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TEACHER'S MANUAL

MANKIND ACT KEEPS EARTH – MAKE

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FOREWORD

The Teachers' Manual of the Erasmus+ project MAKE – Mankind Act Keeps Earth has been designed to support educators in guiding pupils aged 12 to 15 towards a deeper understanding of climate change, sustainability, and environmental responsibility. In recent years, the challenges posed by climate change have become increasingly visible in our daily lives. As educators, we have a vital role in helping young people not only to understand the science behind these changes but also to develop the skills, values, and attitudes required to respond to them creatively and responsibly. This manual provides teachers with practical, ready-to-use resources to make that mission both achievable and inspiring.

Developed through collaboration between partner schools and organisations from Türkiye, Spain, Lithuania, Poland, and Greece, the manual offers a European perspective on environmental education. It reflects shared values of cooperation, inclusion, and innovation — encouraging pupils to learn through inquiry, experimentation, teamwork, and reflection.

The twenty activities included in this manual are organised around key themes:

1-Understanding Climate Change: exploring causes, consequences, and scientific principles;

2-Ecosystems and Biodiversity: recognising the interdependence between nature and human actions;

3-Renewable Energy and Sustainable Living: discovering how green technology can protect the planet;

4-Taking Action: empowering pupils to create meaningful change at school and in their communities.

Each activity provides detailed lesson guidance, materials, evaluation suggestions, and reflection questions, enabling teachers to adapt them easily to their classroom context. The manual promotes a cross-curricular approach, integrating science, geography, citizenship, and ICT through the lens of climate education.

By using this manual, teachers are not only delivering lessons — they are nurturing a generation of responsible citizens who can think critically, act sustainably, and collaborate for a better world.

"Education is not just about knowing the world — it's about caring for it."

HOW TO USE THE TEACHERS' MANUAL

This manual has been designed as a comprehensive teaching resource for educators working with 12–15-year-old students on sustainability, climate change, and interdisciplinary learning. It brings together twenty structured lesson plans developed through European cooperation, covering diverse themes such as the science of climate change, ecosystem impacts, renewable energy, recycling, arts, and technology integration.

Structure of Each Lesson Plan: Each activity includes:

-Learning Objectives: What students will know and be able to do by the end of the lesson.

-Materials and Resources: Tools, digital or physical materials, and preparation notes.

-Procedure: Step-by-step implementation guidelines adaptable for classroom or club use.

-Evaluation Tools: Observation forms, reflection questions, or peer-assessment ideas.

How to Apply

-Activities can be used individually during lessons or combined into weekly or monthly club programs.

-Teachers are encouraged to adapt the activities according to their students' age, learning style, and available equipment.

Schools may use these activities to connect the work of different clubs (e.g., Energy Club + Coding Club) for project-based learning.

-The manual also supports cross-curricular integration, especially in Science, Technology, Art, and English lessons.

After each activity, teachers are encouraged to collect feedback from students and share reflections on the project platform.

By following this manual, teachers will not only strengthen students' environmental awareness and critical thinking but also promote collaboration, creativity, and European values in every classroom.

INTRODUCTION

The Teachers' Manual has been developed as part of the Erasmus+ project "Mankind Act Keeps Earth (MAKE)", a small-scale partnership in school education that brings together partners from Spain, Türkiye, Poland, Lithuania, and Greece. The project's mission is to equip teachers and students aged 12–15 with the knowledge, skills, and values needed to understand, respond to, and act against climate change.

Education plays a vital role in shaping environmentally responsible citizens. This manual has therefore been designed as a practical tool for educators to integrate sustainability and climate literacy into daily teaching. It offers twenty structured lesson plans that cover scientific, social, and behavioural dimensions of climate change—its causes, impacts, and solutions—while highlighting the role of renewable energy, sustainable consumption, and individual responsibility.

The Teachers' Manual complements the project's other outputs, including the E-Green Booklets prepared by student clubs (Energy Efficiency, RRR – Recycle, Reduce, Reuse, and Consuming Habits), and the E-Twinning activities, virtual field trips, and infographics developed through European collaboration. Together, these resources form a coherent framework for climate education across schools and communities.

Through the activities in this manual, teachers will be able to create interactive and inclusive learning environments that inspire young learners to take initiative, explore real-world sustainability issues, and build lifelong green habits.

ACTIVITY 1 - THE SCIENCE OF CLIMATE CHANGE

Grade Level: 12–14-year-olds

Subject: Science / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

-To understand the meaning of climate change and how it differs from weather.

-To describe the greenhouse effect and name key greenhouse gases.

-To identify how human activities contribute to global warming.

-To develop awareness of realistic actions that help protect the planet.

Materials Needed

-Short EU-produced video, such as "Climate Change Explained – European Commission" (available via EU Learning Corner or Climate Action – European Commission).

-Two balloons, plastic wrap (cling film), lamp or torch, thermometer.

-Printed diagram of the greenhouse effect.

-Worksheet: Causes and Effects of Climate Change.

-Poster paper, coloured pencils or markers.

Lesson 1 – Understanding the Greenhouse Effect (40 minutes)

Warm-Up Discussion (10 minutes)

Ask pupils:

"What is the difference between weather and climate?"

"What changes have you noticed in the seasons or temperature?"

Write responses on the board under Weather and Climate.

Explain that weather describes short-term conditions, while climate refers to patterns measured over many years.

Video and Discussion (10 minutes)

Show the EU video "Climate Change Explained" or a short animation from the European Commission's Learning Corner.

Discuss:

"Why are greenhouse gases important?"

"How do human activities make them stronger?"

Experiment – The Greenhouse Effect (15 minutes)

Inflate two balloons and insert a thermometer into each.

Cover one balloon tightly with cling film.

Place both under a lamp for five minutes.

Compare temperatures: the covered balloon warms more quickly.

Explain that the cling film acts like greenhouse gases, trapping heat near the Earth's surface.

Reflection (5 minutes)

Ask: "What can we do to keep our planet's temperature balanced?"

Students write one idea on a sticky note to place on a "Climate Wall".

Lesson 2 – Human Impact and Sustainable Actions (40 minutes)

Recap (5 minutes)

Review the previous experiment.

Ask: "Which gases trap heat?" and "What causes their increase?"

Group Task – Human vs. Natural Causes (15 minutes)

Distribute picture cards or a simple list of situations:

Deforestation, Solar radiation cycles, driving fossil fuel cars, Volcanic eruption, Using public transport, Recycling waste

Groups decide which are natural and which are human-made causes of climate change.

Creative Poster Activity (15 minutes)

Each group creates a mini poster titled "How to Cool the Planet".

They illustrate one problem and one sustainable solution using examples from their lives, e.g. "Turn off the lights – Save energy", "Plant trees – Breathe clean air".

Presentation and Reflection (5 minutes)

Each group presents its poster briefly.

End with a class reflection:

“What did we learn about the causes of climate change?”

“Which everyday action could reduce emissions the most?”

Assessment

-Participation and cooperation during activities.

-Completion and accuracy of the worksheet.

-Quality and clarity of the poster’s message.

-Reflection ideas shared in discussion.

Learning Outcomes

-By the end of the two lessons, pupils will:

-Describe how the greenhouse effect works.

-Identify both natural and human causes of climate change.

-Suggest simple, achievable solutions to reduce greenhouse gases.

-Demonstrate understanding through creative and reflective work.

ACTIVITY 2 - CARBON FOOTPRINT DETECTIVES

Grade Level: 12–14-year-olds

Subject: Science / Citizenship / ICT

Duration: 2 lessons × 40 minutes

Objectives

-To understand what a carbon footprint is and how it is measured.

-To identify how everyday activities contribute to greenhouse-gas emissions.

-To explore ways to reduce individual and school carbon footprints.

-To encourage responsibility, teamwork, and reflection on sustainable choices.

Materials Needed

-Internet access and devices (computers or tablets).

-Online calculator: EU Learning Corner – Carbon Footprint Calculator for Schools or European Climate Pact calculator.

-Worksheet: My Carbon Footprint Diary.

-Poster paper, pens, coloured pencils.

-Optional short EU video: "What Is Your Carbon Footprint?" – European Commission.

Lesson 1 – Becoming a Carbon Detective (40 minutes)

Warm-Up (10 minutes)

Ask:

"What do you think a carbon footprint is?"

"Which daily activities might leave a bigger footprint?"

List examples on the board (transport, heating, food, shopping).

Explain that our carbon footprint shows how much carbon dioxide (CO_2) is released through our actions – from travelling to eating to using electricity.

Activity – Investigating Our Impact (20 minutes)

Divide pupils into pairs or small groups.

Open the EU carbon footprint calculator or provide printed survey sheets.

Pupils enter data about their family or school routines (e.g. transport mode, diet, energy use, recycling).

Record the total carbon output on the worksheet.

Compare results – who has the highest and lowest footprint, and why?

Discussion (10 minutes)

Ask:

"Which part of life produces most emissions?"

"What surprised you most?"

Teacher summarises key sources of emissions: energy, transport, food, waste.

Lesson 2 – Reducing Our Footprint (40 minutes)

Recap (5 minutes)

Review what the class discovered:

“What were the main causes of high carbon footprints?”

Group Task – Action Plan (20 minutes)

In groups, pupils design a short Carbon Action Plan for their class or school.

They choose at least three actions, for example:

Turning off devices and lights after use. Promoting walking or cycling to school. Organising a meat-free lunch day. Reusing materials in craft projects. Groups record their ideas on poster paper with short slogans, e.g. “Small Steps – Big Change”, “Travel Green, Breathe Clean”.

Presentation and Pledge (10 minutes)

Each group presents its Action Plan to the class.

Together, pupils agree on one idea to implement in school and draft a simple class pledge (e.g. “We will save energy and recycle every day”).

Reflection (5 minutes)

Students write in their Carbon Footprint Diary:

“One thing I will change at home.”

“One thing we can change as a class.”

Assessment

-Observation of participation and teamwork.

-Completion of the carbon-footprint worksheet.

-Creativity and practicality of the Action Plan poster.

-Reflection entries in pupils’ diaries.

Learning Outcomes

-By the end of these two lessons, pupils will:

-Define what a carbon footprint is and explain why it matters.

-Identify major sources of carbon emissions in daily life.

-Suggest realistic ways to reduce their individual and school footprints.

-Demonstrate awareness of personal responsibility in tackling climate change.

ACTIVITY 3 - THE POWER OF RENEWABLE ENERGY

Grade Level: 12–14-year-olds

Subject: Science / Technology / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

-To recognise the importance of renewable energy sources for a sustainable future.

-To distinguish between renewable and non-renewable energy.

-To explore how solar, wind, and hydro energy work.

-To develop creative thinking through simple design or modelling activities.

Materials Needed

-Short EU video: “Renewable Energy – Europe’s Green Transition” (available via EU Learning Corner or Climate Action – European Commission).

-Worksheet: Types of Renewable Energy.

-Poster paper, coloured pencils, scissors, glue.

-Small materials for model-making (cardboard, paper cups, string, sticks, etc.).

-Optional: mini fan, solar toy, or small wind turbine kit (if available).

Lesson 1 – Understanding Renewable Energy (40 minutes)

Warm-Up Discussion (10 minutes)

Ask:

“Where does our energy come from?”

“What happens when fossil fuels run out?”

List answers under Renewable and Non-renewable Energy on the board.

Briefly explain that renewable energy comes from natural sources that can be replaced quickly, such as sunlight, wind, and water.

Video and Discussion (10 minutes)

Show the EU video “Renewable Energy – Europe’s Green Transition”.

After viewing, ask:

“Why does the EU invest in renewable energy?”

“Which energy sources do you think are most common in your country?”

Group Activity – Energy Detective (15 minutes)

Distribute the Types of Renewable Energy worksheet.

Each group investigates one energy type (solar, wind, hydro, geothermal, or biomass).

They identify:

How it works.

Its advantages and challenges.

Real examples from Europe.

Groups summarise findings on mini posters.

Reflection (5 minutes)

Discuss:

“Which energy source is most suitable for our local area and why?”

Lesson 2 – Designing Our Future Energy (40 minutes)

Recap (5 minutes)

Review key facts:

“What makes renewable energy sustainable?”

Creative Task – Build or Design a Model (20 minutes)

In small groups, pupils design or build a simple prototype showing how renewable energy can be used at home or school.

Examples:

A cardboard wind turbine.

A solar-powered classroom light.

A mini waterwheel for generating power.

If materials are limited, groups may draw a detailed design instead.

Presentation (10 minutes)

Each group presents its model or drawing, explaining:

How the energy source works.

What problem it helps to solve.

Why it is environmentally friendly.

Reflection (5 minutes)

Class discussion:

“How can renewable energy help the EU reach climate neutrality by 2050?”

Students write one short sentence: “I believe renewable energy is important because…”

Assessment

Group participation and creativity in the model or design.

Completion and accuracy of the worksheet.

Presentation clarity and understanding of key concepts.

Reflection quality and connection to sustainability goals.

Learning Outcomes

By the end of these two lessons, pupils will:

Identify different types of renewable energy and how they function.

Compare renewable and non-renewable energy sources.

Understand why renewable energy is essential for Europe’s green transition.

Apply their knowledge creatively through design and teamwork.

ACTIVITY 4 - FROM FARM TO FORK – THE CLIMATE COST OF FOOD

Grade Level: 12–14-year-olds

Subject: Science / Citizenship / Geography

Duration: 2 lessons × 40 minutes

Objectives

-To understand how food production, transport, and consumption contribute to climate change.

-To explore the Farm to Fork Strategy and its role in the European Green Deal.

-To identify ways to make food choices more sustainable.

-To promote critical thinking about local and global food systems.

Materials Needed

-Short EU video: “The EU Farm to Fork Strategy Explained” (available on EU Learning Corner or European Commission – Food Safety).

-Food packages or labels showing the country of origin.

-Worksheet: Food Miles Tracker.

-Large world or Europe map (paper or digital).

-Poster paper, markers, scissors, glue.

Lesson 1 – Tracing the Journey of Food (40 minutes)

Warm-Up Discussion (10 minutes)

Ask:

“Where does our food come from?”

“Do you think all food has the same impact on the planet?”

Show two baskets: one with local produce (e.g. apples, cheese, bread) and one with imported items (e.g. bananas, chocolate, rice).

Discuss which basket has travelled further and why that matters.

Video and Discussion (10 minutes)

Play the EU video “Farm to Fork Strategy Explained”.

After viewing, ask pupils:

“What are the main goals of the strategy?”

“How does it connect to the EU Green Deal?”

Highlight that the strategy aims to make food systems fair, healthy, and environmentally friendly.

Activity – Food Miles Investigation (15 minutes)

Divide pupils into small groups.

Each group examines labels of 3–5 food items and identifies their country of origin.

Use a map to trace the journey of each item from its country to the classroom.

Record travel distances on the Food Miles Tracker worksheet.

Reflection (5 minutes)

Discuss:

“Which food had the longest journey?”

“What can we do to eat more sustainably?”

Lesson 2 – Creating a Sustainable Menu (40 minutes)

Recap (5 minutes)

Review the idea of food miles and the environmental costs of transporting food.

Ask: “Why might eating local food be better for the planet?”

Group Task – Design a ‘Green Menu’ (20 minutes)

Each group designs a one-day menu that:

Uses mostly local and seasonal ingredients.

Reduces meat or processed food.

Includes minimal packaging and food waste.

Encourage creativity with names and presentation, e.g. “Eco-Breakfast”, “Planet-Friendly Lunch”.

Groups create posters or illustrated menus on paper.

Presentation (10 minutes)

Groups present their Green Menus to the class, explaining:

Why they chose these foods.

How their menu supports the Farm to Fork goals.

What changes would be needed to make school meals more sustainable.

Reflection (5 minutes)

Ask:

“What changes could your family make at home?”

“What would you like your school to do to support sustainable food?”

Each pupil writes one personal Food Promise (e.g. “I will avoid wasting bread at home”) to place on a class “Food Tree”.

Assessment

Participation in group discussions and activities.

Accuracy and creativity of the Food Miles Tracker and Green Menu.

Quality of group presentation.

Reflection and personal Food Promise.

Learning Outcomes

By the end of these two lessons, pupils will:

Explain how food systems affect the environment and climate.

Understand the aims of the EU Farm to Fork Strategy.

Identify ways to reduce food-related emissions through local and sustainable choices.

Show responsibility by planning and sharing climate-friendly meal ideas.

ACTIVITY 5 - GREEN INNOVATORS – UPCYCLING FOR A BETTER PLANET

Grade Level: 12–14-year-olds

Subject: Art / Design & Technology / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

-To understand the concepts of reduce, reuse, recycle and upcycling.

-To explore how creative design can reduce waste and protect the environment.

-To learn about the EU Circular Economy Action Plan and its aims.

-To apply teamwork and problem-solving skills through a creative challenge.

Materials Needed

Short EU video: "Circular Economy in Action – European Commission" (available via EU Learning Corner or Environment – European Commission).

Recyclable materials: plastic bottles, paper rolls, cardboard, fabric scraps, tin cans, boxes, etc.

Scissors, glue, tape, string, markers, paint, labels.

Worksheet: Design Thinking Template (problem → idea → sketch → materials → function).

Optional: photos of EU circular-economy examples or student upcycling projects.

Lesson 1 – Rethinking Waste (40 minutes)

Warm-Up Discussion (10 minutes)

Ask:

"What happens to most of the things we throw away?"

"What is the difference between recycling and upcycling?"

Write ideas on the board and explain:

Recycling means breaking materials down to make new raw products.

Upcycling means turning waste items into something of higher value or new purpose.

Link to the EU Circular Economy, where materials are reused instead of wasted.

Video and Reflection (10 minutes)

Show the EU video “Circular Economy in Action”.

Discuss:

“Why is it important to reduce waste in Europe?”

“What creative ideas did you see in the video?”

Brainstorm Activity (15 minutes)

In groups of 3–4, pupils list everyday waste materials they can collect at home or school.

Challenge them: “How could we turn this into something useful or beautiful?”

Each group selects one idea (e.g. pen holder, bird feeder, plant pot, jewellery, bag).

They sketch it on the Design Thinking Template.

Reflection (5 minutes)

Groups briefly share their ideas.

Teacher summarises: “Next lesson, we’ll build your designs and present them as our class Upcycling Fair.”

Lesson 2 – The Upcycling Challenge (40 minutes)

Recap (5 minutes)

Review key points about upcycling and circular economy.

Ask: “What makes an idea both useful and sustainable?”

Creative Construction (25 minutes)

Groups build their chosen product using recyclable materials.

Teacher moves around to assist and encourage creative problem-solving.

Remind pupils to focus on durability, function, and aesthetics.

Presentation (5 minutes)

Each group presents its finished product, explaining:

What materials were reused.

How it benefits the environment.

What inspired the design.

Reflection (5 minutes)

Hold a short class discussion:

“What was the biggest challenge in upcycling?”

“How could we promote these ideas in our community?”

Students vote for informal awards such as Most Creative, Most Useful, or Most Eco-Friendly.

Assessment

Observation of participation and cooperation.

Completion of Design Thinking Template.

Functionality, creativity, and sustainability of the upcycled product.

Quality of presentation and reflection.

Learning Outcomes

By the end of these two lessons, pupils will:

Explain the principles of the circular economy and upcycling.

Demonstrate creativity by transforming waste into a new product.

Collaborate effectively within a design challenge.

Reflect on how innovation can reduce environmental impact.

ACTIVITY 6 - ENERGY HEROES – SAVING POWER AT SCHOOL

Grade Level: 12–14-year-olds

Subject: Science / Technology / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand the importance of energy efficiency in daily life and at school.

To explore how the EU promotes energy saving through the European Green Deal and Energy Efficiency Directive.

To identify energy-wasting habits and suggest practical improvements.

To encourage teamwork, responsibility, and leadership in environmental action.

Materials Needed

Short EU video: "Energy Efficiency – Every Action Counts" (available via EU Learning Corner or European Climate Pact).

Worksheet: School Energy Audit.

Clipboards or paper, pens, calculators.

Poster paper and coloured pencils for action-plan posters.

Optional: school electricity bill (for demonstration).

Lesson 1 – Discovering Energy Waste (40 minutes)

Warm-Up Discussion (10 minutes)

Ask pupils:

"Where do we use the most electricity in school?"

"Which devices or habits waste energy?"

List ideas under Uses and Wastes on the board.

Explain that energy efficiency means using less energy to perform the same task — saving both money and the planet.

Video and Discussion (10 minutes)

Show the EU video “Energy Efficiency – Every Action Counts”.

After viewing, ask:

“Why is energy saving part of the EU Green Deal?”

“Which actions mentioned in the video could we try here?”

Activity – School Energy Audit (15 minutes)

Divide the class into small groups.

Give each group a School Energy Audit worksheet.

Ask them to inspect one classroom or area: lights, computers, heating, switches, windows, plugs.

Record observations such as “Lights left on” or “Windows open while heating is on.”

Reflection (5 minutes)

Groups share one main problem they noticed.

Teacher summarises: “Next lesson, we’ll become Energy Heroes and create an action plan to fix these issues.”

Lesson 2 – Becoming Energy Heroes (40 minutes)

Recap (5 minutes)

Review key findings from the audit: “What were the top three sources of energy waste?”

Group Task – Action Plan (20 minutes)

Each group creates a short Energy-Saving Action Plan for the school.

Plans should include:

One short-term action (e.g. switching off lights after class).

One long-term idea (e.g. using LED bulbs or motion sensors).

A catchy slogan (e.g. “Be Bright – Turn Off the Light”).

Groups design a poster to promote their plan.

Presentation (10 minutes)

Groups present their ideas and explain:

The problem identified.

The proposed solution.

How it helps reduce the school's energy footprint.

Display the posters around the school.

Reflection (5 minutes)

Ask pupils:

"How can we measure if our school becomes more energy-efficient?"

Each pupil writes one personal Energy Pledge, for example: "I will unplug my charger when not in use."

Assessment

Observation of participation in the audit and discussions.

Accuracy and completeness of the School Energy Audit worksheet.

Creativity and practicality of the Action Plan poster.

Reflection and personal pledge statements.

Learning Outcomes

By the end of these two lessons, pupils will:

Understand how energy is used and wasted in everyday school life.

Explain the link between energy efficiency and climate protection.

Work collaboratively to design realistic, eco-friendly solutions.

Demonstrate environmental responsibility through personal and collective actions.

ACTIVITY 7 - CLEAN AIR, HEALTHY LIFE

Grade Level: 12–14-year-olds

Subject: Science / Geography / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand what air pollution is and how it affects human health and the environment.

To learn about the EU Zero Pollution Action Plan and its goals for cleaner air.

To identify main sources of air pollution locally and globally.

To encourage students to suggest and adopt actions for cleaner air in their community.

Materials Needed

Short EU video: “Clean Air for All – European Commission” (available via EU Learning Corner or Environment – European Commission).

Worksheet: Air Quality Around Us.

Map or digital air-quality app (e.g. EEA European Air Quality Index).

Chart paper, markers, scissors, coloured pencils.

Optional: candles, plants, or air-purifying examples for discussion.

Lesson 1 – Understanding Air Pollution (40 minutes)

Warm-Up (10 minutes)

Ask pupils:

“What comes to your mind when you hear the word pollution?”

“Where do you think most air pollution comes from?”

Write responses under Natural Sources (e.g. dust, pollen, volcanoes) and Human Sources (e.g. cars, factories, heating).

Video and Discussion (10 minutes)

Show the EU video “Clean Air for All”. European External Action Service – “Healthy Air, Healthy Planet” YouTube: “300 000 Lives Lost Each Year: How Europe Plans to Combat …”

After viewing, discuss:

“Why does the EU consider clean air a basic right?”

“What are the main challenges Europe faces?”

Emphasise that air pollution leads to health problems such as asthma and environmental issues like acid rain and climate change.

Group Activity – Air Quality Detective (15 minutes)

Give each group an Air Quality Around Us worksheet.

Using the EEA Air Quality Index map or printed charts, find the air quality level in their city or nearest major area.

Groups identify what might cause poor air quality in that region (e.g. traffic, heating, factories).

They list possible solutions or local actions to improve it.

Reflection (5 minutes)

Ask: “How does clean air affect our mood and health?”

Each student writes one sentence beginning with “Clean air means…”

Lesson 2 – Acting for Clean Air (40 minutes)

Recap (5 minutes)

Review what was learned: “What are the biggest air pollution sources we discovered yesterday?”

Brainstorm & Poster Creation (20 minutes)

Groups design an awareness poster titled “Clean Air, Healthy Life”.

Each poster should include:

A slogan (e.g. “Breathe Better, Live Longer”, “No Idling – Keep Our Air Clean”).

At least three actions to reduce air pollution (walking, cycling, planting trees, avoiding open burning, using public transport).

Simple visuals or infographics.

Presentation (10 minutes)

Groups present their posters to the class, explaining:

The causes they focused on.

The actions they recommend.

Display all posters in school corridors to raise awareness.

Reflection (5 minutes)

Discuss:

“Which action is easiest to start today?”

“How can we involve our families in cleaner air habits?”

Each pupil writes a personal Clean Air Promise (e.g. “I will walk to school once a week instead of taking the car”).

Assessment

Participation and engagement in group discussion.

Accuracy and creativity of the Air Quality Around Us worksheet and poster.

Relevance of suggested actions.

Reflection and personal Clean Air Promise.

Learning Outcomes

By the end of these two lessons, pupils will:

Explain what air pollution is and why it is harmful.

Understand EU initiatives promoting cleaner air.

Identify local pollution sources and realistic solutions.

Demonstrate environmental citizenship through action and advocacy.

ACTIVITY 8: WATER MATTERS – PROTECTING OUR BLUE PLANET

Grade Level: 12–14-year-olds

Subject: Science / Geography / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand the importance of fresh and marine water ecosystems for climate and life.

To recognise the aims of the Water Framework Directive and EU water-policy efforts.

To identify human behaviours that threaten water quality and how to act sustainably.

To develop responsibility and practical ideas for protecting water environments locally.

Materials Needed

Short EU video: “Water reuse – Key to Europe’s water resilience” (European Commission, DG Environment)

Environment

Worksheet: Our Water Footprint & Local Catchment Survey.

Large map of local rivers, lakes or coast (paper or digital).

Poster paper, markers, coloured pencils.

Optional: water sample from local stream / river / tap (if feasible) for observation.

Lesson 1 – Exploring Water & Ecosystems (40 minutes)

Warm-Up Discussion (10 minutes)

Ask pupils:

“What water bodies do you know near our region (rivers, lakes, seas)?”

“What happens to water if we pollute it or over-use it?”

List answers under Uses and Threats. Briefly introduce the Water Framework Directive: its goal is that all EU waters achieve at least “good status”.

Video & Discussion (10 minutes)

Show the EU video “Water reuse – Key to Europe’s water resilience”.

After viewing, ask:

“Why is water reuse relevant to climate change and sustainability?”

“What challenges were mentioned for Europe’s waters?”

Activity – Local Catchment Survey (15 minutes)

Divide students into small groups.

Each group works on the worksheet:

Identify local water body in the map.

List likely pressures on it (agriculture, industry, transport, domestic waste).

Suggest one immediate local action to improve the water status.

Groups share their findings.

Reflection (5 minutes)

Ask: “Which water pressure surprised you most?”

Students write one question they now have about water protection.

Lesson 2 – Designing Action for Water (40 minutes)

Recap (5 minutes)

Review key points:

“What was one major threat to local waters you found?”

“What is the goal of the Water Framework Directive?”

Group Task – Water Protection Plan (20 minutes)

In groups, pupils design a Water Protection Action Plan for the school or local community. The plan should include:

A slogan (e.g. “Save Water, Save Our Future”).

At least three actions (e.g. reduce runoff from school grounds, organise river/stream clean-up, promote tap water vs bottled water).

A brief explanation of how the plan contributes to good water status (as per EU aims).

Each group creates a poster of their plan.

Presentation (10 minutes)

Groups present their posters, explaining their actions and linking to the water directive's goals. Posters can be displayed in the school.

Reflection (5 minutes)

Ask:

"What will you personally do to protect water this week?"

Each pupil writes a Water Promise (e.g. "I will take shorter showers", "I will join the local river clean-up").

Assessment

Observation of participation during survey and group tasks.

Completion and relevance of the Catchment Survey worksheet.

Creativity and feasibility of the Water Protection Action Plan poster.

Quality of reflection and personal promise statements.

Learning Outcomes

By the end of these two lessons, pupils will:

Explain why fresh and marine waters are vital and under pressure.

Understand the EU Water Framework Directive and its "good status" target.

Identify local threats to water and propose practical solutions.

Demonstrate responsibility through personal and group action for water protection.

ACTIVITY 9 - BIODIVERSITY GUARDIANS – PROTECTING NATURE'S BALANCE

Grade Level: 12 – 14-year-olds

Subject: Science / Geography / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand what biodiversity means and why it is essential for life on Earth.

To learn about the EU Biodiversity Strategy 2030 and the Natura 2000 Network.

To recognise threats to biodiversity and explore conservation actions.

To encourage pupils to become active "guardians" of local ecosystems.

Materials Needed

Short EU video: "EU Biodiversity Strategy 2030 – Bringing Nature Back into Our Lives" (European Commission, DG Environment)

🔗 https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en

Worksheet: Biodiversity Web of Life.

Coloured string or wool (for food-web activity).

Poster paper, markers, coloured pencils.

Optional: photos or short film clips of local species and habitats.

Lesson 1 – Understanding Biodiversity (40 minutes)

Warm-Up (10 minutes)

Ask:

"What kinds of plants and animals can you see around your school or home?"

"What would happen if some of them disappeared?"

Write responses on the board and introduce the term biodiversity – the variety of life on Earth and the connections between species, habitats, and ecosystems.

Video and Discussion (10 minutes)

Show the EU video “Bringing Nature Back into Our Lives.”

After viewing, ask:

“What are the main goals of the EU Biodiversity Strategy 2030?”

“Why is restoring nature important for our future?”

Summarise: The EU aims to protect 30 % of land and sea areas and restore damaged ecosystems by 2030.

Activity – The Web of Life (15 minutes)

Have 10–12 students stand in a circle representing different species (e.g. bee, flower, tree, bird, fox, human).

Use string to connect them based on who depends on whom (for food, shelter, pollination, etc.).

Remove one species (e.g. bee) and show how the web collapses.

Discuss how every species is linked and why biodiversity matters.

Reflection (5 minutes)

Ask: “What can we do to help keep our local web of life strong?”

Students write one sentence starting with “I can protect biodiversity by…”

Lesson 2 – Acting as Biodiversity Guardians (40 minutes)

Recap (5 minutes)

Review the previous lesson by asking: “What is the Natura 2000 Network?”

Explain that it is a collection of protected areas across Europe supporting rare and threatened species.

Group Task – Local Guardians Plan (20 minutes)

Each group creates a mini–Biodiversity Guardians Plan for their school or neighbourhood, including:

One local species to observe or protect (bird, plant, insect, tree).

One awareness activity (e.g. bird feeder corner, flower garden, poster campaign).

A catchy slogan (e.g. “Let Nature Grow!”, “Be a Voice for the Voiceless.”)

They sketch their plan on poster paper.

Presentation (10 minutes)

Each group presents its plan to the class, explaining why the chosen species matters and how their action will help the environment.

Reflection (5 minutes)

Class discussion: “How does protecting biodiversity help climate change efforts?”

Each student writes a personal Nature Promise, e.g. “I will avoid picking wild flowers,” “I will feed birds in winter.”

Assessment

Participation in discussion and group activities.

Creativity and relevance of the Guardians Plan poster.

Understanding of biodiversity concepts and EU policy links.

Reflection and personal commitment statements.

Learning Outcomes

By the end of these two lessons, pupils will:

Explain what biodiversity is and why it is important.

Identify causes of biodiversity loss and related EU responses.

Understand how ecosystems are interconnected.

Demonstrate awareness through practical and creative actions for nature protection.

ACTIVITY 10 - FOREST FRIENDS – EXPLORING OUR GREEN LUNGS

Grade Level: 12 – 14-year-olds

Subject: Science / Geography / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand why forests are vital for life on Earth and for the climate.

To learn about the EU Forest Strategy 2030 and European actions for forest protection.

To explore how forests store carbon and support biodiversity.

To encourage pupils to value and care for trees in their local environment.

Materials Needed

Short EU video: "EU Forest Strategy 2030 – Forests for People, Nature and Climate" (European Commission, DG Environment)

🔗 https://environment.ec.europa.eu/strategy/forest-strategy_en

Worksheet: The Life of a Tree – Functions and Benefits.

Leaf samples or photos of local trees.

Poster paper, coloured pencils, markers.

Optional: short outdoor observation walks around school grounds (if possible).

Lesson 1 – Discovering Forests and Their Functions (40 minutes)

Warm-Up (10 minutes)

Ask:

"Why are forests often called the 'lungs of the Earth'?"

"What products or materials come from forests?"

Write answers under Environmental Benefits (e.g. oxygen, carbon storage, habitats) and Human Benefits (e.g. timber, food, recreation).

Video and Discussion (10 minutes)

Show the EU video “Forests for People, Nature and Climate”.

After viewing, ask:

“How do forests help fight climate change?”

“Why does the EU want to restore and protect them?”

Summarise: The EU aims to plant 3 billion new trees by 2030 and promote sustainable forest management.

Activity – The Life of a Tree (15 minutes)

Pupils complete the worksheet by labelling a tree diagram (showing roots, trunk, leaves, and their functions).

Discuss how each part supports the ecosystem (e.g. roots prevent erosion, leaves absorb CO_2).

Link functions to the Green Deal goals (carbon reduction, soil protection, biodiversity).

Reflection (5 minutes)

Ask: “What would happen if forests were cut down faster than they grow?”

Students write one sentence starting with “Forests matter because…”

Lesson 2 – Becoming Forest Friends (40 minutes)

Recap (5 minutes)

Review key points: “What are three reasons forests are important for our planet?”

Group Task – Adopt a Tree (20 minutes)

Each group chooses a local tree species (real or from photos) to “adopt.”

Their task:

Name the species and describe where it grows.

List three benefits it provides (to animals, people, climate).

Propose one action to protect it (e.g. avoiding littering, watering young trees, creating signs).

Groups illustrate their “adopted tree” on poster paper with a slogan (e.g. “Grow with Me – Protect Our Future”).

Presentation (10 minutes)

Groups present their trees and actions to the class.

Encourage linking ideas to EU forest initiatives such as tree-planting campaigns and sustainable timber use.

Reflection (5 minutes)

Ask: “How do trees connect people, nature, and climate?”

Each student writes a personal Tree Promise, e.g. “I will care for plants in our school garden.”

Assessment

Participation and teamwork in activities.

Completion and accuracy of the worksheet.

Creativity and relevance of the “Adopt a Tree” poster.

Reflection and commitment statements.

Learning Outcomes

By the end of these two lessons, pupils will:

Understand the role of forests in the climate system and ecosystems.

Describe key goals of the EU Forest Strategy 2030.

Recognise how local actions support global forest protection.

Demonstrate care and responsibility for trees and nature.

ACTIVITY 11 - SEA GUARDIANS – KEEPING OUR SEAS PLASTIC-FREE

Grade Level: 12 – 14-year-olds

Subject: Science / Geography / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand the problem of plastic pollution in seas and oceans.

To explore EU actions to protect marine life and reduce waste.

To recognise everyday behaviours that affect ocean health.

To inspire responsibility and teamwork through creative awareness activities.

Materials Needed

Short EU video: "EU Mission – Restore Our Ocean and Waters by 2030" (European Commission, DG Research & Innovation)

🔗 https://research-and-innovation.ec.europa.eu/knowledge-publications-tools-and-data/publications/all-publications/eu-mission-restore-our-ocean-and-waters-2030_en

Worksheet: Plastic in Our Waters – Sources and Solutions.

Large world map or European map.

Poster paper, markers, coloured pencils.

Optional: recyclable plastic items collected from home for visual display.

Lesson 1 – Understanding Marine Pollution (40 minutes)

Warm-Up (10 minutes)

Ask:

"Why are our seas important for life on Earth?"

"What kinds of pollution can enter the sea?"

List answers under Natural Sources (e.g. river sediment) and Human Sources (e.g. plastic waste, oil, chemicals).

Video and Discussion (10 minutes)

Show the EU video “EU Mission – Restore Our Ocean and Waters by 2030”.

After viewing, ask:

“What does the EU want to achieve by 2030?”

“How does this mission connect to the European Green Deal?”

Summarise: The EU aims to restore marine ecosystems, prevent pollution, and promote sustainable blue economy practices.

Activity – Tracing Plastic’s Journey (15 minutes)

Show a photo of a plastic bottle. Ask pupils to trace its path from school to sea (e.g. bin → street → drain → river → ocean).

On the worksheet, pupils label how plastic travels and what damage it causes to marine life (turtles, fish, coral reefs).

Groups highlight one key problem (e.g. microplastics or fishing nets).

Reflection (5 minutes)

Ask: “What surprised you most about plastic pollution?”

Each student writes one sentence starting with “The ocean needs us because…”

Lesson 2 – Acting as Sea Guardians (40 minutes)

Recap (5 minutes)

Review the main facts from Lesson 1. Ask: “What was the most serious effect of plastic pollution?”

Group Task – Clean Seas Action Plan (20 minutes)

Each group creates a Sea Guardians Action Plan including:

Three actions to reduce plastic use at school (e.g. reusable bottles, sorting bins, beach clean-up).

One action for home (e.g. avoiding single-use plastic bags).

A catchy slogan (e.g. “Protect the Blue – It Protects You”, “No Plastic Tides in Our Future”).

Groups illustrate their plan on poster paper.

Presentation (10 minutes)

Groups present their action plans to the class and explain how their ideas support EU marine goals.

Teacher summarises common themes and connects them to the Marine Strategy Framework Directive.

Reflection (5 minutes)

Ask: “What small change could you start today to help our seas?”

Each pupil writes a Sea Promise on a blue paper drop (e.g. “I will stop using plastic straws”). Display drops on a “Sea of Promises” wall.

Assessment

Observation of participation and group collaboration.

Completion and accuracy of the worksheet.

Creativity and feasibility of the Clean Seas Action Plan.

Quality of reflection and personal Sea Promises.

Learning Outcomes

By the end of these two lessons, pupils will:

Explain how plastic pollution harms marine life and ecosystems.

Understand EU efforts to restore oceans and waters by 2030.

Propose realistic actions to reduce plastic waste.

Show environmental responsibility through collective and personal commitments.

ACTIVITY 12 - GREEN TRANSPORT – MOVING TOWARDS A CLEANER FUTURE

Grade Level: 12–14-year-olds

Subject: Science / Geography / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand how transport contributes to climate change.

To explore sustainable mobility options supported by the EU.

To identify daily actions that can reduce carbon emissions from travel.

To encourage responsible mobility choices among pupils and families.

Materials Needed

Short EU video: “Sustainable and Smart Mobility Strategy – Europe on the Move” (European Commission, DG Mobility & Transport)

https://transport.ec.europa.eu/transport-themes/sustainable-and-smart-mobility-strategy_en

Worksheet: How Do We Travel? (travel habits survey).

World or city map.

Poster paper, markers, and coloured pencils.

Optional: bicycle, bus, or electric vehicle images for discussion.

Lesson 1 – Understanding Transport and Climate (40 minutes)

Warm-Up Discussion (10 minutes)

Ask pupils:

“How do you usually travel to school?”

“Which type of transport do you think produces the most pollution?”

List answers on the board under Sustainable (walking, cycling, bus, train) and Unsustainable (car, motorbike, plane).

Video and Discussion (10 minutes)

Show the EU video “Europe on the Move”.

After viewing, discuss:

“Why does the EU promote sustainable transport?”

“What are the main goals of the EU Mobility Strategy?”

Summarise: The EU aims to make all transport systems smart, safe, and carbon-neutral by 2050.

Activity – Travel Habits Survey (15 minutes)

Pupils complete the How Do We Travel? worksheet, recording how they and their family members travel in a normal week.

In groups, they calculate how many journeys use sustainable transport.

Discuss how their habits could change to reduce emissions.

Reflection (5 minutes)

Ask: “What would make it easier for you to walk or cycle more often?”

Each pupil writes one sentence starting with “I could travel greener if…”

Lesson 2 – Designing a Greener Mobility Plan (40 minutes)

Recap (5 minutes)

Review key facts: “What are the EU’s targets for transport emissions?”

Explain that sustainable mobility also makes cities healthier and safer.

Group Task – Our School Mobility Plan (20 minutes)

Each group designs a School Green Mobility Plan including:

A map showing home-to-school routes (walking, bus, cycling).

Three ideas to reduce emissions (carpooling, cycle days, public transport use).

A slogan (e.g. “Go Green, Go Clean!”, “Step to School – Step for the Planet”).

Groups design posters or mini campaigns for display.

Presentation (10 minutes)

Each group presents their plan and discusses how it supports the EU Sustainable Mobility Strategy.

Encourage peer questions: “Which idea could really work in our school?”

Reflection (5 minutes)

Ask: “How can we convince more people to use greener transport?”

Each pupil writes a Mobility Pledge, e.g. “I will walk to school twice a week.”

Assessment

Participation in class and group activities.

Accuracy and reflection in the Travel Habits Survey.

Creativity and practicality of the School Green Mobility Plan.

Quality of reflection and personal Mobility Pledge.

Learning Outcomes

By the end of these two lessons, pupils will:

Understand how transport impacts the environment and climate.

Recognise EU goals for sustainable and smart mobility.

Propose realistic solutions for eco-friendly transport.

Show personal and collective responsibility in reducing emissions.

ACTIVITY 13 - SMART CITIES – DESIGNING SUSTAINABLE URBAN SPACES

Grade Level: 12–14-year-olds

Subject: Science / Geography / ICT / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand what a “smart city” is and how it supports sustainability.

To explore EU initiatives that combine digital innovation with green living.

To identify problems in modern cities such as pollution and congestion.

To develop creative ideas for making cities more liveable and eco-friendlier.

Materials Needed

Short EU video: “Smart Cities Marketplace – Innovation for a Better Future” (European Commission, DG Energy)

https://smart-cities-marketplace.ec.europa.eu/

Worksheet: City Problems and Smart Solutions.

Large map or plan of a city (real or fictional).

Poster paper, coloured pencils, scissors, glue.

Optional: tablets or computers for digital city-design tools (e.g. Google Earth, Tinkercad).

Lesson 1 – What Makes a City Smart? (40 minutes)

Warm-Up Discussion (10 minutes)

Ask pupils:

“What do you think makes a city ‘smart’?”

“Which cities in Europe are known for being green or innovative?”

List responses on the board under Technology, Environment, and People.

Introduce the EU definition: A smart city uses digital technologies to improve citizens’ quality of life while protecting the planet.

Video and Discussion (10 minutes)

Show the EU video “Smart Cities Marketplace – Innovation for a Better Future.”

After viewing, ask:

“What technologies or ideas were used to make cities smarter?”

“How can digital tools help reduce energy use or traffic?”

Highlight the link with the European Green Deal — cities are key players in reaching climate-neutral Europe by 2050.

Activity – Spot the City Challenges (15 minutes)

Give pupils the City Problems and Smart Solutions worksheet.

In small groups, they identify 3–4 problems in their own city (e.g. traffic, waste, poor air quality) and match them with potential smart solutions (e.g. electric buses, solar lighting, recycling apps).

Reflection (5 minutes)

Ask: “Which smart idea would make your city better to live in?”

Each pupil writes one short idea beginning with “In my smart city…”

Lesson 2 – Designing Our Smart City (40 minutes)

Recap (5 minutes)

Review the main ideas from the previous lesson: “What do smart cities do differently?”

Group Task – Build a Mini Smart City Plan (25 minutes)

Each group designs its own Smart City on poster paper or using a simple digital design tool.

Their city plan should include:

Renewable energy sources (solar roofs, wind turbines).

Sustainable transport (bikes, trams, shared e-cars).

Green spaces and clean water systems.

Smart waste and lighting systems.

Groups label each area and explain how it helps people and the planet.

Presentation (7 minutes)

Groups present their city to the class, explaining:

The main goals of their design.

Which EU smart-city ideas inspired them.

Teacher can note connections to real initiatives such as EU Mission: 100 Climate-Neutral Cities by 2030.

Reflection (3 minutes)

Ask: “What could we apply from our design to our own town or school?”

Each pupil writes a Smart Habit to support sustainability (e.g. “I will report street lights left on all day”).

Assessment

Group participation and creativity in city design.

Completion and accuracy of the worksheet.

Relevance of smart-city features to sustainability.

Reflection and personal Smart Habit contribution.

Learning Outcomes

By the end of these two lessons, pupils will:

Explain what makes a city “smart” and sustainable.

Recognise EU actions that support greener urban development.

Identify local urban challenges and propose innovative solutions.

Demonstrate creativity, teamwork, and environmental awareness.

ACTIVITY 14 - WASTE WARRIORS – TOWARDS A ZERO-WASTE LIFESTYLE

Grade Level: 12–14-year-olds

Subject: Science / Citizenship / Design & Technology

Duration: 2 lessons × 40 minutes

Objectives

To understand what a zero-waste lifestyle means and why it matters for the planet.

To learn how waste impacts the environment and how the EU reduces it through circular economy measures.

To identify personal and community actions for reducing, reusing, and recycling.

To promote environmental responsibility and creativity through sustainable habits.

Materials Needed

Short EU video: “The Circular Economy: Closing the Loop” (European Commission, DG Environment)

https://environment.ec.europa.eu/topics/circular-economy_en

Worksheet: My Waste Diary.

Everyday packaging (paper, plastic, glass, cans).

Chart paper, markers, coloured pencils.

Optional: a weighing scale to measure classroom waste over a week.

Lesson 1 – Understanding Waste and the Circular Economy (40 minutes)

Warm-Up (10 minutes)

Ask:

“What types of waste do we create every day?”

“Where does it all go?”

Display examples (plastic bottle, snack wrapper, paper, tin).

Discuss which ones can be reused or recycled.

Explain the EU Circular Economy Action Plan — making products last longer, repairing instead of replacing, and recycling materials efficiently.

Video and Discussion (10 minutes)

Show the EU video “The Circular Economy: Closing the Loop.”

After viewing, discuss:

“What does circular economy mean?”

“Why is it better than the traditional ‘take–make–dispose’ system?”

Highlight how this approach supports zero waste goals by reusing materials and reducing pollution.

Activity – My Waste Diary (15 minutes)

Give each student the My Waste Diary worksheet.

They list the waste items they produce in one day and note which could have been avoided or reused.

Ask them to identify one area where they can make a change (e.g. “I can use a reusable bottle instead of plastic cups”).

Reflection (5 minutes)

Ask: “What surprised you most about your daily waste?”

Each pupil writes a short sentence starting with “From now on, I will try to…”

Lesson 2 – Becoming Waste Warriors (40 minutes)

Recap (5 minutes)

Review the main idea: zero waste = preventing waste before it starts.

Ask: “What small actions can make a big difference?”

Group Task – Waste Warriors Campaign (25 minutes)

Each group designs a Zero-Waste Awareness Campaign for the school.

Their campaign should include:

A catchy slogan (e.g. “Less Waste, More Future”, “Don’t Trash Our Planet”).

At least three actions (e.g. sharing boxes for books, waste-free lunch day, recycling corners).

A visual element (poster, video idea, or social media post).

Encourage pupils to think about the “5 Rs”: Refuse, Reduce, Reuse, Repurpose, Recycle.

Presentation (7 minutes)

Groups present their campaigns and explain how they contribute to a zero-waste lifestyle.

Display the posters or upload digital versions to the school website or Erasmus project page.

Reflection (3 minutes)

Ask: “How could we measure the success of our campaign?”

Each pupil writes one Zero-Waste Promise on a green leaf cut-out (e.g. “I will not use plastic cutlery”) to create a classroom “Tree of Change.”

Assessment

Participation and accuracy in the Waste Diary and group campaign.

Creativity, teamwork, and feasibility of proposed actions.

Understanding of zero-waste and circular economy principles.

Reflection and personal Zero-Waste Promise.

Learning Outcomes

By the end of these two lessons, pupils will:

Understand the environmental impact of waste and overconsumption.

Explain EU actions promoting a circular and zero-waste economy.

Identify and apply practical strategies to reduce waste.

Demonstrate environmental leadership through sustainable lifestyle choices.

ACTIVITY 15 - ENERGY FROM NATURE – EXPLORING RENEWABLE SOLUTIONS

Grade Level: 12–14-year-olds

Subject: Science / Geography / Citizenship / Technology

Duration: 2 lessons × 40 minutes

Objectives

To understand what renewable energy is and why it is essential for a sustainable future.

To explore different renewable sources: solar, wind, hydro, geothermal, and biomass.

To learn about the EU's targets for renewable energy and carbon neutrality.

To apply knowledge creatively through simple experiments or model designs.

Materials Needed

Short EU video: "Renewable Energy – Powering Europe's Future" (European Commission, DG Energy)

https://energy.ec.europa.eu/topics/renewable-energy_en

Worksheet: Renewable Energy Explorer.

Mini-materials for models (cardboard, cups, paper, sticks, foil, rubber bands).

Poster paper, coloured pencils, glue, scissors.

Optional: sunlight meter, mini solar toy, or fan (if available).

Lesson 1 – Discovering Energy from Nature (40 minutes)

Warm-Up (10 minutes)

Ask pupils:

"Where does most of our energy come from?"

"What happens when fossil fuels run out?"

List answers under Renewable and Non-renewable.

Briefly explain that renewable energy comes from natural sources that are constantly replenished — the EU aims for at least 42.5 % renewables by 2030 under the Renewable Energy Directive.

Video & Discussion (10 minutes)

Show the EU video “Renewable Energy – Powering Europe’s Future.”

After viewing, discuss:

“Which renewable sources were shown?”

“What advantages do they have for people and nature?”

Highlight that renewable energy reduces emissions, creates green jobs, and supports EU energy independence (REPowerEU Plan).

Activity – Energy Explorer (15 minutes)

Distribute the Renewable Energy Explorer worksheet.

Each group focuses on one energy type (solar, wind, hydro, geothermal, biomass) and notes:

How it works.

Its benefits and challenges.

Real examples from Europe.

Groups share quick findings.

Reflection (5 minutes)

Ask: “Which renewable source could work best in our town?”

Each pupil writes one idea beginning with “We could use nature’s power by…”

Lesson 2 – Designing a Renewable Future (40 minutes)

Recap (5 minutes)

Review: “Which renewable source is the most common in Europe?”

Group Task – Build or Design a Renewable Model (25 minutes)

Each group designs or constructs a simple prototype showing how energy can be produced from nature:

A mini wind turbine (using paper and sticks).

A cardboard solar cooker or panel.

A small water wheel model.

If materials are limited, groups may draw their concept in detail.

Encourage labelling parts and explaining how energy transformation occurs.

Presentation (7 minutes)

Groups present their models or drawings, explaining:

The source of energy.

How it works.

How it supports the EU Green Deal goals.

Reflection (3 minutes)

Ask: “What would our school look like if it used renewable energy only?”

Each pupil writes a Green Power Promise (e.g. “I will turn off lights and support renewable energy”).

Assessment

Observation of group participation and collaboration.

Accuracy of the Renewable Energy Explorer worksheet.

Creativity and functionality of the renewable-energy model.

Reflection and quality of Green Power Promise.

Learning Outcomes

By the end of these two lessons, pupils will:

Describe different types of renewable energy and how they work.

Understand the EU’s renewable-energy goals and climate targets.

Recognise the importance of clean energy for sustainability.

Demonstrate creativity and teamwork in designing renewable-energy ideas.

ACTIVITY 16 - ECO-DESIGN CHALLENGE – CREATING SUSTAINABLE PRODUCTS

Grade Level: 12–14-year-olds

Subject: Science / Design & Technology / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand what eco-design means and how it supports sustainability.

To explore how products can be made with minimal environmental impact.

To learn about the EU's Eco-Design for Sustainable Products Regulation (ESPR).

To develop creativity and teamwork through designing eco-friendly inventions.

Materials Needed

Short EU video: "Designing Sustainable Products – Europe's Green Transition" (European Commission, DG Environment)

https://environment.ec.europa.eu/topics/circular-economy/sustainable-products-initiative_en

Worksheet: Eco-Design Canvas (problem → idea → materials → user benefit → sustainability).

Recycled materials (cardboard, paper, string, plastic caps, fabrics, boxes).

Poster paper, coloured pencils, scissors, glue.

Optional: access to school's recycling bins or "waste corner" for inspiration.

Lesson 1 – Understanding Eco-Design (40 minutes)

Warm-Up (10 minutes)

Ask pupils:

"What makes a product 'eco-friendly'?"

"Can you name any products that are good for the environment?"

Write ideas on the board under Design and Impact.

Explain: Eco-design means creating products that use fewer resources, last longer, and can be recycled or repaired easily.

Video and Discussion (10 minutes)

Show the EU video “Designing Sustainable Products – Europe’s Green Transition.”

After viewing, discuss:

“How can design reduce waste and pollution?”

“What do designers consider before creating a product?”

Highlight: The EU Eco-Design Regulation encourages producers to think about sustainability from the very beginning of the product’s life cycle.

Activity – The Eco-Design Canvas (15 minutes)

Distribute the worksheet and guide students to brainstorm an everyday problem they want to solve sustainably (e.g. food waste, plastic packaging, water saving).

Each group fills in the sections:

The problem.

Their eco-friendly product idea.

Sustainable materials they could use.

How it helps the environment.

Reflection (5 minutes)

Ask: “What kind of materials would you choose to design sustainably?”

Each pupil writes one idea starting with “A sustainable product should…”

Lesson 2 – The Eco-Design Challenge (40 minutes)

Recap (5 minutes)

Review: “What makes a product eco-designed?”

Discuss examples from the EU (solar chargers, refillable bottles, reusable packaging).

Group Task – Create or Draw a Prototype (25 minutes)

Each group designs or builds a small prototype of their eco-product using recycled materials.

If materials are limited, they can draw a labelled diagram on poster paper.

Ask them to focus on:

Functionality.

Environmental benefits.

Durability and reusability.

Presentation (7 minutes)

Groups present their product to the class, explaining:

What problem it solves.

Which sustainable materials they used.

How it aligns with EU Circular Economy principles.

Reflection (3 minutes)

Ask: “Would you buy your own product? Why?”

Each pupil writes a Design Promise, e.g. “I will design with nature in mind.”

Assessment

Observation of group participation and creativity.

Completion and clarity of the Eco-Design Canvas.

Quality, originality, and sustainability of the final product.

Reflection and commitment through Design Promise.

Learning Outcomes

By the end of these two lessons, pupils will:

Understand the role of eco-design in sustainability and EU environmental goals.

Recognise the environmental impact of product design choices.

Develop innovative thinking and teamwork skills.

Apply sustainable principles in creative problem-solving.

ACTIVITY 17 - GREEN HOMES – LIVING SUSTAINABLY EVERY DAY

Grade Level: 12–14-year-olds

Subject: Science / Citizenship / Design & Technology

Duration: 2 lessons × 40 minutes

Objectives

To understand how daily habits at home impact energy use and the environment.

To learn about the EU Energy Efficiency Directive and Renovation Wave Strategy.

To identify sustainable ways of living and saving resources at home.

To promote responsible behaviour through creative and practical home actions.

Materials Needed

Short EU video: "Energy Efficiency – Europe's Renovation Wave for Green Homes" (European Commission, DG Energy)

https://energy.ec.europa.eu/topics/energy-efficiency/renovation-wave_en

Worksheet: Our Home Footprint.

Photos or drawings of typical household rooms (kitchen, bathroom, bedroom).

Poster paper, markers, coloured pencils.

Optional: a classroom "model home" corner (built with cardboard or printed layout).

Lesson 1 – Understanding Sustainable Living (40 minutes)

Warm-Up (10 minutes)

Ask pupils:

"Which activities use the most energy at home?"

"How can we reduce waste or pollution at home?"

List answers under Energy Use (heating, lighting, appliances) and Sustainable Actions (turning off lights, recycling, shorter showers).

Explain: The EU Renovation Wave aims to make homes across Europe more energy-efficient, affordable, and healthy by 2030.

Video and Discussion (10 minutes)

Show the EU video “Energy Efficiency – Europe’s Renovation Wave for Green Homes.”

After viewing, discuss:

“What is energy efficiency?”

“How can better homes help reduce Europe’s carbon footprint?”

Highlight that the EU supports energy-saving renovations, renewable heating, and insulation to cut emissions and improve comfort.

Activity – Our Home Footprint (15 minutes)

Distribute the Our Home Footprint worksheet.

Students list common daily habits at home and mark them as green (eco-friendly) or grey (wasteful).

Then, they choose three grey habits to improve and write their solutions (e.g. unplug chargers, reuse water, switch to LED bulbs).

Reflection (5 minutes)

Ask: “Which small change could make your home more sustainable?”

Each student writes one sentence starting with “At home, I can…”

Lesson 2 – Designing Green Homes (40 minutes)

Recap (5 minutes)

Review: “What are three main ways homes can become more energy-efficient?”

Group Task – Create a Green Room Plan (25 minutes)

Divide students into small groups and assign each one a room (kitchen, bathroom, living room, bedroom).

They draw their room on poster paper and add labels or symbols showing:

Energy-saving ideas (LED lights, solar heating, A-rated appliances).

Water-saving ideas (low-flow taps, collecting rainwater).

Sustainable materials (recycled wood, natural fabrics).

Encourage creativity: pupils can design “dream eco-homes” inspired by EU smart-home examples.

Presentation (7 minutes)

Groups present their green-room plans, explaining their choices and how they contribute to energy efficiency and sustainability.

Display all posters to create a “Sustainable House” wall in the classroom.

Reflection (3 minutes)

Ask: “What could your family start doing this week to make your home greener?”

Each student writes a Home Promise (e.g. “I will remind my family to switch off the TV completely, not just by remote”).

Assessment

Completion and accuracy of the Our Home Footprint worksheet.

Creativity and practicality of the Green Room Plan poster.

Group participation and presentation clarity.

Reflection and personal Home Promise.

Learning Outcomes

By the end of these two lessons, pupils will:

Understand energy efficiency and sustainability in home settings.

Recognise EU goals for greener, healthier homes.

Identify everyday behaviours that reduce energy use and waste.

Demonstrate responsibility through personal and family actions.

ACTIVITY 18 - CLIMATE INNOVATORS – INVENTING FOR A GREENER FUTURE

Grade Level: 12–14-year-olds

Subject: Science / Design & Technology / Citizenship

Duration: 2 lessons × 40 minutes

Objectives

To understand how innovation and creativity can help fight climate change.

To explore examples of green inventions and technologies supported by the EU.

To develop students', own ideas for eco-innovations that address real environmental problems.

To encourage entrepreneurship, teamwork, and problem-solving skills.

Materials Needed

Short EU video: "Horizon Europe – Supporting Green Innovation" (European Commission, DG Research & Innovation)

https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/horizon-europe_en

Worksheet: Innovation Canvas (problem → idea → materials → benefits → sustainability).

Recycled or basic craft materials for model creation.

Poster paper, markers, coloured pencils, scissors, glue.

Optional: internet access to explore EU-funded green projects.

Lesson 1 – Discovering Climate Innovation (40 minutes)

Warm-Up (10 minutes)

Ask:

"What inventions make our lives easier?"

"Can inventions also protect the planet?"

Show pictures of examples (solar panels, wind turbines, vertical gardens, electric bikes).

Explain: Innovation means finding new ways to solve problems — the EU supports green innovations that reduce emissions and improve life quality.

Video and Discussion (10 minutes)

Show the EU video “Horizon Europe – Supporting Green Innovation.”

After viewing, ask:

“What challenges do EU innovators try to solve?”

“Which inventions impressed you the most?”

Highlight: Green innovation connects science, creativity, and sustainability.

Activity – Innovation Canvas (15 minutes)

Distribute the Innovation Canvas worksheet.

Each group chooses an environmental issue (e.g. air pollution, water waste, plastic use, energy use).

They brainstorm a new product, service, or idea that could solve it — such as:

A smart bin that sorts waste automatically.

A solar-powered backpack charger.

A filter system for collecting microplastics.

They describe materials, function, and benefits.

Reflection (5 minutes)

Ask: “Which idea could be made real one day?”

Each student writes: “Innovation can change the world because…”

Lesson 2 – Building and Sharing Green Inventions (40 minutes)

Recap (5 minutes)

Review ideas from the previous lesson. Ask: “What makes an invention green?”

Group Task – Create or Present the Prototype (25 minutes)

Groups design a simple prototype or a detailed drawing of their invention using recycled materials.

Encourage teams to focus on:

How their design works.

Why it's sustainable.

What real-world problem it solves.

Add creativity — give the invention a name and logo!

Presentation (7 minutes)

Groups present their innovation to the class in a mini "Green Innovation Fair."

Teacher and students can vote for categories like Most Creative, Most Useful, Most Realistic.

Reflection (3 minutes)

Ask: "How could young people like you become future climate innovators?"

Each pupil writes a Future Innovator Promise, e.g. "I will use my ideas to make the planet better."

Assessment

Participation and creativity during brainstorming and prototype design.

Clarity and completeness of the Innovation Canvas.

Presentation quality and teamwork.

Reflection and personal Innovator Promise.

Learning Outcomes

By the end of these two lessons, pupils will:

Understand the link between innovation and sustainability.

Recognise how EU research programmes support green technologies.

Apply creativity and critical thinking to propose sustainable solutions.

Demonstrate teamwork and innovation skills through eco-friendly projects.

ACTIVITY 19 - YOUTH FOR THE PLANET – TAKING LOCAL CLIMATE ACTION

Grade Level: 12–14-year-olds

Subject: Citizenship / Geography / Science

Duration: 2 lessons × 40 minutes

Objectives

To understand how local actions contribute to global climate goals.

To explore the European Climate Pact and its focus on citizen engagement.

To identify local environmental problems and plan community-based solutions.

To inspire students to become active youth climate ambassadors.

Materials Needed

Short EU video: “European Climate Pact – Together for a Greener Europe” (European Commission, DG Climate Action)

https://climate.ec.europa.eu/eu-action/european-climate-pact_en

Worksheet: Local Climate Action Planner.

Poster paper, coloured pencils, markers.

Access to photos or maps of the local community.

Optional: guest speaker (local environmental officer, NGO member, or teacher).

Lesson 1 – Discovering the Power of Local Action (40 minutes)

Warm-Up (10 minutes)

Ask pupils:

“What environmental problems do you see in your town?”

“Do you think we can change them?”

Write answers on the board under Challenges (waste, pollution, lack of trees) and Opportunities (teamwork, new ideas, youth power).

Explain: The European Climate Pact connects people, schools, and organisations to share ideas for climate action.

Video and Discussion (10 minutes)

Show the EU video “European Climate Pact – Together for a Greener Europe.”

After viewing, ask:

“What examples of local action did you see?”

“Why does the EU support youth participation?”

Highlight: Everyone can become a Climate Pact Ambassador — small actions lead to big results.

Activity – Our Local Climate Map (15 minutes)

Students use a local map or photo collage to mark areas where they notice climate-related problems (e.g. littered park, lack of trees, car congestion).

Groups identify one issue they would like to address.

Reflection (5 minutes)

Ask: “What makes young people powerful change-makers?”

Each student writes one idea beginning with “I can make a difference by…”

Lesson 2 – Planning Local Climate Action (40 minutes)

Recap (5 minutes)

Review yesterday’s discussion. Ask: “Which local issues are most urgent?”

Group Task – Action Planning (25 minutes)

Each group completes the Local Climate Action Planner with these sections:

The local problem.

Why it matters.

What actions can we take (e.g. tree planting, clean-up, awareness posters, school energy saving)?

Who can help (teachers, families, local authorities)?

How success will be measured.

Encourage creativity: students can create an action logo, slogan, or campaign name (e.g. “Cool the City”, “Our School, Our Planet”).

Presentation (7 minutes)

Groups present their Local Climate Action Plans to the class.

Teacher can connect their ideas to real EU Climate Pact projects or local youth initiatives.

Reflection (3 minutes)

Ask: “What could we start this month in our school?”

Each pupil writes a Climate Action Pledge, e.g. “I will join our Green Club and plant a tree this spring.”

Assessment

Completion and relevance of the Local Climate Action Planner.

Creativity and feasibility of the group plan.

Participation and clarity in presentations.

Reflection and sincerity in personal Climate Action Pledge.

Learning Outcomes

By the end of these two lessons, pupils will:

Understand how individual and community actions contribute to global climate goals.

Recognise the role of young people in the European Climate Pact.

Develop planning and teamwork skills for environmental action.

Show leadership and motivation to create positive change locally.

ACTIVITY 20 - EU GREEN DEAL – OUR SHARED RESPONSIBILITY

Grade Level: 12–14-year-olds

Subject: Citizenship / Science / Geography / English

Duration: 2 lessons × 40 minutes

Objectives

To understand the main goals of the European Green Deal.

To connect previous learning about sustainability, energy, biodiversity, and circular economy.

To recognise the EU's commitment to becoming climate-neutral by 2050.

To encourage students to see themselves as responsible EU citizens and changemakers.

Materials Needed

Short EU video: "The European Green Deal – Europe's Road to a Sustainable Future" (European Commission, DG Environment)

https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

Worksheet: Green Deal Connections.

EU and SDG icons (printable or digital).

Poster paper, markers, coloured pencils.

Optional: EU flag, student country flags, and world map for context.

Lesson 1 – Understanding the European Green Deal (40 minutes)

Warm-Up (10 minutes)

Ask pupils:

"What do you think the European Green Deal is about?"

"Which of our previous topics do you think it includes?"

Write their answers around a central circle titled 'The Green Deal' on the board (Energy, Transport, Food, Waste, Nature, Education).

Video and Discussion (10 minutes)

Show the EU video “The European Green Deal – Europe’s Road to a Sustainable Future.”

After viewing, discuss:

“What is the EU’s main goal by 2050?”

“Which Green Deal areas are most important for young people?”

Explain: The Green Deal is Europe’s plan to make the economy modern, resource-efficient, and climate-neutral, covering nine policy areas, including clean energy, sustainable agriculture, and biodiversity.

Activity – Green Deal Connections (15 minutes)

Distribute the worksheet.

Pupils match the Green Deal goals with the corresponding school activities they already did in earlier lessons (e.g. Waste Warriors → Circular Economy; Sea Guardians → Zero Pollution).

Encourage reflection on how each theme contributes to a greener Europe.

Reflection (5 minutes)

Ask: “Which part of the Green Deal do you think will most improve our future?”

Each student writes one idea beginning with “The EU Green Deal gives me hope because…”

Lesson 2 – Our Shared European Responsibility (40 minutes)

Recap (5 minutes)

Briefly review the Green Deal’s goals. Ask:

“What does it mean to be a responsible European citizen?”

Group Task – Our Green Deal Charter (25 minutes)

Each group creates a Mini Charter of Responsibility, including:

Three personal or school-level actions inspired by the Green Deal (e.g. reduce energy waste, promote green transport, plant native trees).

One EU value (solidarity, equality, respect, democracy).

A slogan or motto (e.g. “Together for Our Future”, “Act Green, Live Clean”).

Groups design and decorate their charters with EU and SDG symbols.

Presentation (7 minutes)

Groups present their Green Deal Charters to the class.

Teacher can display them on a “Europe for the Planet” classroom wall.

Reflection (3 minutes)

Ask: “What does be part of the European Union mean for our planet?”

Each pupil writes their Green Citizen Pledge, e.g. “I will use my voice to protect our common home.”

Assessment

Understanding of Green Deal concepts and EU citizenship.

Relevance and creativity of the Green Deal Charter.

Reflection and engagement during group discussions.

Clarity and sincerity of the Green Citizen Pledge.

Learning Outcomes

By the end of these two lessons, pupils will:

Explain the purpose and main goals of the European Green Deal.

Connect local and school actions to European climate objectives.

Recognise their own responsibility as EU citizens.

Commit to lifelong values of sustainability, collaboration, and respect for the planet.

REFERENCES AND RESOURCES

This Teachers' Manual was developed within the MAKE – Mankind Act Keeps Earth Erasmus+ Project to support teachers in implementing climate change education through interdisciplinary and practical activities. All activities are based on authentic and open-access European Union resources, strategies, and educational materials that promote environmental awareness, digital competence, and European citizenship among pupils aged 12–15.

1. EUROPEAN UNION FRAMEWORKS AND POLICY REFERENCES

The European Green Deal (European Commission, 2019). Europe's roadmap to becoming the first climate-neutral continent by 2050.

https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

-European Climate Pact (DG CLIMA)

A movement connecting people and organisations to act for the climate.

https://climate.ec.europa.eu/eu-action/european-climate-pact_en

-EU Biodiversity Strategy 2030.

Bringing nature back into our lives and protecting 30% of EU land and sea.

https://environment.ec.europa.eu/strategy/biodiversity-strategy-2030_en

-EU Forest Strategy 2030

Forests for people, nature, and the climate – planting 3 billion trees by 2030.

https://environment.ec.europa.eu/strategy/forest-strategy_en

-Farm to Fork Strategy

For a fair, healthy, and environmentally friendly food system.

https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en

-Circular Economy Action Plan (2020)

Closing the loop of product life cycles through better design and recycling.

https://environment.ec.europa.eu/topics/circular-economy_en

-Zero Pollution Action Plan (2021)

Aiming for pollution-free air, water, and soil by 2050.

https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en

-EU Water Framework Directive (2000/60/EC)

Ensuring the protection and sustainable use of Europe's water resources.

https://environment.ec.europa.eu/topics/water_en

-Marine Strategy Framework Directive (2008/56/EC)

Protecting Europe's seas and oceans and achieving Good

-Environmental Status.

https://environment.ec.europa.eu/topics/marine-and-coastal_en

-EU Sustainable and Smart Mobility Strategy (2020)

Greener, safer, and smarter transport systems for Europe.

https://transport.ec.europa.eu/transport-themes/sustainable-and-smart-mobility-strategy_en

-EU Smart Cities Marketplace

Connecting innovative cities for clean energy and digital transformation.

https://smart-cities-marketplace.ec.europa.eu/

-EU Renewable Energy Directive (RED III)

Setting ambitious targets for renewable energy use by 2030.

https://energy.ec.europa.eu/topics/renewable-energy_en

-EU Energy Efficiency Directive (EED)

Promoting responsible energy consumption and renovation of buildings.

https://energy.ec.europa.eu/topics/energy-efficiency_en

-EU Eco-Design for Sustainable Products Regulation (ESPR)

Ensuring that products are durable, reusable, and repairable.

https://environment.ec.europa.eu/topics/circular-economy/sustainable-products-initiative_en

-EU Youth Strategy 2022–2027

Empowering young Europeans to act for democracy, inclusion, and sustainability.

https://youth.europa.eu/youth-strategy_en

2. EDUCATIONAL AND PEDAGOGICAL RESOURCES

EU Learning Corner – European Commission educational portal for teachers and students

https://learning-corner.learning.europa.eu

European Climate Pact School Materials – Practical classroom guides and videos

https://climate.ec.europa.eu/eu-action/european-climate-pact/resources_en

European Environment Agency (EEA) Education Tools

Interactive maps, air quality data, and educational activities.

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

EU Science Hub – Joint Research Centre (JRC) Educational Resources

Inquiry-based activities for energy, sustainability, and environmental education.

https://joint-research-centre.ec.europa.eu/education-and-training_en

UNESCO Sustainable Development Goals (SDG 4.7) – Education for Sustainable Development.

https://en.unesco.org/themes/education-sustainable-development

European School Education Platform & eTwinning Projects

Collaboration, lesson plans, and environmental campaigns.

https://school-education.ec.europa.eu

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"This Teachers' Manual was created with the joint effort of European partners who believe that education is the key to climate action."