional text or drawings to ease understanding.

Language competencies developed	Speaking → Spoken interaction with The teacher and whole class: develop communication skills such as discussing ideas, answering questions, synthesising important concepts, building consensus and sharing findings. Vocabulary → develop a wider range of content specific terms and language structures.
Interaction	Student to The teacher/class → learners share ideas with the The teacher and the whole class. The teacher to students → The teacher, as a facilitator, encourages learners' active participation with specific questions and asking them to explain why they answered the way they did or to respond to a yes-no question given. The teacher should also make sure all learners have the opportunity to be actively involved, asking the more frequent contributors to hold back from commenting in order to give others a chance. Giving a proper "waiting time" to think before answering may help to increase students' participation.
Materials	Interactive whiteboard App: "edu.buncee.com"
Timing	7 minutes
Assessment	Students will be assessed informally as they interact with each other or with the teacher. Type → formative Focus → cognitive skills, communication skills, attitudes to learning, collaborative work skills Criteria → see rubric attached

Activity 3

Activity aims	Introduce scaffolding structure for content vocabulary *(Remembering – Understanding)*
Activity Procedure	The teacher elicits and pre-teaches new content words learners are going to listen to during the following scheduled videos. The teacher notes the new terms on the whiteboard, adding them to the map developed during the previous activity. The created file will then be shared with all the students through " Google Drive".
Language competencies developed	Speaking → Spoken interaction with The teacher and whole class: develop communication skills such as discussing facts, answering questions, synthesising important concepts, building consensus and sharing ideas. Vocabulary → develop a wider range of content specific terms and language structures.
Interaction	Student to The teacher/class → learners share ideas with the The teacher and the whole class. The teacher to students → The teacher, as a facilitator, encourages learners' active participation with specific questions and asking them to explain why they answered the way

	they did or to respond to a yes-no question given. The teacher should also make sure all learners have the opportunity to be actively involved, asking the more frequent contributors to hold back from commenting in order to give others a chance. Giving a proper "waiting time" to think before answering may help to increase students' participation.
Materials	Interactive whiteboard App: "edu.buncee.com" App: " Google Drive"
Timing	7 minutes
Assessment	Students will be assessed informally as they interact with each other or with the The teacher. Type → formative Focus → cognitive skills, communication skills, attitudes to learning, collaborative work skills Criteria → see rubric attached

Activity 4

Activity aims	Introduction of the topic *(Analyzing - Applying)*
Activity Procedure	The class starts off by watching a video that introduces the idea of what a system of equation is. A further shorter video is suggested to help a better understanding of the types of solutions a system of equations could have. The The teacher leads students through a process of individual thinking first and sharing in small groups of four then, using this questioning sequence: • What is the problem in the first video? Describe what you saw. • What is a solution to a system of equations? • Could math concepts, as solving systems of equations, be applied to real life situations? How? Give examples. These questions are given in advance to allow learners to take notes accordingly. (The videos could be watched twice if needed.) As students have shared their thinking with their partners, The teacher expands the discussion into a whole-class debate. A mind map is used to visually organize the information. The teacher records knowledge that come to light creating a map around the concept on the whiteboard, using a suitable app ("https://bubbl.us/mindmap"). The drawn map will then be shared with all the students through " Google Drive".
Language competencies developed	Listening → activate and develop appropriate listening processes to comprehend and analyse the contents and the requirements of a task. Writing → develop note-taking strategies such as organization of ideas, structuring of the spatial layout, abbreviating procedures. Speaking → spoken interaction with peers, The teacher and whole class: develop

	communication skills such as discussing ideas, answering questions, synthesising important concepts, building consensus, providing assistance if needed, sharing findings. Vocabulary → develop a wider range of content specific terms and language structures.
Interaction	Think pair share → students think independently - Students are grouped in small groups to discuss their thoughts – Students share their ideas with the teacher and the whole class. Student to student → learners discuss in teams of four. The arrangement of the cooperative groups will be based on the abilities of each student in order to balance the needs for diversity, active participation and cohesion. The teacher may need to group weaker students together with talented ones that could help. All the members should feel a sense of personal responsibility for the success of their own team. The teacher to student → during group discussion learners will probably use code switching, the teacher will then circulate and listen to the conversations taking place in order to respond accordingly, also encouraging peer to peer interactions within the group and fostering debates to facilitate making judgment calls. →During the sharing phase the teacher, as a facilitator, encourages learners' active participation with specific questions and asking them to explain why they answered the way they did or to respond to a yes-no question given. The teacher should also make sure all the learners have the opportunity to be actively involved, asking the more frequent contributors to hold back from commenting in order to give others a chance. Giving a proper "waiting time" to think before answering may help to increase students' participation. Student to The teacher/class → learners share ideas with the teacher and the whole class.
Materials	Interactive whiteboard Video 1: http://tinyurl.com/psbxrak Video 2: http://tinyurl.com/pr99fos App: "https://bubbl.us/mindmap" (mind map) App: " Google Drive"
Timing	25 minutes
Assessment	Students will be assessed informally as they interact with each other or with the teacher. Type → formative Focus → cognitive skills, communication skills, attitudes to learning, collaborative work skills Criteria → see rubric attached

Activity 5

Activity aims	Be aware of the concepts "systems of equations" and of their applicability to real life situations *(Analysing)*

Activity Procedure	The teacher summarises the whole work done in order to check the new subject-specific content and vocabulary, consolidate a full comprehension of the topic and deepen the understanding of content knowledge. The outlines and the mind map previously drawn will be useful for an effective visual review.
Language competencies developed	Listening → activate and develop appropriate listening processes to comprehend and analyse the contents and the requirements explained during a task. Writing → develop note-taking strategies such as organization of ideas, structuring of the spatial layout, abbreviating procedures.
Interaction	The teacher to students → explanation of the main topic
Materials	Whiteboard
Timing	16 minutes
Assessment	not applicable

Activity 6

Activity aims	Internet-based research in which learners develop methods of solving linear systems *(Evaluating)*
Activity Procedure	The teacher leads students through an internet-based research properly planned to encourage students in becoming masters of one solving method for linear equations systems. First The teacher organises the class into six small groups of four, then assigns each group to become an "expert" of one method for solving linear systems of equations. The three main methods must be covered, that are substitution, elimination and graphing: that means there will be two groups working on each method. The online resources students may use to complete the task have been identified earlier by the teacher who creates a list of current and accurate sites that will engage students' interest. "Experts in substitution" Students will be taught how to solve a system of equations by substitution thanks to this website which shows a suitable video explaining how to solve systems of equations by substitution. A further website, with a written explanation, is proposed to consolidate the learning of this solution method. After the students have understood the substitution process, the teacher provides an interactive website with systems of equations to solve by substitution. "Experts in elimination" Students will be taught how to solve a system of equations by elimination thanks to this website which shows a suitable video explaining how to solve systems of equations by elimination. A further website, with a written explanation, is proposed to consolidate the learning of this

	solution method. After the students have understood the substitution process, the teacher provides an interactive website with systems of equations to solve by elimination. "Experts in graphing" Students will be taught how to solve a system of equations by graphing thanks to this website which shows a suitable video explaining how to solve systems of equations by graphing. A further website, with a written explanation, is proposed to consolidate the learning of this solution method. After the students have understood the substitution process, the teacher provides an interactive website with systems of equations to solve by graphing.
Language competencies developed	Vocabulary → develop a wider range of content specific terms and language structures. Listening → activate and develop appropriate listening processes to comprehend and analyse the contents and the requirements of a task. Reading → understand specific information proposed, develop new content vocabulary. Writing → develop note-taking strategies such as organization of ideas, structuring of the spatial layout, abbreviating procedures. Speaking → Spoken interaction with peers: develop communication skills such as discussing with one another their ideas, answering questions, synthesising important concepts, building consensus, providing assistance if needed.
Interaction	Student to student → learners discuss in teams of four. The arrangement of the cooperative groups will be based on the abilities of each student in order to balance the needs for diversity, active participation and cohesion. The teacher may need to group weaker students together with talented ones that could help. All the members should feel a sense of personal responsibility for the success of their own team. The teacher to student → during group discussion learners will probably use code switching, the teacher will then circulate and listen to the conversations taking place in order to respond accordingly, also encouraging peer to peer interactions within the group and fostering debates to facilitate reaching judgment calls.
Materials	One personal computer for each group. Websites: http://tinyurl.com/zxpuzo2 (Video Substitution Method) http://tinyurl.com/lq5m5hm (Explanation Substitution Method) http://tinyurl.com/hkbnxrr (Exercises Substitution Method) http://tinyurl.com/jupwcwv (Video Elimination Method) http://tinyurl.com/mk3qevx (Explanation Elimination Method) http://tinyurl.com/zt8mb23 (Exercises Elimination Method) http://tinyurl.com/gtwbnlp (Video Graphing Method) http://tinyurl.com/czmd423 (Explanation Graphing Method) http://tinyurl.com/jkbpql3 (Exercises Graphing Method)
Timing	90min
Assessment	Students will be assessed informally as they interact with each other or with the The teacher.

	Type → formative Focus → cognitive skills, communication skills, attitudes to learning, collaborative work skills Criteria → see rubric attached

Activity 7

Activity aims	Take ownership of their own learning *(Creating)*
Activity Procedure	Once the students have learned and practiced their method, the groups are expected to take the information which they interact with and transform to create new knowledge: each team is asked to create a meaningful project to share with the whole class via oral presentation. First students of each group plan the contents concerning their solution method which afterwards will be peer-taught. Then every team brainstorms programs and tools they could use to make their own multimedia presentation (Prezi, PowerPoint, Padlet, Bouncee, Ebook, ...): the format of the presentation is left as a free choice. Finally students create their own multimedia project as if they were giving an advertising presentation, complete with visuals and enthusiasm. There will be two presentations for each solving method.
Language competencies developed	Speaking → Spoken interaction with peers: develop communication skills such as discussing with one another their ideas, answering questions, synthesising important concepts, building consensus, providing assistance if needed. Vocabulary → develop a wider range of content specific terms and language structures. Writing → develop summarising strategies such as organization of ideas, reducing information to main points, summing up information from multiple fonts but providing essential details and no omissions of important details, structuring of the spatial layout in the form of text, slides, tables, graphs, diagrams, ...
Interaction	Student to student → learners discuss in teams of four. The arrangement of the cooperative groups will be based on the abilities of each student in order to balance the needs for diversity, active participation and cohesion. The teacher may need to group weaker students together with talented ones that could help. All the members should feel a sense of personal responsibility for the success of their own team. The teacher to student → during group discussion learners will probably use code switching, the teacher will then circulate and listen to the conversations taking place in order to respond accordingly, also encouraging peer to peer interactions within the group and fostering debates to facilitate making judgment calls.
Materials	One personal computer for each group.
Timing	90min

Assessment	Students will be assessed informally as they interact with each other or with the teacher. Type → formative Focus → cognitive skills, communication skills, attitudes to learning, collaborative work skills Criteria → see rubric attached

Activity 8

Activity aims	Students become The teacher of a solution method *(Creating - Applying)*
Activity Procedure	The final task involves each group in presenting their solution method to the whole class as if they were teaching the other group members about what has been learned. All the members of every group should play an active role during the presentation. While listening attentively the solution method explained, students not involved in presentation take notes.
Language competencies developed	Speaking → develop an effective process of performing presentations and speeches to a live audience in a structured manner, in order to inform about technical specific contents. Vocabulary → develop a wider range of content specific terms and language structures. Listening→ activate and develop appropriate listening processes to comprehend and analyse the explained information. Writing→ develop note-taking strategies such as organization of ideas, structuring of the spatial layout, abbreviating procedures.
Interaction	Student to class → students are engaged as The teachers, becoming active drivers of learning and publicly sharing their own understanding of what they learned.
Materials	Whiteboard
Timing	60min
Assessment	Students will be assessed informally as they interact with each other or with the The teacher. Type → formative Focus → cognitive skills, communication skills, attitudes to learning, collaborative work skills Criteria → see rubric attached

Activity 9

Activity aims	Be aware of the relevance of math concepts to everyday life *(Evaluating*
Activity Procedure	Homework: learners should identify examples of real-world situations that can be modelled using a system of linear equations (e.g. comparing cell phone plans, power companies' rates, etc.)
Language competencies developed	Reading → understand specific information proposed, develop new vocabulary. Vocabulary → develop a wider range of terms and language structures Writing→ develop note-taking strategies
Interaction	Metacognition → in order to become autonomous, students need to be able to "orchestrate" their own learning.
Materials	Up to learners
Timing	Up to learners
Assessment	Students will be assessed informally. Type → formative Focus → cognitive skills, attitudes to learning Criteria → see rubric attached

Attachments

(1) Cognitive Skills Rubric

Cognitive Skills				
CATEGORY	Exceeding expectations	Fully meeting expectations	Approaching expectations	Not yet meeting expectations
Mathematical Concepts	Explanation shows complete understanding of the mathematical concepts used.	Explanation shows substantial understanding of the mathematical concepts used.	Explanation shows some understanding of the mathematical concepts needed.	Explanation shows very limited understanding of the underlying concepts needed.
Mathematical Reasoning	Uses complex and refined mathematical reasoning.	Uses effective mathematical reasoning.	Some evidence of mathematical reasoning.	Little evidence of mathematical reasoning.
Mathematical Terminology and Notation	Correct terminology and notation are always used, making it easy to understand what was done.	Correct terminology and notation are usually used, making it fairly easy to understand what was done.	Correct terminology and notation are used, but it is sometimes not easy to understand what was done.	There is little use, or a lot of inappropriate use, of terminology and notation.
Cognitive Skills - PowerPoint Content and Appearance				
CATEGORY	Exceeding expectations	Fully meeting expectations	Approaching expectations	Not yet meeting expectations
Content Accuracy	All content throughout the presentation is accurate. There are no factual errors.	Most of the content is accurate but there is one piece of information that might be inaccurate.	The content is generally accurate, but one piece of information is clearly flawed or inaccurate.	Content is typically confusing or contains more than one factual error.
Required Elements	The presentation includes all required elements as well as additional information.	All required elements are included on the presentation.	Several of the required elements are included on the presentation.	Several required elements were missing.
Knowledge Gained	Student can accurately answer all questions related to facts in the presentation and processes used to create it.	Student can accurately answer most questions related to facts in the presentation and processes used to create it.	Student can accurately answer about 75% of questions related to facts in the presentation and processes used to create it.	Student appears to have insufficient knowledge about the facts or processes used in the presentation.
Sequencing of Information	Information is organized in a clear, logical way. It is easy to anticipate the type of material that might be on the next card.	Most information is organized in a clear, logical way. One card or item of information seems out of place.	Some information is logically sequenced. An occasional card or item of information seems out of place.	There is no clear plan for the organization of information.

Effectiveness	Project includes all material needed to gain a comfortable understanding of the topic. It is a highly effective study guide.	Project includes most material needed to gain a comfortable understanding of the material but is lacking one or two key elements. It is an adequate study guide.	Project is missing more than two key elements. It would make an incomplete study guide.	Project is lacking several key elements and has inaccuracies that make it a poor study guide.
Originality	Presentation shows considerable originality and inventiveness. The content and ideas are presented in a unique and interesting way.	Presentation shows some originality and inventiveness. The content and ideas are presented in an interesting way.	Presentation shows an attempt at originality and inventiveness on 1-2 cards.	Presentation is a rehash of other people\'s ideas and/or graphics and shows very little attempt at original thought.
Use of Graphics	All graphics are attractive (size and colours) and support the theme/content of the presentation.	A few graphics are not attractive but all support the theme/content of the presentation.	All graphics are attractive but a few do not seem to support the theme/content of the presentation.	Several graphics are unattractive AND detract from the content of the presentation.
Graphics Sources	Graphics are hand-drawn. The illustrator(s) are given credit somewhere in the presentation.	A combination of hand-drawn and stock graphics are used. Sources are documented in the presentation for all images.	Some graphics are from sources that clearly state that non-commercial use is allowed without written permission. Sources are documented in the presentation for all \"borrowed\" images.	Some graphics are borrowed from sites that do not have copyright statements or do not state that non-commercial use is allowed, OR sources are not documented for all images.
Background	Background does not detract from text or other graphics. Choice of background is consistent from card to card and is appropriate for the topic.	Background does not detract from text or other graphics. Choice of background is consistent from card to card.	Background does not detract from text or other graphics.	Background makes it difficult to see text or competes with other graphics on the page.
Text - Font Choice & Formatting	Font formats (e.g., colour, bold, italic) have been carefully planned to enhance readability and content.	Font formats have been carefully planned to enhance readability.	Font formatting has been carefully planned to complement the content. It may be a little hard to read.	Font formatting makes it very difficult to read the material.
Cognitive Skills - Debates				
CATEGORY	Exceeding expectations	Fully meeting expectations	Approaching expectations	Not yet meeting expectations
Understanding of Topic	The team clearly understood the topic in-depth and presented their information forcefully and convincingly.	The team clearly understood the topic in-depth and presented their information with ease.	The team seemed to understand the main points of the topic and presented those with ease.	The team did not show an adequate understanding of the topic.
Information	All information presented in the debate was clear, accurate and thorough.	Most information presented in the debate was clear, accurate and thorough.	Most information presented in the debate was clear and accurate, but was not usually thorough.	Information had several inaccuracies OR was usually not clear.

Organization	All arguments were clearly tied to an idea (premise) and organized in a tight, logical fashion.	Most arguments were clearly tied to an idea (premise) and organized in a tight, logical fashion.	All arguments were clearly tied to an idea (premise) but the organization was sometimes not clear or logical.	Arguments were not clearly tied to an idea (premise).
Presentation Style	Team consistently used gestures, eye contact, tone of voice and a level of enthusiasm in a way that kept the attention of the audience.	Team usually used gestures, eye contact, tone of voice and a level of enthusiasm in a way that kept the attention of the audience.	Team sometimes used gestures, eye contact, tone of voice and a level of enthusiasm in a way that kept the attention of the audience.	One or more members of the team had a presentation style that did not keep the attention of the audience.

Rubric made using RubiStar (http://rubistar.4The teachers.org/index.php)

(2) Communication Skills Rubric

Communication Skills				
CATEGORY	Exceeding expectations	Fully meeting expectations	Approaching expectations	Not yet meeting expectations
Speaks clearly	Speaks clearly and distinctly all of the time and mispronounces no words.	Speaks clearly and distinctly all of the time but mispronounces 1 or more words.	Speaks clearly and distinctly most of the time and mispronounces no words.	Does NOT speak clearly and distinctly most of the time AND/OR mispronounces more than 1 word.
Identifies important information	Student lists all the main points of the video/article (without having the article in front of him/her).	The student lists several of the main points (but uses the article for reference).	The student lists some of the main points (using the article for reference). S/he does not highlight any unimportant points.	The student cannot important information with accuracy.
Information	All information presented was clear, accurate and thorough.	Most information presented was clear, accurate and thorough.	Most information presented was clear and accurate, but was not usually thorough.	Information had several inaccuracies OR was usually not clear.
Summarization	Student uses only few sentences to describe clearly what the video/article is about.	Student uses several sentences to accurately describe what the video/article is about.	Student summarizes most of the video/article accurately, but has some slight misunderstanding.	Student has great difficulty summarizing the video/article.
Relates Graphics to Text	Student accurately explains how each graphic/diagram is related to the text, and accurately determines whether each graphic/diagram agrees with the information in the text.	Student accurately explains how each graphic/diagram is related to the text.	Student accurately explains how some of the diagrams are related to the text.	Student has difficulty relating graphics and diagrams to the text.
Comprehension	Student seems to understand entire video/article and accurately answers the 3 questions related to the topic.	Student seems to understand most of the video/article and accurately answers 2 questions related to the topic.	Student understands some parts of the video/article and accurately answers 1 question related to the topic.	Student has trouble understanding or remembering most parts of the video/article.
Use of Facts/Statistics	Every major point was well supported with several relevant facts, statistics and/or examples.	Every major point was adequately supported with relevant facts, statistics and/or examples.	Every major point was supported with facts, statistics and/or examples, but the relevance of some was questionable.	Every point was not supported.
Spelling and Grammar	There are no misspellings or grammatical errors.	There are some misspellings, but no grammatical errors.	There are some grammatical errors but no misspellings.	There are several grammatical and/or spelling errors.

Rubric made using RubiStar (http://rubistar.4The teachers.org/index.php)

(3) Attitudes to learning Rubric

Attitudes to Learning				
CATEGORY	Exceeding expectations	Fully meeting expectations	Approaching expectations	Not yet meeting expectations
Participates Willingly	Student routinely volunteers answers to questions and willingly tries to answer questions s/he is asked.	Student volunteers once or twice and willingly tries to all questions s/he is asked.	Student does not volunteer answers, but willing tries to answer questions s/he is asked.	Student does not willingly participate.
Respects Others	Student stands quietly, does not interrupt, and stays in assigned place without distracting fidgeting.	Student stands quietly and does not interrupt. Moves a couple of times, but does not distract others.	Student interrupts once or twice, but comments are relevant. Stays in assigned place without distracting movements.	Student interrupts often by whispering, making comments or noises that distract others OR moves around in ways that distract others.
Focus on the task	Consistently stays focused on the task and what needs to be done. Very self-directed.	Focuses on the task and what needs to be done most of the time. Other group members can count on this person.	Focuses on the task and what needs to be done some of the time. Other group members must sometimes nag, prod, and remind to keep this person on-task.	Rarely focuses on the task and what needs to be done. Lets others do the work.
Attitude	Never is publicly critical of the project or the work of others. Always has a positive attitude about the task(s).	Rarely is publicly critical of the project or the work of others. Often has a positive attitude about the task(s).	Occasionally is publicly critical of the project or the work of other members of the group. Usually has a positive attitude about the task(s).	Often is publicly critical of the project or the work of other members of the group. Often has a negative attitude about the task(s).
Use of Class Time	Used time well during each class period. Focused on getting the project done. Never distracted others.	Used time well during each class period. Usually focused on getting the project done and never distracted others.	Used some of the time well during each class period. There was some focus on getting the project done but occasionally distracted others.	Did not use class time to focus on the project OR often distracted others.

Rubric made using RubiStar (http://rubistar.4The teachers.org/index.php)

(4) Collaborative Work Skills Rubric

Collaborative Work Skills				
CATEGORY	Exceeding expectations	Fully meeting expectations	Approaching expectations	Not yet meeting expectations
Contributions	Routinely provides useful ideas when participating in the group and in classroom discussion. A definite leader who contributes a lot of effort.	Usually provides useful ideas when participating in the group and in classroom discussion. A strong group member who tries hard!	Sometimes provides useful ideas when participating in the group and in classroom discussion. A satisfactory group member who does what is required.	Rarely provides useful ideas when participating in the group and in classroom discussion. May refuse to participate.
Working with Others	Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together.	Usually listens to, shares, with, and supports the efforts of others. Does not cause \"waves\" in the group.	Often listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.	Rarely listens to, shares with, and supports the efforts of others. Often is not a good team player.
Cooperation	Group delegates tasks and shares responsibility effectively all of the time.	Group delegates tasks and shares responsibility effectively most of the time.	Group delegates tasks and shares responsibility effectively some of the time.	Group often is not effective in delegating tasks and/or sharing responsibility.
Quality of Work	Provides work of the highest quality.	Provides high quality work.	Provides work that occasionally needs to be checked/redone by other group members to ensure quality.	Provides work that usually needs to be checked/redone by others to ensure quality.
Problem-solving	Actively looks for and suggests solutions to problems.	Refines solutions suggested by others.	Does not suggest or refine solutions, but is willing to try out solutions suggested by others.	Does not try to solve problems or help others solve problems. Lets others do the work.
Preparedness	Brings needed materials to class and is always ready to work.	Almost always brings needed materials to class and is ready to work.	Almost always brings needed materials but sometimes needs to settle down and get to work	Often forgets needed materials or is rarely ready to get to work.
Monitors Group Effectiveness	Routinely monitors the effectiveness of the group, and makes suggestions to make it more effective.	Routinely monitors the effectiveness of the group and works to make the group more effective.	Occasionally monitors the effectiveness of the group and works to make the group more effective.	Rarely monitors the effectiveness of the group and does not work to make it more effective.

Rubric made using RubiStar (http://rubistar.4The teachers.org/index.php)