CLIL Module Plan

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School	Liceo Scientifico "Leonardo da Vinci" Trento				
School Grade	○ Primary		○ Middle		◉ High
School Year	○ 1	○ 2	◉ 3	○ 4	○ 5
Subject	Matematica	**Topic**	The circle		
CLIL Language	◉ English		○ Deutsch		

Personal and social-cultural preconditions of all people involved	The scientific high school “Leonardo da Vinci” is one of the historical “Liceo” of the Province of Trento. Nowadays the “Leonardo da Vinci” high school proposes two curricula, foreseen by the reform of the high school: the ordinary scientific curriculum and the applied sciences scientific curriculum. The class consists of 20 Ss. There is a student of foreign origin, but perfectly integrated into the class; there are no SEN students; two Ss have lived for some years in an English- speaking country and therefore their English level is very high. The other Ss of the class present an average CEFR level B1+. Some Ss are particularly bright, some others do not study regularly. Although they have different mathematical competences, the average behavior is polite and participating and the class is generally collaborative. The Philosophy teacher has already started a CLIL experience. Therefore, the class has a certain idea of what a CLIL lesson should look like. The motivation and enthusiasm are high. The classroom is adequate to the number of Ss. The desks can be moved when needed for specific activities. A PC, an interactive whiteboard (IWB) and a whiteboard (WB) are available in the class. Ten laptops can also be used by the Ss (in pair work) if needed. The teacher (Ilaria Geat), who will carry out the CLIL Module, teaches Physics in this class and in seven other classes of the 1st and 2nd grade of the school, and she is the main teacher for this CLIL Module. She has a C1 English level certification and is planning Mathematics-CLIL Modules in collaboration with another colleague of her disciplinary Department. The Mathematics teacher in this class is Liliana Dal Bosco. Since her linguistic competences are not too high, she will not interact much in English during the lessons. However, she will listen (she understands English quite well) to Ss, observe Ss during each activity and, when needed, she will underline an important aspect in Italian.

Students' prior knowledge, skills, competencies	Subject	Language
	• Ss know basic properties of radicals and how to work with radicals. • Ss are able to solve a system of two second degree equations. • Ss have basic knowledge of analytic geometry. • Ss have already studied the straight line and the parabola.	• The use of the following tenses is required: present simple and continuous, past simple, present perfect, future. • Modal verbs, the passive, the zero conditional, the first conditional and the second conditional will be used. • Ss know phrases and structures to make comparisons. • No subject-specific lexis is required. • Ss can understand the main concepts of a new video. • Ss have adequate reading skills. • Ss can take notes in English, while listening and simply answer open questions. • Ss can express an opinion in their own words.

Timetable fit	◉ Module	Length 20 hours, 1 Unit, 11 Lessons

Description of teaching and learning strategies	• The learning and teaching objectives are disciplinary-specific, transversal and communicative. The lessons have been designed to encourage the development of problem solving, critical thinking, creative thoughts and ideas, collaboration, communication and time managing. • The methodological approaches will be various, in order to meet different learning styles and to promote the development of different skills: interactive lessons, group work (especially when the task is complex), pair work, individual work, TPS (Think, Pair, Share), cooperative learning. During the “student-centred” activities the teacher will act as facilitator and guide. • Interaction and communication will be promoted during the lessons as much as possible by the teacher, who will ask questions and invite Ss to comment or express their idea, and by group or pair works. During these activities, the teacher will circulate and model language, concepts and cognition. A quiz and two short competitions at the end of two lessons will contribute to promoting interaction as well. • As a ICT learning tool GeoGebra will be used both by the students during their pair work (using laptops) and by the teacher, sometimes in order to explore a new issue, some other times in order to verify hypotheses. Two online lessons available on YouTube will be watched in order to revise what previously learnt and also to introduce a new topic. • The teacher will provide different materials to support content and language scaffolding: a Glossary during the first lesson, that will help Ss developing the basic vocabulary necessary for this Module, various worksheets for the activities at school and exercises for homework in order to consolidate learning and practice. • During most activities a formative assessment by the teacher is provided and/or a peer- or self-evaluation is encouraged, while at the end of the Module a summative assessment is provided.

Overall Module Plan

Unit: 1 The circle **Unit length:** 20 hours	**Lesson 1** Definition and equation of the circle.
	Lesson 2 Relation between the coefficients a, b, c in x^2+y^2+ax+by+c=0 and the graph of the circle.
	Lesson 3 How to find the equation of a circle, giving some conditions.
	Lesson 4 Intersections between a circle and a straight line.
	Lesson 5 How to find the equation of a tangent line to a circle.
	Lesson 6 Test to consolidate learning.
	Lesson 7 Relative position of two circles.
	Lesson 8 Families of circles.
	Lesson 9 Subsets of the plane.
	Lesson 10 A “complex” problem regarding the circle.
	Lesson 11 Final test.

CLIL Lesson Plan

Unit number	1	**Lesson number**	1	**Title**	Definition and equation of the circle.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	5'		a) T introduces and explains the aims, topic and objectives of the CLIL Module “The circle”. b) T introduces the topic and learning outcomes of this first lesson. c) Students take notes.	**Skills** L S R W **Key vocabulary** Circumference, circle, equation, intersection, graphs, straight line **Communicative structures** • We are going to study… • Our objective is… • If you have any questions…	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work		

2	10'	a) Building vocabulary and key words. b) Learning how to read “mathematics” in English. c) Cooperation.	a) T hands out the material and asks Ss to work in pairs. b) Ss complete the tasks on the handout. c) Each S writes two equations or mathematical expressions, reads them to his/her partner without showing him/her them and the partner writes them down. d) Ss exchange roles and then compare what they have written with the original equations or expressions.	**Skills** L S R W **Key vocabulary** See U1_L1_ALL1 **Communicative structures** • My equation is: “x squared plus...” • Could you please say that again?	☐ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• U1_L1_ALL1.pdf	a) Formative:T models language then walks round, checks and facilitates. b) Peer assessment.

3	7'	a) Formalizing a known concept (the circle) with a rigorous definition.	a) T hands out the material. b) Ss complete the tasks on the handout in small groups. c) Then, T asks Ss to share their definition in plenary and writes the right definition on the whiteboard. d) Ss take notes.	**Skills** L S R W **Key vocabulary** Circle, distance, center, radius **Communicative structures** • Please, tell the class the definition of circle you have just written. • Do you think that's a good definition? • Do you have any suggestions to improve it? • Who has a different definition?	☒ Whole class ☒ Group work ☐ Pair work ☐ Individual work	• U1_L1_ALL2.pdf • A needle and a thread per group • WB	

4	20'	a) Translating a definition written in English in an equation written in “mathematics”. b) Finding the general equation of a circle. c) Applying a general procedure in specific exercises. d) Listening to each other. e) Cooperation.	a) T forms the groups, introduces the activity and hands out the worksheets. b) Ss complete the tasks on the handout. c) T circulates and gives hints to students who need them.	**Skills** L S R W **Key vocabulary** Pythagorean Theorem, distance formula, standard form (for the) equation **Communicative structures** o Do you have any questions? o Are you sure about that?	☐ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• U1_L1_ALL3.pdf	Formative: T elicits content and cognition.
5	10'	a) Listening to each other. b) Evaluating own work.	a) T asks Ss to share their results and to listen to each other. b) T corrects the exercises if necessary. c) Ss take notes.	**Skills** L S R W **Key vocabulary** Pythagorean Theorem, distance formula, standard form (for the) equation **Communicative structures** o Could you now share your results? o How did you get this equation?	☑ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L1_ALL3.pdf	Peer and self-evaluation.

6	18'	a) Reinforce what has just been learnt about how to find the equation of a circle with centre and radius given. b) Understanding a native speaker talking about the circle.	a) Ss watch an online lesson. b) T pauses the video after every interesting questions and asks Ss to answer. c) Ss share their ideas and take notes. d) Ss carry on watching and listen to the answers.	**Skills** L S R W **Key vocabulary** differential=slope **Communicative structures** o Try to answer with your own words. o Can you find the centre and radius of that circle?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	Video available on YouTube link	Formative: T elicits language, content and cognition.
7	20'	a) Analyzing the relation between a circle and its equation. b) Recognizing an equation of a circle. c) Developing critical thinking. d) Listening to others. e) Cooperation. f) Time management.	a) T forms the groups and hands out the worksheets. b) Ss complete their tasks on the handout, discussing together. c) T circulates and gives hints where needed.	**Skills** L S R W **Key vocabulary** See U1_L1_ALL1 **Communicative structures** o In my opinion... o What do you think about...? o Do you agree...?	☐ Whole class ☒ Group work ☐ Pair work ☐ Individual work	• U1_L1_ALL4.pdf	Formative: T models cognition.

8	10'	a) Summarizing and formalizing. b) Listening to others.	a) Ss are asked to share their results of the last activity. b) With the help of Ss, T summarizes the outcomes of the lesson on the WB, Ss take notes. c) T gives Ss some more exercises for homework. For homework T also asks Ss to think about the connections between the sign of the parameters a, b in the general equation of a circle and the graph of the circle. This question will help to introduce the topic of the next lesson.	**Skills** L S R W **Key vocabulary** See U1_L1_ALL1 **Communicative structures** o What have you learnt today? o Could you please recall the definition of a circle? o Is it true that...? o Do you agree if I say...	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L1_ALL4.pdf WB.	

CLIL Lesson Plan

Unit number	1	**Lesson number**	2	**Title**	Relation between the coefficients a, b, c in x^2+y^2+ax+by+c=0 and the graph of the circle.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	5'		a) T introduces the objective of the lesson and the activities. b) T explains the rules of the quiz Ss are going to do during the lesson.	**Skills** L S R W **Key vocabulary** See U1_L1_ALL1 **Communicative structures** • Today we’re going to… • You’re going to use GeoGebra in order to… • At the end of the lesson there’ll be a small prize for the winner of the quiz…	☑ Whole class ☐ Group work ☐ Pair work ☐ Individual work		

2	8'	a) Revising the learning outcomes of the previous lesson.	a) T hands out the worksheet for the first activity (review: lesson 1). b) In pairs, Ss complete the task. c) T circulates, listens to Ss and models language and concepts.	**Skills** L S R W **Key vocabulary** See U1_L1_ALL1 **Communicative structures** • Do you remember…? • I'm not sure that this equation represents a circle because…	☐ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• U1_L2_ALL1.pdf	Formative: T walks round to model and check language and concepts.
3	10'	a) Evaluating own and peer work. b) Using GeoGebra as a means of checking hypotheses and reasoning. c) Communication.	a) T hands out one laptop per pair. b) T asks Ss to use GeoGebra to draw circles in order to check both their homework and the review of lesson 1 they have just completed. c) Using GeoGebra, Ss can easily evaluate their own work and understand if their results are correct. d) If they aren't correct, Ss discuss and try to understand what is the right answer and why.	**Skills** L S R W **Key vocabulary** See U1_L1_ALL1 **Communicative structures** • Look at this circle: our guess was correct! • Of course! Because… • This equation doesn't represent the circle we thought of. Why? What do you think? • Now it's clear: …	☐ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• U1_L2_ALL1.pdf - One laptop per pair of Ss. - Examples of communicative structures on WB.	Peer assessment.

4	5'	a) Understanding the relations between the coefficients a, b, c in the equation of a circle and the graph of the circle. b) Finding a strategy for using a technological tool (laptop, GeoGebra) in order to reach a specific goal. c) Creative thinking.	a) Going back to the question T gave Ss at the end of the previous lesson about the meaning of the coefficients a, b, c in the standard form of the equation of the circle, T asks Ss to use GeoGebra to explore this problem more deeply. b) Ss, who should have already made a conjecture about this problem at home, should now think to draw some circles using GeoGebra with specific values for the coefficients a, b, c and check if their conjectures were right or not. (For example: if a is zero/positive/negative, then the centre lies...) c) Important: when T asks Ss to use GeoGebra in order to find the relations between a, b, c and the graph of a circle, T doesn't suggest how.	**Skills** L S R W **Key vocabulary** Coefficients, sign (positive/negative) **Communicative structures** • I think we could use GeoGebra to draw some circles with a positive, then some with a negative and then we could compare... • In my opinion if a is positive, then..., because... • And what happens when c is equal to zero? • The coefficients a, b are related to the position of the centre...	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	One laptop per pair of Ss.	Formative: T elicits cognition.

5	7'	a) Time managing. b) Organizing the work (decide if it is faster to work separately on different questions or to work together). c) Cooperation. d) Applying previous reasoning to a new specific issue. e) Understanding the relations between the coefficients a, b, c in the equation of a circle and the graph of the circle.	a) T briefly recalls the rules of the quiz: 1. The quiz consists of 10 questions. 2. Ss should find the answers to all questions in pairs and then write them on an answer sheet and give it to T. 3. When the time is over, T reads the answers and gives the scores: 10 points for each right answer, -5 for each incorrect answer. 4. In case of a draw, the group that has given the answer sheet first is the winner. b) T shows the 10 questions on WB and the quiz begins. c) Ss work on the questions as fast as they can, using what they have just understood during the previous activity with GeoGebra. d) Ss can organize the work as they prefer: they can divide the task and work separately on different questions or they can work together.	**Skills** L S R W **Key vocabulary** Coefficient, sign (positive/negative), centre sits on the x/y axis, centre passes through the origin, quadrant **Communicative structures** • How could we organize work in the most efficient way? • I think it's fast to work together… • I'm sure in this circle b is equal to zero. • I agree with you because this circle is similar to the circle we draw before using GeoGebra…	☐ Whole class ☐ Group work ☑ Pair work ☐ Individual work	• U1_L2_ALL2.pdf	

6	15'	a) Formalizing and generalizing. b) Evaluating own and peer work. c) Understanding the relations between the coefficients a, b, c in the equation of a circle and the graph of the circle.	a) T reads the answers and writes them on WB together with the scores. b) T gives a symbolic prize to the winners. c) T discusses the results of the quiz with Ss and clarifies incorrect reasoning if necessary. d) T formalizes what Ss have just discovered, drawing a diagram on the WB similar to the diagram in U1_L2_ALL3. e) Ss take notes and ask questions if necessary.	**Skills** L S R W **Key vocabulary** Coefficient, sign (positive/negative), centre sits on the x/y axis, centre passes through the origin, quadrant **Communicative structures** • And the winners are... • You're right, because... • Why did you write a=0 in circle n° 1? • In general, we could say that...	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L2_ALL2.pdf • U1_L2_ALL3.pdf WB	Formative: • T keeps the answer sheets and assesses them. • Peer and self-assessment.

CLIL Lesson Plan

Unit number	1	**Lesson number**	3	**Title**	How to find the equation of a circle, giving some conditions.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	10'	a) Revising the learning outcomes of previous lesson.	a) In order to review the content of the previous lesson, T asks Ss to complete a task (review: lesson 2) individually. Then, if necessary, T corrects the homework on the WB. b) Ss complete their tasks individually and then ask questions about the homework.	**Skills** L | S | R | W **Key vocabulary** See U1_L1_ALL1 **Communicative structures** • I'd like you to complete this review individually… • Do you have any questions about the homework…?	☒ Whole class ☐ Group work ☐ Pair work ☒ Individual work	• U1_L3_ALL1.pdf WB	Formative: T collects the reviews and assesses them.

2	10'	a) Critical thinking. b) Making connections between algebra and geometry (the ability to translate geometrical conditions into a system of equations and to interpret solutions and the number of solutions).	a) T introduces the topic and learning outcomes of the lesson. b) T gives Ss the opportunity to reflect on the number of conditions needed so that a circle is well defined. They discuss this point more in depth in plenary. c) T forms six groups for the activity and provides instructions about it.	**Skills** L S R W **Key vocabulary** Condition, well defined **Communicative structures** • Today we're going to find out how to write the equation of a circle given some conditions. • How many conditions do we need to be sure that...? • Is everything clear?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work		

3	20'	a) Problem solving: solving a new problem, using previous knowledge and the ability to make connections and revise contents. b) Cooperation. c) Listening to others.	a) T hands out the material and asks each group to complete only one of the six tasks in U1_L2_ALL2 (T chooses which). Task n° 1 consists of two different tasks because these are easier than the others. b) While Ss are working on their task, T circulates and facilitates if necessary.	**Skills** L | S | R | W **Key vocabulary** Condition, system, equation, parameter, solution **Communicative structures** • How could we translate this condition into an equation? • Do you agree...? • Do you think there is an easier way to...?	☐ Whole class ☒ Group work ☐ Pair work ☐ Individual work	• U1_L3_ALL2.pdf	Formative: T models language, content and cognition.

4	50'	a) Learning how to write the equation of a circle, giving three conditions. b) Learning how to translate these conditions into equations. c) Brushing up on previous knowledge about how to solve a system of equations. d) Find different ways to solve the same problem and compare them.	a) A student per group is asked to present the task they have worked on to the rest of the class and to complete it on the WB. b) Ss take notes and ask for clarifications if necessary. c) Where appropriate, T encourages peer-reflection on what groups have found and asks Ss questions to reflect on, in particular to think about different ways for solving the same problem. d) Task n° 6 has no solution. This is particularly interesting for the class. The student that presents this case is invited to discuss it and explain the reason why it seems to have no solution (the points A, B, P are aligned).	**Skills** L S R W **Key vocabulary** Condition, system, equation, parameter, solution **Communicative structures** • How did you translate these conditions? • Do you think there is another way to find the equation of this circle? • Is it possible that no circle satisfies these three conditions? Why?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L3_ALL2.pdf WB.	Formative: • T elicits language, content and cognition. • Peer reflection encouraged.

5	10'	a) Generalizing on reasoning and procedures done on a specific exercise and formalizing.	a) T formalizes and generalizes, drawing a table on the WB similar to the table in U1_L3_ALL3. b) Ss take notes. c) T gives Ss similar exercises for homework.	**Skills** L S R W **Key vocabulary** Condition, system, equation, parameter, solution **Communicative structures** • In general we could… • Formalizing… • Given these three conditions… • I'll give you these exercises for next time.	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L3_ALL3.pdf WB.	

CLIL Lesson Plan

Unit number	1	**Lesson number**	4	**Title**	Intersections between a circle and a straight line.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	10'	a) Revising the learning outcomes of previous lesson.	a) T, together with Ss, revises the topic of the previous lesson, giving some examples of conditions that a circle satisfies and asking Ss to translate these conditions into a system of equations. b) T corrects the homework, if Ss have doubts. c) T introduces topic, objective and activities of this lesson.	**Skills** L S R W **Key vocabulary** See U1_L1_ALL1 **Communicative structures** • How would you translate the following conditions into a system of equations? • Today we're going to study the intersections between a circle and a straight line...	☑ Whole class ☐ Group work ☐ Pair work ☐ Individual work		

2	20'	a) Critical thinking. b) Communication. c) Cooperation. d) Making connections and comparisons. e) Finding analogies and differences between studied concepts. f) Understanding how many intersections a straight line and a circle can have. g) Classifying straight lines according to their intersections with a circle. h) Finding the intersections between a line and a circle both graphically and algebraically.	a) T hands out the worksheets for the first activity. b) Ss complete the task in pairs. c) T circulates to facilitate.	**Skills** L S R W **Key vocabulary** Intersection, straight line, secant, tangent, external **Communicative structures** • In my opinion... • It's clear that a line and a circle can't have three intersections. • What about this case? • I think that the definition should be modified because...	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• U1_L4_ALL1.pdf	T collects the worksheets and assesses them.

3	10'	a) Critical thinking. b) Communication. c) Justifying choices. d) Making connections and comparisons. e) Finding analogies and differences between studied concepts. f) Finding the intersections between a lice and a circle both graphically and algebraically. g) Formulating a rigorous definition of a known concept.	a) T asks Ss to share their results in plenary. b) T and Ss correct the task and discuss the main points, in particular T underlines that, in order to prove that the definition given for a tangent line to a circle could not work for a tangent line to a parabola, Ss need to find a counterexample. c) T insists on this point and asks Ss to formulate a definition of tangent line to a parabola. T guides Ss in formulating this definition and writes it on the WB.	**Skills** L S R W **Key vocabulary** Intersection, straight line, secant, tangent, external **Communicative structures** • Would you share your ideas with the whole class? • Did you manage to find a counterexample? • What's the solution of the system? • Could you now formulate a definition that works for a straight line tangent to a parabola?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L4_ALL1.pdf WB.	Formative: T models language and cognition.

4	40'	a) Developing reasoning skills. b) Solving a new complex problem, “a real life” problem. c) Finding a suitable mathematical model for a “real life” problem. d) Translating a complex problem written in English into a problem written in “mathematics”. e) Critical thinking. f) Creative thinking. g) Communication. h) Cooperation.	a) T forms the groups for the activity and hands out the worksheets. b) In this activity Ss are asked to solve a “complex” problem. They need to understand the problem, find an appropriate mathematical model that describes it and use this model to find a solution for the original problem. c) T circulates, listens to Ss and facilitates.	**Skills** L | S | R | W **Key vocabulary** Channel, underground, explosion, damaged area, diagonal, long, wide **Communicative structures** • I think that the channel could be modelled by a straight line... • We need to find if the circle and the line intersect... • I think we should choose as coordinate system...	☐ Whole class ☒ Group work ☐ Pair work ☐ Individual work	• U1_L4_ALL2.pdf	Formative: • T collects the worksheets and assesses them. • T models language, content and cognition.

5	20'	a) Developing enquiry and discussion. b) Communication. c) Listening to others. d) Justifying choices, reasoning and ideas. e) Critical thinking.	a) T writes on WB the solutions found by each group and discusses them with the class (especially if they are not all the same). b) T shows on the IWB (using GeoGebra) the circle and the line that model the perimeter of the damaged area and the channel respectively, so that Ss can see if they intersect and where. c) Ss that have found a different solutions clarify their reasoning to the rest of the class. The other Ss are asked to find out if that solution is correct and, in case it is not, what is wrong with it. d) T gives some exercises about circle-line intersections for homework.	**Skills** L S R W **Key vocabulary** model, coordinate system **Communicative structures** • Let’s use GeoGebra to see who’s right. • Are you sure this is the best coordinate system you could choose? • Which mathematical model represents the damaged area? • Which mathematical model represents the channel? • What’s wrong with their reasoning?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L4_ALL2.pdf o WB o GeoGebra (on IWB)	Peer and self-assessment.

CLIL Lesson Plan

Unit number	1	**Lesson number**	5	**Title**	How to find the equation of a tangent line to a circle.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	10'		a) T corrects homework if necessary. b) T introduces the objective of the lesson. c) Ss take notes.	**Skills** L S R W **Key vocabulary** Tangent, secant, external **Communicative structures** • Today we’re going to… • Do you have any questions about the homework?	☑ Whole class ☐ Group work ☐ Pair work ☐ Individual work	WB.	

2	25'	a) Revising concepts. b) Finding the equation of a tangent line to a circle in one of its points. c) Understanding an online lesson. d) Communication.	a) Ss watch an on-line lesson on YouTube that on the one hand helps to revise and on the other hand introduces the topic of the lesson: how to find the equation of a tangent line to a circle. b) T pauses the video when a question is asked and gives Ss time to answer. c) In particular, at the end of the video there are three exercises. At this point, T pauses and Ss try to solve them in pairs. d) After that they continue watching in order to check their solution.	**Skills** L S R W **Key vocabulary** Gradient, tangent, normal, reciprocal **Communicative structures** • Do you remember...? • Who can tell me...? • Find the equation of... • What's the relationship between the slopes of these two perpendicular lines?	☒ Whole class ☐ Group work ☒ Pair work ☐ Individual work	Video available on YouTube: link	Formative: T models and checks language and concepts.

3	25'	a) Finding the equation of a tangent line from an external point to a circle in different ways. b) Communication. c) Listening to others.	a) T focuses Ss' attention to an important point: the method they have used to find the equation of a tangent line to a circle in a point P can be applied only if P belongs to the circle. b) T asks the students to think about the case in which P does not belong to the circle (how to find the equation of a tangent from an external point to the circle). c) In plenary, interacting with Ss, T points out two other methods for finding the equation of a tangent line to a circle: 1) setting $\Delta=0$ in the system of the equation of the line and the equation of the circle; 2) setting that the distance between the centre of the circle and the set of all lines passing through the point is equal to the radius. d) T clarifies these two other methods showing examples on the WB.	**Skills** L S R W **Key vocabulary** Delta, quadratic equation **Communicative structures** • Suppose that point P doesn't belong to the circle,… • Can you find a tangent line at a circle passing through an internal point? • Do you think there is another method to…?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	WB.	

4	20'	a) Solving new problems by applying acquired knowledge. b) Time managing. c) Using graphs as a mean to check own work.	a) T shows two exercises on the IWB and asks Ss to solve them individually in 20 minutes. b) Ss complete them individually. c) T circulates and gives a hint where needed.	**Skills** L S **R** W **Key vocabulary** Tangent, secant, external, intersection **Communicative structures** • Excuse me, I have a doubt... • Is it correct if I... • Are you sure about that?	☐ Whole class ☐ Group work ☐ Pair work ☒ Individual work	• U1_L5_ALL1.pdf IWB.	Self-assessment.

5	20'	a) Consolidating learning. b) Evaluating own work. c) Listening to the others. d) Communication. e) Presenting an opinion.	a) T asks two Ss to correct the exercises on the WB. b) The other Ss take notes if necessary, check their solution and interact if they have questions or comments. c) T supervises and coordinates the correction, facilitating Ss's participation. d) T asks Ss if it is possible to apply different methods to the same exercise. e) T gives Ss other exercises and problems for homework and provides instructions for the test of next lesson.	**Skills** L S R W **Key vocabulary** Tangent, secant, external, intersection **Communicative structures** • Here I've applied the second method because… • Excuse me, I have a question… • I did it differently… • Do you think we could apply the first method as well? • What's the easiest way?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L5_ALL1.pdf WB.	Formative: • T elicits cognition and content. • self-assessment.

CLIL Lesson Plan

Unit number	1	**Lesson number**	6	**Title**	Test to consolidate learning.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	30'	a) Consolidating learning. b) Revising. c) Critical thinking.	a) T hands out the tests and asks if all the questions are clear. b) T sets a 30-minutes time limit for the test. c) Ss complete the test individually. d) Exercise n° 3 has no solution. Ss have to reflect on this point; it is not enough to simply apply knowledge.	**Skills** L S **R** **W** **Key vocabulary** See U1_L1_ALL1 **Communicative structures** • Is everything clear? • You have 30 minutes to complete the test.	☐ Whole class ☐ Group work ☐ Pair work ☒ Individual work	• U1_L6_ALL1.pdf	Formative: T collects the tests and assesses them.

2	20'	a) Consolidating knowledge. b) Finding different ways to solve the same problem. c) Evaluating own work.	a) T corrects the test on the WB, discussing the solutions together with Ss. b) For each exercise T asks Ss to think about different ways to solve it. c) Ss asks for clarifications and take notes if needed. d) After the correction, Ss are asked to self-evaluate.	**Skills** L S R W **Key vocabulary** See U1_L1_ALL1 **Communicative structures** • Can you think about another way to get to the solution? • Do you find it easier? • Excuse me, why couldn't we simply…? • Now that you know all the solutions, give a mark to your own work.	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L6_ALL1.pdf WB.	Self-assessment.

CLIL Lesson Plan

Unit number	1	**Lesson number**	7	**Title**	Relative position of two circles.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	5'		a) T introduces objective, learning outcomes and activities of this lesson.	**Skills** L S R W **Key vocabulary** relative position, intersection, circles **Communicative structures** • Today we’re going to talk about… • We’re going to explore the different relative positions of two circles…	☑ Whole class ☐ Group work ☐ Pair work ☐ Individual work		

2	15'	a) Understanding the relative positions of two circles. b) Classifying pairs of circles according to their reciprocal position. c) Exploring a problem using a GeoGebra simulation. d) Formalizing what has been experimented using GeoGebra. e) Cooperating.	a) T hands out the worksheets, asks Ss to complete them in pairs, distributes one laptop per pair and asks Ss to access them and to download the GeoGebra file U1_L7_ALL2 from a shared folder. a) Ss complete their task in pairs, also exploring the simulation in GeoGebra. b) T circulates to give hints where necessary.	**Skills** L S R W **Key vocabulary** Externals, secants, eccentric/concentric interiors, internally/externally tangent **Communicative structures** • First of all two circles can have up to two intersections. • They could be one inside the other… • How many different relative positions could we find? • There's another possibility… • I've just found another example…	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• U1_L7_ALL1.pdf • U1_L7_ALL2.zip One laptop per pair.	Formative: T models language, cognition and concepts.

3	5'	a) Understanding the relative positions of two circles. b) Formalizing what has been experimented using GeoGebra.	a) T asks Ss to share their results and quickly corrects the task. b) Ss can ask questions if they have doubts and interact with T.	**Skills** L S R W **Key vocabulary** Externals, secants, eccentric/concentric interiors, internally/externally tangent **Communicative structures** • Did you think of all cases? • Was your classification similar or different from the classification you found on the other side of the worksheet?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L7_ALL1.pdf WB	

4	40'	a) Finding the intersection points of two circles. b) Comparing different methods for finding the intersection points of two circles and recognizing the easiest. c) Applying acquired knowledge to new problems and situations. d) Critical thinking. e) Demonstrating a geometrical property using analytic geometry. f) Cooperation. g) Time managing.	a) T forms groups of three Ss and hands out the worksheets for next activity. b) Ss complete them and ask T for clarifications if needed. c) T circulates to facilitate.	**Skills** L S R W **Key vocabulary** radical axis, substitution, elimination, comparison **Communicative structures** • I’m pretty sure we’ve to solve the system… • In your opinion which method is easier? • I think it’s better to use elimination because… • Two lines are perpendicular if their slopes are…	☐ Whole class ☒ Group work ☐ Pair work ☐ Individual work	• U1_L7_ALL3.pdf	Formative: T models language, content and cognition.

5	20'	a) Finding the intersection points of two circles. b) Evaluating the work of oneself and others. c) Critical thinking. d) Communication.	a) T discusses the results with Ss. b) Ss are invited to share their ideas with the rest of the class. c) The proof of last point (the radical axis is perpendicular to the line that connects the two centres of the circle) is particularly interesting and therefore T spends some minutes discussing it and checking if Ss understood it. d) After the correction, T asks Ss to consider the case of external circles. Which geometrical property does the radical axis satisfy in this case? e) T writes on WB Ss' ideas and then formalizes.	**Skills** L S R W **Key vocabulary** radical axis, substitution, elimination, comparison **Communicative structures** • Which method did you use to find…? • Could you tell to the rest of the class how did you proved this property of the radical axis? • What if the circles are externals? What could we say about the radical axis?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L7_ALL3.pdf WB	Formative: • T elicits content, cognition and language. • Peer and self-assessment

6	15'	a) Revising acquired knowledge. b) Consolidating learning. c) Time managing.	a) The last activity is a competition in three parts. T explains the rules of the game. b) T writes a question (see U1_L7_ALL4) on the WB: Ss should determine the relative position of two circles, knowing some conditions (there are three different sets of conditions and therefore three parts to the game). c) T writes the first set of conditions on WB and Ss work individually as fast as they can. d) The first S that gets the answers calls T, who stops the time. e) If it is correct, they proceed: T writes the second set of conditions on WB and the game starts again. f) If it is not correct, Ss have some more minutes to find the right answers. g) At the end T gives some more exercises for homework.	**Skills** L S **R** W **Key vocabulary** set, condition, equation **Communicative structures** • Are you ready for the first set of conditions? • They are internally tangent, correct! • That's right! • Let's move on to the next set of conditions.	☒ Whole class ☐ Group work ☐ Pair work ☒ Individual work	• U1_L7_ALL4.pdf WB	Formative: T gives a point to the winner(s) of the game.

CLIL Lesson Plan

Unit number	1	**Lesson number**	8	**Title**	Families of circles.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	15'	a) Revising knowledge. b) Consolidating learning.	a) T checks the homework and corrects it if necessary. b) Ss ask for clarifications if needed. c) T asks Ss questions about previous lesson in order to revise knowledge before proceeding. d) T introduces objective and learning outcomes of this lesson.	**Skills** L S R W **Key vocabulary** Externals, secants, eccentric/concentric interiors, internally/externally tangent, family of curves **Communicative structures** • Do you have any questions about the homework? • Do you remember what it’s called when two circles have the same centre and different radii? • Today we’re going to explore...	☑ Whole class ☐ Group work ☐ Pair work ☐ Individual work		

2	25'	a) Working with parametric equations, understanding what they represent. b) Exploring and then analyzing a new mathematical object (a parametric equation) and finding some of its properties. c) Developing reasoning skills. d) Developing enquiry. e) Cooperation.	a) T hands out the worksheets for the first activity, reads them and asks Ss if the requests are all clear. b) Ss complete the task in pairs. c) T circulates to facilitate.	**Skills** L S R W **Key vocabulary** Family of curves, parametric equation **Communicative structures** • They are concentric circles, aren't they? • Excuse me, is it right if I say… • They are all circles with centre on…	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• U1_L8_ALL1.pdf	Formative: T models language and concepts.

3	15'	a) The ability to work with parametric equations, understanding what they represent. b) Reflecting on learning together. c) Reflecting on the best approach to an apparently problematic task. d) Developing discussion and communication.	a) T asks Ss to share their results. b) T, together with Ss, corrects the exercises. c) T underlines an important learning outcome of this work: at first Ss might be probably worried t to face this equation because this is the first time they have to deal with a parametric equation in this Module. However, after trying, they will realize that they understand the equation and can answer the relative questions. This means that on the one hand they should always try without being discouraged by appearances and on the other hand working together can make an apparently problematic task easier. d) Ss discuss this point with T, evaluating their approach to this “problematic task”.	**Skills** L S R W **Key vocabulary** Family of curves, parametric equation **Communicative structures** • Which curves does this equation represent? • What’s the equation of the line you found? • What did you think at fist when you saw this equation? • Then you discovered that this task was not as difficult as you had imagined… • What does this experience teach us?	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L8_ALL1.pdf WB.	T encourages peer and self-assessment.

4	15'	a) Critical thinking. b) Communication. c) Making hypotheses.	a) T hands out the worksheets for the next activity, that is connected with the previous activity. b) This time Ss are prepared to face a parametric equation. Therefore they are asked to work at first individually for 10 minutes, then to share their ideas in pairs. c) T circulates.	**Skills** L S R W **Key vocabulary** Family of circles, intersection points **Communicative structures** • I think that... • It seems that the intersection points are the same for each pair of circles of this family. • You're right! • But are you sure that it works for each pair of circles of the family?	☐ Whole class ☐ Group work ☒ Pair work ☒ Individual work	• U1_L8_ALL2.pdf	

5	20'	a) Formalizing. b) Understanding the concept of family of circles and knowing its properties. c) Classification of families of circles.	a) T discuss their results with Ss. b) T confirms and formalizes Ss' hypotheses about the "fixed points" of the family of circles in the worksheet. c) T formally introduces the concept of "family of circles" and presents the different kinds of families of circles. d) T is not interested in studying this topic in depth, T's aim is just to tell Ss the main properties of families of circles. e) Ss take notes and ask for clarifications if necessary.	**Skills** L S R W **Key vocabulary** family of circles, central axis **Communicative structures** • What's your hypothesis after the investigation? • Let's formalize this concept in a rigorous definition. • There are different kinds of families of circles according to… • It could be proved that…	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L8_ALL2.pdf WB	

6	10'	a) Consolidating learning. b) Time managing. c) Applying acquired knowledge in a new situation.	a) In order to apply and consolidate what has been learnt, T challenges Ss to individually answer a question shown on the WB. b) The winner of this challenge is the first S who manages to answer correctly. c) This answer is then discussed in plenary. d) T gives some more exercises for homework.	**Skills** L S R W **Key vocabulary** Family of circles, concentric, secants, tangent **Communicative structures** • Now I would like you to answer to the following question individually ... • Correct! Can you explain your reasoning to the rest of the class?	☒ Whole class ☐ Group work ☐ Pair work ☒ Individual work	• U1_L8_ALL3.pdf WB	Formative: T gives a point to the winner of the game.

CLIL Lesson Plan

Unit number	1	**Lesson number**	9	**Title**	Subsets of the plane.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	10'		a) T revises briefly what was learnt in the previous lesson. b) T introduces objective, learning outcomes and activities of this lesson.	**Skills** L S R W **Key vocabulary** Subset, area, perimeter, intersection **Communicative structures** • Today you’re going to represent particular subsets of the plane… • You’ll find this activity particularly interesting because…	☑ Whole class ☐ Group work ☐ Pair work ☐ Individual work		

2	30'	a) Formulating hypotheses and supporting them through examples or counterexamples. b) Graphically representing subsets of the plane that involve circles and lines. c) Interpreting and understanding which points are solutions of inequalities such as $x^2+y^2\leq 1$ d) Critical thinking. e) Cooperation and communication.	a) T hands out the worksheets for the first activity and asks Ss to complete them in pairs. b) Ss work in pairs and ask for clarifications if necessary. c) Ss might not understand immediately how to deal with the given subsets of the plane. d) T lets Ss think about the issue for some minutes without helping them or answering their questions. e) Then T circulates to facilitate.	**Skills** L S R W **Key vocabulary** Subset, less than or equal to, greater than or equal to, circular crown, half plane **Communicative structures** • Try to understand which subset this is ... • Find some examples in order to check your hypothesis... • I think this is the set of all points that are outside the circle. • Do you think this could be a half plane?	☐ Whole class ☐ Group work ☒ Pair work ☐ Individual work	• U1_L9_ALL1.pdf	Formative: T models language, cognition and concepts.

3	20'	a) Representing subsets of the plane that involve circles and lines. b) Listening to others. c) Comparing different approaches. d) Justifying choices. e) Communication.	a) T asks Ss to share their results in plenary. b) Each couple of Ss is invited also to explain the cognitive and mental process they went through to get to their result. c) Ss can now compare their different approaches to the problem and their different ways of reasoning. d) T conducts the discussion and writes on the WB the keywords Ss come up with. e) Then T formalizes what Ss have just discovered drawing on the WB a table similar to the table in U1_L9_ALL2.	**Skills** L S R W **Key vocabulary** Less than or equal to, greater than or equal to, subset of the plane, circular crown, half plane **Communicative structures** • How did you get to this result? • Tell the class about... • Comparing these two approaches... • While they ...., the other couple... • We thought that this set is the set of all points inside the circle of equation... • Then we checked our hypothesis using some examples...	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L9_ALL1.pdf • U1_L9_ALL2.pdf WB.	Peer and self-assessment.

4	25'	a) Visualizing subsets of the plane as intersection of half planes, circles or complement of circles. b) Describing subsets of the plane in the set builder form. c) Being aware of the sets language and being able to use it correctly. d) Creative thinking (seeing and recognizing that the area of a certain subset of the plane can be easily obtained by subtracting the areas of two other known geometrical figures.	a) T hands out the worksheets for the second activity, which is, in a way, the opposite of previous activity. b) Since the topic is the same, Ss are asked to work individually at first, and only later to discuss in pairs and compare their solutions. c) Despite the fact that the topic is not new, this second activity requires more awareness and a deep understanding of what has previously been done. d) T circulates and provides support to Ss during the activity, observes and listens to them as they work.	**Skills** L S R W **Key vocabulary** subset of the plane, half plane, circular segment, circular sector, boundary, set builder form **Communicative structures** • This is the intersection of two half planes and a circle. • The equation of the circle is... • What's the equation of the line? • Here we should consider just the boundary of the circle...	☐ Whole class ☐ Group work ☒ Pair work ☒ Individual work	• U1_L9_ALL3.pdf	T circulates, models and elicits content and cognition.

5	15'	a) Describing subsets of the plane in the set builder form. b) Listening to others. c) Communication and discussion. d) Evaluating the work of oneself and others.	a) Ss can now share their results with the whole class. b) T encourages reflection and discussion. c) T underlines the difference between subsets n° 1, 2, 3 and subsets n° 4, 5. d) T gives similar exercises for homework.	**Skills** L S R W **Key vocabulary** Set builder form, half plane, circular segment, circular sector, boundary **Communicative structures** • What's the difference between subset n° 3 and subset n° 4? • How did you translate this difference in terms of conditions to be satisfied? • How did you determine the area of the circular sector? • I have a different idea…	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L9_ALL3.pdf	Peer and self-assessment.

CLIL Lesson Plan

Unit number	1	**Lesson number**	10	**Title**	A “complex” problem regarding the circle.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	10'	a) Understanding the text and the requests of a “complex” problem.	a) T introduces objective, learning outcomes and activities of this lesson. b) During this last lesson before the final test, Ss are going to deal with a “complex” problem: problem n° 1 of the state exam in 2015 for Italian schools abroad. c) T forms the groups and hands out the text of the problem. d) T asks a S to read it aloud and clarifies the meaning of new vocabulary and, if necessary, the requests of the problem.	**Skills** L S R W **Key vocabulary** to scale, miles, lighthouse, buoy **Communicative structures** • Today you’re going to work in groups on a “complex” problem… • You’ll also need some physics… • Could you please read the text? • Please, ask questions if you do not know the meaning of a word	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L10_ALL1.pdf	
2	45'	a) Applying	a) Ss work in groups. b) Ss can organize the	**Skills**		• U1_L10_ALL1.pdf	Formative: T models and

		acquired knowledge to a complex problem. b) Problem solving. c) Creative thinking: in this problem it is not just a matter of applying what has been studied recently about the circle, but, as in every problem of the state exam, of thinking about all mathematical (and physical) tools you know and understanding what could be useful for this particular situation, (what is the best mathematical model to represent the situation). d) Making	work as they prefer (working together or assigning different tasks to each member of the group according to their abilities and then sharing results). c) Ss can solve requests n° 1, 2, 3 but not n° 4 because they do not have all the necessary mathematical tools yet. T will not tell them this fact; if necessary, T will ask them some questions in order to help them realise this on their own.	L S R W **Key vocabulary** Space, time, distance, velocity, minimum, parabola, vertex **Communicative structures** • How can we organize the work? • I could find the intersections between this line and the circle, while you could... • What's the equation of this circle? • How could we find the minimum? • The equation represents a parabola: the minimum is in the vertex!	☐ Whole class ☑ Group work ☐ Pair work ☐ Individual work		elicits language, cognition and concepts.

		connections and considering different tools (this task requires a basic knowledge of physics and knowledge of the parabola; the topic Ss studied before this module). e) Organizing the work in a group. f) Time managing. g) Cooperating.					

3	20'	a) Analyzing peers' work/Peer assessment. b) Critical thinking. c) Learning from the work of others.	a) Ss are asked to exchange their work (group 1 gives theirs to group 2, group 2 gives theirs it to group 3,…). b) T asks Ss to analyze the received work of the other group, compare it with their own, in order to formulate some suggestions or corrections to improve it. c) This work is useful also to understand if the own work is correct and/or if it is possible to improve it. d) T circulates, observes and listens to Ss.	**Skills** L S R W **Key vocabulary** Space, time, distance, velocity, minimum, parabola, vertex **Communicative structures** • Look at their solution! • Their intersection point is different from ours: let's try to understand who's right! • We forgot to consider… • Good, their result is the same as ours!	☐ Whole class ☒ Group work ☐ Pair work ☐ Individual work	• U1_L10_ALL1.pdf	Formative: • T models and elicits language, cognition and concepts. • Peer and self-assessment.

4	10'	a) Critically analyzing peers' correction. b) Listening to others.	a) Ss return the work to the original group. b) One person per group leaves their group in order to explain the suggestions/corrections that they have made to the other group. c) Ss analyze critically the corrections/suggestions that have been made by the other group. d) T supervises and listens to Ss and to the ambassadors.	**Skills** L S R W **Key vocabulary** Space, time, distance, velocity, minimum, parabola, vertex **Communicative structures** • We notice that you forgot to consider… • We think that in order to find… you need to… • I think they're right. • But shouldn't we set the distance between…	☐ Whole class ☒ Group work ☐ Pair work ☐ Individual work	• U1_L10_ALL1.pdf	Formative: • T models and elicits language, cognition and concepts. • Peer and self-assessment.

5	15'	a) Evaluating peers' and own work. b) Reflecting on different strategies. c) Reflecting on the importance of group work. d) Understanding what a state exam problem is like and understanding the importance of considering everything you know (every mathematical and physical tool) in order to find an appropriate model and through it a solution.	a) T asks Ss to share their results in plenary. b) In case of doubts, T corrects the problem. c) T invites Ss to reflect on this problem, about how in the state exams all things studied can be necessary. d) T asks Ss to comment on the activity (did they find it useful to exchange the work with another group? Why?...) e) T gives Ss some problems and exercises to revise everything that has been studied in this Module and provides information about the final test.	**Skills** L S R W **Key vocabulary** Space, time, distance, velocity, minimum, parabola, vertex **Communicative structures** • As you notice, here you needed to use the kinematic equations you studied in physics... • In order to find the minimum distance you need to... • For next time, solve these new problems and revise all the exercises and problems we worked on together. • In the final test, you'll...	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	Problems and exercises to revise everything that has been studied in this module.	Peer and self-assessment.

CLIL Lesson Plan

Unit number	1	**Lesson number**	11	**Title**	Final test.

Activity	**Timing**	**Learning Outcomes**	**Activity Procedure**	**Language**	**Interaction**	**Materials**	**Assessment**
1	60'	a) Applying acquired knowledge to new problems and situations. b) Using appropriate terminology. c) Analyzing new problems and reasoning critically.	a) T reads the questions of the final test and asks if everything is clear. b) Ss complete the test individually.	**Skills** L S **R** **W** **Key vocabulary** Circle, centre, line, intersection, tangent, concentric **Communicative structures** • Tell me if you do not understand the text.	☐ Whole class ☐ Group work ☐ Pair work ☑ Individual work	• U1_L11_ALL1.pdf	Summative: T collects the tests and assesses them.

2	25'	a) Evaluating own work.	a) T discusses and corrects the exercises assigned in the final test. b) Ss ask for clarifications where needed.	**Skills** L S R W **Key vocabulary** Circle, centre, line, intersection, tangent, concentric **Communicative structures** • The values of k such that... are... • For this exercise you could simply... • Is it correct if I...? • That's another way, it's correct, but longer. • The easiest way is...	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work	• U1_L11_ALL1.pdf WB	Peer and self-assessment.
3	15'	a) Evaluating this CLIL Module. b) Being aware of personal improvement (mathematical, linguistic and social).	a) T discusses about this CLIL experience with Ss. b) Ss are invited to express their opinions, ideas, comments about all the aspects of this experience: the topic, the teaching methods, how they evaluate the learning outcomes (did they learn something more or different in	**Skills** L S R W **Key vocabulary** Group work, TPS, individual work, learning outcomes, skills, life skills, social skills	☒ Whole class ☐ Group work ☐ Pair work ☐ Individual work		

			more or different in comparison with other Modules in Italian?), if they found it difficult to understand/speak in English, if they enjoyed the activities, which activity they enjoyed the most, suggestions to improve the CLIL experience for next year or Module,…	**Communicative structures** • Give me some overall feedback about this experience. • Which activity did you enjoy the most? • The activity… helped me the most to understand how to find the intersections between… • Do you think you practiced some important skills that you don’t usually practice at school during “normal” lessons? • I found it easy to understand the lessons, whereas speaking was more difficult. • I learnt how to deal with new apparently difficult problems… • Next time I’d like to do more… • In my opinion working in groups was great and useful because…			