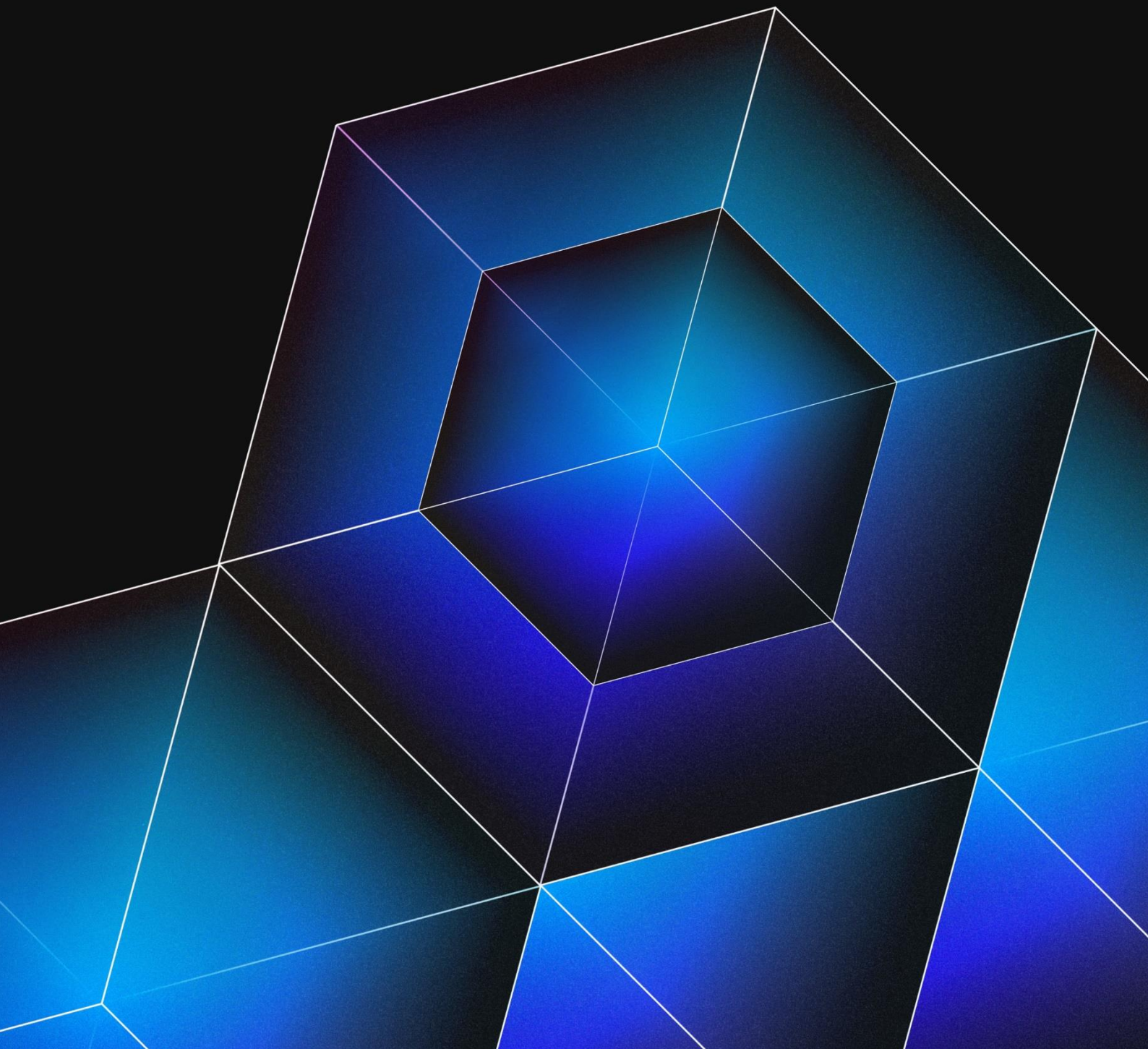
BLAST!

Fostering Youth Social Inclusion through Blockchain for Sustainability

INTELLECTUAL OUTPUT 1

BLAST! Curriculum for Sustainable Revolution through Blockchain



Contents

Framework

The BLAST! project aims at fostering social inclusion through a non-formal learning programme on the Sustainable Revolution, through blockchain and DTL emergent technologies. The project objectives are to develop a state of the art non-formal learning programme (the Curriculum), complemented with video-based digital learning to enhance youth engagement. The first Intellectual Output of the project consists of a curriculum - BLAST! Curriculum for Sustainable Revolution through Blockchain. This curriculum is composed of a set of Learning Units designed using the Learning Outcomes (LOs) approach, which are developed for an EQF level 3.

The World Economic Forum states that "blockchain provides a strong potential to unlock and monetise value that is currently embedded (but unrealised) in environmental systems, and there is a clear gap within the market" (Herweijer et al., 2018, p.5). As digitalisation is a proven path for social inclusion, especially amongst young people, the BLAST! partnership feels the need to take the lead in this thematic area and develop an innovative approach to meet the identified needs in terms of social inclusion.

The BLAST! project provides a step further in bridging this gap by allowing young people to decide on the environmental changes (climate change, natural disasters, biodiversity loss, ocean-health deterioration, air pollution, water scarcity and others) that demand transformative action and learn more about them through non-formal learning activities. Therefore, the BLAST! project aims to instil an entrepreneurial mindset in young adults, opening a door for employment possibilities in today's unpredictable job market. Notably, the project places emphasis on crafting non-formal learning activities that are not only interactive and engaging in traditional face-to-face settings, but also adaptable for web-based learning environments. This dual approach ensures a versatile and impactful learning experience.

Introduction

The BLAST! Curriculum for Sustainable Revolution through Blockchain aims at supporting Youth Educators/Workers/Leaders in guiding youth participants into acquiring knowledge and skills in the Sustainable Revolution topics and finding out how they can contribute to achieving the Sustainable Development Goals (SDGs) using blockchain. The core objective of the learning programme is to empower young people (15 - 22 years old) to take control of their lives by becoming agents of change.

As determined in the proposal, the BLAST! curriculum will comprise:

i) the Learning programme aim and objectives
ii) the LOs
iii) the "BLAST non-formal education methodology for Sustainable Revolution" with a model of dialogic evaluation
iv) the learning materials.

To this end, partners developed the Learning Outcomes for their correspondent learning units:

- **Learning unit I:** Climate change - ISQ
- **Learning unit II:** Natural Disasters - ISMEK + IERC-TYNDALL (for Blockchain LOs)
- **Learning unit III:** Biodiversity Loss - FIP + IERC-TYNDALL (for Blockchain LOs)
- **Learning unit IV:** Ocean-health Deterioration - ISMEK + IERC-TYNDALL (for Blockchain LOs)
- **Learning unit V:** Air Pollution - FIP + IERC-TYNDALL (for Blockchain LOs)
- **Learning unit VI:** Water Scarcity – ISQ

Overview of the EQF

The EQF, implemented in 2008, is a common European reference system whose purpose is to make qualifications more readable and understandable across different countries and systems, aiming to link different countries' National Qualifications Systems (NQF) and frameworks together. In practice, it works as a translation mechanism making qualifications more readable. The EQF serves as a tool to advance lifelong learning, covering a spectrum that includes general and adult education, vocational education and training, as well as higher education.

It is structured in eight levels which are defined by a set of descriptors of learning outcomes - knowledge, skills and attitudes (competences/responsibility and autonomy) - relevant to qualifications at that level in any system of qualifications. The eight levels encompass the full range of qualifications, ranging from those obtained upon completing compulsory education to those conferred at the pinnacle of academic, professional, or vocational education and training.

The Recommendation of the European Parliament and the Council regarding the establishment of the EQF (23 April 2008) explicitly emphasised that Member States should adopt an approach centered on learning outcomes for defining and describing qualifications. The recent recommendation from the European Parliament and the Council regarding EQF for lifelong learning further underscores the goal of promoting the utilisation of EQF by various stakeholders such as social partners, public employment services, education providers, quality assurance bodies, and public authorities. This is aimed at facilitating the comparison of qualifications and enhancing the transparency of learning outcomes.

Learning outcomes-based qualifications frameworks can value all learning, independent of where and how the learning took place. One of the aims of the revised European Qualifications Framework (EQF) Recommendation was to better link formal, non-formal and informal learning and support the validation of learning outcomes acquired in different settings. The EQF Recommendation and the Council Recommendation on the validation of non-formal and informal learning are complementary.

The Recommendation on validation invited EU Member States to have arrangements in place by 2018 for the validation of non-formal and informal learning. Whilst taking into consideration national, regional and/or local, as well as sectoral needs and characteristics, these arrangements were to be linked to National Qualifications Frameworks (NQFs) and in line with the EQF.

Finally, it's important to say that EQF referencing criterion 3 relates to the fact that national qualifications frameworks or systems and their qualifications are related to arrangements for validation of non-formal and informal learning.

Non-formal education model – How to implement it

It is important to have in mind the type of learning programme we are designing in BLAST! Project. As stated, the BLAST! Curriculum is about a non-formal learning programme, so it is important to have a clear idea of what that means. As per CEDEFOP, non-formal learning or education refers to the acquisition of knowledge and skills within organised activities that may not be explicitly labelled as formal learning experiences, in terms of defined learning goals, allocated learning time, or structured learning support. It is purposeful and deliberate from the learner's perspective.

According to UIS-UNESCO, non-formal education is defined as education that is organised, purposeful, and planned by an educational institution (ISCED, 2011). What distinguishes it is that it serves as an addition, alternative, or supplement to formal education in an individual's lifelong learning journey. Its main aim is to ensure equal access to education for everyone. It accommodates individuals of all age groups but doesn't necessarily follow a continuous, structured pathway. It may be brief in duration and/or less intensive, often taking the form of short courses, workshops, or seminars. Non-formal education generally leads to qualifications that may not be officially recognised by national educational authorities, or it may lead to no formal qualifications at all. It encompasses programs that contribute to adult and youth literacy, education for children not attending formal schooling, as well as initiatives focused on life skills, vocational skills, and personal or cultural development.

The Council of Europe offers its own definition of non-formal learning: it occurs in settings outside of formal education structures but still operates within some form of organised framework (LIAM, n.d.). This type of learning emerges when an individual consciously decides to master a specific activity, skill, or area of knowledge, representing a deliberate effort on their part. However, non-formal learning doesn't adhere to a formal curriculum or fall under external accreditation and assessment. Typically, it unfolds in community settings, such as swimming classes for young children, diverse sports clubs for individuals of all ages, reading groups, debating societies, amateur choirs, and orchestras, among others. Some non-formal learning arrangements may gradually adopt more formal characteristics over time.

The main purpose of non-formal education is to provide education opportunities to people who do not receive formal education. In non-formal education, training opportunities are offered in many subjects, so that an individual can be involved in a training course taking into account their personal thoughts, abilities, goals and opinions. It is aimed that people who do not receive formal education have a place in society and contribute to their personal development. It is ensured that people who migrate from limited places such as villages or towns and settle in big cities adapt to the society. When an individual attains a valid certificate through non-formal education, it not only furthers their personal development but also significantly contributes to the social and cultural advancement of society as a whole.

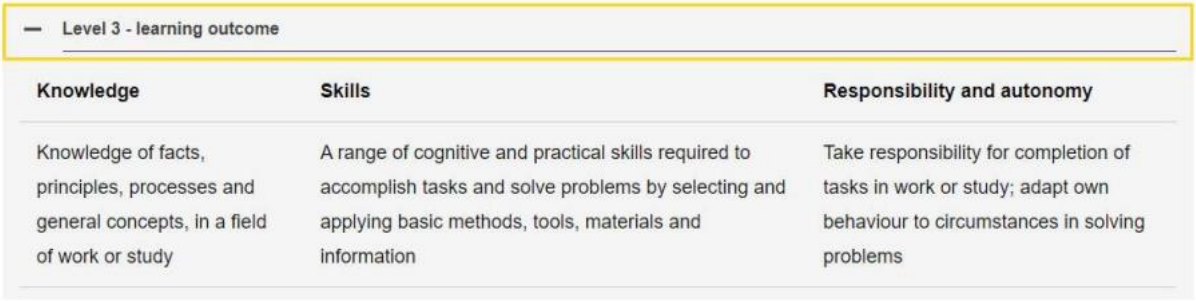
Learning Outcomes

Curricula sets the framework for planning learning experiences. Depending on the country, the type of education and training, and the institution, learning outcomes statements form an important part of curricula. They guide teachers and trainers in the teaching/training process, e.g. by supporting the choice of methods to use in that process, and they inform learners about what they are expected to know, be able to do and understand after a given learning programme.

Learning outcomes are perceived as adding value for several purposes. However, they are not to be taken for granted: any benefits eventually depend on the way learning outcomes are defined, written and applied. And that is why the BLAST! Curriculum sets its own methodology: to ensure coherence between all Learning Units, to promote an easy guide for the training and learning process, especially taking into account the non-formal education methodology adopted in the project, as well as the model of dialogic evaluation, which the learning outcomes will support.

Learning Outcomes Guidelines

Assuming that the pertinence of the learning outcomes approach in the BLAST! Curriculum is clear, it is important to remember that in the project proposal the curriculum is set to be defined aligned with EQF level 3:



— Level 3 - learning outcome

Knowledge	Skills	Responsibility and autonomy
Knowledge of facts, principles, processes and general concepts, in a field of work or study	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	Take responsibility for completion of tasks in work or study; adapt own behaviour to circumstances in solving problems

Figure 1 – EUROPASS, 2022, Taken from: https://europa.eu/europass/en/description-eight-eqf-levels

In BLAST! Project we will use the term "Attitudes" to refer to the "Responsibility and Autonomy" level descriptor. Let's look at some basic rules when defining and writing the learning outcomes:

- When writing learning outcomes to orient a learning programme or a learning unit/course, carefully consider the number of statements used. When defining a course or unit it is generally recommended limiting the number of statements depending on the complexity of the educational programme. In the BLAST! Curriculum, we can target four to six statements.
- When writing a learning outcomes statement, focus on the learner and start with an action verb, followed by the object of the verb as well as a statement specifying the depth/breadth of learning to be demonstrated, and complete with an indication of the context (which can be related to learning, work or other relevant social contexts).

- In general, there should not be more than one action verb for each learning outcome.
    - Learning outcomes should be externally verifiable - the learning outcome description should enable the evaluation process to determine if the learner has achieved the learning outcome.
- Learning outcomes refer to the day of testing, i.e. to what the learner knows and is capable of doing on that day.
- The same learning outcomes can be achieved in a variety of learning contexts. The choice of action verbs frequently refers to the taxonomies developed by Bloom and colleagues from 1956 and onwards. Writing precise learning outcomes requires ambiguous verbs to be avoided.

Ambiguous		Precise	
• Know	• Grasp the significance of	• Distinguish between	• Write
• Understand	• Become familiar with	• Differentiate	• Recite
• Enjoy	• Believe	• Assemble	• Construct
• Determine	• Be aware of	• Adjust	• Contrast
• Appreciate	• Comprehend	• Identify	• Compare
		• Solve	• List

Source: Cedefop.

The verbs used in the descriptors are also related to the domain of learning and the level of "sophistication" or depth implied, as indicated in the next table:

Domain of learning	Levels of sophistication	Common verb associations
Cognitive (knowledge) What will students know?	remembering, understanding, applying, analysing, evaluating, creating	define, identify, describe, differentiate, explain, apply, analyse, resolve, justify, recommend, judge, create, design
Psychomotor (skills) What will students be able to do?	imitation, manipulation, precision, articulation, naturalisation	adapt, arrange, build, calibrate, construct, design, deliver, demonstrate, display, dissect, fix, mimic, operate, sketch, use, perform
Affective (attitudes, values or habits of mind) What will students value or care about?	receive, respond, value, organise, characterise	ask, challenge, demonstrate, discuss, dispute, follow, justify, integrate, practise, judge, question, resolve, synthesise

Sources: Marzano and Kendall (2007); Kennedy et al. (2006); Anderson et al. (2001); Bloom et al. (1956; 1964).

Specify and contextualise the active verb. Learning outcomes must be specified and contextualised. Therefore, it is essential to provide an indication as to what the knowledge and skills of the learners refer to, and as to what kind of performance is concerned.

Learning Outcomes per Learning Unit

Learning Unit 1: Climate change

<table>
<tr><td colspan="2">Topic: Climate Change</td><td>Workload: 40 hours
Contact Hours: 25 hours</td></tr>
<tr><td colspan="3">OBJECTIVES
The objectives of this unit are to provide the trainees with the necessary concepts, information and skills on the topic of climate change that will enable them to make informed decisions on their choice of action concerning climate change and the use of Distributed Ledger Technologies (DLT) and blockchain emerging technologies for the Sustainable Revolution.
In this unit, learners will learn what climate change is, what causes it and what consequences it brings about. They will also be presented with the main policies in place to fight climate change, in particular to what concerns the United Nations Sustainable Development Goals (SDGs).</td></tr>
<tr><td colspan="3">Learning Outcomes
Upon completion of this unit, the learner will be able to…</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Attitudes</td></tr>
<tr><td>Theoretical/Factual knowledge on:
Concept of climate change[1]
Main causes for climate change
Most important green-house gases (GHG)</td><td>Explain the concept of climate change
Distinguish natural from anthropogenic causes for climate change
Identify main anthropogenic causes for climate change</td><td>Relate European and global policies related to climate change mitigation to identify opportunities and take action
Make eco-friendly choices in life [to have a positive contribution to the Planet]</td></tr>
</table>

[1] Climate change, also called global warming, refers to the rise in average surface temperatures on Earth due to the entrapment of heat in the upper atmosphere caused by the increased concentration in so-called *green-house-gases*

• Major sources of GHG • Effects/consequences of climate change • The Stern Report • Context of climate change in recent history • Global and European policies on climate change action **Basic knowledge in:** • The mechanism by which greenhouse gases lead to the consumption of ozone in the upper atmosphere layer • The UN SDG 13: climate action • Blockchain and DLT technologies • Blockchain applications to climate change	• Identify consequences of climate change • Give examples of the disruption brought about by the increase in the Earth mean temperature to ecosystems • Relate main environmental policies to measures aiming at pollution reduction • Identify climate issues with SDG13 • Identify whether / where Blockchain and DLT technologies can be used for fighting climate change	• Influence others regarding individual behaviours needed to fight climate change • Influence policy change on climate change • Influence collective action in targeting climate change
External Resources: Seminars, videos, films, and…		

Learning Unit 2: Natural Disasters

<table>
<tr><td colspan="2">Topic: Natural Disasters</td><td>Workload: 36 hours
Contact Hours: 14 hours</td></tr>
<tr><td colspan="3">OBJECTIVES
The aim of this unit is to raise awareness on natural disasters: what they are, why they occur, their effects on our lives and the mitigating measures available.
In this way, trainees will acquire the basic tools needed to develop individual conscience about natural disasters, to communicate about natural disasters and what precautions to adopt in order to mitigate as much as possible the consequences to Human health and the environment of natural disasters.</td></tr>
<tr><td colspan="3">Learning Outcomes
Upon completion of this unit, the learner will be able to…</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Attitudes</td></tr>
<tr><td>Theoretical/Factual knowledge in:
The concept of natural disaster and its types
Causes and effects of natural disasters
Short-term and long-term effects of natural disasters
The Institutions dealing with natural disasters</td><td>List different types of natural disasters and identify those that can have an anthropogenic cause
Differentiate the causes from the effects of natural disasters with examples
Differentiate between the long-term and the short-term effects of disasters
Identify mitigation measures for natural disasters impact reduction</td><td>Adopt actions for individual protection in case of a natural disaster
Influence others by creating awareness about natural disasters
Engage with the institutions dealing with natural disasters and facilitate communication between these and own community</td></tr>
</table>

• Natural disasters risk reduction strategies **Basic Knowledge in:** • Relation between natural disasters and the United Nations Sustainable Development Goals (UN SDG) • Blockchain and DLT technologies • Blockchain application to natural disasters	• Recognise areas where human-caused natural disasters can be mitigated • Identify the challenges for disaster preparedness and recovery functions • Identify whether / where Blockchain and DLT technologies can be used to deal with natural disasters (e.g., for providing support to victims of natural disasters) • Gauge local government adoption and implementation of local disaster risk reduction strategy to check its alignment with national strategy	• Consider taking part in natural disasters impact reduction and recovery functions strategies /plans • Influence policy changes • Campaign for the adoption of measures to increase resilience and adaptive capacity to climate-related hazards and natural disasters by local governments
External Resources: Seminars, videos, films, and…		

Learning Unit 3: Biodiversity Loss

<table>
<tr><td colspan="2">Topic: Biodiversity Loss</td><td>Workload: 8 hours
Contact Hours: 20 hours</td></tr>
<tr><td colspan="3">OBJECTIVES
The objectives of this unit are to support learners to gain a better understanding of the issue of biodiversity loss. Specifically, this unit will introduce the different drivers, causes, and impacts of biodiversity loss. Through this unit, our intention is to make learners aware of the biodiversity of their region and to identify how blockchain can be applied to track and monitor biodiversity changes and loss in their region. We also intend for learners to understand how biodiversity loss on a global scale, with specific examples from around the world.</td></tr>
<tr><td colspan="3">Learning Outcomes
Upon completion of this unit, the learner will be able to…</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Attitudes</td></tr>
<tr><td>Theoretical/Factual knowledge in:
The concept of biodiversity
The common causes of biodiversity loss
Human-driven biodiversity loss
Context of biodiversity loss in recent history
The consequences of human-driven biodiversity loss.</td><td>Explain the concept of biodiversity loss and its rate of increase in recent times
Identify the main causes of biodiversity loss and give examples
Give examples of the effect of biodiversity loss
Relate interconnectedness of species to the effects of biodiversity loss in ecosystems</td><td>Inform others about biodiversity loss
Encourage others to research biodiversity in their region and to protect it.
Engage local groups in tracking biodiversity loss in one’s local region.
Actively contribute to biodiversity monitoring in their regions</td></tr>
</table>

• National, European and Global policies on Biodiversity **Basic knowledge in:** • Interconnectedness of species • The environmental impact of biodiversity loss • The United Nations Sustainable Goal (SDG) 15: Life on Land • Blockchain and DLT technologies • Blockchain applications to biodiversity loss monitoring and tracking	• Establish a relationship between climate change and biodiversity loss • Relate economic activity to human-driven biodiversity loss • Identify biodiversity issues with SDG15 • Find which risk factors for biodiversity loss are present in one's own country/region. • Identify existing mechanisms for public engagement in biodiversity monitoring • Identify how one can preserve biodiversity of one's own region/area • Identify whether / where Blockchain and DLT technologies can be used to deal with biodiversity loss.	• Outline a strategy for the adaptation of own behaviour in line with biodiversity preservation
External Resources: Seminars, videos, films, and…		

Learning Unit 4: Ocean Health Deterioration

<table>
<tr><td colspan="2">Topic: Ocean-Health Deterioration</td><td>Workload: 36 hours
Contact Hours: 12 hours</td></tr>
<tr><td colspan="3">OBJECTIVES
Participants will learn what ocean health is, what dangers await us with the deterioration of ocean health, and the measures to be taken to protect the health of the oceans. In this way, the trainees will gain an individual conscience about the importance of ocean health, to inform their communities and fight for precautions to be taken.</td></tr>
<tr><td colspan="3">Learning Outcomes
Upon completion of this unit, the learner will be able to…</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Attitudes</td></tr>
<tr><td>Theoretical/Factual knowledge in:
The concept and the importance of ocean health
Causes and effects of ocean health deterioration
National, European and Global policies on Oceans and fishing
Measures to prevent the deterioration of ocean health
Basic knowledge in:</td><td>Explain the concept of Ocean-health Deterioration and its rate of increase in recent times
List causes of deterioration of ocean health
Give examples of negative effects of the deterioration of ocean health in the overall sustainable equilibrium of the planet
Relate economic activity to the Ocean-health Deterioration causes</td><td>Influence others by creating awareness on the importance of ocean health
Communicate to different stakeholders in own community the importance of maintaining Ocean Health
Relate existing policies on Ocean-health Deterioration to identify opportunities and take action
Outline a strategy for the adaptation of own behaviour aiming at promoting ocean health</td></tr>
</table>

• Main concepts and definitions pertaining to Ocean Management • The EU strategy for Ocean Health restoration • The United Nations Sustainable Goal (SDG) 14: Life Below Water. • Blockchain and DLT technologies • Blockchain application to ocean health deterioration	• Identify Ocean-health Deterioration issues with SDG14 • Identify measures to be taken to prevent the deterioration of ocean health. • Identify individual actions to promote the restoration of Ocean Health • Identify actions foreseen by the EU strategy for Ocean Health restoration to check against what national/regional/local authorities are doing • Identify whether / where Blockchain and DLT technologies can be used for preventing ocean health deterioration	
External Resources: Seminars, videos, films, and…		

Learning Unit 5: Air Pollution

<table>
<tr><td colspan="2">Topic: Air Pollution</td><td>Workload: 8 hours
Contact Hours: 20 hours</td></tr>
<tr><td colspan="3">OBJECTIVES
The objectives of this unit are to support learners to understand the causes, signs and impacts of air pollution for the environment and for human health. Through this unit, our intention is that learners will be able to speak about the main causes of air pollution, to identify the impact that this pollution is having on their own health, the health of their community and its impact on the environment. Learners will also be able to identify how blockchain can be used to track levels of air pollution.</td></tr>
<tr><td colspan="3">Learning Outcomes
Upon completion of this unit, the learner will be able to…</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Attitudes</td></tr>
<tr><td>Theoretical/Factual knowledge in:
The concept of air pollution
The causes of air pollution
Consequences of air pollution
The concept of carbon footprint
The definition of Green Energy
Measures for protecting health from air pollutants</td><td>Identify the causes of air pollution on a global scale
List main sources of air pollution in one’s own community
Outline the negative impact that air pollution can have on health and the environment
Link air pollution to climate change
Discuss benefits and limitations of green energy</td><td>Outline a strategy for the adaptation of own behaviour to reducing one’s carbon footprint
Influence others on how they can reduce their carbon footprint
Promote collective action to influence policy change on air pollution and the adoption of green energy solutions at regional level, whenever possible</td></tr>
</table>

• The link between air pollution and climate change **Basic knowledge in:** • Air quality index • Hazardous air pollutants and fine particulate matter in air • The United Nations Sustainable Goal (SDG) 13: Climate Change • Blockchain and DLT technologies • Blockchain application to air pollution	• Identify the relevance of air pollution issues to the targets under the United Nations SDG 13 • Identify ways we can reduce our carbon footprint to improve air quality • Find sources of information on the Air Quality Index, to make people more aware of the quality of the air they are breathing • Gauge local government adoption and implementation of measures for air pollution reduction and check its alignment with the national strategy • Give examples of blockchain applications contributing to monitoring, tracking and reducing to mitigate air pollution	• Take steps to protect one's health against air pollution.
External Resources: Seminars, videos, films, and…		

Learning Unit 6: Water Scarcity

<table>
<tr><td colspan="2">Topic: Water Scarcity</td><td>Workload: 8 hours
Contact Hours: 24 hours</td></tr>
<tr><td colspan="3">OBJECTIVES
The objectives of this unit are to teach the trainees about what water scarcity is, what it is caused by and what are its main consequences in terms of human survival and human rights, as a means to give them the tools to identify corrective behaviour and potential for collective action.
In this unit, learners will learn about what water scarcity is, what causes it (besides drought) and what it means in terms of human rights. The trainees will be able to relate the notion of what causes water scarcity to find potential ways of individual or collective action to fight its causes.</td></tr>
<tr><td colspan="3">Learning Outcomes
Upon completion of this unit, the learner will be able to…</td></tr>
<tr><td>Knowledge</td><td>Skills</td><td>Attitudes</td></tr>
<tr><td>Theoretical/Factual knowledge on:
The concept of water scarcity
Causes for water scarcity
Consequences of water scarcity
Challenges and opportunities in water resources management
Global, European and National policies on Water scarcity</td><td>Differentiate water scarcity from drought to communicate effectively about the water scarcity issue
Give examples of causes for water scarcity to identify ways to solve/avoid the problem
Outline the consequences of water scarcity</td><td>Identify own water-using and consumption behaviours that need to be changed
Raise the awareness of an audience to the problem of water scarcity and its consequences, to promote collective action
Influence others to adopt a more responsible behaviour towards water</td></tr>
</table>

Basic knowledge in: • The United Nations Sustainable Development Goals (SDG) 6 (Clean water and sanitation) and 15 (life on land) • Blockchain and DLT technologies • Blockchain application to water scarcity issues	• Recognise water scarcity as a global problem, being able to compare the severity in different regions of the planet • Relate population growth and water consumption patterns to water scarcity issues • Identify water scarcity issues within the scope of the United Nations' Sustainable Development Goals 6 and 15 • Identify whether / where Blockchain and DLT technologies can be used in water scarcity prevention and mitigation action	resources management and conservation • Identify potential for collective action regarding water conservation and campaign for it
External Resources: Seminars, videos, films, and…		

Learning Programme per Learning Unit

Learning Unit 1: Climate Change

	CONTACT HOURS	
TEACHING PLAN	**20**	**TOOLS**
Day 1 Introduction to the LU and teaching plan (work assignments, tools, evaluation criteria) **Theoretic introduction to LU1 related concepts:** a. Climate Change b. Causes for Climate change c. Consequences of Climate change d. Policy issues e. Scientific debate (relation to policy) **Teaching plan** **PART I** **1 -** Presentation of the LU and the teaching and evaluation plan **2 - Video 1** + **video 2** followed by discussion **3 -** Choice of themes by working groups (to be presented on day 3):	**2.5**	**Video 1** **Video 2** **Discussion on class 1 > questions to ask** Introductory video. Raises the several aspects to be addressed during the course. It should set the theme for individual or group work on the following subjects: • Concept of climate change • Causes for climate change • Consequences of climate change • Climate change policy debate **List of useful sites** 1. Climate change triggering global collapse in insect numbers 2. What causes the Earth's climate to change?

• **Theme 1:** Greenhouse effect and global warming • **Theme 2:** Geothermal mechanism of climate change • **Theme 3:** Consequences of climate change • **Theme 4:** The Stern Review • **Theme 5:** Global warming scepticism **PART II** **4 -** Introduction to Blockchain and DLT technologies		
Day 2 **The science behind climate change: i**n the second class, a third video will be shown that might help the students with the ongoing assignments. It looks into the scientific aspects of the theme in more detail. The idea is for students to see whether this video brings some new light onto their chosen subjects or if, otherwise, they have already heard about everything mentioned in the video. This exercise can be extended through the discussion around the video. **Teaching plan** **Video 3** • Questions on the video • Individual group work with the facilitators (formative assessment) • Suggested readings (per group) followed by	**2.5**	Video 3: Friendly guide to Climate Change • Scientific data • Alternatives to fossil fuels • Policy recommendations YouTube Channel "Hot Mess", found here: https://www.youtube.com/@HotMessPBS **Work group with facilitator > questions to ask**

• **Problem solving approach:** ask them to explain the following concepts (each group is asked about those concepts relevant to the work being developed)		
Day 3 In the 3rd class, the idea is to conclude the scientific part of the LU and prepare for the political one **Teaching plan** Work Group presentations Discussion and question to any doubts Summary of main findings (facilitator) **Video 4** **New assignment:** Debate Time! Sceptics vs Climate change advocates	**5**	Applying the "Forum Technique" Video 4: 13 Misconceptions About Global Warming
Day 4 Looking at the arguments on both sides of the climate change debate is bound to build critical thinking about the reasons behind climate change denial. This in turn should be the motto for the political part of the learning, heading for the SDG thematic and related issues. **Teaching plan**	**5**	

PART I **Debate:** Sceptics vs Climate change advocates summary of main findings (students) **Video 5** **PART II** Introduction to European and Global Policy on Climate change **Group work:** what SDG(s) are more relevant for climate change issues and why **New assignment:** climate change and social inequality (theatre sketch) **PART III** Application of Blockchain and DLT technologies to climate change mitigation		Students vote on who won the debate Video 5: 97% of Climate Scientists Really Do Agree UN 2030 Agenda for Sustainable Development & SDGs
Day 5 **Teaching plan** **PART I** Drama sketch on climate change and social inequality (all students) Comment from the facilitators + discussion	**5**	**Drama method (30 minutes to 1 hour)**

PART II **Dialogic assessment:** what you have learnt and how it will change your action and individual behaviour? **PART III** Video on blockchain + discussion		To be completed individually Additional resource: Carl Sagan Testifying About Climate Change (1985)

Learning Unit 2: Natural disaster

TEACHING PLAN	CONTACT HOURS 12	TOOLS
Day 1 **Theoretical Information and Teaching Plan of the Module:** • What is a Natural Disaster? • Types of Natural Disasters • How Do Natural Disasters Occur? • Measures to be Taken Before Natural Disasters • Things to Do After Natural Disasters • Institutions Combating Natural Disasters in Europe • Natural Disaster Strategies of National and Local Administrations in Europe **Teaching plan** **PART I** Present the theoretical information of the Natural Disasters module. Watch a sample video about Natural Disasters and use these prompt questions to stimulate a group discussion: • What is a Natural Disaster? • Types of Natural Disasters • How Do Natural Disasters Occur?	**4**	Presentation Technique Theoretical information about the module is explained with the presentation technique. Video Participants watch a video about the examples of natural disasters previously experienced in the world.

Video about Natural Disasters **PART II** 4 - Introduction to Blockchain and DLT technologies		
Day 2 Presenting theoretical information of the Natural Disasters module Implementation of the Transformation of Objects activity **Teaching plan** • Measures to be Taken Before Natural Disasters • Things to Do After Natural Disasters • Implementation of the Transformation of Objects activity **Transformation of Objects Activity**	**4**	Theoretical information about the module is explained with the presentation technique. ***Transformation of Objects - Activity*** **Philips66 Technique** It is an activity created to explain the different usage purposes of the objects used during or after natural disasters. Within the scope of this event, the participants will; • Learn what to do after natural disasters. • Implements practices for reducing the effects of natural disasters and taking precautions.
Day 3 Presenting theoretical information of the Natural Disasters module Implementation of the World Natural Disaster Awareness Association event	**4**	**Presentation Technique** Theoretical information about the module is explained with the presentation technique. ***World Natural Disaster Awareness Association - Activity*** **Creative Drama and Meeting Arrangement Technique**

Teaching plan • Institutions Combating Natural Disasters in Europe • Natural Disaster Strategies of National and Local Governments in Europe **World Natural Disaster Awareness Association - Activity**		It is an activity designed for the participants to achieve affective gains for the subject of natural disaster awareness. Within the scope of this event, the participants will; • Show the causes and effects of natural disasters with examples. • Measure the adoption and implementation of the national strategy and local government's disaster risk reduction strategy. • Create awareness about natural disasters. • Campaign for the adoption of measures by local governments to increase resilience and adaptive capacity to climate-related hazards and natural disasters.

Learning Unit 3: Biodiversity loss

TEACHING PLAN	CONTACT HOURS 20	TOOLS
Day 1 Introduction to the LU and teaching plan (work assignments, tools, evaluation criteria) **Theoretic introduction to LU3 related concepts:** • Biodiversity Loss • Human-driven Biodiversity Loss • Causes and Impacts of Biodiversity Loss • Youth Action Against Biodiversity Loss **Teaching plan** **PART I** **1 –** Presentation of the LU and the teaching and evaluation plan **2 – Video 1** followed by quiz **3 – Video 2** followed by discussion and group work activity **4 – Video 3** followed by research on national, European, or Global level	**4**	Video 1 Video 2 Video 3 ***Group Activity for Video 2*** Split into groups of 2-4 Select one of the human activities listed in the video Brainstorm and generate one solution addressed to young people/peers to change their behaviour Take 30 minutes… Then share your ideas with the group! ***Group Activity for Video 3*** Working in groups of 2-4, research what is being done on either a National (in your country), European or Global level to achieve Goal 15!

		Through this research try to answer: • Is Goal 15 on track? • What initiatives are being piloted? • Are they effective? Take 30 minutes, and then present your findings to the group! List of useful sites: 1. SDG 15 in Europe 2. SDG 15 on a Global Level
Day 2 To begin with on day 2, the video 2 will be re-shown as a recap of the previous day's learning. Role-play + video presentation. This will serve to jog their memories and get learners back into the "Biodiversity mindset". Participants will then be allocated a subtopic area to research before completing activities around this topic area. **Teaching plan** 1 - Discuss what we learnt about diversity on day 1 2 - Replay video 2 as a reminder of the issues surrounding biodiversity 3 - Group Work 3 presentation activity	**3.5**	***Group Activity*** The group will be split into 3 smaller groups. Each group will be allocated one of the following topics: • Interconnectedness of Species • Causes of Biodiversity Loss • Promoting Local Biodiversity Each group has 60 minutes to research and prepare one of the following on their chosen topic: • A role-play or drama • A video or presentation After 60 minutes, each group has 5-10 minutes to present their activity to the rest of the group.
Day 3	**3.5**	Video 4 ***Group Activity***

Biodiversity in context: On day 3, learners will look at biodiversity through the lens of a farmer, a politician, a water tourism operator and a property developer. **<u>Teaching Plan</u>** Learners will research how farmers and politicians, fisherman and tourist operators are impacted by biodiversity and what it means for them. In a second step they will complete and activity using moving pictures or song/poem to portray the role of biodiversity for these industries		In small groups, learners will research the impact that biodiversity might have on different people and the barriers that each type of person might have in implementing biodiversity Based on what they have found out, learners will complete one of the following activities: • Moving pictures (10 scenes with no words that tell a story) • A song or poem Each activity will then be presented back to the group.
Day 4 Following on from Day 3, learners will be presented with fictional scenarios relating to biodiversity. They will have to write a speech for the characters in their scenario. **<u>Teaching Plan</u>** In small groups, learners will have to take on the role of one of the characters presented to them and prepare arguments and a script in relation to their allocated character in preparation for a debate. Once the task is complete, groups will practice their scripts and prepare what they are going to say in the next day's debate	**5**	***Group Activity*** Half the characters will be people who are actively for biodiversity and doing their best to prevent its loss. The other half will be agreeable to the idea of biodiversity, but put the needs of their own interests ahead of biodiversity as they struggle to see how the two can live hand in hand. Characters will include: • 2x farmers (pro and against) • 2x politicians (pro and against) • 2x property developers (pro and against) • 2x water-based tourism providers (pro and against) Write a 5-10 minute speech with the main points you want to raise during the debate. Ideally all members of the group should be involved in putting their view across.

		Identify your key beliefs and arguments against the opposition point of view
Day 5 **<u>Teaching plan</u>** Leading on from Day 4 and everything learnt throughout the week, learners will debate biodiversity based on the character they were allocated on day 4 **<u>Teaching Plan</u>** Following the debate, the tutor will lead a discussion on what each learner actually thinks about biodiversity loss and how it can be reduced using blockchain.	**4**	***Group Activity*** In their small groups, learners will present their 5-10 minute speech in turn. After each group has spoken the other groups will be invited to argue or support the presenters, based on their own character's point of view. After each group has argued their main point, the whole group will be allowed to continue the debate. Immediately after the debate, the group will watch the following video: Video 5 To wrap up, the trainer will invite each student to say what they personally believe regarding biodiversity based on what they have learnt in the past week and how they think blockchain can help provide the solution to biodiversity loss.

Learning Unit 4: Ocean-health deterioration

TEACHING PLAN	CONTACT HOURS 12	TOOLS
Day 1 **Theoretical Information and Teaching Plan of the Module:** • The Concept of Ocean Health and Its Importance • Causes and Effects of Ocean Health Deterioration • Ocean Governance and Key Concepts • Measures that can be taken to prevent the deterioration of ocean health • Individual Actions Required to Protect Ocean Health • EU Strategies for Ocean Health Restoration • United Nations Sustainable Goals **Teaching plan** **PART I** Presenting theoretical information of the Ocean Health module **Ocean Health-related activity** • The Concept of Ocean Health and Its Importance • Causes and Effects of Deterioration of Ocean Health • Ocean Governance and Basic Concepts	**4**	**Presentation Technique** Theoretical information about the module is explained with the presentation technique. ***Things to Do to Prevent Ocean Health Deterioration - Activity: Brainstorming Technique*** Brainstorming about what needs to be done to prevent the deterioration of Ocean Health. Within the scope of this event, the participants: • Determine the measures to be taken to prevent the deterioration of ocean health. • Determine individual actions for the improvement of ocean health.

• Measures that can be taken to prevent the deterioration of the health of the ocean • Individual Actions Required to Protect Ocean Health **Activity: Things to Do in order to Protect Ocean Health**		
Day 2 Presenting theoretical information of the Ocean Health module Implementation of the Ocean Health Awareness Event **Teaching plan** • EU Strategies for Ocean Health Restoration • United Nations Sustainable Goals • Ocean Health Awareness Event	**4**	**Presentation Technique** Theoretical information about the module is explained with the presentation technique. Ocean Health Awareness - Event **Group Research Technique** Within the scope of this training, participants will: • Gain knowledge about the concept of ocean health and its importance. • Know the causes and effects of deterioration of ocean health. • Know and defines ocean management and related basic concepts.. • Explain EU strategies for ocean health restoration. • List the United Nations Sustainable Goals. • List the causes of deterioration of ocean health.

		• Give examples regarding the negative effects of the ocean health deterioration on the overall sustainable balance of the world.
Day 3 Ocean Health Awareness Event goes on	**4**	Ocean Health Awareness - Event **Group Research Technique** Within the scope of this training, participants will: • Set UN SDG14 targets and indicators. • Identify actions envisaged by the EU strategy for Ocean Health restoration to control what national/regional/local authorities are doing. • Influence others by raising awareness about the importance of ocean health. • Communicate to different stakeholders in their communities the importance of maintaining Ocean Health as well as the current situation in achieving UN SGD14 goals. • Identify individual actions to promote the protection of ocean health

Learning Unit 5: Air pollution

TEACHING PLAN	CONTACT HOURS 20	TOOLS
Day 1 Introduction to the LU and teaching plan (work assignments, tools, evaluation criteria) **Theoretic introduction to LU5 related concepts:** • Causes of air pollution • Human-driven causes of air pollution • Impact of air pollution on health and the environment **Teaching Plan** **PART I** **1 -** Presentation of the LU and the teaching and evaluation plan **2 - Video 1 & 2** followed by Poster creating and presentation activity **3 - Video 3** followed by brainstorm activity on air pollution. **4 -** Small group research and overall group discussion	**3**	Video 1 Video 2 ***Group Activity for Video 1-2*** Using Canva: https://www.canva.com/create/infographics/, develop an Infographic to Raise Awareness about: • What Air Pollution Is? • What Causes it? • How it can be harmful to your health? Take 40-minutes, and then make a 'poster presentation' to the group. Video 3 ***Group Activity for Video 3*** As a whole group brainstorm and identify:

		• What are the main sources of air pollution in your country? • Are there sources (industries, transport, energy generation, etc.) in your city or region? Working in your teams, research and identify: • What is being done on a local, regional and/or national level to improve air quality? When you're finished, share your ideas with the group!
Day 2 Building on knowledge from day 1, today's learning will focus on the Air Quality Index (AQI). Learners will complete an online module and come together to discuss what they found out. **Teaching plan** **1 -** Discuss what we learnt about air pollution on day 1 **2 -** Play **video 4** to introduce the Air Quality Index **3 -** Small groups to work through online module on the AQI **4 -** Discuss what found out about AQI in class discussion	**3**	***Group Activity*** Video 4 In your small groups, complete the following short module and quiz on the AQI: click here!
Day 3 The air pollution climate change debate. There is no doubt that air pollution has an impact on the climate, but what is its impact if any on climate change? Learners will be assigned a	**5**	Video 5 Theoretical background for air pollution

point of view and come together to present their argument in a debate format **Teaching Plan** **1 -** Show video 5 on the UN's Sustainable Development Goal 13: Climate Change. **2 -** Split into small groups and divide into groups for and against **3 -** Allow each team to speak and opposite team to argue against the points made **4 -** Bring the whole group together and conclude		List of useful sites: 1. SDG 13 in Europe 2. SDG 13 on a Global Level ***Group Activity*** For the duration of the workshop, engage in a debate to prove/disprove the link between Air Pollution and Climate Change! • Participants will form teams of 3. • Each team of 3 will partner with another team of 3. • One team will be for the motion; the other against. • Each team will have 20 minutes to prepare their arguments before the debate. • Each team member will have 3 minutes to speak, followed by a 90-second rebuttal by the other side. • The timing will be managed by the facilitator, who will act as adjudicators. To wrap up, the tutor/trainer will invite each young person to say what they personally believe regarding air pollution and climate change based on what they have learnt in the past week.
Day 4	**4**	Video 6

Air Pollution Solutions: The class will learn about EU led solutions to air pollution issues and the things they can do themselves to help reduce air pollution. Learners will create a practical plan for reducing air pollution in your learning institution before creating their own air pollution solution themed board games. **Teaching Plan** **1 -** Show **video 6** and discuss the air pollution solutions being implemented with the whole group **2 -** Show **video 7** and ask learners to consider how they can reduce their own impact on air pollution **3 -** Split into small groups and ask them to come up with improvement action plan for your institution/college **4 -** Small groups to create their own board games to encourage positive actions towards green air.		Discuss solutions we have seen in the video in whole group Watch video on what individuals can do to reduce air pollution Video 7 ***Group Activity*** After watching the video 7, small groups brainstorm the things you can do personally to help reduce air pollution and feedback in group discussion In small groups, come up with a plan for improving air pollution in your learning institution. Present it back to the whole group Now thinking about what you can do to improve the situation design your own board game, play it and present it back to the class. Think about what you will need (squares, counters, dice etc.) and how you can get your message across to reinforce your air pollution reduction plan. Once complete, begin playing your board game Finally, each group will explain their board game to the whole group, highlighting how it encourages reduction in air pollution.
Day 5	**5**	Video 8

On the final day, trainees will consider everything they have learnt so far and create their own air pollution role-play. The role-play will be videoed, edited and presented back to the whole group. A final informal review of the course outcome will be completed at the end of the day. **<u>Teaching Plan</u>** **1 -** Lead whole group discussion on what participants have learnt so far this week regarding air pollution **2 -** Split them into small groups and get them to create and rehearse a role-play **3 -** Ask learners to film their role-play **4 -** Learners to edit to cut/edit videos and include any additional effects/enhancements etc. **5 -** Each small group to show their video to whole class **6 -** Final review of what learnt and best bits		Following all you have learnt in the past 4 sessions on air pollution, and the video you have just seen on potential of blockchain to help produce it, you will now create and edit your own air pollution video. To begin with, you will brainstorm the most important things you have learnt over the course so far and how you can use blockchain technology to find solutions to air pollution. For more information, see HOPU.eu ***Group Activity*** In your small groups, you will create a role-play covering the most important issues and the role of block chain in helping to resolve them. Think about what each person's role will be in the role play and how you can bring the key issues to the fore. After you have practiced the role-play, you will need to film it. Where possible try to find a quiet place away from other groups to avoid picking up external sound and visuals. Then you will use video editing software to cut your video before playing it back to the whole group. Finally, you will take part in a whole group discussion about what you have learnt and how you have enjoyed the 5 sessions of the course.

Learning Unit 6: Water Scarcity

TEACHING PLAN	CONTACT HOURS 24	TOOLS
Day 1 Introduction to the LU and the teaching plan that will be used (work assignments, tools, evaluation criteria) **Theoretic introduction to concepts related to the LU:** • 2.1 – The concept of water scarcity • 2.2 – Causes for water scarcity • 2.3 – Consequences of water scarcity • 2.4 – The difference between water scarcity and drought • 2.5 – Blockchain and DLT technologies **<u>Teaching plan</u>** **Part I** *Activities:* **1 -** Presentation of the concepts of the LU* (via Power-Point), teaching, and evaluation plan **2 -** Interactive diagnostic word Cloud exercise. **[1]**	**5**	**Description of activities and the tools** **[1]** An introductory discussion guided through 5 questions (related to water scarcity) will take place. The facilitator will create 5 different word clouds (one for each question). The learners will have the QR Code to these word clouds and access them from their phone or computer. Each question will be read out loud by the facilitator and each learner will enter in the platform one word/expression to answer it (these are anonymous). These word clouds will be saved and revisited at the end of the LU to understand the evolution. They are also useful for the facilitator to understand the level of knowledge and to direct the lessons around that. The facilitator should make the learners comfortable about answering what comes to their mind and not feeling pressured to know the right answers. This activity should motivate them to want to know the answers at the end of the LU, not make them feel sad or pressured to know everything at the first lesson. Use this link: https://www.mentimeter.com/ Questions for the discussion: 1. What do you do to save water?

3 - Introduction to the final work assignment (to be presented to the community on an event in day 5) and choice of themes **[2]** **4-** Making of the invitations to the event held on day 5 for the community **[3]** **Part II** Introduction to Blockchain and DLT technologies: Introductory video & exercise **[4]**		2. What do you know about water scarcity? 3. How are you affected by water scarcity? 4. Give an example of industries that use water to produce their materials 5. What are the United Nations' Sustainable Development Goals? (here the facilitator should include water into the discussion of this question) **[2]** The final work should be the result of work done at home or at the facilities after the sessions, by the learners in groups. The final works will be presented in an event for the community, held on day 5. The themes are: • Theme 1: Water scarcity: our responsibility as citizens • Theme 2: International policies to combat water scarcity • Theme 3: The relation between population growth and water consumption patterns to water scarcity issues • Theme 4: Water scarcity and its impact on health issues • Theme 5: The solutions to water scarcity **[3]** The class will be divided in groups, and each should choose a platform and produce an original invitation for the final event (exhibition and presentations). This document should be appealing and contain information about the final event (day, time, location), some inviting phrases about what the community might expect from this event, and some

		photos related to water scarcity. Each group should present the final product to the class and once it's approved by everyone, the invitations should be printed and given to members of the community. **[4]** After watching the BLAST! video, learners should answer to open-ended questions with information they retained from the video,
Day 2 *Activities:* **1 –** Recap of the previous session's learning - video 1 discussion **[5]** • Exercise about water scarcity and drought **[6]** **2 –** Theoretic introduction on: • 2.1 – Challenges and opportunities in water resources management • 2.2 – United Nations' Sustainable Development Goals 6 and 15 **3 –** Preparation of an exhibition about the United Nations' Sustainable Development Goals 6 and 15. Each group should create one or more posters about what are the sustainable development goals (introduction for the following posters), and then one or more poster(s) about goals 6 and 15. These posters will be in an exhibition in the organisation's facilities for the event (on day 5) **[7]**	**5**	Video 1 **[5]** Discussion about the video: During the video each learner should note all the facts described in it, that have impressed him/her. Then the class should be divided into groups and discuss the facts gathered and come to several conclusions. After that, the learners should read the facts out loud to the other learners and explain why they were so impressive to them. Lead the group in a group discussion and reflection. **[6]** After the introduction of the differences between water scarcity and drought (on day 1) one exercise will be implemented: In a sheet, there will be two columns: one column with statements that describe water scarcity or drought and the second column with the words" water scarcity" and "drought". The goal is for the learner to create the right correspondence between the statements and the concept.

		[7] The groups should use the platform they wish and create an original and appealing poster about the selected goal(s). All together, these posters should create a sequence (starting with the introduction poster, and then the goals) and will be in an exhibition in the day of the event for the community. The posters should be approved by all the class before printed.
Day 3 This lesson will be held on a web-based platform that has the capacity to create multiple interactive rooms within a meeting. The learners that don't have access to WiFi, a computer, or a phone should have these conditions available in the organisation's facilities. In activity 1, the facilitator will present the content but for the rest of the session the facilitator should be available to help the learners when they need it, though the goal of this lesson is to be a self-learning and practical session. *Activities:* **1 –** Small introduction to the Global, European and National policies on Water [scarcity] **2 –** Small group research session **[8]** **3 –** Presentation after the reading **[9]**	**3**	**[8]** Here the facilitator will divide the class into multiple interactive rooms within the meeting. These groups should do research about policies on water (national or international). Gather their information and prepare a small presentation for the class. This should be independent but the facilitator should be available to enter the rooms, when requested, and help. **[9]** After the research, each group will join the main meeting and present what they gathered. In the end, the facilitator should assimilate the main conclusions from the presentations.
Day 4	**5**	**[10]** The class should be divided into two: the politicians, the citizens and one of the learners is the moderator. Politicians and citizens should create a script with arguments to defend

Each group should show what they have prepared (after the sessions) for the final work to the class. The class should give his/hers feedback to the group. After this, there will be a group discussion on the logistics of the event. **Activities- PART I** **1 –** Theatre: A debate between Politicians and Citizens **[10]** **Activities-PART II** **2 –** BLAST! Video on Water scarcity and blockchain- Question & Answers session **Activities- PART III** **3 –** Table of good practices **[11]**		their representative group. And the moderator should create a list of questions to guide the debate. After that, the debate will take place. This activity will provide the learners with the point of view of these two groups. **[11]** Each learner should present 5 practices that they uses to save water. The facilitator should design an empty table for them to insert the good practices. The learners should fill the table and discuss between all of them what practices they use, the practices they don't use, advices to use the practices and the impact of the practices. The final table is printed and given to every learner as a "manual to save water".
Day 5 This whole day should be dedicated to the preparation of the event and the actual event. *Activities:* 1 – Every group should present their work, pay attention to the other groups. 2 – Once the event is over, the remaining time should be dedicated to analysing the Word Clouds produced on the first day and acknowledging the evolution.	**6**	The event has two parts: **1 –** The exhibition of the posters about the United Nations' Sustainable Development Goals 6 and 15 **2 –** The final works' presentation to the community to create an awareness on the water scarcity issue

Recommendations for Dynamics

6.1. Lecturing (Presentation) Method

In the introductory part of the courses, it is used in situations where prior knowledge and readiness are low, the time is short, the subject is wide, motivating the students, explaining the subjects, summarising and exemplifying the difficult subjects. Within the scope of the training, videos can be prepared and used in the narration method.

- It is teacher-centred.
- It is considered to be the most effective method in cases where the subject to be taught is more, the time is short, and the class is crowded.
- It is mostly effective in gaining intellectual skills at the knowledge level.
- This method is more or less definitely used in the teaching process.

Useful tools that can be used in this method: https://visme.co/blog/presentation-apps/

6.2. Case Study Method

It is a method used to bring the problems encountered or likely to be encountered in real life to the classroom environment, to gain skills related to that subject and to have them practice.

- Case studies can be composed of many different situations such as a traffic accident, a legal event, and can be compiled from various sources.
- It is very effective in terms of developing problem solving skills and providing cooperative learning.
- Each case has a specific, fundamental problem.
- Questions to guide students for the case study should be determined in advance.
- It is used effectively in transforming abstract ideas into practice.
- It is student-centred.

Useful tools that can be used in this method: https://www.emergingedtech.com/2016/11/10-tools-student-can-use-to-deal-with-case-study-analysis/

6.3. Drama Method

A word, a concept, a behaviour, a sentence, an idea, an experience or an event; It is an activity process for restructuring with the help of old cognitive patterns by using theatre or drama techniques such as improvisation, role playing, developing games or games in a group work.

- Drama is considered a means of self-expression or an art form.
- Confidence develops self-esteem along with learning, interacting and socialising in drama processes.
- The power of belonging to a society or being a member of a group, and the development of communication and problem-solving powers are important dimensions of creative drama.

- It is student-centred.
- It is based on learning by doing.

Useful tools that can be used in this method:

- http://www.magistralinuoro.it/files/DRAMA%20TECHNIQUES.pdf
- http://teachingthroughthearts.blogspot.com/2011/07/drama-as-teaching-tool.html

6.4. Discussion Method

Helpful resources that can be used in the discussion method:

- https://ctl.wustl.edu/resources/teaching-with-discussions/
- https://citl.indiana.edu/teaching-resources/teaching-strategies/discussions/index.html

6.4.1. Forum Technique

It is a technique where a small group gives information to the audience and after this presentation, the audience asks questions to the speakers (experts) or shares their thoughts.

The panel can take place after the panel session and symposium, or it can be organised as a separate process. At the end of the forum, a common decision text is reached.

6.4.2. Opposite Panel Technique

It is applied to the processing of topics that have been partially discussed but not sufficiently clarified. It is used for repetition, reinforcement and correction of misunderstandings of a previously covered subject. First, a leader is chosen. Afterwards, the class is divided into "questioning group" and "answering group". Groups are given 15-50 minutes (usually 20 minutes) to prepare. In this preparation process, the group that asks questions prepares the questions, and the group that will answer prepares the estimated answers to the questions that may be asked to it. The issue is then discussed among the groups. The roles of the questioning and answering group may vary. Groups asking and answering questions are again divided into groups of 4-6 people.

6.4.3. Phillips 66 Technique

They are idea generation groups. It is based on groups of six people discussing for six minutes and finding the most appropriate solutions to the problem. Groups choose a spokesperson within one minute. At the end of a minute, the problem to be discussed is written on the board by the teacher. Students are given six minutes to come to an agreement among group members on the best solution to the problem. At the end of the period, the group determines its joint decision. In the joint meeting, each spokesperson explains the most appropriate opinion at the meeting. With this method, the ability to review, evaluate and decide on the subject is developed.

Here are some helpful links:

- https://johndabell.com/2020/01/13/the-phillips-66-method/
- https://studylib.net/doc/5848394/phillips-66

6.5. Problem Solving Method

It is used in research-examination strategy. It is a method that provides solutions to interesting and intriguing problems experienced or likely to be experienced in real life, by using scientific steps in sequence.

- It is used to gain behaviours at the level of application, analysis, synthesis and evaluation.
- It is student-centred (Teacher is the guide).
- It is based on learning by doing.
- It is based on progressivism and constructivism.
- Inductive, deductive and brainstorming methods are used.

6.5.1. Scientific Steps of Problem-Solving Method:

- **Determining the Problem:** A situation, a difficulty, an obstacle affects the student and this situation creates a certain level of uneasiness in him. The teacher should assist the students in identifying the problem. In fact, most of the time, the teacher should pose the problem.
- **Defining and Limiting the Problem:** The boundaries of the posed problem should be determined precisely. Often the boundaries of the problem are not clear. The problem should be taken out of its closed form and made in a way that students can understand.
- **Gathering Information about the Problem:** At this stage, it is expected that the problem should be clarified, defined and limited in proportion to the student's strength. What information the students will collect from where, how and how much is determined with the help of the teacher. Different sources related to the problem are used, various observations, examinations and researches are made.
- **Putting forward Hypotheses about the Solution of the Problem:** The student, who has defined the problem, is now expected to look for clues that he can refer to in the solution. As a result of the analysis and interpretation of the collected information, some workarounds (hypotheses) may come to mind. Various solutions are sought without overlooking any solution that comes to mind. The collected information is gathered and evaluated in the classroom. In the light of this evaluation, the solutions to the problem are listed. Then, the most appropriate one is chosen and expressed in a clear and limited way.
- **Implementation of Identified Solutions:** There should be several types of solutions in order. It is tried one by one to what extent the determined solutions achieve the solution of the problem. This can also be called the trial phase. In this step, the teacher helps the students to try the suggested solutions and decide whether the suggested solutions are valid or not.

- **Solving the Problem and Reaching a Conclusion:** The results obtained by trying the solution methods are evaluated separately. A general idea is drawn from the evaluated results. This idea should show the most correct, shortest way to solve the problem.

Useful tools that can be used in this method: https://www.thetechedvocate.org/7-must-problem-based-learning-apps-tools-resources/

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Annex 1: Template of the Training Content Preparation (Using Module 1 as an example)

INTRODUCTION

BLAST! Project KA2 is a Strategic Partnership Project in the Field of Youth within the Scope of Innovation Development.

BLAST! The project aims to prepare training titles/modules on climate change and environmental issues by using blockchain and digital tools, to provide training to young people in these areas and to enable them to have a say in climate, environment and social issues with the help of trainings.

MODULE 1 - NATURAL DISASTERS

Syllabus

Aim of the Module: The learner can benefit from this module in order to be a conscious individual about natural disasters, to inform their environment and to struggle about precautions by being aware of what natural disasters are, what they are caused by, their effects on our lives and the mitigating effects of the measures.

Content of Module: Natural disasters and their types. What to do before and after natural disasters. Institutions dealing with natural disasters. Strategies related to natural disasters in national and local governments

European Framework Level:?

Methodology: This module is designed to give information about natural disasters. Explain your methodology here (Student-Centred / Constructivist Approach, Cooperative Learning, etc.)

The training is prepared asynchronously so that you can follow the content at your own pace whenever you like. It consists of watching some related videos and reading content. In the curriculum and content preparation process, instructional design processes suitable for learning disciplines were taken into account. At the end of the training, the content is designed to enable the learner to produce a project and to practice.

Pre-Knowledge and Pre-requisite Trainings

Not required.

Outcomes

Learners who successfully complete the training will gain the following knowledge, skills and competencies.

Knowledge	Skills	Autonomy
• The concept of natural disaster and its types • Causes and effects of natural disasters • Institutions dealing with natural disasters • Natural disasters risk reduction strategies	• List different types of natural disaster and identify those that can have an anthropogenic cause • Differentiate the causes and the effects of natural disasters with examples • Identify mitigation measures for natural disasters impact reduction • Gauge local government adoption and implementation of local disaster risk reduction strategy to check its alignment with national strategy	• Influence others by creating awareness about natural disasters. • Campaign for the adoption of measures to increase resilience and adaptive capacity to climate-related hazards and natural disasters by local governments

Evaluation

At the end of the module there is an evaluation activity for the participants. In the evaluation, learners will be asked to make a presentation about the precautions to be taken before natural disasters.

Literature & References and Links

EU Strategies for Natural Disasters,

https://ec.europa.eu/echo/what/humanitarian-aid/disaster-preparedness_en

Strategies for Natural Disasters in Turkey

https://www.sbb.gov.tr/wp-content/uploads/2018/10/10_AfetYonetimindeEtkinlik-3.pdf

Training Content Table

- What is a Natural Disaster?
- Types of Natural Disasters
- How Do Natural Disasters Occur?
- Precautions to be Taken before Natural Disasters
- Things to Do After Natural Disasters
- Organisations Combating Natural Disasters in Partners' Countries

Evaluation Test

Design a quiz or self-reflection exercise that participants can use to assess their own learning

Homework/Tasks

Learners will be asked to make a presentation about the precautions to be taken before natural disasters.

Content Template

1. What is a Natural Disaster?

Subtitle

Definition and Content

2. Types of Natural Disasters

Subtitle

Definition and Content

3. How Do Natural Disasters Occur?

Subtitle

Definition and Content

4. Precautions to be Taken before Natural Disasters

Subtitle

Definition and Content

5. Things to Do After Natural Disasters

Subtitle

Definition and Content

6. Organisations Combating Natural Disasters in Partners' Countries

Subtitle

Definition and Content

Quiz

A)
B)
C)
D)
E)

ANSWER KEY

A)
B)
C)
D)
E)

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