CLASSROOMS IN ACTION

eTwinning

Erasmus+

Publisher
Central Support Service of eTwinning (CSS)
www.etwinning.net
European Schoolnet (EUN Partnership AISBL)
Rue de Trèves 611040 Brussels - Belgium
www.europeanschoolnet.org - info@eun.org
Please cite this publication as:
Pateraki, I., Licht, A. (2020).
Classrooms in action: Teaching climate change with eTwinning
Central Support Service of eTwinning - European Schoolnet, Brussels

Editors
Irene Pateraki, Alexandra Hanna Licht, Santi Scimeca

Design
Sophie Despras

Language coordination
Danosh Nasrollahi

Picture credits
Monkey Business Images, Wayhome Studio, Halfpoint, Rymden, Iakov Filimonov, Nemanja Mandic, HighwayStarz, Daniel Ernst - stock.adobe.com

More information on the European Union is available on the Internet (http://europa.eu).
Luxembourg : Publications Office of the European Union, 2020

PRINT ISBN : 978-92-9484-307-4
DOI : 10.2797/90945
EC-01-20-234-EN-C
PDF ISBN : 978-92-9484-267-1
DOI : 10.2797/608452
EC-01-20-234-EN-N

This publication was created with the financial support of the Erasmus+ Programme of the European Union. The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

CONTENTS

Classrooms in action: tackling climate change with eTwinning

Mariya Gabriel
Commissioner for Innovation, Research, Culture, Education and Youth

Climate is changing. Each day, new scientific evidence tells us how quickly and disastrously the consequences of climate change on every continent are affecting us. Today's children and young people risk bearing the worst effects. They are asking us to act, arguing that we are "playing with their future", and we are accountable to them. Whether in a responsible position at international, European, national or local level, or a citizen, business person, parent, or teacher, one does not have the luxury to ignore the facts. We need to act.

The European Commission has taken strong action in response to this challenge. With the European Green Deal, including the first European climate law, we have committed to climate neutrality for the continent by 2050. This is a considerable task, but also a great opportunity to change our societies for the better. We are currently struggling with the severe consequences of the COVID-19 pandemic. We need to come out of the crisis stronger. Recovering from this crisis is not only about recovering from the pandemic, it is also about building a more resilient Europe - a Europe that is ready to proceed with the green transition.
More than ever, the complex challenges require action on many fronts. Education, research, innovation, youth and culture have a lot to contribute.

Promoting the green transition requires embedding environmentally sustainable development in education. Schools and teachers need to help learners understand the challenges and empower them to take action. This works best with interdisciplinary and participatory teaching and learning methods. If schools and teachers have this major role to play, then they need ongoing support with inspiring examples and professional development.

I am happy to see the great support that eTwinning can give. It provides teachers with a dynamic transnational European community where they can find resources and ideas. It offers them the opportunity to share and exchange best practices.
It is a powerful learning experience where students engage in collaborative learning projects, helping them to embrace new perspectives, and where teachers and students can learn from each other.
It is a great example of how cooperation between schools can help in a very concrete and creative way to address big societal challenges.

I am very pleased to introduce the 2020 eTwinning book on climate change. This book presents a selection of excellent eTwinning projects and activities, from kindergarten to secondary schools and vocational schools. Each of these initiatives has given students a better understanding of climate change and of the action we can all take to help fight it. The book shows how eTwinning and the teachers and students active on this platform can deal with today's challenges in the most creative and colourful way; and how they can develop their scientific and digital competences as well as their capacity for critical thinking.

I express my warm thanks to all the teachers and students who were involved in the different activities and projects presented in this book. I would also like to thank the eTwinning community as a whole for their indispensable contribution to dealing with this defining issue of our time.

FOREWORD

Climate Change & environmental Challenges through eTwinning Activities

Irene Pateraki
Pedagogical and Monitoring Manager
eTwinning Central Support Service

World response to climate change

Rising temperatures, extreme weather events, melting glaciers and droughts, shifting wildlife populations and habitats, fires and rising seas are all elements which seem to confirm what scientists have been claiming for years:
we are facing a climate emergency.

Evidence is gathered at all levels. At global level, the Intergovernmental Panel on Climate Change (IPCC), set up by the World Meteorological Organization (WMO) and United Nations Environment Programme in 1988, brings together scientists from around the world to provide an objective source of scientific information on the role of human activities in climate change.

Governments from the whole world are trying to address the issue. For instance:

- The United Nations Framework Convention on Climate Change[1] (UNFCCC) was adopted in 1992 and recognised there was a climate change problem, although there was less scientific evidence than there is now. Today, it has almost universal membership with the participation of 197 countries, including the EU.
- In 1997, countries agreed on the Kyoto Protocol[2], which committed industrialised countries to limit and reduce greenhouse gas emissions.
- In 2015, 195 countries adopted the Paris Agreement on climate change. Signatories committed to keeping global heating well below 2°C and pursuing efforts to keep it to 1.5° C. Countries meet regularly at UN climate conferences to agree on details for implementing the agreement and promoting global climate action.

The European Union has a strong role in fighting climate change through long experience with developing policies and measures in the EU and close cooperation with international parties, participating also in the above agreements and summits. Climate action is part of the European Green Deal[3], a package of measures including cutting greenhouse emissions, investing in cutting-edge research and innovation to preserve the natural environment.

The role of (young) citizens and education

Climate change is here. As its impact intensifies over time, it is the children and young people of today who will face the worst effects. Far from being passive victims, young people all over the world have begun to fight back making their voices heard on a scale never seen before. In 2018, Greta Thunberg, a 15-years old Swedish girl, sparked a global movement of school-age students demanding greater action from governments against climate change.
Since then, hundreds of thousands of students around the world had joined her in protests across all continents.

In Belgium, the 17 year old Anuna De Wever together with the 19-year old Kyra Gantois founded the action group "Youth for Climate"[4] in order to send a clear signal that the next government will have to be a climate government. They both initiated the school strikes for the climate movement on Thursday's afternoons in Belgium with the participation of thousand students.

Felix Finkbeiner, a National Geographic Young Explorer, founded a tree-planting non-profit in his German village in 2007, when he was just nine years old. *"Plant for the Planet"*[5] workshops, which teach children about global warming, have created more than 93,000 *"climate justice ambassadors"* who have become activists in their communities. Young people take the lead and speak up for climate change by participating in protests outside of the school. But what is the role of the school and education? According to UNESCO, *"Education is critical in helping populations understand and address the impacts of climate change, and in encouraging the changes in attitudes and behaviour needed to help them address the causes of climate change, adopt more sustainable lifestyles and develop skills that support different modules of economies, as well as to adapt to the impact of climate change"* (UNESCO, 2015). Education is indeed about teaching young people to reflect and develop critical thinking about the world around them and helping them become active citizens, who participate in decision-making and are ready to take action. UNESCO created a framework on climate change through education the Global Programme on Education for Sustainable Development[6].

Eco- Schools developed the Seven Steps[7] methodology, a series of measures to help schools succeed their Eco- School goals by: forming an eco community, carrying out a sustainability audit, creating an action plan, monitoring and measuring their progress, linking activities to the curriculum, informing and involving the whole school and finally produce an eco-code.

1 https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf
2 https://unfccc.int/documents/2409
3 https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
4 https://youthforclimate.be
5 https://www.plant-for-the-planet.org
6 https://en.unesco.org/globalactionprogrammeoneducation
7 https://www.ecoschools.global/seven-steps

Climate change can be a challenging topic for teachers to address with their students as they have to take into account different elements such as:

— Finding the right resources: there are many misleading and not scientifically accurate information online;

— Taking into account students with preconceived attitudes (often based on misinformation and cultural bias);

— Addressing the uncertainty in any aspect of science, which may give confusing and sometimes contradictory messages.

eTwinning response to climate change

In 2020 eTwinning has designated *"Climate Change and Environmental Challenges"* as the yearly theme.
eTwinners have been collaborating on projects related to climate change since 2006.

Projects like: *"Climate change and the consequences of it for one's own country ", "Climate change, sustainable development ", "ECO school with the climate change"* indicate that eTwinners had an interest in the topic 14 years ago.

The activities organised by eTwinning in 2020 capitalise on the experiences of the past years and develop new ones. Schools have mobilised to take the challenge and show that climate change can be an excellent topic in all education areas: for instance, in the first quarter of the year more than 200 projects were registered on topics related to climate change such as: renewable energy, conscious consumerism, climate volunteers, greenhouse effect, eco living, wildfires, ecology, water etc.

One example shows the impact of an eTwinning project on the theme of the year. The eTwinning project Schoolovision, a primary school's version of the Eurovision Song contest, is organized annually since 2009 and involves more than 30 countries. In the contest, one class from each participating country is asked to choose a song, practice it, record it and upload a music video. Over the past years, the Schoolovision songs covered a range of topics and climate change was always there. In 2020, the winner was Cappabue National School in Ireland, a mixed, two-teacher school at the foot of the Shehy Mountains, Cork, hosting 23 students. The students wanted to spread the message to other school children on how they too could ***make a difference in their own small way*** on climate change and even attracted the attention of the Prime Minister of Ireland.

Apart from projects, eTwinning gives the opportunity to teachers to get ideas and resources through the **eTwinning kits**[10], step-by-step guides to eTwinning projects, like *"Let us green again"* and *"Take action for the future".*
Also, **the featured Group** SENSE[11] (Sustainability Education Network Service eTwinning) offers to teachers resources, information on sustainable education and environment and gives them the opportunity to share their own good practices enhancing peer-learning.

eTwinning friends[12], organisations that collaborate with eTwinning, also share their expertise with teachers through online seminars, workshops and dissemination of their material. For example, Eco- Schools, the largest global sustainable schools programme, organized an online seminar and a learning event for teachers in 2020 on how to engage the youth of today to protect the planet of tomorrow.

The book you are reading

As we have seen, climate change is a challenge and education has an essential role to play in addressing it. The aim of this publication is to help teachers understand the causes and consequences of climate change and offer them resources, examples of eTwinning projects and ideas for activities to prepare their students and empower them to take appropriate actions to adopt more sustainable habits.

1. The first section introduces the causes and consequences of climate change and presents the European Commission's efforts to fight climate change at EU and international level.

2. The second section focusses on climate change education through practical examples and eTwinning projects that deal with the topic.

3. The third section gives the floor to young people and suggests activities that can empower students to take action.

The challenge is here, climate change is happening and as Jane Goodall, primatologist and anthropologist, has pointed out *"You cannot get through a single day without having an impact on the world around you. What you do makes a difference, and you have to decide what kind of difference you want to make."* You can make a start by reading this book, be inspired, get ideas and make a difference for the planet together with your students!

You can make a start by reading this book, be inspired, get ideas and make a difference for the planet together with your students!

INTRODUCTION

8 https://twinspace.etwinning.net/111681
9 https://schoolovision2020.blogspot.com
10 https://www.etwinning.net/en/pub/get-inspired/kits.cfm
11 eTwinning Groups are virtual spaces where eTwinners meet, discuss and share specific subjects, topics or other areas of interest : https://groups.etwinning.net/7620/home
12 https://www.etwinning.net/en/pub/community/friends.htm

CHAPTER 1

Climate change what and why?

1. Climate change & the EU's response

Alessandra Pertot
Information and Communication Officer
European Commission,
Directorate-General CLIMATE ACTION

Laura Maanavilja
Information and Communication Officer,
European Commission
Directorate-General CLIMATE ACTION

Climate change is no longer a faraway problem for future generations. Its impact on people, planet and prosperity are very real, and we feel them here in Europe.
As the world seeks to tackle unprecedented health and economic challenges, the need to protect our planet while improving our health and wellbeing is more pressing than ever. The EU's recovery strategy highlights the need for a sustainable recovery, consistent with the broader objectives of the European Green Deal[13] and leading Europe towards a more resilient, green and digital economy.

Human activities, such as burning fossil fuels for energy or cutting down rainforests, increase the concentrations of greenhouse gases in the earth's atmosphere.
These activities cause the average global temperature to rise, leading to changes in the global climate.

Scientists at the Intergovernmental Panel on Climate Change (IPCC) have warned that global warming of 1.5°C above the level of temperatures we had before the industrial era will have serious and even irreversible consequences for our environment and societies. We have already warmed the planet by around 1°C and have all experienced the impact – 2010-2019 was the warmest decade in recorded history, and the last 5 years were the hottest to date.

The effects of the changing climate are being felt in every continent and are predicted to become increasingly worse. Extreme weather events, such as storms, floods, heatwaves and forest fires, become more frequent and intense. Rising temperatures and melting glaciers make sea levels rise. Climate change also contributes to biodiversity loss and the extinction of species, together with connected problems such as air, water and chemical pollution and overuse of resources.
All of this will have severe consequences for our economies, food production, public health and even political stability.

The EU's response to climate change is based on a set of ambitious policies and initiatives both at home and abroad, in line with the global Paris Agreement[14] that brings together to limit global warming and strengthen societies' ability to cope with its impacts.

For example, the EU's emissions trading system helps reduce greenhouse gas emissions from the power sector, industry and flights within the EU by putting a price on carbon. For other sectors, such as transport, buildings and agriculture, EU countries have national emission reduction targets. EU legislation and initiatives also help boost energy efficiency and the use of renewable energy and promote innovative clean technologies.

Already, thanks to EU action over several years, greenhouse gas emissions in the EU fell by 23% between 1990 and 2018. This was achieved at the same time as wealth (GDP) grew by 61%.

For 2030, the EU is already committed to at least 40% lower greenhouse gas emissions compared to 1990 levels. As part of the European Green Deal, the Commission will propose raising the EU target to at least 50% and towards 55% in a responsible way and legislation on how to implement it in 2021.

By 2050, Europe aims to become the first climate-neutral continent – an economy with net-zero emissions of greenhouse gases. The transition to a climate-neutral society is both a challenging task and an opportunity to change our society for the better. It is about people and their daily lives: how we produce, consume, move, heat or cool our houses, work and live together.

This transition will require significant investments and new ways of doing things.
At the same time, action for climate and environment also means cleaner air, water and soil, more energy-efficient buildings, better public transport alternatives, and better health for today's and future generations.

Because this issue affects everyone, alongside governments, cities and towns, companies, investors, civil society and individual citizens can all do their part. Teachers and educators have an important role to play, as they help learners understand the causes and consequences of climate change, prepare them to live with its impacts and empower learners to take action in their personal lives and as active members of society. No action is too small, and by working together we can build a more sustainable future for everyone.

13 https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
14 https://ec.europa.eu/clima/policies/international/negotiations/paris_en

2. Embedding environmental sustainability in education

Vladimir Garkov
Policy Officer
European Commission
Directorate-General for Education, Youth, Sport and Culture

Tackling climate change requires comprehensive action. The just and successful transition to environmentally sustainable development and circular economy is a pre-requisite for addressing the consequences of climate change.
This is a monumental and crucial task during the recovery period in the aftermath of the severe socio-economic measures taken against Covid-19. Therefore, in the area of education and training, the Green Deal Communication puts forward three actions for the Commission:

1. Preparation of a European competence framework to help develop and assess knowledge, skills and attitudes on climate change and sustainable development.
2. Provision for Member States of new financial resources to make school buildings and operations more sustainable.
3. Update of the Skills Agenda and the Youth Guarantee to enhance employability in the green economy.

Schools and universities play an essential role in addressing the first point by raising awareness and instilling the key competences needed for changing personal behaviours and empowering people to act for sustainable development. In terms of evidence base, the work will draw on the existing frameworks and pedagogical methods used in schools, training institutions, and universities to engage students, parents, and the wider community.
Most importantly, the proposed action will be closely linked to the big efforts UNESCO has already done for the development of Education for Sustainable Development (ESD).

In 2015, the UN General Assembly adopted the 2030 Agenda for Sustainable Development, which is the sum of achieving the 17 Sustainable Development Goals. The EU was instrumental in shaping the global 2030 Agenda, which is fully consistent with Europe's vision and has now become the world's blueprint for global sustainable development. UNESCO placed ESD at the centre of the Agenda as a key instrument to achieve those goals.

A large amount of work has been done at European and national level to support the acquisition of the key competences that underpin the drive towards sustainable development, i.e. Science, Technology, Engineering and Mathematics (STEM), citizenship education as well as the personal, social and learning to learn key competences for lifelong learning. The next step will be to combine the approaches taken by different Member States in the area of ESD and provide a European perspective to their efforts.

The main goals we need to address are:

a) Equipping students with the knowledge, skills and attitudes needed to work and live in a way that safeguards the environment, both in the present and for future generations.

b) Supporting students' involvement in wider community activities, so that they become agents for change towards more sustainable lifestyles.

c) Provide guidance and support for schools and teachers on how to cooperate and exchange experiences across Member States.

Teachers are the key to reaching the above-stated goals. Teachers play a difficult and central role in engaging students for behavioural changes and for action that is based on solid scientific grounds and best available practices across EU Member States. Teachers will need to increase the cross-disciplinary and practical aspects of their work through engagement of the wider community of fellow teachers from all disciplines in schools across the EU as well as universities, research laboratories, businesses, public-health authorities, libraries, parents, governments, policy makers, etc.

Education for Sustainable Development requires participatory teaching and learning methods that motivate and empower learners to change their behaviours and take action for sustainable development. They promote critical thinking, imagining future scenarios and making decisions in a collaborative way, which will empower learners to act and participate with confidence in everyday life situations and in the democratic forms of governance.

With its science-based, multidisciplinary, action-oriented methodology, the education for sustainable development is a powerful drive for social and personal change. As part of the ESD, citizenship education plays an essential role in developing the knowledge, skills and attitudes that are needed in today's fast-changing, technology-driven world of (mis)communication and complex socio-economic issues. This mandates full engagement and participation of every European citizen.

CHAPTER 2

Integrating climate change education into curricula

1. Eco Schools Climate Change Education: Developing Individuals' Agency for Action!

Nicole Andreou
International Coordinator
Eco- Schools

Pramod Kumar Sharma
Senior Director of Education
Eco- Schools

The Eco-Schools programme has worked relentlessly and diligently over the last 25 years to ensure that education is recognised as a critical driver to achieve the agenda of sustainable development.
Education for Sustainable Development is its most powerful tool that helps prepare generations of active citizens through experiential learning.

Climate change is a complex sustainability challenge that binds the world in the problem, but also the solutions. Sustainable Development Goal 13 on climate action is a cross-cutting issue that impacts all other goals and is hence critically important to achieving the Sustainable Development Goals. Target 13.3 calls to improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning. From an educational perspective, climate change like any sustainability issue has two aspects: learning about the issue and engaging with the issue for solutions.
The climate emergency has challenged the traditional ways and time scale educational systems have been working with. It requires education to facilitate a wide-ranging societal transformation in a relatively short time.

As a preliminary remark, educators need to note that the way environmental issues are being projected can generate anxieties that make the issues especially hard for children to engage with, and this often leads to despair, creates a sense of helplessness and apathy. The overwhelming scale of problems may create doubts about self-efficacy and leave little room to get involved in problem-solving. The educational process, therefore, needs to create a sense of hope, courage and being committed, making each of us believe that every action matters and empowers with abilities to take purposeful actions. Action competence or agency is defined as "an individual's capacity to critically selecting and conducting possible actions that may solve societal problems through democratic mechanisms" (Odabaşı, Kurt, et al., 2011). The personality of a child is shaped when their vision of the future is built on the foundation of a positive attitude towards themselves and the world around them. Children do not instinctively jump to the negative, as they believe that there is only good out there in life. The culture of positive thinking as "the ability to be constructive in the change process at a societal level determines an individual's action competence" (Jeffery, 2010) should be the ultimate goal for any educational institution.

Education for climate change should essentially be an appreciative enquiry that looks at finding a solution using the resources at hand instead of focusing on the things that are not working well. Consistent exploration of new possibilities creates the attitude of being confident to meet uncertain challenges. As an example, the Eco-Schools programme has positive action or handprint competence at its core. According to Centre for Environment Education India, the organisation launching the concept for the first time at the UNESCO Conference on Environmental Education in 2007, handprint is a measure of positive action to decrease the human footprint and a commitment to positive action towards sustainability; "while Footprint is a measure of human pressure on earth's resources, Handprint is a measure of what we can do individually, and together, to restore the balance between consumption and the planet's carrying capacity". The programme empowers students with agency to make informed decisions and take positive action on real-life sustainability issues. In doing so, students are encouraged to work together and involve their communities in collaborative solutions. Project-based learning through its Seven-Step pedagogy for change, the programme provides the hands-on experience of problem-solving skills (critical and creative thinking, decision making etc.), which then become competences of an active citizen.

Experiential learning opportunities, like reducing the carbon footprint of a school or making it circular economy compliant, help in the development of problem-solving skills. These are an amalgamated outcome of being able to carry out an enquiry, critical analysis, reflection, and having a vision for a future shaped by individual and collective action. The Sustainable Development Goals as an aspirational concept and the belief in positive actions (through self-efficacy and locus of control) bring in engagement – a better alternative to using fear and the moral imperative to act. Experiences and actions are very closely linked.

The key to enabling experiential learning for developing action competence involves a variety of student-centred teaching and learning strategies/ approaches/ pedagogies in real-life settings to simulate and practise agency. Some of such approaches are also engaging in collaborating and co-learning through twinning of schools that have a joint enquiry and multiple stakeholder partnerships to stimulate the exchange of different perspectives.
The key is encouraging dialogue between students and schools situated in different and diverse contexts – socio-economic, geographical, cultural, etc.
To that end, projects are best motivated by enquiries on real issues around us. Remember that if you do not see a problem, knowing why there is "No Problem" is a good question to start with. Organising activities like visits/excursions to sites, surveys and interviews with opportunities to exchange and learn with experts is also an effective approach, as relating learning that explicitly aims to benefit all can invigorate and inform actions. It is also important to use approaches that support simulation or being in the shoes of the person in the context - role-plays, games, experiments, case studies. These encourage empathy and help bring different perspectives in a

classroom. Such simulations also help in shifting the locus of control to self and belief of self-efficacy, two important determinants behind people taking actions. Reflecting on authentic learning experiences through essays, journals and discussions help students build the knowledge that enables them to take focused action. Teachers should also consider storytelling by people/experts working with an issue.
This could be brought into a classroom through screening videos, use of other multimedia created for specific topics. Such experiences create a vision and motivation for taking action.

Climate change is a multidimensional and abstract concept that can be made simple by using visualisation - mind maps, scenario building, life cycle analysis. These are tools that not only make abstract concepts tangible but also support in identifying opportunities for actions.

We should always remember that for a larger acceptance of ideas and to create social norms, it is important to celebrate days and create awareness campaigns. These encourage outreach by students to create awareness using different media like writing website blogs and posts on social media, creating videos, organising rallies and demonstrations, exhibitions, street plays and flash mobs.

As behavioural outcomes, essentially, we are looking at the students adopting a low-carbon lifestyle that means actions like buying local, repairing and upcycling things, sharing etc. The action of responsible consumption and reducing wherever possible is an indicator of recognition by the students that for example, energy is a critical component of production and consumption systems. Projects should encourage less carbon-intensive behaviours and practices – walk, cycle, consume responsibly, use energy and resources efficiently. School grounds are an excellent space for greening projects, – they can help understand in practice how plants act as carbon sinks. Learning through climate change projects should thus also lead students to support businesses that monitor and reduce their carbon footprint and act responsibly.

Education projects should address various aspects of climate change. Alongside reducing greenhouse gas emissions to mitigate climate change, adapting to its impacts and making our societies more resilient is becoming increasingly important. Tackling climate change also goes hand in hand with supporting vulnerable populations and tackling other global challenges such as poverty, inequality, and environmental degradation.

Another key consideration for schools is to encourage students to investigate and report on climate change issues from the local and international perspective.
This not only helps them synthesise information and understand global politics and solutions; it develops the skills of effective communication that they can use to raise awareness. These skills would be useful to plan and run local campaigns to raise awareness and community action. They also help to prepare young people to make informed choices, notably when making use of their voting rights, now and throughout their life as active citizens.

2. Inspiring eTwinning projects

In eTwinning, students and teachers have concrete opportunities to investigate, create and act in order to understand and engage in climate action. In the following section, you can find a variety of eTwinning projects for various age groups and levels of difficulty. These projects can help educators and teachers to get ideas for lessons and engage in activities to promote, educate, and engage with the topic from various perspectives.

AGE 0-6 **PRE-PRIMARY SCHOOL**

1. Our forest our life

This project encourages pupils to learn about the environment while also practicing coding and STEM skills in pre-primary school. Students conducted various on-site and online activities, through local collaboration with their peers and internationally with the other project members.

Activities started with teachers sharing online games on environmental topics that then were played in all classes. Subsequently, students in each class learned the science of trees through drawings, planting trees, experimenting in the school yard and learning about the trees structure and importance of trees. Students in each class created a tree coding on paper and exchanged their codes on the TwinSpace, which was the preparation to use coding with Beebots (a programmable robot) later in the class. Students also learned about the footprint of various animals. They researched the natural environment by conducting games, art and school trips. Following the research, all students decided to further explore and research a sea turtle. Games, presentations and online activities were created for this activity. A common e-book was created gathering all the contributions of pupils.
A common short animation video of a collaborative picture was also created, and the coding tree was shared and further worked on together during an online meeting.

Furthermore, a common story was written and illustrated by all students, presented in a second e-book. Lastly, a Scientific Nature Picture Dictionary was drafted, including definitions and illustration of elements of nature, all contributions were gathered and presented in another, third e-book. To disseminate the project, a dedicated website was created by partners, sharing all the e-books, games and good practices they have gained through this learning journey.

Countries: Bulgaria, Estonia, Greece, Lithuania, Serbia, Slovakia, Spain, Turkey.

Link to the TwinSpace: https://twinspace.etwinning.net/79649/home
Tools: Beebots, pic-collage, Mentimeter, issuu

2. Green Kid

Green Kid is a superhero who tries to save the Earth. Designed and created by the pupils participating in the project, this superhero teaches children how to be "Green Kids". The aims of the project were to raise awareness about environmental issues and introduce the actions that can be taken for the protection of the Earth. In doing so, digital and communicative skills were improved and creativity was promoted.

Children achieved those aims by a variety of activities conducted by each class separately and then shared with the other schools. Students posted on Padlets their drawings and suggestions on how they can be a "Green Kid". For instance: reducing plastic use, using public transport, planting trees, stopping littering. In short: "reduce, reuse and recycle". All these suggestions were practiced and explored by students through local action and collaborative creation of e-books. Each class planted flowers and trees and experienced gardening in their own school. A first collaborative e-book with the contributions of each class showed how children can help animals in danger. Each class drafted a chapter and added their drawings and illustrations. Further exploring the topic, one school invited an expert who gave a lecture about animals in danger. Another school saved a bird trapped in the school yard, while a third school explored online resources and created informative posters to raise awareness on the topic.

A second collaborative e-book was written by investigating trees and their importance (the students visited local forests for this purpose). A third e-book was created on "Air and Water Pollution", including the reasons for air and water pollution and possible solutions. One partner explored the topic further and made a research on acid rain, creating posters and artefacts to explain partners about this important issue.

A fourth and last e-book was created collaboratively by all students on the topic of plastic reduction: each class investigated the impact of plastic on natural environment, items were shared and discussed on a Padlet on the TwinSpace, and then the students managed a campaign to reduce plastic in each school. Insights and suggestions on how to fight plastic pollution resulted in a collaborative e-book.
The project ended with each class creating a song and a video for a contest and many dissemination activities took place such as presentation of the project to the community and the rest of the school, visiting the city major and more.

Countries: France, Georgia, Greece, Serbia, Spain, Turkey, UK.

Link to the TwinSpace: https://twinspace.etwinning.net/67282/home
Tools: StoryJumper

AGE 7-11 **PRIMARY SCHOOL**

3. Tree Detectives Across Europe

According to scientific studies, spring is beginning earlier due to climate change. Schools can help scientists by collecting data about when trees sprout their leaves across Europe.
In this project, students selected tree species that grow in their regions , identified specimens of those species in their school grounds , observed when they sprouted their leaves in spring, and recorded their scientific observations on the citizen science app called iNaturalist. In line with UN's Sustainable Development Goals students contributed to research a real global problem. The research activity was made in each national team while receiving feedback and communicating with teams in other countries. This process allowed students-researchers in each country to ask other teams to research some species and exchange information and ideas. At the end of the project all teams created a collaborative presentation of the fauna and climate of their country by studying a variety of audio-visual and articles published on various scientific media. Students were requested to explain their learning process, the challenges they faced and the solutions they found while investigating existing resources. Through this project, students reflected on the effects of climate change and realised that "ordinary" citizens can contribute to global issues.

Countries: Croatia, France, Germany, Georgia Spain, Italy, Latvia Poland, Portugal, Romania, Turkey, UK.

Link to the TwinSpace: https://twinspace.etwinning.net/68150/home
Tools: iNaturalist and Padlet

4. Let's go upstream!

This project focused on sustainable development by researching on waste management, energy use and eco-friendly actions.
Students researched their own environment in comparison with their partners' ones.
Through exchanging photos, drawings and descriptions of the natural reserves, rivers, landscapes next to their school and the stories and mythology behind them, students learned about their near environment and had the chance to explore far away partners' countries. The comparison to partner school added value to the project as it offered the opportunity to get to know one's close environment and to compare different realities which share the same environmental concerns. Through this exchange, students reflected on their role as eco-citizens by exploring the ideas of solidarity and social bonding in eco-citizenship across Europe. Starting from designing the project logo, which was done collaboratively through an online drawing tool, the project involved collaborative activities and exchange of information. To summarise their research, students created a common e-book with images, photos and suggestions of experts together with a collaborative augmented reality story about a Pink Flamingo. Furthermore, students created a common poem book on rivers and performed together online a song celebrating them. Lastly, students sent a message to action by creating short individual videos on why they "go upstream" and how can they help the environment.

Countries: Czech Republic, Greece, Italy, Spain.

Link to the TwinSpace: https://twinspace.etwinning.net/77330/home
Tools: Padlet, Myadvent, Madmagz, SurveyMonkey, Koji, flipgrid

5. Nature Protectors

During this project, students dedicated three months to research and study three topics (a topic each month): soil pollution, water pollution and air pollution.

In each month students conducted experiments, produced informative posters and mind maps and shared the information they gathered with their peers in a webinar. Through these activities, young students became familiar with scientific concepts and processes and had the chance to learn and transform their knowledge into actions through recycling and raising awareness in their school.

Countries: Bulgaria, France, Italy, Romania, Slovakia, Turkey, Ukraine.

Link to the TwinSpace: https://twinspace.etwinning.net/81904/home
Tools: Blogspot, storyjumper

6. Planet Earth and Its Friends

In this project, students developed and deepened their knowledge on environmental issues and challenges faced in the world, and at the same time, translated this knowledge into action.

Through various activities, students raised awareness on climate change, recycling, waste and pollution among their peers and community. They created a poster on ecological issues, taught younger students on how to recycle and separate rubbish, interviewed parents on environmental activities they take up in their household and created online quizzes, games and crosswords on environmental issues to be shared with the whole school community. Furthermore, students were encouraged to take an active part in ecological actions by creating their own ecological pieces of artwork from recycled materials and rubbish. After each task, students created catchy videos with songs to awareness on the issue in a catchy and fun way. Students collaborated in international teams investigating and sharing photos

of the ecological challenges in their environment such as littering and pollution, while at the same time sharing the beauty of nature in each country. Lastly, students provided feedback about the project through a common survey and a common reflection board, hence giving students an opportunity to share their experience and input from the learning process.

Countries: Italy, Poland, Romania, Spain.

Link to the TwinSpace: https://twinspace.etwinning.net/70295/home
Tools: Biteable

7. No time to waste

In this project, primary schools from France and the Netherlands worked together to learn about waste in their local areas and rivers (the Garonne and Maas).

Pupils collected waste and sorted garbage, sent each other cards made of wastepaper, wrote and sang collaboratively an eTwinning song on sorting waste, played games using all the information gathered in the project. They also choreographed and performed a "waste dance" in each country and then combined it into a one collaborative dance. In terms of additional apps and ICT tools, students created audio recording, Voki cards and vocabulary cards in English and French, hence acquiring language skills and enriching their vocabulary also on environmental topics. Lastly, students acted and organised cleaning events in their school and community, where they collected, sorted and recycled waste.

Countries: France, The Netherlands.

Link to the TwinSpace: https://twinspace.etwinning.net/70605/home
Tools: Voki

AGE 12-15 **LOWER SECONDARY SCHOOL**

8. Europe - Yesterday- Today – Tomorrow

This project trained students to research online and then use the information collected to create engaging outputs such as collaborative songs. The project used collaborative methodologies, creative tasks and mindful communication.

Starting from the challenges of today, students focused on climate change and environmental questions. With a Tricider activity students learned how to express their ideas online in a respectful way. Students were then invited to keep a virtual diary recording their ideas and impressions from the various activities. After several video-conference sessions to get to know each other and pen-pal activities among all participating classes, students collaborated in international teams, each team focusing on one of the following topics: Water Saving, Healthy food, Energy saving, Environment protection, Waste, Dialogue and Peace and Chorus.
The research activity led to the creation of vocabulary sheets and word clouds for each topic. Taking into account the environmental challenges of today, students were encouraged to explore challenges of the past. In these activities, each class investigated different ways to learn about the holocaust and the history of the second world war, and then students exchanged questions and impressions. Lastly, looking towards the future, within international teams based on the same topic, students wrote a part of a song. Later all teams' texts and singing were combined to one international song that touches upon all the explored topics. Video clips were created and finally students chose the leading video and title for this international co-constructed song: "Together for Tomorrow in Europe".

Countries: France, Germany, Ukraine.

Link to the TwinSpace: https://twinspace.etwinning.net/68107
Tools: Tricider, Mentimeter, Dragnsurvey, Zeemap, befunky ,collagephoto, pixi, birdsdessine, framapad

9. Hand in hand to save our land

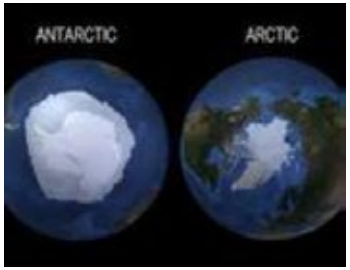
In this project, students learned in national and international groups about our planet and how it can be saved for future generations. Students explored practical ways of preserving the environment, conserving natural resources, rationalizing energy and water consumption, and finding solutions to the problem of waste. By gathering information at the local level, analysing it and sharing the various ways each region deals with environmental issues, students developed a plan on how to reduce the waste of our natural resources, limit pollution and recycle.

The research and collection of information started by exploring five Sustainable Development Goals from the United Nations (UN SDGs): clean water and sanitation, affordable and clean energy, climate action, life below water and life on land). Students researched the various SDGs focusing on pollution and alternative energy sources in national teams and shared the resources created: puzzles, posters, info sheets, quizzes, videos, online games, presentations and songs. Each team then created an awareness and communication campaign including a blog, posters, news articles, and engaged in recycling and awareness rising activities in the school and community.
Students delivered workshops to younger pupils, went to clean the school environment and organised exhibitions on the topic, showing what can be obtained from trash, how we can recycle and why this is so important. The project was embedded in different topics of the curriculum: students conducted experiments as part of physics class, visited waste centre, wind farm and natural sites, created exhibitions of beautiful and original art made from recycled items in collaboration with the art teachers and created videos and games using the coding programme "Scratch" with the ICT teacher. Furthermore, external experts such as university professors and experts were invited to the schools and provided input. In international teams, students collaboratively created an online story, wrote and composed a song and created an online game based on the story. They also published an online collaborative book with exhaustive research on the earth energy resources providing examples and analysis of their countries' challenges.

Countries: Albania, Armenia, Azerbaijan, Czech Republic, Greece, Italy, Jordan, Slovakia, Tunisia, Ukraine.

Link to the TwinSpace: https://twinspace.etwinning.net/82885/home
Tools: Kahoot, answergarden, bookcreator, Scratch, learningapps

10. SWAT-Science will Advance through us



This project focuses on the study of the polar sciences, especially on the scientific research carried out in Antarctica in the context of the ANDRILL project (scientific drilling project in Antarctica gathering information about past periods of global warming and cooling).

Throughout the school project, students explored how changes in the polar helmets influence climate change around the world. Students payed attention to the climatic changes that have occurred in recent years both in the Mediterranean basin and on the coastal edges of the Iberian Peninsula. First students learned about the history, geography and climate challenges in both poles in collaborative teams, sharing information through various online tools. Following, Spanish students tutored their Italian counterparts on how to create slogans in Spanish. Students created vocabulary cards on climate issues, shared information and met in online conference to further discuss their findings.
Students engaged also younger pupils in their school. Second grade students created and contributed with an audio recording where they shared their knowledge after learning about the north and south pole. Younger students created videos, games and cards to share with the rest of the partners.
In order to gain information about the lives of explorers and scientists in Antarctic, students studied the diaries of scientists and expeditions to Antarctica and created a common collaborative online diary with a vocabulary that gathers all the special terminology about the place. Students also organised local conferences addressing the question: "are European citizens really aware of the problems caused by climate change?" and worked on the Around the World of Magellan and Elcano, noticing how the seas portrayed by these explorers have changed over time.
Lastly, students connected directly with the Spanish Base in Antarctica, where a scientist and a military man explained the history of this continent and introduced the activities they are engaged.

Countries: Italy, Spain.

Link to the TwinSpace: https://twinspace.etwinning.net/65407/home
Tools: SoundCloud, Calameo, issuu

11. The World Explorers' Club

Focusing on climate change and environment, this is a cross-curricular project involving English, ICT, Science, Math and Social studies. Students embarked on a journey with National Geographic: they were given the role of scientists who had to imagine being inhabitants of an unexplored island.

Students had to address issues such as finding an area to live and make sure that life on the island would be sustainable and green. Throughout the project, students in mixed international teams worked cooperatively and shared their ideas and results of investigation. Each team received missions to solve different tasks: the island they landed on had to be surveyed- students were asked to explore the map of the island and understand its topography, its resources and dangers ascertained. Students collaborated and set rules and priorities, then further created collaborative journals where they wrote about day-to day challenges encountered.
In addition to those missions, students created Kahoot games about various famous scientists: each team presented their game and a tournament took place, providing opportunity to students to design an online game and to learn and share information with peers across Europe. Teams investigated topics such as pollution, energy and waste through online tools including: Google earth, Padlets, Tricider, Voicethread, Flippity, Linoit, Popplet (mind mapping tool), Meetingwords, Story jumper, Book Creator and Google slides.
Students disseminated the project by sharing the information they gathered and by raising awareness of the topic within their school and community in various ways: they organised info days, they presented the project and outcomes in the school radio and blog, they made available posters about the project and its content in the school, they published articles in the school magazine and more. Lastly, students recorded and shared short video messages with their own view on the results of the project.

Countries: Italy, Romania, Spain, Slovenia, Ukraine.

Link to the TwinSpace: https://twinspace.etwinning.net/71367/home
Tools: SoundCloud, Calameo, issuu

12. Monfragüe y Scandola: ¡un@ misma meta!

This project focuses on natural heritage by promoting students' connection and knowledge on the environment that surrounds them. The goal of the project was to reinforce students' connection and appreciation of nature, and to develop them into ambassadors of sustainable development.

During the project, students worked in international teams and learned about natural resources (in Corcega, the Scandola Nature Reserve, and in Extremadura, the National Park in Monfragüe). Each international team served as a European Environmental Association where ideas were discussed, and actions were taken. The project was run both in Spanish and English. As a first step, in mixed groups students explored different aspects of the natural reserve: where it is situated, what kind of flora and fauna are present and what are the problems and challenges this natural site faces. As a second step, students divided in international teams according to their interest and each team focused on other tasks:
— A design team focused on creating online posters, slogans, and banners.
— Press team created a blog explaining the challenges the natural sites face, and discussed the challenges via a collaborative writing pad.
— A research and documentation team collected articles, website, and videos about the natural sites.
— An education and outreach team followed the same steps as the research and documentation team.

Both schools then created a common PowerPoint presentation that summarised the research and the work done. Moreover, they promoted a call to protect and preserve the natural sites in their local newspaper, in teacher training sessions, on twitter and the school's digital magazine.

Countries: France, Spain.

Link to the TwinSpace: https://twinspace.etwinning.net/78338/home
Tools: google pack, SurveyMonkey, Twitter

AGE 16-19 | UPPER SECONDARY SCHOOL

13. Risks on Earth - Earth of risks

In this project, students from Guadeloupe, a Caribbean French territory, collaborated with students from Joniškis, next to the Baltic sea. Students investigated and researched natural risks and disasters, global sciences applications, and solutions to ecological risks.

This idea of the project was triggered by the hurricane Maria which devastated the French island of Guadeloupe in September 2017. In national groups, each country presented the natural risks of their areas: tsunamis, earthquakes and hurricanes in Guadeloupe, and floods, hurricanes, and storms in Lithuania. Then students created and played a Kahoot game with the exchanged information and created an online story map of the largest natural disasters, their location and background information. Lastly, students worked in collaboration to collect and map data. As a result, an application was created by Paulius Šukys from the Lithuanian team, based on the collected data and input from all participants. The mobile application allows users to send data about disaster (type, photo and place of damage done, evaluation and description of disaster) to an online map. The application is available in French and Lithuanian and the map can be consulted on a specific webpage.

Countries: France (Guadeloupe), Lithuania.

Link to the TwinSpace: https://twinspace.etwinning.net/56107/pages/page/325439
Tools: Padlet, Genially, Kahoot

14. Eco-Schools in Action for Energy Saving

In this project, students were engaged in energy-saving activities at school and personal levels. They acquired knowledge, attitudes, and values necessary to shape a sustainable future and become active citizens in a democratic society where they can voice their claims and take up positive actions.

The first part of the project focused on "Eco-Awakening" (getting aware of ecological issues), starting from a quiz that could help student assess how environmentally conscious they are. Subsequently, each class analysed the global warming in their own country by measuring how many degrees the temperature is higher now than in previous decades. Students explored the topic through documentaries and research conducted in each class, and created online quizzes and activities aimed at their partners. Students also engaged in critical thinking activities by exploring the key question: why are humans so bad at thinking about climate change? Students from all classes commented and shared their ideas via videos and a joint Tricider board.
Students continued to explore key questions and to contribute to the creation of a common product: a mind map collecting and linking all their answers. This was the starting point to learn about environmental burning issues, focusing on SDGs and climate injustice, through videos and other information gathered by teachers and shared via common Padlets and other online tools.
In the second part of the project, students focused on learning and exploring their own environment. Each school embarked on a tour, with the aim to record the current situation of their school building as regards lighting, heating, windows, appliances and wattage and students' attitude. The energy tour was photographed and filmed. Each school commented and suggested solutions to problems of a partner school. Each school then created actions in their own community in order to mobilise the others to act on climate issues. Activities included: presentation of posters, recycling corners, information sessions in other classes, graffiti outside the school, collecting rubbish around the school and more.
In the third and final part of the project, students launched an Eco Campaign in which they collaboratively created an e-book to promote the Sustainable Development Goals and actions. Students also wrote slogans and created online collaborative posters, leaflets/fanzines with energy saving tips and eco messages on YouTube.

Countries: Germany, Greece, Poland, Spain.

Link to the TwinSpace: https://twinspace.etwinning.net/71729/pages/page/654355
Tools: learningapps, tricider, issuu, padlet, mindmeister, pizap, Kizoa, picmonkey, befunky, canva, spark adobe

15. Climate where we live

This cross curricular project approached sustainable development and climate change in a specific way. Themes normally studied in the classroom as part of the traditional program of Geography were adjusted.

The topics included: feeding people, energy issues, areas exposed to major risks, transport and mobility (cities and sustainable development).
Students started working in international teams via online meetings, first introducing themselves and presenting the environment they live in by providing analysis of the climate change in their countries. Students then continued and chose the specific topic they preferred. At the second online meeting, schools worked collaboratively and presented to each other their findings on the chosen topic via various ICT tools such as voice presentations, shared documents, forum and more. Each group completed a glossary on climate change in English, Norwegian and French. During their third meeting students created a collaborative international online magazine- a Madmagz. Students learned about copyright issues and then met with their counterparts online and drafted the various pages of the magazine through research and discussion. During the fourth meeting each international team presented their work, answered the project assessment through Dragnsurvey (a survey app) and analysed the results with their teachers. Lastly, students presented the final version of the Madmagz: "climate where we live" that covered three topics: 1. sport practice and climate change, 2. climate: now and the future and 3. climate change and pollution renewable energy.
At the end of the project, students played a Kahoot game that included all the learned topics created by the Norwegian school.

Countries: France, Norway.

Link to the TwinSpace: https://twinspace.etwinning.net/65041/pages/page/380858
Tools: Madmagz, Kahoot, Prezi, learningapps

16. Protejamos juntos nuestro entorno/ Together we protect our environment

In this multidisciplinary and multilingual project, conducted in English, French, German and Spanish, students explored and collaborated on topics related to recycling, sustainable development, eco-friendly behaviour in their city and awareness raising in the school.
During the various activities in the project, students combined learning of foreign language, environmental awareness, and sustainable development. Teachers created an opportunity for students to have a taste of the global dimension and to show that knowledge in the project is cross-disciplinary.
As a first activity, students worked in national groups and created games, quizzes and presentations that were shared with other students about their own town, and the flora and fauna of their area. Materials were collected and shared among partners in an online book. Students created in depth presentations of the environmental policy and the actions of their country, region, and centre of teaching. Students then developed collaboratively posters and promotional material: one partner created the drawing and another completed it with content such as slogans and text in the second language they were learning.
In order to improve one's own ecological footprint, students prepared a questionnaire to know the ecological footprint of their partners and analysed the results. This activity showed participants the impact their lifestyles have on the ecosystem and provided a good basis for reflection on possible changes in the behaviour of a more sustainable lifestyle. Following on from this, in international teams, students wrote collaboratively a code of conduct- a common regulation of the eco-citizen explaining how to engage in environmentally friendly actions with concrete images and infographic in both Spanish and English.
Lastly, in international teams, students created a collaborative cartoon in English and Spanish, while each group proposed an idea that served as the theme for the cartoon. This was done through collaborative writing. Subsequently, another group transformed the text into a cartoon. Students used a variety of ICT tools to create the toons: Pixton, Canva, comic creation applications and more.
In order to raise awareness also in each school's community, students organised info stands and information session on environmental challenges in their school and community, engaged in recycling activities and created videos and blogs in their national language and even gave an interview to the local newspaper.

Countries: France, Italy Spain, Turkey.

Link to the TwinSpace: https://twinspace.etwinning.net/42698/pages/page/253693
Tools: Pixton, Canva, googledocs, Pictramap, Padlet, Tricider, Quizizz

VET SCHOOLS

17. ZOE

In this project, students explored how sustainable life in their cities can be. In international groups they learned about sustainability of food, energy, education and the economy.

Although students' work was based on their local environment, they collaborated with students from a different country to exchange ideas and learn from each other.
In international teams, student explored and discussed the following questions:
— What does sustainability look like? This topic led to a debate through Tricider and exchange of ideas.
— How green are you? A team created a survey while others completed it and compared responses.
Each group mapped an area in terms of 4 elements of sustainability: agri-food, energy, economy, and education. Students took photos and wrote a short collaborative definition by answering the question "does the photo describe a sustainable action?". Students later created a quiz and shared the information with their peers.
Multinational students' teams took photos and wrote short texts defining whether it is "sustainable or not" in a Padlet. With these photos they created a quiz.
Lastly, moving from discussion to action, students reflected and collaboratively created various outputs to promote awareness of sustainable actions in their communities. Such actions included the design of a collaborative poster to promote the use of recycled bags instead of plastic bags and the creation of recycle boxes to collect paper in their schools.
Students also raised awareness in their schools by creating a graffiti on SDG goals, recording a radio show, collecting food and clothes and sharing it in the local town dedicated facility, collecting and giving away books, and building a free little library available for the local community. Lastly, all actions, research and insights of the project were brought together into a shared eBook that serves as a guide and a good example for other students and schools.

Countries: France, Greece.

Link to the TwinSpace: https://twinspace.etwinning.net/46518/home
Tools: Tricider, Issuu, Padlet, Photolangage, Dotstorming, GroDebat

18. Esc@pe G@me

The project was developed with students working in a vocational school (main subject taught was electricity). Students worked in international teams, collaborating in a variety of topics: wind turbine, production of electricity, means of transport, electricity consumption in houses and on the Energy Performance of Buildings Directive.

Students in each team created riddles on the topic they were assigned to. Their activities included: online memory game, "who wants to be a millionaire" game, online puzzle, drag and drop image and a crossword. Following the activities each team created, a common escape game was composed from the variety of games where players needed to solve questions and riddles to advance. Finally, the game was played also onsite in each class and additional information was gathered on the production of electricity in each area, how to move to clean energy, sources of energy and more.
During the onsite game, students in each class had to solve real life problems related to energy, playing the role of decision makers.
For example, they were given a mission such as: "We are in June 1st 2022. You work for your city council team. You have only 20 minutes to finalize the global project about the sustainability of the city. As you know, the new European directive fixed new rules for all the cities in Europe. In twenty minutes, you must give your objectives to the European delegation. You must conclude five projects now. The five projects are set in five red notices on each table. Split in five groups one for each project".
This activity led the students to address problems such as: how to create a wind turbine in their city, how to improve transport in their city, how to raise awareness of smart energy consumption at home, how to improve electricity performances in new buildings, how to put into practice a clean energy plan in the city. Each team received hints in the form of links and manuals, in addition to the answers gathered in the online escape game.

Countries: France, Poland, Spain.

Link to the TwinSpace: https://twinspace.etwinning.net/45544/pages/page/266847
Tools: Padlet, learningapps

CHAPTER 3

Empowering children to act on climate change through education

1. The role of young people in climate action

Alessandra Pertot
Information and Communication Officer
European Commission
Directorate-General CLIMATE ACTION

Laura Maanavilja
Information and Communication Officer
European Commission
Directorate-General CLIMATE ACTION

As evidenced in the course of the past year by school protests and climate marches, Europe's youth is becoming increasingly committed to the fight against global warming. The young people who have been taking to the streets - and continuing their engagement for a sustainable future in the context of the COVID-19 crisis - will be in the prime of their adult life in 2050. They have the biggest stake in tackling climate change and shaping the society they want to live in.

Across the EU, citizens are very concerned about climate change and support action to tackle it (Eurobarometer on climate change[15]). Moreover, a survey[16] conducted in March 2019 found an increase in climate awareness and political engagement among Europeans aged 15-30 years, with three-quarters involved in some form of organised movement. When asked 'How do we build a stronger, more united Europe?', over two-thirds cited environmental protection and climate change mitigation as a priority. Many also believe that climate change, the environment and eco-friendly behaviour need to be given more attention by schools.
Education is an essential element of the global response to climate change. It helps young people understand and address the impact of global warming, inspire action and nurture the social and personal skills that will enable young people not only to understand what climate change is but also how to change one's own behaviour and actions to limit its impacts and contribute to addressing big societal challenges through active citizenship.
EU institutions are reaching out to the next generation to gain insight into their perspective and add their voices to the discourse on this urgent issue.
The engagement of the public is critical to instil a new climate culture, awareness and motivation for climate action, bringing together citizens, industry, civil society and authorities at all levels.
This is at the heart of the European Climate Pact[17], which aims to engage citizens and communities in action for our climate and environment by raising awareness, triggering action and fostering exchanges and cooperation. The European Climate Pact will build on and amplify existing activities, trigger and embrace new ones, offering opportunities for learning, exchange, co-creation and collaboration.

15 Eurobarometer 490 on climate change: https://ec.europa.eu/clima/sites/clima/files/support/docs/report_2019_en.pdf
16 Flash Eurobarometer 478: How do we build a stronger, more united Europe? The views of young people: https://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/survey/getsurveydetail/instruments/flash/surveyky/2224
17 https://ec.europa.eu/clima/policies/eu-climate-action/pact_en
18 https://europa.eu/youth/solidarity

The EU offers different funding opportunities to young people and youth organisations. Although those programmes are broader than just climate change, it is possible to run projects under this theme:

EUROPEAN SOLIDARITY CORPS[18]:
A volunteer-based initiative that allows young people to make a hands-on contribution in various areas including environmental protection. The scheme is open to young people 17-30 years of age.

ERASMUS+ YOUTH EXCHANGES[19]:
Allow groups of young people of 13-30 years of age from different countries to meet, live together and work on shared projects for short periods (5-21 days).

ERASMUS+ FOR SCHOOLS:
A practical guide for school leaders[20] provides support and demonstrates the benefits a school can derive from applying for Erasmus+ projects and reviews the many opportunities available for teachers, students, and school staff, including eTwinning !

The EU institutions also have dialogue mechanisms with young people, through the EU Youth Dialogue[21], the citizens' dialogues[22] and other initiatives.

Among existing activities aimed at young people and teachers, we would like to highlight for example the magazine[23] and interactive website 'Our planet, our future[24]' aimed at the 11-16 age range, both available in all EU languages.

19 https://ec.europa.eu/programmes/erasmus-plus/opportunities/individuals/young-people/youth-exchanges_en
20 https://op.europa.eu/en/publication-detail/-/publication/9d7d8c4f-13c0-11e9-81b4-01aa75ed71a1
21 https://europa.eu/youth/EU/have-your-say/eu-youth-dialogue_en
22 Highlights of Young Citizens Dialogue in Sibiu, 8 May 2019: https://audiovisual.ec.europa.eu/en/video/I-172131?lg=OR&sublg=undefined and Youth Dialogue at COP25 in Madrid, 12 December 2019: https://ec.europa.eu/info/events/citizens-dialogues/citizens-dialogue-madrid-executive-vice-president-frans-timmermans-european-green-deal-2019-dec-12_en
23 https://op.europa.eu/en/publication-detail/-/publication/6af369ed-6221-11e8-ab9c-01aa75ed71a1
24 https://ec.europa.eu/clima/sites/youth

2. What do students think about climate change?

Climate change is here. As its impact intensifies over time, it is the children and young people of today who will face the worst effects. But we are not passive victims, we have begun to fight back like never before. One example is Greta Thunberg. In 2018, the 15-year-old from Sweden sparked a global movement of school-age students demanding greater action from governments to fight climate change. Now millions are marching to demonstrate their support. Young people all over the world are using are their skills to speak up for climate action, through education, science, technology.

ANDREI-ANTONIE, 11 YEARS OLD, ROMANIA

It is real and it is already happening.
Human-caused climate change has already been proven to increase the risk of floods and extreme rainfall, heatwaves and wildfires with implications for humans, animals and the environment. And things aren't looking good for the future either. If we don't do anything about this problem, it will go worse. The good news: We are not alone. People, communities, cities, businesses, schools, faith groups and other organizations are taking action. We're fighting like our lives depend on it — because they do.
1. Unite for bold climate action.
2. Use energy wisely — and save money too!
3. Get charged up with renewables.
4. Eat for a climate-stable planet.
5. Start a climate conversation.
6. Green your commute.

NIL, 16 YEARS OLD, UK

As a collaborative group with the important mission of SAVING OUR PLANET, we planned and built the RISPARMIOMETRO, an instrument for measuring our good behaviours for Planet Earth. A positive competition that we proposed to other classes.

GROUP OF PRIMARY SCHOOL STUDENTS, ITALY

We must take care of the planet because there is only one. The longer we take to act the more it will cost us.

ERIKA, 9 YEARS OLD, SPAIN

We all share one planet together. It has given us life and everything we need for it, so I think we should be more interested in it and take care of it. Do not pollute it, recycle waste, reduce the release of harmful gases, do not use plastics, do not cut forests and much more. The more pairs of hands are added, the more we will help our unique planet.

VANESA, 10 YEARS OLD, SLOVAKIA

Climate change is complicated and multifactorial. We need education, gather data and results of research by the experts and find alternatives for the bad practices that we use nowadays. We are the next day's adults and education today is the steady ground for innovative ideas that will turn the dull present to a hopeful future.
LEARN, THINK, INNOVATE.

CHRISTOS, 14 YEARS OLD, GREECE

Climate change is a huge problem that affects our lives. Personally, I think young people should take action in order to stop climate change. If we don't take action, next generations will continue to follow our bad example and climate change will worsen. We should motivate people around us to recycle. We should use plastic less and spend more time in nature. We should also cultivate our own food and not throw it away.
We could pay more attention to the clothes we wear and things we use.

IRIS, 17 YEARS OLD, CROATIA

Not everyone can do everything, but the most important thing is that we do the most we can do to help save our earth. While the effects of climate change seem bleak, there is still hope. Don't use plastic straws! Use reusable bags! plant a tree! Use less electricity! It is so simple!

ALINA, 11 YEARS OLD, ROMANIA

While we are busy with covid-19 and lockdown, world and nature got a chance to heal itself. Because of our attitudes like burning fossil fuels, cutting down trees, climate change became a huge problem. But unfortunately, we still don't care too much, we are just being sad for a moment and then saying I can't do anything only by myself. What will happen if everyone decides that even the smallest action can help? We have to think our future. Even if you plant one tree or just go by bicycle to work, you will make a favour to yourself and if everyone does it our world will be saved. Everyone can do something, everyone can take action!

SIMAY,14 YEARS OLD FRANCE

Climate change is the rapid change of weather and climate conditions. I'm concerned as I live by the seashore and parts of my country may disappear. The challenges are to avoid the natural disasters, such as tsunamis. I can recycle and save water, but young people can't do much if adults don't behave.

GABRIEL, 11 YEARS OLD, PORTUGAL

We have discussed a lot during the eTwinning project about climate change and now we know that each one of us has his part to make a better future. Recycling, reducing, rethinking, and reusing should be a practice that we can apply in our everyday life at home, school, everywhere. Simple actions can make a huge difference if all of us are involved and care

LITO, 14 YEARS OLD, GREECE

3. Suggested eTwinning Activities

Instilling climate change awareness and understanding at a young age is ultimately the best way to change behaviours and attitudes. The first step in taking action is to be informed. An understanding of the phenomena is required to help us make decisions and recognise the choices that we have. Students and teachers need to get all the information about the causes, impacts, and responses to climate change. Being informed can lead to taking action. Then, students can inform others about climate impacts through conversations, letter writing, attending community board meetings, and voting. In the previous chapter, we saw some examples of eTwinning projects dealing with topics related to climate change and the environmental challenges we face. There is a vast amount of activities that can be implemented in different subjects from science to art and technology on the topic of climate change. Below, you can find some suggestions of activities that can be organised in collaboration with your eTwinning partners.

Recycle, Reuse, Reduce

AGE 4–10

TOOLS
Dotstorming

Students discuss about the importance of recycling and they introduce recycling in their class. They discuss about objects they throw away and try to think of how different objects can be used. Teachers open three TwinBoards and ask students to add ideas about how they can re-use a cereal box, a plastic bottle of detergent and a cardboard from their last toy. Students have to think of creative solutions and come up with at least 100 ideas for each object.

Once they finish this activity, teachers introduce to their students a small competition. They have to think and create with their parents a new object by recycling items that otherwise they would have thrown away. Teachers create a small exhibition at school and invite parents, students and teachers to attend it. A paper with all the entries is given to all visitors and they have to vote for their three favourite ones taking into account: the creative use of material and the usefulness of the new object. The three winners are announced and the pictures of the three winning objects are uploaded in the TwinSpace. When all partners have uploaded their winning crafts, students of all schools vote for their favourites ones. The winner/s are announced, and a small reward is given to them.

Our bio vegetable gardens

AGE 6–12

TOOLS
Tricider, Pictochart

Students check first online where food comes from and how food system is changing. In an online meeting, they discuss the value of growing our own vegetable gardens and identify organic practices and they decide to plan their own gardens at school.
Using a forum in the TwinSpace or another tool, they propose vegetables they can grow in their countries, mentioning their needs: air, water, light, temperature, space. They also make a research and check which plants work well together. They select some vegetables that grow to all partner countries and additional ones if they want. They gather all the material in an online gardening guide, where they have all the important information, they need about planting their vegetables.
Each partner class:
— Draw their garden layout with spacing/measurements
— Make a schedule for their plants: what needs to be planted when.

During the year, the partner schools share with each other the development of their plans with different charts and they come up with ideas about the harvesting and what they will do with their vegetables e.g. create a bio-recipe book, sell them, organize a bio-fair at school to share their knowledge and inform more people about the value of a bio garden, send their products to each other.

Building positive eco-friendly habits

AGE 5–12

TOOLS
Tricider, Canva, TwinBoard

Teachers discuss with their students about climate change and how we can build positive eco-friendly habits. They ask them to search in different resources and brainstorm everyday activities they can do to help the environment.
Once all partner countries have contributed, teachers split the students in international teams and let them choose one of the following topics:
— Recycling
— Saving energy
— Consumption of water
— Food habits
In each team, they have to agree on 5-6 eco-friendly related habits e.g. for saving energy: I unplug the plug of my mobile once it is charged.
All these eco-friendly habits will be combined in a table and uploaded in the TwinSpace. This table can be an activity in the class and/or an activity for each student at home. They have to check at the end of the week if they are getting used to their new habits by checking in the right box. Every month, according to the tables the most eco-friendly student will be awarded (each activity has a number of grades). Students can also disseminate the table to their peers in the school.

Let's learn about the different types of pollution

AGE 5–12

TOOLS
TwinBoard,
Canva,
Adobe Connect

Teachers are either talking to their students about the different types of pollution, or they ask their students, if they are older, to look for the information and present them to the class. In an online meeting, each partner class decides to describe one type of pollution: air – light – water – land. Then, students are asked to work in international teams (if they are 8 or older) and present solutions for one type of pollution. They can be split in four teams: 1. Air, 2. Land, 3. Water and 4. Light. The outcome can be a TwinBoard, a poster or a short video. At the end, each partner selects one type of pollution and works, with the material gathered, to create a board game (either online or made by cardboard). The cardboard games can have" Snakes and Ladders" format and have facts from the information they gathered e.g. You left the light on in your room and went to the living room, go back 3 steps. In case of cardboard games, the partners can construct board games for all and send them to the schools by post.

What is climate change?

AGE 7–15

TOOLS
MeetingWords
Adobe Connect

Students are split in multinational groups of 4 -6. Each group receives a link to a shared document. During an online meeting, the groups are asked to work in their groups simultaneously and write down ideas on the topic of climate change. They are given 10 minutes to complete the list without repeating the same ideas. Once time is over, the teachers check which team got the most ideas. The teachers congratulate the students on how much they already know and then present to them the difference between climate and weather and introduce to them the greenhouse effect and why the climate is getting warmer. Teachers ask all groups to think and write down in the same document questions that they have about climate change e.g. How will climate change affect me? Who is responsible for climate change? Who will be affected by climate change? What can I do to help? Why are sea levels rising? etc. The online session is coming to an end and students are given time to add more questions until the next activity.

Humans contributing to climate change

AGE 7–15

TOOLS
TwinBoard,
Pictochart, Canva
Postermywall

Students work in group of 4-6. Each group selects one of the following topics:
— Our daily routine
— The journey of an aluminium can
— The journey of a loaf of bread

The students should write in a TwinBoard either all the activities they do from the time they wake up or the processes involved in getting an aluminium can or a loaf of bread in a paper bag. The teams work collaborative to produce a chart using pictures and text. They can also create posters.
Once all posters are uploaded in the TwinBoard, each group is assigned a poster of a different group and they are asked to think which activities or processes involved fossil fuels and therefore contribute to carbon dioxide emissions and climate change. For example, a shower uses hot water which is heated by gas or electricity. Most of the energy consumption comes from fossil fuels which are non-renewable energy sources.

Climate change and its impacts

AGE 7–15

TOOLS
Mindmeister
Mindmupt

In each partner class, the teacher introduces a game to the students. Students stand in a circle holding a ball. The teacher asks them to think of a little thing that may go wrong in their daily routine e.g. the alarm clock did not go off. Students have to think what is the consequence of that and raise their hand, the student that gets the ball says the consequence e.g. you don't have time to eat breakfast and then they have to think what is the next consequence e.g. you feel tired. The game continues until they cannot find any more consequences. They repeat the same using as first words: climate change. Then, they work on an online mind map with their partners where they create a climate consequence wheel (mind map) e.g. climate change-> increases in air and sea temperatures. Sea level rises-> flooding. Houses are destroyed.

Climate change stories: the impact on people's life around the world

AGE 12–17

TOOLS
TwinBoard
MeetingWords

Students search online for stories of real people who were affected by climate change e.g. droughts, erosion, lack of food, floods. They share the stories in detail by making posts in a TwinBoard. Then, the students in multinational groups select one of the stories. One partner is the interviewer and prepares questions he would like to ask to the person affected by climate change and the other partner is the interviewee, the person who was affected by climate change and has to answer to the questions. Each group will decide if they will come up with a written interview or if they want to produce a collaborative video. All final outcomes will be shared in the TwinSpace and students will have the opportunity to see each other's work, comment or even add questions. They can also continue the activity by selecting one of the interviews to create a short story, an article, a diary entry or a poem to describe the feelings of the person who was affected by climate change.

Taking action !

AGE 8–17

TOOLS
Tricider
MeetingWords

In this activity, students think about and plan actions they could take against climate change. Teachers present 4 categories of taking action:

— Raise awareness: share what they have learnt about the impact of climate change with others
— Campaigning: put pressure on decision makers to do what they can do to reduce greenhouse gas emissions and support communities to adapt
— Going green: introduce activities to reduce their own carbon footprint
— Fundraising: raise money for organizations working against climate change

Students choose one of the categories and work in four multinational teams. They make a list of activities they can organize and rank them. Once they finish, they share the lists with the other students who also vote for the different activities.
The partner schools take the one that was ranked higher in each category, and they plan how they can implement them as a whole class or in small groups.
The planning is done collaboratively with the partner schools and the resources needed are created jointly.

What do we know about climate change ?

AGE 15–19

TOOLS
MeetingWords
Shared powerpoint

Teachers divide their pupils in small international teams, and give them access to a common document. They ask them to engage in a free written response to the term: "climate change". With this, they can activate prior knowledge and explore questions they may have. They can write what they know, what they think they know, what they have heard, what they are unsure about or what they want to know.
After all students in each team have contributed, students read what their peers have written. Both classes arrange a common day and time, where students enter their shared document and use the chat to discuss with each other. They have to work together to write a collaborative summary in which they combine their ideas.

Causes and effects of climate change

AGE 15–19

TOOLS
Adobe Connect,
MeetingWords,
Etherpad

The partner schools create a working definition of climate change.
Then, the students are split in two international teams and work on the following topics:
— Team 1: Describe the causes of climate change
— Team 2: Describe the potential effects of climate change

To find all the necessary information, students gather in a folder in the TwinSpace different articles and resources and discuss the following questions:
— How has global change affected the local climate and geography of the place where they live?
— How have these changes affected the people living there?
— How have the people tried to adapt to climate change's effects?

The outcome is an article created by each team with important information and powerful pictures. In an online meeting, each team can present how they worked and what they have learnt.

Creating the map of climate change

AGE 15–19

TOOLS
Thinglink, Canva Postermywall, PPT, Prezi, Adobe Spark

Climate change, which brings the rising in sea levels, is likely to flood many parts of the world and generate weather extremes like droughts and heat waves in other places. Students working in international teams select a different continent and research how climate change will affect different regions. They create a document with their findings and upload it in the interactive map of the world. Once all international teams have uploaded their work, they select one document of a different team and propose in a video/poster/presentation on how government should prepare for these changes, and what plans should be put in place.

A play on climate change

AGE 7–12

TOOLS
MeetingWords Colorilo

Students outline the plot of a story in which the characters face the consequences of climate change. Each partner creates a part of the story, and the other partner continues the story. Once the story is ready, the partner schools decide on the setting, the objects they will need, the set and start rehearsing their common play. The partner classes can present their work to their school to inform their peers about the consequences of climate change.

Interactive game about the effects of climate change

AGE 10–15

TOOLS
learningapps, Kahoot, Quizziz

Once the students have acquired sufficient knowledge about the effects of climate change, they use the learning apps website and create interactive games on the effects of climate change. They can create crosswords, matching games, the millionaire game, word grids. They can also use other tools to create quizzes. Once the games are ready, they upload them in the TwinSpace and ask their partners' feedback. In a later stage, the games can be shared in the schools' websites to raise awareness on the effects of climate change.

Realities vs misconceptions on climate change

AGE 15–19

TOOLS
TwinBoard, Padlet, Issuu

Students are asked to search the internet for misconceptions about climate change. Here are some examples:
— How can global warming be real if winter this year is so cold?
— Isn't this just a normal fluctuation in the earth's temperature?
— There's nothing we can do about it anyway.
— It wouldn't be so bad to have warmer temperatures!
— Recent global warming is caused by the sun.
— Atmospheric water vapor is the heat-trapping gas that is primarily responsible for global warming.
— Climate has changed many times in the distant past, before humans began burning coal and oil, so the current warming cannot be caused by humans burning fossil fuels.

Once all students have contributed with a misconception, they have to select one and look for the reality, explain why it is not true and present the scientific evidence. An eBook can be created which contains both the misconceptions and the facts. Students should explore the misconception itself — why do some people believe this? On what evidence is it based? What is the reasoning? Then, use scientific evidence to refute it.

Our energy sources

AGE 15–19

TOOLS
Prezi, PPT, Adobe Connect

Teachers discuss with their students about the need of energy to power our daily lives, e.g. for our computers, lights, cars. Scientists agree that the burning of fossil fuels releases greenhouse gases that cause climate change. Today, scientists affirm the impact climate change is having on land and agriculture, ecosystems and forests, the water cycle, urban cities, coastal and marine environments, and in industry. To help reduce these impacts and cut down on greenhouse gas emissions, it is important to diversify how we get energy and how well we use it.
Students in international groups are assigned one source of energy:
— Non-renewable energy: Gasoline, Diesel Fuel, Propane, Natural Gas, Coal, Nuclear
— Renewable energy: Hydropower, Biomass, Ethanol, Biodiesel, Wind, Geothermal, Solar

Each team look for information about their assigned energy source and they concentrate on the following points:
— Description
— Where it is found
— How it is stored and how it is released
— How it is used today
— Advantages and disadvantages

— Environmental impacts
— Future of this source of energy

Each team will create a presentation with their findings. A series of webinars will be arranged, and each team will present their findings and answer questions from their peers. Once all energy sources have been presented, students will create a comparison table and talk about the importance of energy source diversity and propose solutions. Optionally, they can also continue by calculating their carbon footprint through different websites.

Film festival on climate change

AGE 12–19

TOOLS
WatchTogether, editing & video tools

Teachers announce that they will organize a film festival to explain what climate change is about and what people can do. The film festival can have different categories: short films- animation movies- documentaries., Students are split in international groups, according to their interest. In each group, they decide who will carry out the different roles: script- writer – director – actors- video editor etc.
Once all the films are ready, they are uploaded in the TwinSpace. The partner schools arrange a day when they can all watch them simultaneously and make their comments live in a chat. The videos are shared in the schools' website and the audience is voting. Students and teachers can agree different categories: best direction- Best animation- best script etc. The awarded movies can be disseminated to the local media to raise awareness about climate change.

Sustainability-themed escape game

AGE 15–19

TOOLS
genial.ly
(has tutorials on how to create online escape rooms)
TwinBoard

Using their knowledge on climate change, students create an online escape room. The scenarios can be different, and they have to decide altogether e.g. you have to get out of the room before flood waters sweep you away, a crazy scientist has kidnapped you and you need to solve all clues to prevent him from destroying the earth.
Once the students have agreed on the scenario, using a shared document, they work in international teams to create:
— An initial video to explain the story
— Different clues/questions/puzzles/encrypted messages and their solutions on the topic of climate change
— A final video to congratulate those who came to the solution in the allocated time.
Once the escape room is ready, it is tested by the partner schools, and then shared with the other classes of the partners schools. In case there are many students participating in the activity, more escape rooms can be created and then shared among the different teams. In that case, the students can give their feedback/ evaluation to their peers.

We protect Wildlife Organization

AGE 6-12

TOOLS
Colorilo, Issuu, AnswerGarden, TwinBoard

Students are part of an imaginary organization "We protect Wildlife" and their mission is to help others understand the interdependence of earth's species, grounded on their belief that all living beings have value. Using the TwinBoard students share information about an endangered animal which interests them.
They look for more information and complete the following questions:
— What are the characteristics of this animal?
— How is the place where the animal lives (habitat)?
— Why is this animal endangered?
— What is being done to save this endangered animal?
— How does this animal impact its environment and why it is important?

Once all the information are in the TwinSpace, students choose one of them and add an illustration of the animal and its habitat, with a quote that came to their mind when they read all the information their peer shared. At the end, all information and illustrations are shared in an eBook.

Take action through my school

AGE 4–19

TOOLS
Material created during the project with different tools

This activity has as a main objective the dissemination of all the knowledge students acquired during a project on climate change. It can combine various material created during a project. Students organize an open event for the Environments' Day (5th June) that can take place at their school or in their neighbourhood.
Below, some ideas for activities are presented shortly.
Students:
— Create posters and leaflets to inform their community about actions they can take
— Sing the environmental song they wrote together with their partners
— Open an exhibition with their paintings, material they created by re-using of items with their partners
— Organize a protest about the climate change, using their bicycles to show alternative ways of transport
— Organize a video conference with their partners, to present to their schools the results of their projects. They can also invite parents, a scientist, representatives from the community and experts
— Organize short workshops for their peers about the different things they learnt in their eTwinning project e.g. an art workshop of creating crafts from recycling material
— Present their ideas/solutions to the mayor of their city
— Share their audio spots with tips about the environment with a local radio

Conclusions

Alexandra Hanna Licht
Pedagogical and Monitoring Officer
eTwinning Central Support Service

A new chapter in human history is being written in front of our eyes.
In recent years, it has become evident that climate change, natural disasters, pandemic, and other global and local unexpected events are not just a random occurrence. Rather, they are most likely the result of human activities, which destabilise the sensitive equilibrium on earth. The changes we are experiencing are not in the distant future: they are here and affect us, our children and communities. We see young people all over the world marching for climate action. Led and inspired by teenagers, **young people no longer wait for adults to take decision, they ask for change, they demand concrete actions.**

The scientific community urges governments to mitigate climate change, and with the ratification of the Paris Climate Agreement (2015), the international community accepted formally its ambitious goals. The EU response to climate change and the recent European Green Deal show that closing the emission gap can be only achieved if common actions towards clear targets are taken.

Among the many challenges ahead of us, there is one which education can address: reducing the gap between **scientific and social understanding of climate change.** Ignorance about the climate crisis is a big stone in the way to save life on earth as we know it. There is a need for wide effort, including the education systems, to bridge gaps in knowledge in the wider public. Some people still deny climate change, others might not be aware or interested in the effects of their consumption, lifestyle, and energy use on earth.

Dan Ariely, Professor of behavioural economics at Duke University, explains why for many people climate change remains a distant topic they don't relate to. He describes what researchers call "The identifiable victim effect": we usually care a lot about an individual suffering, as we are able relate to it emotionally; reversely, we have great difficulties in grasping large tragedies, given our inability to relate to them on an emotional level. We read that the earth is warming up, that millions lost their lives and homes due to natural disasters related to climate change; we know that it is due to human related actions. Still, how can we grasp "energy saving" for example, if we cannot measure the energy we saved? How can we relate to it, if we cannot link it to a narrative or cannot visualise the difference we made? In other words, how can we bring a change not only on a governmental, state or city level but also at the individual and community level? According to Pr. Arieli, in order to change behaviour, people need to **measure, visualise and signal** to themselves and others about the results and benefits of the requested change. This is exactly what closing the gap of knowledge on climate change is about; this is the role of education.
Climate change will require actions at all levels of society, including individuals, communities, businesses, local, state, national and international organisations. We cannot address climate change on a governmental level only, or by few individuals, to see an affective result. In the case of climate change, **learning from experience will come too late, so we must learn from education.** Schools are preparing the young generation for the future; they equip them with useful skills and knowledge that will serve them in tomorrow's changing world. Hand in hand, schools, teachers, and educators have a responsibility to equip young people with knowledge which is relevant today – to help them to measure, visualise and signal to themselves and others that the change in actions and attitude towards climate change needs to be done now.

In the various eTwinning projects presented in this book, we see how students learn about natural environment, the effects of plastic, pollution, and unclean energy use on our fragile world. When students propose and create real life solutions to reduce their ecological footprint, when they investigate and create awareness campaigns, they are not only learning, they also become change makers. In eTwinning projects, students have concrete opportunities to engage in meaningful learning by engaging and solving today's real problems. We see a variety of projects across and beyond Europe that empower students to be changemakers and make a difference through concrete measurable and tangible actions. From organising awareness campaigns, to planting trees and experimenting gardening, to learning about food production and waste. Students become the protagonists of their story, they not only demand change, they are creating it- in their homes, schools, and communities.
This book shows that action on climate change is not to be limited to governmental actions only, or individuals marching in climate protest. We have seen how schools, teachers and projects investigate how climate change affects all areas of our life and integrate climate education throughout and across a variety of subjects, tackling the issue from social, economic, and scientific angles- and that this can be done from a very early age.

eTwinning provides teachers with the tools, context, inspiration and recognition to empower their students and help them become change makers. To bridge the gap between scientific knowledge and true understanding of what is at stake, that leads to stronger commitment for action. What you read in this publication are just a few of the many successful activities which cultivate individuals into a community, **creating concrete opportunities for young people** to bring the change they want to see in the world, starting from their schools, when the sky is the limit.

CONCLUSION

Bibliography

Boss, S. and Larmer, J., (2018)
Project-based Teaching: How to create rigorous and engaging learning experiences. Buck Institute of Education, ISBN 9781416626732.

Jeffery, H. (2010)
Student-centred learning: options for the application of constructivist thinking in occupational therapy education. School of Occupational Therapy, Otago Polytechnic, Dunedin. Student-centred learning

Lee, S. L., et al. (2011)
Positive Problem Solving: How Appreciative Inquiry Works. InFocus Solutions for Government Managers. VOLUME 43/ NUMBER 3 2011. ICMA Press.

Lertzman, R. (2017)
Permission to Care: From Anxiety to Action on Climate Change. Toronto Sustainability Speakers Series – Energy, Cities and Climate Change.
Retrieved from http://tsss.ca/channels/energycities-climate-change/permission-to-care-from-anxiety-to-action-onclimate-change

Odabaşı, H., Kurt, A. et al. (2011)
ICT action competence in teacher education. EDULEARN11 Proceedings. Retrieved from http://library.iated.org/view/ODABASI2011ICT

OECD. OECD Future of Education and Skills 2030
Accessed on 15th April 2020 from https://www.oecd.org/education/2030-project/teaching-and-learning/learning/student-agency

Ojala, M. (2018)
Environmental anxiety could become an epidemic – but treatments exist, for both the concern and the environment. Finnish Forest Association.
Retrieved from https://forest.fi/article/environmental-anxiety-could-become-an-epidemic-but-treatments-exist-for-both-the-concern-and-the-environment/

O'Neil, S. and Nicholson-Cole, S. (2009)
"Fear Won't Do It": Promoting Positive Engagement With Climate Change Through Visual and Iconic Representations, Science Communication 30(3): 355-379, DOI: 10.1177/1075547008329201

Sharma, P. (2017)
Handprint: Positive Actions Towards Sustainability. North American Association for Environmental Education Online Blog (May 19, 2017).
Retrieved from https://naaee.org/eepro/blog/handprintpositive-actions-towards

Sharma, P. K. and Andreou, N. (Eds.) (2018)
Positive Actions for the Sustainable Development Goals, Foundation for Environmental Education, ISBN 978-93-84233-71-6. Available at http://www.ecoschools.global/material/

Sharma, P. K., Andreou, N. and Daa Funder, A. (Eds.) (2019)
Changing Together, Eco-Schools 1994-2019, Foundation for Environmental Education, ISBN 978-87-971745-1-7. Available at https://www.ecoschools.global/changing-together-ecoschools-19942019

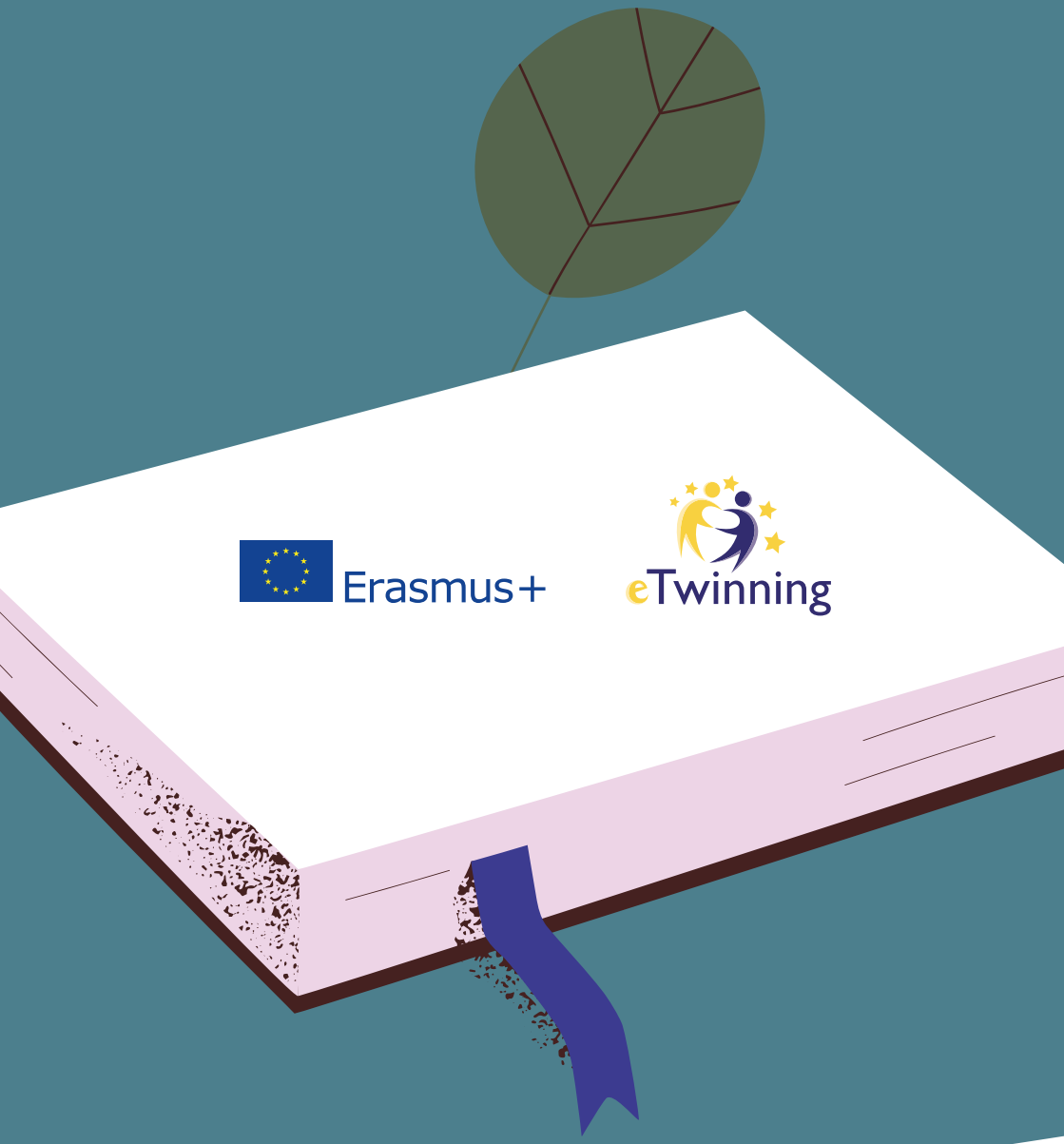
eTwinning is a vibrant community that has involved, in its 15 years of existence, more than 800,000 teachers working in 206.000* schools.

More than 107,000* projects have been run, involving many students from all educational levels across the continent (*data as of June 2020).
eTwinning – The Community for schools in Europe and neighbouring partner countries – is an action for schools funded by the European Commission under the Erasmus+ programme. It involves teachers from 36 European countries and 8 neighbouring countries.

eTwinning is a digital platform available in 29 languages. Browsing visitors can access a range of public information about how to become involved in eTwinning; explaining the benefits the action offers and providing information for collaborative project work. Registered teachers have access to a restricted area called eTwinning Live, which is the individual teacher's interface with the community: it enables users to find partners, interact, collaborate in projects and participate in professional development activities organised at European national, non-European national and European central levels. Finally, when teachers work together in a project, they have access to a private collaborative space, which is unique to each project, called TwinSpace.

eTwinning offers a high level of support for its users. In each of participating countries (currently 44) a National Support Service (NSS) or a Partner Support Agency (PSA) promotes the action, provides advice and guidance for end users and organises a range of activities and professional development opportunities at national level.

At European level, eTwinning is coordinated by the Central Support Service (CSS) which is managed by European Schoolnet (a consortium of 34 Ministries of Education), on behalf of the European Commission. The CSS liaises with the NSS and is responsible for the development of the platform, as well as offering a range of professional development opportunities and other activities such as an annual European Conference and a Prize Event which awards teachers and students for their involvement in outstanding projects.



Publications Office
of the European Union