LEARNING FOR LIFE

STUDENT'S GUIDELINE

CLIMATE CHANGE OBSERVATORY

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MULTIPLE INTELLIGENCES

INTELLIGENCE	TASKS
1. Interpersonal	1-3-4-6-7-8-9-10-11-12-13-14-15-16-17-19-20
2. Intrapersonal	3-4-6-7-8-10-11-12-13-14-15-16-17-19-20
3. Visual-spatial	6-7-8-10-11-12-13-14-15-16-17-18
4. Bodily-kinesthetic	
5. Musical-rhythmic	
6. Verbal-linguistic	2-6-7-8-9-11-12-13-14-15-16-17-19
7. Logical-mathematical	6-11-12-13-15-16-17-19
8. Naturalistic	6-7-8-9-11-12-13-15-16-17-19

DISCIPLINARY OBJECTIVES and CROSS-DISCIPLINARY OBJECTIVES

What do we want students to understand?

(COMPREHENSION GOALS)

DISCIPLINARY OBJECTIVES and CROSS-DISCIPLINARY OBJECTIVES

MAIN OBJECTIVE:

To be aware of the importance of collecting and observing data in order to carry out scientific reflection

0.General objectives

0.1. Learning to work in teams

1.Biology

1.1. Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development

2.Mathematics

2.1. Apply mathematical knowledge to understand, appreciate and create information and messages about environmental states and factors

2.2. Express the data collected when analysing the environment by means of charts

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	and graphics 2.3. Compare today's data to the previous data and draw conclusions **3.Foreign Language (English)** 3.1. Improve communicating and writing skills **4.ICT** 4.1. Learn to use software's to make and edit videos. **5.Mother Tongue** 5.1. Improve communicating and writing skills.
PROJECT PRESENTATION	Nearby meteorological institutes (or any other institution) want to increase the number of measurement stations. Since they are concerned about the climate change, they want to make people aware of the situation. Therefore, taking into account environmental change, we've been asked to launch a communication channel to give information about Urnieta and surrounding towns. In this communication channel, the issue will be addressed by means of daily reports and videos that will be published on the blog or uploaded to YouTube. In this way, you will develop and complete the information day by day. In order to set up the communication channel, you will have to research and collect information about Urnieta and surrounding towns inevitably.
FINAL PRODUCT	To create and launch an online communication channel about the environment. To post reports or videos on a daily basis. To share the data we get and the conclusions we draw with meteorological centres.

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SEQUENCE OF TASKS

Tasks in bold are necessary, and the rest are optional. They depend on the teachers involved in the project and the school facilities.

A. PREVIOUS TASKS

1. **Task: Team dynamics**
2. **Task: Project presentation**
3. **Task: Team planning**
4. **Task: What I know - What I need to know**
5. **Task: Set dates for each team to post blog entries**

B. RESEARCH / DEVELOPING TASKS

6. Task: Visit to a weather station
7. **Task: Learn the use of measurement tools**
8. **Task: Expository writing requirements**
9. **Task: Expository content specification:** Is environment changing? Why? What lies on our hands?
10. **Task: Team's topic choice**
11. **Task: What I know - What I need to know**
12. **Task: Analysis of the environment**
    a. UPV's chemistry department measured the amount of pollution in different towns
13. **Task: Interpreting graphics**
14. **Task: Learn the structure of expository texts**
15. **Task: Producing expository texts/videos**
16. **Task: Class expository presentation and team feedback**
17. **Task: Presentation and approval of final expository version**

C. FINAL TASKS

18. **Task: Make the online communication channel public**
19. **Task: I see - I wonder - I ask**
20. **Task: Final team assessment**

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INDICATORS

MAIN OBJECTIVE

Remains constant in the data collection

0. General objectives

0.1.1. The student achieves team objectives

0.1.2. The student achieves individual objectives

0.1.3. The student fulfils his/ her responsibilities

1. Biology

1.1.1. Makes daily measurements in an appropriate way

1.2.1 Analyses and interprets measurements and statistical data

1.2.1 Makes reasonable suggestions about permanent development

2. Mathematics

2.1.1. Interprets environmental charts and graphics

2.1.2 Expresses collected data by means of charts and graphics

2.1.3 Compares today's data to the previous data and draws conclusions

3. Foreign Language (English)

3.1.1. Hands in by the deadline

3.1.2. Presents the work neatly

3.1.3. The text is well-structured

3.1.4. The text is coherent and cohesive

3.1.5. The text is grammatically well-written with no significant spelling mistakes

4. ICT

4.1.1. Makes and edits videos

5. Mother Language

5.1.1. Hands in by the deadline

5.1.2. Presents the work neatly

5.1.3. The text is well-structured

5.1.4. The text is coherent and cohesive

5.1.5. The text is grammatically well-written with no significant spelling mistakes

TOOLS:

- **Rubrics**

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- **Reflections and evidences**

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TASKS

PREVIOUS TASKS

1. Task: Team dynamics			**Sessions:** 1 h
COMPETENCES	Social and civic	**INTELLIGENCES**	Interpersonal
GOALS	Learning to work in teams		

Task description:

We will suggest a team dynamics so that students get to know each other better.

2. Task: Project presentation			**Sessions:** 30 min
COMPETENCES		**INTELLIGENCES**	Verbal-linguistic
GOALS			

Task description:

Nearby meteorological institutes (or any other institution) want to increase the number of measurement stations. Since they are concerned about the climate change, they want to make people aware of the situation. Therefore, taking into account environmental change, we've been asked to launch a communication channel to give information about Urnieta and surrounding towns.

In this communication channel, the issue will be addressed by means of daily reports and videos that will be published on the blog or uploaded to YouTube. In this way, you will develop and complete the information day by day.

In order to set up the communication channel, you will have to research and collect information about Urnieta and surrounding towns inevitably.

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3. Task: Team planning			**Sessions:** 1 h
COMPETENCES	Social and civic Sense of initiative and entrepreneurship Digital	**INTELLIGENCES**	Interpersonal Intrapersonal
GOALS	Learning to work in teams and to control teamwork		

Task description:

Each team will define its team planning, which will consist of three parts: team objectives, individual objectives and responsibilities.

Team objectives:

All teams will have four objectives: two will be the same for every team, and the other two will be defined by each team.

Individual objectives:

Each student will have 2 individual objectives: one suggested by his/her team and the other suggested by themselves.

Responsibilities: Responsibilities will be assigned by the teacher.

4. Task: What I know – What I need to know			**Sessions:** 1 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Digital	**INTELLIGENCES**	Interpersonal Intrapersonal
GOALS	To think about the topic		

Task description:

Each team will consider what they already know about the task and what they need to know in order to carry it out.

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5. Task: Set dates for each team to post blog entries			**Sessions:** 1 h
COMPETENCES	Sense of initiative and entrepreneurship Social and civic	**INTELLIGENCES**	Interpersonal Verbal-linguistic
GOALS	Learning to work in teams		

Task description:

We will fix dates and deadlines in a chart so that each student team knows when they have to carry out the weather measurements, when they have to hand in their work and when they have to publish it online.

At the beginning we will just upload measurements and photographs, but as we go deeper into the topic we will also add texts and videos.

RESEARCH / DEVELOPING TASKS

6. Task: Visit to a weather station			**Sessions:** 1 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Mathematical, scientific and technological Cultural awareness and expression	**INTELLIGENCES**	Intrapersonal Interpersonal Visual-spatial Verbal-linguistic Naturalistic
GOALS	Learning to work in teams Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development		

Task description:

We will visit a weather station which is close to our school. It will be an exceptional opportunity to find answers to the questions that arouse during the previous exercise. Before visiting the station, we should write down our questions and choose a representative to make the questions in the visit. Needless to say, everyone will pay attention to what it is said and explained in the station.

Assessment tools (rubrics …):

Student's behaviour will be assessed. The teacher will also take into account whether the students write down the answers or not.

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7. Task: Learn the use of weather measurement instruments			**Sessions:** 2 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Mathematical, scientific and technological Digital	**INTELLIGENCES**	Intrapersonal Interpersonal Visual-spatial Verbal-linguistic Naturalistic
GOALS	Learning to work in teams Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development		

Task description:

Since we have to observe weather patterns and make appropriate measurements, we will first need to learn how to use the weather instruments. The instruments that we need to learn are the following: thermometer, hygrometer, barometer, anemometer and rain gauge.

We will learn how to use them and what to use them for. Apart from that, we will also learn the units of measurement of each tool.

8. Task: Expository writing requirements			**Sessions:** 1 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Digital Mathematical, scientific and technological Cultural awareness and expression	**INTELLIGENCES**	Intrapersonal Interpersonal Visual-spatial Verbal-linguistic Naturalistic
GOALS	Improve communicating and writing skills Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development		

Task description:

Students will have to create both short written texts and videos. In order to do so, it is important to know the structure of these expository productions. Therefore, we will analyse some texts (Text1 Text2) and videos (Video1, Video2, Video3) about environmental issues. After reading the texts, students will have to identify the features of the text genre (register, language, paragraph structure, vocabulary…). They will do the same with the videos, after watching them they will identify oral

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communicative features (voice, intonation, pauses, fluency, pronunciation…). It will be useful to note down all the identified features in a chart for future writing compositions.

9. Task: Expository content specification			**Sessions:** 1 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Mathematical, scientific and technological	**INTELLIGENCES**	Interpersonal Verbal-linguistic Naturalistic
GOALS	Analysis and reflection of the topic that needs to be chosen later Improve communicating and writing skills Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development		

Task description:

The following task aims at reflecting on these three questions: Is the environment changing? Why? What lies on our hands?

Students will have to discuss these topics together with the ones suggested by themselves. In order not to repeat the same topics, we need to share the work.

Each team will have to choose an issue and will have to specify the reasons of that choice by **using the rotating sheet cooperative structure**. The arguments need to be solid in order to convince those who might have chosen the same topic. Bear in mind, that if there is no consensus among teammates, topics will be chosen by raffle:

1. Pollution caused by cars
2. To increase the use of public transports or bicycles and decrease the use of private cars.
3. Deforestation: removing forests and green areas
4. Reforestation; the opposite of deforestation
6. Climate change
7. Discharging chemicals and nuclear materials
8. Acid rain
9. The use of fertilizers and pesticides
10. Incinerators
11. Man-made artificial materials
12. Recycling and reusing
13. Avoiding the use of aerosols

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14. Excessive use of plastics
15. Forest fires
16. The ozone hole
17. The greenhouse effect
18. Global warming; natural and human causes

10. Task: Team's topic choice			**Sessions:** 1 h
COMPETENCES	Sense of initiative and entrepreneurship Social and civic	**INTELLIGENCES**	Interpersonal Intrapersonal Visual-spatial
GOALS	Learning to work in teams		

Task description:

Each team will tell their classmates their topic and the reason why they have chosen it. If you all have decide on a different topic, great. However, if there are two or more teams that have chosen the same subject, then we will encourage an agreement and if that is not possible, we will decide on the topic by raffle.

11. Task: What I know / What I need to know			**Sessions:** 1 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Digital Mathematical, scientific and technological Cultural awareness and expression	**INTELLIGENCES**	Naturalistic Logical-mathematical
GOALS	To be aware of the importance of data collection and observation for scientific reflection		

Task description:

Each team will start working on their topic. In order to do so, you will fill in the What I know / What I need to know chart.

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12. Task: Analysis of the environment			**Sessions:** 4 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Digital Mathematical, scientific and technological Cultural awareness and expression	**INTELLIGENCES**	Interpersonal Intrapersonal Visual-spatial Verbal-linguistic Logical-mathematical Naturalistic
GOALS	Improve communicating and writing skills Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development Apply mathematical knowledge to understand, appreciate and create information and messages about environmental states and factors Express the data collected when analysing the environment by means of charts and graphics		

Task description:

Taking into account the steps of the scientific method (observation, hypothesis, experiment, conclusion and scientific law), students will start to do some research. In order to do so, we will use all the resources that are handy.

13. Task: Interpreting graphics			**Sessions:** 2 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Digital Mathematical, scientific and technological Cultural awareness and expression	**INTELLIGENCES**	Interpersonal Intrapersonal Visual-spatial Verbal-linguistic Logical-mathematical Naturalistic
GOALS	Compare today's data to the previous data and draw conclusions Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development		

Task description:

We will obtain data (temperature, precipitation, humidity…) from 50 years ago. In order to get the information, students can ask the weather station or get the information from the Internet.

The data from nowadays will be written down in the same format. This way, we will learn to create and interpret graphics.

At the same time, we will compare today's data to that from the past.

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14. Task: Learn the structure of expository texts			**Sessions:** 1 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Digital	**INTELLIGENCES**	Interpersonal Intrapersonal Visual-spatial Verbal-linguistic
GOALS	Improve communicating and writing skills		

Task description:

Taking into account task number 8, teams will start writing their first draft versions.

15. Task: Producing expository texts/videos			**Sessions:** 2 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Digital Mathematical, scientific and technological Cultural awareness and expression	**INTELLIGENCES**	Interpersonal Intrapersonal Visual-spatial Verbal-linguistic Logical-mathematical Naturalistic
GOALS	Improve communicating and writing skills Learn to use software's to make and edit videos Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development		

Task description:

Taking into account features from tasks 8 and 14, you will have to write texts and produce oral videos about your chosen topic. Bear in mind that in order to upload the texts and videos to our blog, you must try to create interesting works.

16. Task: Class expository presentation and feedback			**Sessions:** 4 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Digital Mathematical, scientific and technological Cultural awareness and expression	**INTELLIGENCES**	Interpersonal Intrapersonal Visual-spatial Verbal-linguistic Logical-mathematical Naturalistic
GOALS	Improve communicating and writing skills Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development		

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Task description:

We have two options:

Teams can either pair up together (teams 1-2, teams 3-4, teams 5-6, teams 7-8) and make presentations and recommendations for further improvements to each other, or members of a team can make their presentation and the rest of the teams can give them feedback.

Later on, we will work on suggested improvements.

17. Task: Presentation and approval of final expository version			**Sessions:** 4 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Digital Mathematical, scientific and technological Cultural awareness and expression	**INTELLIGENCES**	Interpersonal Intrapersonal Visual-spatial Verbal-linguistic Logical-mathematical Naturalistic
GOALS	Improve communicating and writing skills Learn to use software's to make and edit videos Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development		

Task description:

We have two options:

Teams can either pair up together (teams 1-2, teams 3-4, teams 5-6, teams 7-8) and make presentations and recommendations for further improvements to each other, or members of a team can make their presentation and the rest of the teams can give them feedback.

Later on, we will work on suggested improvements.

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FINAL TASKS

18. Task: Make the online communication channel public			**Sessions:** 1 h
COMPETENCES	Digital	**INTELLIGENCES**	Visual-spatial
GOALS	Improve communicating and writing skills		

Task description:

We will upload the texts and videos day by day, following the order established in task number 5.

19. Task: I see - I wonder - I ask			**Sessions:** 1 h
COMPETENCES	Learning to learn Sense of initiative and entrepreneurship Social and civic Communicating in the mother tongue Digital Mathematical, scientific and technological Cultural awareness and expression	**INTELLIGENCES**	Intrapersonal Interpersonal Verbal-linguistic Logical-mathematical Naturalistic
GOALS	Analyse the interaction between science and technology and society and environment from a critical point of view, taking part actively in the permanent development		

Task description:

Students will reflect upon their own work and later on they will do the same with their classmates' work.

20. Task: Final team assessment			**Sessions:** 2 h
COMPETENCES	Social and civic	**INTELLIGENCES**	Interpersonal Intrapersonal
GOALS	Learning to work in teams		

Task description:

We will assess the objectives and responsibilities established in the team planning before to reflect upon the things we have done well and the issues that must be improved.

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Assessment tools (rubrics …):

Rubric and excel sheet.

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https://twitter.com/meteo_europe?lang=es

https://twitter.com/WeatherCoEurope

Different weather stations

https://www.nordicweather.net/nwn.php?en

http://wws-map.com/

Weather balloon launching

https://www.nasa.gov/multimedia/imagegallery/image_feature_2514.html

Environmental agencies

https://www.eea.europa.eu/

http://www.unep.org/

UK:

https://www.gov.uk/government/organisations/environment-agency

Mauna Loa Observatory, Hawaii Example station on CO2 measurements

https://www.esrl.noaa.gov/gmd/obop/mlo/

https://www.esrl.noaa.gov/gmd/ccgg/trends/monthly.html

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