	LIVING BEINGS RELATION	ISHIPS		2 nd year secondary school –
Title			Class	(13 years old students)
	SCIENCE			6
Subject(s) involved			Number of lessons	
Teaching aims	 students will understand students will be able to organized and how the journal of the main differences beto students will understand 	re of the importance of relationships between living beings and environment; and that every living being interacts with other BIOTIC and NON-BIOTIC factors in its habitat; to classify living beings as PRODUCERS and CONSUMERS and to understand how the food chains are he food chains can cross to compose a food web; to explain the difference between HETEROTROPHS and AUTOTROPHS and they will understand that one between plants and animals is the way they get living energy; and the meaning of biodiversity and the important role that every species plays in its habitat; are that a delicate balance exists between all the living species, and that it is dramatically important to provide the second		OTIC factors in its habitat; lerstand how the food chains are IS and they will understand that one of Decies plays in its habitat;
Learning outcomes	What learners will be able to know by the end of the unit	 Different meaning of habitat, ecological niche, biotic community and biotope; the role played by the photosynthesis for life; the difference between plants and animals in terms of energy production; the structure of food chain and a food web; the meaning of biodiversity and the importance that every species has for the environment. 		
	What learners will be able to do by the end of the unit	sketch and explain a food charecognize the role of all the liv	in; ving beings all around them; s in their local park (like leave y species named with its Lati	
	What learners will be able to be aware of by the end of the unit	 how life is organized and how the importance of the relation the balance of energy betwee the key role that plants have i the role that every biological s the meaning of biodiversity and 	nships between the different in all the species that live in o in the food chains; species has in its habitat;	species; one ecosystem;

Content	CLIL theme with possible crosscurricular links	 Habitat, ecological niches, biotic communities and biotopes, ecosystems and biomes; CROSSLINKS WITH GEOGRAPHY. relationships between different species; heterotrophs and autotrophs living beings; roles played by living beings: producers, consumers and decomposers; relationship between living beings: predator-prey relationship, food chains and levels of consumers; food chains intersection and food webs; biodiversity as a measure of the amount of variation of species in each area. CROSSLINK WITH STATISTICS AND ECOLOGY.
Communication	Language of Learning	Vocabulary: Scientific vocabulary about the topic (heterotrophs, autotrophs, producers, consumers, decomposers, food-chain and web, biodiversity, niche, habitat, ecosystems); Names of some of the species living in Monza park; Names of some living beings that have significant relationships (e.g. lions and hyenas, clown fish and sea anemones) Habitats names (e.g. Tundra, Desert) Structures: SIMPLE PAST; COULD AND WOULD; the present-future if clause; more advanced comparative or superlative structures (THE MOST, AS WELL AS,). Functions: Describing this scientific topic using appropriate vocabulary; comparing data; expressing personal opinions and the evidence on which the personal opinions are based.
	Language for learning	Vocabulary: the basic scientific vocabulary (e.g. ENERGY, HEAT, FOOD, LIVING BEINGS, PLANTS, ANIMALS, MICROORGANISMS) Structures: PRESENT SIMPLE, CAN/MUST, basic comparative structures (as-as, more-than, less-than). Functions: Ask and answer questions to identify and describe.
Cognition	Thinking skills development (LOTS and HOTS)	Recognizing the complexity of the ecosystems, Explaining the rules that determine the ecosystem balance; Understanding the effect that some actions can have on the environment, like introducing a non-native species in an ecosystem; Classifying trees of the local park; Understanding the scientific basis of the environmentalist claims and analyse them to be able to build an opinion.

Culture	Awareness of topic Understand the role ecology plays in our lives;			
	relevance to daily life Understand the danger of biodiversity loss;			
	Promote actions to preserve the environment health;			
	Know the difference between the living beings populating our park.			
Materials and resources	Resources for the lessons: Interactive Multimedia board, PC, worksheets, photocopies, pictures, videos. A photo cam to take pictures in the local park. An exercise-book to collect and classify leaves, seeds and photos of living beings. Resources from the environment: samples of leaves or seeds, pictures of animals, trees or other living beings.	era		
	Resources from the environment, samples of leaves of seeds, pictures of animals, trees of other living beings.			
	REFERENCES:			
	Activities and readings from: http://www.ck12.org/			
	Pictures from the following web sites:			
	http://www.nature.com/			
	http://wesharepics.info/			
	http://slideplayer.com/slide/7274015/			
	http://brunelleschi.imss.fi.it/			
	http://hyenas.zoology.msu.edu/			
	www.oceanlight.com			
	http://hdimagelib.com/			
	www.pinterest.com			
	en.wikipedia.org			
	http://phenomena.nationalgeographic.com/			
	http://www.johnawad.net/famsize.jpg			
	www.britannica.com			
	Videos from http://www.youtube.com edited with http://www.edpuzzle.com			
Assessment	During the module: student's participation in discussions, student's ability in solving games and puzzles.			
	Group activities will be considered too, assigning scores for each activity well solved with a good collaboration betwe ALL the members of the group.	en		

	At the end of the module: written test
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Each Learning unit will be divided in single lessons. The steps to follow during the learning unit are the following:

- ACTIVATION
- FIND OUT (INPUT)
- SORT OUT (INPUT PROCESSING)
- OUTPUT (SPEAKING AND WRITING TO PRESENT THE NEW PRODUCT/INDIVIDUAL/GROUPWORK)
- ASSESSMENT (SUMMATIVE ASSESSMENT OF THE UNIT)

These steps will be developed during a certain number of lessons each teacher will plan.

LESSON PLAN

Lesson 1

Title NICHE, HABITAT AND ECOSYSTEMS

Activation of the unit	The Teacher shows slide 1 asking questions, like: ✓ What's this?> (It's a food web, probably students know about food chains but not about food webs, so they need to be helped in understanding the relationships between the living beings in the picture); ✓ Why is the Sun in this food web? (They must already know something about photosynthesis); ✓ Is the alligator at the end the food web? (probably some of them will already know that there are living beings called DECOMPOSERif not, the teacher tells them). The Teacher can decide to show slide 2 to explain better or to go directly to slide 3 if the students seem ready. In slide 2 there are three simple food chains, very easy ones, and teacher can add SUN and DECOMPOSER after a short discussion with the students, or more arrows to connect the chains together. Finally, using slide 3, the teacher can introduce the main topic of the module (RELATIONSHIP BETWEEN LIVING ORGANISMS) and the topic of this lesson (BIOTIC AND ABIOTIC FACTORS IN ECOSYSTEMS). (15 min)	Interaction al Pattern* W	Resources and Materials slides from 1 to 3 of the Teacher's presentation ECOSYSTEMS -lesson1- TE,pptx
Core activities Find out (input)	ACTIVITY 1: NICHE, HABITAT AND ECOSYSTEM (reading) Students work in pair reading the text, discussing together to try to understand the difference between the definitions of niche, habitat and ecosystem. (15 min reading) (15 min discussion) ACTIVITY 2: NICHE AND HABITAT QUIZ PREPARATION Students can exercise together answering the quiz online: http://www.ck12.org/search/?q=habitat%20and%20niche&referrer=teacher_landing&autoComplete=false The Teacher can guide the discussion to get the right answers if necessary. (20 min) ACTIVITY 3: NICHE AND HABITAT QUIZ Students answer the quiz on paper. If they don't finish in time, they can complete the quiz as homework. (30 min)	P W	A copy of ECOSYSTEMS -lesson1- ST.pptx student's presentation LIM and internet connection copy of the quiz (Habitat and Niche Quiz - lesson
	ACTIVITY 4: SHORT RESUME OF THE MAIN IDEAS OF THE LESSON The teacher recalls the main ideas asking the class to help or to repeat if necessary.	W	1.docx)

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	(E min)	
	(5 min)	

Lesson 2

Title AUTOTROPHS VS. HETEROTROPHS

Lead in of the		Interactional	Resources
lesson (warm		Pattern [*]	and
up)	The teacher starts the lesson asking: "What does every living organism need to survive?" He asks the students to put the red words in slide 1 in the right cloud (essential or not essential). Then the teacher can show slide 1 of the teacher's presentation and discuss with the class about their	W	Materials A copy of
	choices.		AUTOTROPHS
	(10 min).		AND
			HETEROTROPHS-
			lesson2-ST.pptx
			Student's presentation
			AUTOTROPHS
			AND
			HETEROTROPHS-
			lesson2-TE.pptx
			Teacher's
			presentation
Core activities	ACTIVITY 5: GUIDED DISCUSSION ABOUT PLANTS		AUTOTROPHS
	Teacher will ask the students how plants (or grass, or flowers or seaweed) can survive. Do	W	AND HETEROTROPHS-
	they eat or not? Can they produce food (organic matter) by themselves? Probably some of		TILTEROTROPHS-

Sort out (input processing)	them know already that plants can do the photosynthesis, anyway using slide 2 and 3 the teacher must give the right definition and explanation of the chemical reaction. Sometimes students think that water is the food that plants eat. Discuss with them about what food is, and make them aware that plants produce the organic matter they need to grow up, using water, carbon dioxide and sunlight as energy. (20 min)		lesson2-TE.pptx presentation interactive board.
	ACTIVITY 6: PRODUCERS AND CONSUMERS Watch the edited video about the energy flow from autotrophs to heterotrophs, including a definition of decomposers. Students must answer the questions and write them in their exercise-book. (https://edpuzzle.com/media/581f3d2eae44125c085db0fe) (20 min)	W	Video link interactive board
	ACTIVITY 7: AUTOTROPHS AND HETEROTROPHS GAME Each group work together to answer the questions, one for each group can go to the board to play. The teacher keeps track of the score for each group. (http://sciencereviewgames.com/srg/games/hs.php?id=85) (30 min)	G W	Game link interactive board
	ENDING LESSON: the teacher builds a spidergram (or a map) on the board that summarizes the most important ideas of the lesson. Students must do the activity "autotrophs and heterotrophs" as homework (They have to read the descriptions and try to solve the game). (Activity link) (20 min)		Activity link

Lesson 3 Title BIODIVERSITY

Lead in of the lesson (warm up)	The Teacher presents the topic of the lesson showing slide 1 and asking the student to guess what the photos are supposed to mean. (5 min)	Interactional Pattern*	Resources and Materials
Core activities Sort out 2 (input processing 2 if necessary)	ACTIVITY 8: UNDESTANDING BIODIVERSITY Show "What is biodiversity?" video. Then the teacher starts a discussion about the meanings of the word "biodiversity". The Teacher can use slides 2,3 and 4 to focus on the different meanings that "biological diversity" can have. Video link: https://www.youtube.com/watch?v=ErATB1aMiSU	W	BIODIVERSITY- lesson3- TE.pptx presentation
	(20 min) ACTIVITY 9: WHY IS BIODIVERSITY SO IMPORTANT? Understand the benefits we have as humans from the biodiversity. Reading. (30 min)	I	"What is biodiversity Video" A copy for each student
	ACTIVITY 10: THE IMPORTANCE OF BIODIVERSITY Watch the video that makes a resume of the concept of the lesson. https://edpuzzle.com/media/5904f70f72de9d3e2f620d51 (10 min)	W	of the reading: Importance of biodiversity- lesson3- ST.docx Video at this
	ACTIVITY 11 Students in pair must try to answer each question until they get all the right answers http://www.ck12.org/biology/Biodiversity/asmtpractice/Biodiversity-Practice/?referrer=featured_content (30 min)	P	A PC with internet

ENDING the LESSON : the teacher shows slide 5 and talks about some of the endangered species on our planet. As homework, the students (in groups) can choose an endangered species and examine the causes of the risk of extinction in depth. (10 min)	G	connection for each couple of students. Activity at this link BIODIVERSITY-lesson3-
		TE.pptx and BIODIVERSITY- lesson3- ST.pptx

Lesson 4 Title BIODIVERSITY IN MONZA PARK

Lead in of the lesson (warm up)	Explain to the students that we want to make a "notebook of biodiversity in Monza Park". So, we need samples of living beings that have their habitat in the Monza Park. We will pick up leaves (that we will dry) and we will take pictures of the animals or other living beings we can't dry (like mushrooms or footsteps). (5 min)	Interactional Pattern*	Resources and Materials
Input	ACTIVITY 12: A STROLL IN THE PARK A walk through Monza Park to collect leaves and photos of living beings. The Teacher must suggest which samples to collect in order to have the most widespread species of the park. Students can be left free to collect some other samples if they want. (75 min)	W	Photocamera. Bags or boxes to collect leaves and seeds

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ACTIVITY 13: CHOOSING THE BEST SAMPLES TO DRY.		Old
The Teacher must guide the students to choose the best samples to dry		newspapers.
and explain them how to prepare the samples for the press. They have to		A press for
put the samples inside one or two newspaper pages, and write their name		leaves and
on the pages. The teacher will put all the newspaper pages in the press.		flowers
(30 min)		

Lesson 5 Title MY BOOK OF BIODIVERSITY

Lead in of the lesson (warm up)	The students must make a book of biodiversity using the dried samples they have collected during lesson 4 and printings of the photos they have taken during the stroll to the park. The teacher explains what the students must do, and uses the presentation Biodiversity in Monza Park-lesson5 as an example for the students. (10 min)	Interactional Pattern* W	Resources and Materials Presentation Biodiversity in Monza Park-lesson5- TE.pptx
Output (speaking/writing/presentation of individual or groupwork/product)	ACTIVITY 14: MAKING THE BOOK Following the teacher instructions and the examples in the presentation, each student will make a page for each living being met in the park, writing the Latin name of the species, the Italian and the English name. He must put a label on the page with the date, the hour and the place where the samples/photos have been taken. If they have samples of species not included in the presentation, they can make a web search to identify the name of the species. (60 min)	I	Each student needs a set of photos, dried leaves, seeds, or other samples, plus a binder with 20 transparent

ACTIVITY 15: PRESENTING THE BOOK TO THE CLASS	plastic
The teacher invites the students to present their book of biodiversity to	sleeves.
the class, explaining where and when each living being has been found	
reading the names of the species in various languages. (30 min)	

Lesson 6 Title RELATIONSHIPS BETWEEN LIVING ORGANISMS

Timing 1h (≈50 min)

Lead in of the lesson (warm up)	Ask the students if they know some other kinds of relationships between living beings different from the predator-prey relationship. Probably the students can guess some relationships if you show slide 1 from the presentation about the relationships between living organisms. (10 min)	Interactional Pattern* W	Resources and Materials Presentation Relationships between living organisms- TE.pptx
Input	ACTIVITY 16: DIFFERENT KINDS OF RELATIONSHOPS The teacher explains the different kinds of relationships between the living organisms, using slide 2. (10 min) ACTIVITY 17: GUESS THE RELATIONSHIPS KIND The teacher invites the students to guess the kind of relationships between the couples of living beings shown in slides 3 to 21. Students wrote the names of the two living beings in one of the columns in a copy of slide 23. At the end they can check their guess with slide 22. (20 min)	W I	A copy of Relationships between living organisms- ST.pptx for each student.

Assessment (1h≈50min)	Written test FINAL TEST.docx

^{*}Whole class: W, groupwork: G, pairwork: P, individual work: I