

CLIL LEARNING UNIT – Lower Secondary School

Title	Cell Structure	Class	1st Lower Secondary School
Subject(s) involved	Science	Number of lessons	7 + assessment
Teaching aims	<p>To enable learners to identify animal and plant cells and their organelles</p> <p>To raise learners' awareness that all living things are built by the same unit blocks</p> <p>To develop learners' abilities such as: to classify, to compare, to predict and to reason.</p> <p>To help learners understand that learning can be achieved in a non-native language.</p>		
Learning outcomes	What learners will be able to know by the end of the unit	<ul style="list-style-type: none"> • What living things have in common • What cells have in common • Differences between plant and animal cells • Main organelles and their functions • Some vocabulary and expressions related to living things and cell structure 	
	What learners will be able to do by the end of the unit	<ul style="list-style-type: none"> • Compare animal and plant cells • Using a picture to point to the organelles of the cell, say their names and their functions • Describe a cell, its main organelles and their functions 	
	What learners will be able to be aware of by the end of the unit	<ul style="list-style-type: none"> • That all living things are made up of cells • That all kind of cells have the same main structure • That each cell organelle has its own function • That a cell can be compared to a city 	
Content	CLIL theme with possible Cross curricular links	<p>Music: the lyrics of living things</p> <p>Technology: main services of a city</p> <p>Technology/Art: art and craft materials</p>	
Communication	Language of learning	<p>Vocabulary:</p> <p>Verbs linked to living things: (to) breathe, born, die, eat, grow, move, need, reproduce</p> <p>Verbs linked to the membrane: (to) control, protect, separate, surround</p> <p>Verbs linked to the organelles: (to) control, contain, convert, fill, package, process, produce, send, store, transport</p>	

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		<p>Names of some living things: bacteria, dolphin, butterfly, wolf, mushroom, coral Names of the main parts of a cell: cell membrane, cell wall, cytoplasm Names of the main organelles: Nucleus, Ribosomes, Mitochondria, Endoplasmic Reticulum, Golgi Apparatus, Vacuoles, Chloroplasts Names of important part of a city: municipality, powerhouse, factory, post office, warehouse, city wall</p> <p>Structure: As ... so ...</p> <p>Functions: To name, to identify, to describe the main parts of a cell. To compare animal and plant cells. To compare a cell and a city.</p>
	Language for learning	<p>Vocabulary/Structure: Where is/are? What is this? What are these? What is the function of.... What are the differences between.... What do they have in common? It has/They have The major job of....is to..... Classroom vocabulary</p> <p>Functions: To ask and answer about objective information, to locate the organelles or parts of the cells, to compare plant and animal cells.</p>
Cognition	Thinking skills development (LOTS and HOTS)	To develop cognitive skills (remembering, understanding, identifying, listing, comparing and contrasting, classifying, predicting and reasoning).
Culture	Awareness of topic relevance to daily life	<p>To develop learners' ability of speaking in front of a public</p> <p>To raise learners' awareness of what living things have in common</p> <p>To be aware of the similarity of a cell with a city</p>
Materials and resources	<p>Internet (You Tube, Edpuzzle, LearningApps ...); PowerPoint Worksheet Pictures/Photos; Art and craft activity using recycling material too</p>	

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Assessment	<u>Formative:</u> cell crossword <u>Summative:</u> 1) Construction of a cell model and presentation to groups of primary school students 2) Test for the whole class (open questions, fill the gaps, multiple choice, label the picture) Picture based test for students with special educational needs
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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.

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LESSON PLAN

Lesson 1 / 7

Title: Living things: what do they have in common?

Timing 2h

Activation of the unit	<ul style="list-style-type: none"> A first slide shows different living things and the question “What do they have in common?”. The answers are collected in a second slide during a brainstorming session. Also Italian words are accepted for the moment. In order to help the class with the vocabulary on living things, the video by Jack Hartmann (cropped) is used. Students take note of the words/expressions on living things collected during the session. 	Interactional Pattern* W I	Resources and Materials OrlandiCassano_ICVillasanta_s_activity1_activation.ppt https://edpuzzle.com/media/5c8e58928f65ba40a3cddeeb OrlandiCassano_ICVillasanta_s_activity1_glossary.doc
Core activities Find out (input1)	<ul style="list-style-type: none"> Each student of a pair is provided with the same sentences with different words missing. They are required to complete the sentences by comparing them (<i>jigsaw reading in pairs</i>). The teacher shows and reads the correct sentences and discusses them with the class. They try to guess the questions that have the assigned sentences as answers. The teacher helps in defining them. Students take note of the questions and glue the correct answers on their exercise books. Into pairs the students ask and answer these questions The class watches a video on the cell and its membrane. It contains the same sentences previously discussed. The video is interrupted by some questions to check the comprehension. <p>An audio file is shared with students for listening at home</p>	P W I P W I	OrlandiCassano_ICVillasanta_s_activity2_cell_membrane.doc OrlandiCassano_ICVillasanta_s_activity2_cell_introduction.ppt https://edpuzzle.com/media/5c8e59c5cfbe08409c1ce45a OrlandiCassano_ICVillasanta_s_activity2_cell_membrane_wall_audio.mp3

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Lesson 2 / 7

Title: Organelles and cytoplasm - names

Timing 1h

Lead in of the lesson (warm up)		Interactive Pattern*	Resources and Materials
<p>Core activities</p> <p>Find out (input2)</p> <p>Sort out1 (input processing)</p>	<p>Students are introduced to the presence of organelles in a cell by a rap song (cropped)</p> <p>The aim of the lesson is to make the students able to recognize and describe the shape of main organelles and to say their names.</p> <ul style="list-style-type: none"> • The same pictures of the introductory video are presented, organelles are named and shortly described. Students receive a sheet containing the pictures of the organelles. They have to colour, cut and glue them on their exercise book and write the labels next to them. • Organelles and cytoplasm are also introduced by a short video interrupted by a question. • Two games help in memorizing names and shapes of organelles. 	<p>W</p> <p>W</p> <p>I</p> <p>G</p>	<p>https://edpuzzle.com/media/5cd45ed9d94b894132bc2067</p> <p>OrlandiCassano_ICVillasanta_s_activity3_organelles.ppt OrlandiCassano_ICVillasanta_s_activity3_organelles_cards.pdf</p> <p>https://edpuzzle.com/media/5c8e614f8f65ba40a3ce1872</p> <p>Animal cell (text) https://learningapps.org/display?v=pjw1n6ean19 Plant cell (audio) https://learningapps.org/display?v=p8iow1kst19</p>

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Lesson 3 / 7

Title: Organelles and cytoplasm - functions

Timing 1h

<p>Lead in of the lesson (warm up)</p>	<ul style="list-style-type: none"> Students are divided into small groups. They are asked to match sentences regarding organelles and their functions. They have to guess. At the end the teacher shows the correct combination. 	<p>Interactional Pattern*</p> <p>G</p>	<p>Resources and Materials</p> <p>OrlandiCassano_ICVillasanta_s_activity4_organelles_functions_game.doc</p>
<p>Core activities Find out (input3)</p>	<p>The aim of the lesson is to learn the main functions of each organelle.</p> <ul style="list-style-type: none"> The on-line game requires to match each organelle with its main function. After every group has successfully completed the game, new words/concepts are discussed together. 	<p>G W</p>	<p>https://learningapps.org/display?v=parzkaxvn19</p>
<p>Sort out2 (input processing)</p>	<ul style="list-style-type: none"> The game asks to fill in the missing words/expression in a text on organelles and their functions. After completing it, students can print the screen and glue the sheet on their exercise book. <p>An audio file is shared with students for listening at home</p>	<p>P</p> <p>I</p> <p>I</p>	<p>https://learningapps.org/display?v=pxyz06eot19</p> <p>OrlandiCassano_ICVillasanta_s_activity4_organelles_functions_audio.mp3</p>

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Lesson 4 / 7

Title: **The cell like a city**

Timing 2h

Lead in of the lesson (warm up)	<ul style="list-style-type: none"> A crossword game to review content and words. The solution is showed after each group has completed the game. 	Interactional Pattern* G	Resources and Materials OrlandiCassano_ICVillasanta_s_activity5_cell_crossword.pdf OrlandiCassano_ICVillasanta_s_activity5_cell_crossword_answers.pdf
Output1 (speaking/writing/presentation of individual or groupwork/product)	<ul style="list-style-type: none"> In order to link the cell structure to something more familiar, students in small groups are required to match the organelles with particular structures of a city. The class creates six sentences with the structure “as....so” like for example: “As the wall protects the city, so the cell membrane protects the cell”. The groups have to create a PowerPoint with a slide for each sentence, containing a picture of the organelle and one of the structure of the city linked to it (the pictures have to be found out in Internet) 	G W G	https://learningapps.org/display?v=pi1trepoj19 OrlandiCassano_ICVillasanta_s_activity6_cell_city.doc

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Lesson 5 / 7

Title

Cell model - project

Timing 1h

Lead in of the lesson (warm up)	<ul style="list-style-type: none"> Cell model ideas are presented to the class. The file contains a glossary on the different kind of materials presented. 	Interactional Pattern* W	Resources and Materials OrlandiCassano_ICVillasanta_s_activity7_cell_model_ideas.ppt
Output2 (speaking/writing/presentation of individual or groupwork/product)	<ul style="list-style-type: none"> The groups design their models and list the materials they will use for each part of the cell. For the following lesson they will bring the materials. Exchange and sharing will be accepted. If no material can be found a drawing will be accepted. 	G	

Lesson 6 / 7

Title

Cell model - creation

Timing 2h

Lead in of the lesson (warm up)	<ul style="list-style-type: none"> The groups present, share and exchange materials. 	Interactional Pattern* G	Resources and Materials
Output2 (speaking/writing/presentation of individual or groupwork/product)	<ul style="list-style-type: none"> The groups realize their models and rehearse the presentation. 	G	Cardboard, beads, straws, plastic bottles, caps/bottle tops, balloons, woollen yarn, ribbons, sequin, twine, modelling clay, gummy candies, peanuts, peas, beans....

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Lesson 7 / 7

Title: **Presentation of the cell model/ First assessment**

Timing 1h

Lead in of the lesson (warm up)	Motivation is raised giving to each group the responsibility of explaining the cell structure to some primary school students.	Interaccional Pattern*	Resources and Materials
Output2 (speaking/writing/presentation of individual or groupwork/product)	Using its model, each group will explain the cell structure to a group of primary school students. The models and the presentations will be evaluated using a specific rubric.	G	OrlandiCassano_ICVillasanta_s_activity8_Evaluation_rubric_cell.xls

Assessment	<p><i>Summative assessment of the whole learning unit</i></p> <p>1) Construction of a cell model and presentation to groups of primary school students (see lesson n° 7)</p> <p>2a) Test for the whole class (open questions, fill the gaps, multiple choice, label the picture).</p> <p><i>OrlandiCassano_ICVillasanta_s_activity9_cell_structure_test.pdf</i></p> <p>2b) Picture based test for students with special educational needs</p> <p><i>OrlandiCassano_ICVillasanta_s_activity9_cell_structure_test_BES.pdf</i></p>
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***Whole class: W, groupwork: G, pairwork: P, individual work: I**

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