CURRICULUM

How to Teach Green Topics Effectively

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Impressum

Project Title: Raising Awareness for a Greener Tomorrow

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Project Coordinator: GKP ČAKOM (Croatia)

Project Partners: Pučko otvoreno učilište Čakovec (Croatia), Ljudska univerza Lendava (Slovenia), University for Lifelong Learning Vanco Prke (North Macedonia)

Project Website: **ragt.cakom.hr**

Publication Title: Curriculum. How to Teach Green Topics Effectively.

Summary: The aim of this curriculum is to improve the competencies of educators and adult education staff and present them with new opportunities to enhance the teaching through this innovative educational resource.

Co-funded by the European Union

Disclaimer: Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Agency for Mobility and EU Programmes (AMPEU). Neither the European Union nor the granting authority can be held responsible for them.

Note: Findings and data presented in this curriculum are more pertaining and relevant to the objectives of the RAGT project. We encourage you to learn more about the topics presented by clicking the links in the text or doing your own additional research.

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Cover Photo: Luis Dalvan, available at **https://www.pexels.com/photo/green-grass-near-trees-1770809/**.

The Raising Awareness for a Greener Tomorrow (RAGT) is an Erasmus+ small-scale partnership project in the field of adult education that aims to improve the competencies of educators and adult education staff, create learning opportunities for adult learners, foster collaboration and knowledge-sharing on green topics, raise awareness and promote sustainable practices, and develop innovative educational resources. The project will develop a methodological manual for educators, a curriculum for adult learners, and a digital educational-informative tool for sorting waste. The project's primary target groups are educators and adult education staff, as well as adult learners, while the secondary target groups include local communities, stakeholders in the waste management and environmental sectors, partner institutions and their staff, and other adult education institutions and educators.

Partner consortium

GKP ČAKOM (Croatia)

GKP ČAKOM is a public service company based in Čakovec whose main focus is on waste management. The organization's main activities include efficient waste collection, disposal, and treatment, emphasizing ecological sustainability. ČAKOM conducts educational campaigns to raise public awareness about proper waste handling and environmental conservation, contributing significantly to the region's ecological well-being.

WEBSITE

Pučko Otvoreno Učilište Čakovec (Croatia)

POU Čakovec is renowned for providing a wide range of educational programs in adult education. It offers both formal and informal learning opportunities, targeting diverse audience groups, including vulnerable populations. The institution has a strong commitment to inclusive education and has actively participated in several EU projects, particularly those focusing on environmental issues and sustainability.

WEBSITE FACEBOOK INSTAGRAM

Ljudska Univerza Lendava (Slovenia)

Specialized in adult education, LU Lendava provides an extensive range of learning opportunities. Their programs cover a wide spectrum of subjects, accommodating the needs of a diverse adult learner base. The organization is involved in various national and international projects, emphasizing innovative learning methodologies and cross-cultural educational collaborations.

WEBSITE FACEBOOK

University for Lifelong Learning Vanco Prke (North Macedonia)

The university is dedicated to adult education, focusing on non-formal education and lifelong learning. Their curriculum includes a variety of programs related to environmental education, such as eco-standards, waste management, and renewable energy, including solar system installation. The organization aims to equip learners with practical skills and knowledge pertinent to contemporary environmental challenges.

WEBSITE FACEBOOK

Contents

The greatest threat to our planet is the belief that someone else will save it.

Robert Swan

Photo by cottonbro studio, available at **https://www.pexels.com/photo/person-wearing-green-gloves-touching-a-book-9489279/**.

Curriculum for Adult Learner Educators

Introduction

The state of play analysis done in the three partner countries (Croatia, Slovenia and North Macedonia), at the beginning of the project Raising Awareness for a Greener Tomorrow, reveals several key insights for improving environmental education for adult learners:

- Busy schedules and family commitments hinder participation. Shorter, flexible learning options like workshops are recommended.
- High costs of eco-friendly products and education are concerns. Programs should address affordable, eco-friendly choices.
- There’s a need for more foundational education on environmental issues and practical practices.
- Education should reach marginalized groups, like the elderly in rural areas.
- Concerns about the credibility of eco-friendly products, especially in Croatia, highlight the need for reliable information.
- While global issues are well-known, there's a lack of local action opportunities.
- Learners prefer hands-on experiences like workshops and real-world projects.
- Online courses and Zoom lectures are in demand for flexible, tech-based education.
- Incorporating social elements, like post-lecture activities, can boost motivation and participation.

Based on these insights we created a curriculum with diverse lesson plans convenient for various learners and in diverse learning environments. Throughout the engaging lessons, the learners will become more aware of the need for appropriate waste management, handling and sorting, acquire green skills, understand climate change and identify the types of resources and energy.

1. Waste handling, managing and sorting

MODULE PLAN

Module title: Waste Handling, Managing and Sorting

Duration: 5 lessons (1 hour per lesson)

Module objective: By the end of this module, learners will understand the meaning of waste handling, managing and sorting and its importance for sustainable living and will be able to apply the practical knowledge in their households.

Assessment and evaluation:

Formative assessment: Individual and group activities and projects, class discussions will provide ongoing evaluation of learners' understanding.

Summative assessment: By the end of the module, learners will be able to present their projects, scenarios and practical presentations which will be assessed based on their understanding of the waste handling, management and sorting.

Resources and materials: Computer and projector for videos and presentations; sheets of paper; handouts; access to online videos and quizzes; blackboard.

Educational principles: Active involvement in guided activities of all learners; supporting and guiding learners to develop critical thinking through assigning problem-solving activities and workshops; encouraging and supporting learners to come forward with their ideas and suggestions on the importance of waste handling, management and sorting.

Forms and methods of work: Frontal; individual; group work; discussions, interactive working groups; practical learning; digitally based learning; eclectic approach.

Use of technology in class: Projector; computer/laptop; YouTube; various websites and online interactive quiz.

RECYCLE PAPER AT HOME

Lesson objectives:

- Learners will understand the importance of recycling old paper
- Learners will learn the process of recycling old paper
- Learners will create their products from recycled paper

Forms of work:

- Frontal and group work

Methods of work:

- Brainstorming, practical work (workshop)

Teaching aids:

- Plastic containers, sponge, blender, old textile, mould and deckle, old used paper, drying rack

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to each other's brainstorming ideas

Discussion

- Learners brainstorm on ideas how to use the old used paper

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator starts the lesson by questioning what can be done with old used paper if it is not put into the recycling bins. *How can it be reused?* - Ideas: crafts, origami etc. - The educator plays a video about recycling paper.	- Learners give ideas of the things that can be done with old used paper. - Learners watch the short video about recycling paper.

Main part	
- Educator divides the class into small groups and gives instructions on what to do. - The educator supervises the recycling process.	- Learners are divided into small groups and tear the old paper to make pulp. - Learners blend the pulp and pour it into water. - By using the mould and deckle they put the pulp on the cloth. - They put the paper to dry.
Conclusion	
- The educator starts a discussion about the recycling process and the applicability of the home-recycled paper.	- The learners present their work to the other groups and discuss the difficulties they face and what can be changed during the process.

Lesson plan evaluation: The educator conducts an ongoing evaluation by providing the learners with relevant oral feedback.

Visual aids:

- **Introduction**

https://www.youtube.com/watch?v=5xrWrKIVBgo

- **Main part**

UNDERSTANDING PLASTIC POLLUTION AND SOLUTIONS

Lesson objectives:

- Learners will understand what plastic pollution is
- Learners will understand how plastic pollution affects the environment and wildlife
- Learners will be able to identify sources of plastic pollution
- Learners will create solutions for plastic pollution

Forms of work:

- Frontal, individual, and group work

Methods of work:

- Brainstorming, watching a video, doing a quiz

Teaching aids:

- Projector, video on the given topic, chart paper, markers, objects made of plastic

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to the information in the presented video
- Learners listen to each other’s brainstorming ideas
- Learners listen to each other’s presentations of solution

Discussion

- Learners brainstorm ideas for solutions for plastic pollution
- The educator reads the learners' answers to the quiz and they comment

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator starts the lesson by explaining the seriousness of the plastic pollution problem. - The educator plays a video on plastic pollution and gives instructions on the following quiz. - The educator comments on the answers to the quiz questions.	- The learners discuss plastic pollution and give ideas about the impact each individual can have on the solution to this problem. - The learners do the quiz.
Main part	
- The educator divides the class into small groups and gives instructions that based on their ideas of solutions for plastic pollution they should make a campaign.	- The learners are divided into small groups and prepare a campaign against plastic pollution. - The learners present their campaigns.
Conclusion	
- The educator gives feedback on each campaign and discusses the success of each one.	- Discussion of the success of the campaigns.

Lesson plan evaluation: The educator continuously evaluates the answers and presentations by providing the learners with relevant oral feedback. The Quiz is automatically assessed.

Visual aids:

https://quizizz.com/

https://shorturl.at/5Qbr0 Understanding Plastic Pollution and Solutions

COMPOSTING AT HOME

Lesson objectives:

- Learners will understand the importance of composting
- Learners will be able to identify the composting waste

Forms of work:

- Frontal, individual, and group work

Methods of work:

- Brainstorming, practical work (workshop)

Teaching aids:

- Pictures of waste, realia waste, recycling bins

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to each other's brainstorming ideas

Discussion

- Learners brainstorm on the waste materials
- Learners elaborate on their ideas

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator introduces composting waste by presenting different types of waste and discussing which one is suitable for composting and which one is not. - The educator explains why some materials are not suitable for making a compost. - The educator introduces the different types of composters (homemade, purchased, garden composters).	- The learners give their ideas for composting waste, types of compost etc.

Main part	
- Educator divides the class into small groups and gives instructions for making homemade compost. Each group is given piles of different types of waste (kitchen and garden waste). - The educator demonstrates how to make the compost layers, and how to mix and turn them. - The educator explains the need for mixing and turning regularly. - The educator demonstrates the process of maintenance of humidity and ventilation.	- Each group divides the waste into the right recycling bin. - The groups make their own compost layers and practice mixing and turning on previously prepared compost. - Learners explain the process of maintaining humidity and ventilation. -
Conclusion	
- The educator asks one learner from each group to explain the process of making compost and its practical use.	- One learner from every group reads and explains the process of making compost and its use.

Lesson plan evaluation: The educator continuously evaluates the answers by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist on prior knowledge about compost and acquired knowledge and makes comparisons.

Visual aids:

- **Introduction**


What goes in your food waste container?
FOOD WASTE ONLY
NO
Place these items in the trash, not food waste:

E-WASTE: TURNING TRASH INTO TREASURE

Lesson objectives:

- Learners will be able to list the different materials that could be recovered from E-waste.
- Learners will understand the significance of proper disposal of e-waste.
- Learners will be able to explain the process of e-waste recycling and its importance in resource conservation.

Forms of work:

- Frontal, individual, and group work

Methods of work:

- Brainstorming, watching a video, writing scenarios of improper disposal of e-waste

Teaching aids:

- Handout on pollutants and their occurrence in waste electrical and electronic equipment, Internet, Laptop/Computer, Projector, sheets of paper.

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to each other's brainstorming ideas
- Learners listen to each other's written scenarios

Discussion

- Learners brainstorm on the hazardous matters that can happen from inappropriate e-waste disposal
- Learners write and read scenarios of inappropriate disposal of e-waste

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator starts the lesson with a display of disassembled electronic devices. - The educator starts with a discussion about E-waste specifically introducing the different devices and materials which can be recovered from them. - The educator gives handouts on pollutants that can be found in e-waste.	- Learners take an active part in the discussion first by guessing the materials used to make the devices and later by disassembling some of them to see whether they guessed right.
Main part	
- The educator divides the class into small groups and each group is given a different type of waste (laptop, mobile phone, batteries) as a topic for writing a scenario of the hazardous things that can happen to the ecosystem, environment or human health. - The educator comments and adds additional information to each scenario. - The educator plays a video about what happens to the properly disposed e-waste into the factories.	- Learners are divided into small groups and get different types of waste as a topic to write scenarios of the hazardous things that can happen to the ecosystem, environment or human health as a result of inappropriate disposal. - A representative of each group reads the scenario. - The learners watch the video.
Conclusion	
- The educator starts a discussion about the video with a focus on the recycling process and how it helps reduce environmental pollution and preserves natural resources.	- The learners take an active part in the discussion.

Lesson plan evaluation: The educator continuously evaluates the answers and presentations by providing the learners with relevant oral feedback.

Visual aids:

- **Introduction**

Pollutants and their occurrence in waste electrical and electronic equipment

Pollutant	Occurrence
Arsenic	Semiconductors, diodes, microwaves, LEDs (Light-emitting diodes), solar cells
Barium	Electron tubes, filler for plastic and rubber, lubricant additives
Brominated flame proofing agent	Casing, circuit boards (plastic), cables and PVC cables
Cadmium	Batteries, pigments, solder, alloys, circuit boards, computer batteries, monitor cathode ray tubes (CRTs)
Chrome	Dyes/pigments, switches, solar
Cobalt	Insulators
Copper	Conducted in cables, copper ribbons, coils, circuitry, pigments
Lead	Lead rechargeable batteries, solar, transistors, lithium batteries, PVC (polyvinyl chloride) stabilizers, lasers, LEDs, thermoelectric elements, circuit boards
Liquid crystal	Displays
Lithium	Mobile telephones, photographic equipment, video equipment (batteries)
Mercury	Components in copper machines and steam irons; batteries in clocks and pocket calculators, switches, LCDs
Nickel	Alloys, batteries, relays, semiconductors, pigments
PCBs (polychlorinated biphenyls)	Transformers, capacitors, softening agents for paint, glue, plastic
Selenium	Photoelectric cells, pigments, photocopiers, fax machines
Silver	Capacitors, switches (contacts), batteries, resistors
Zinc	Steel, brass, alloys, disposable and rechargeable batteries, luminous substances

- **Main part**

How to Turn Electronic Waste into Raw Materials | Change the Future

https://www.youtube.com/watch?v=U3KUJTDPsSE

UNDERSTANDING THE IMPORTANCE OF WASTE SORTING

Lesson objectives:

- Learners will understand the concept of waste sorting
- Learners will be able to differentiate different types of waste (organic, recyclable)
- Learners will understand the significance of waste sorting

Forms of work:

- Frontal, individual, and group work

Methods of work:

- Brainstorming, playing a game

Teaching aids:

- Projector, computer, posters, recycling bins, realia – waste

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions and explanation
- Learners listen to each other's brainstorming ideas

Discussion

- Learners brainstorm on the types of waste and their sorting

Duration of the lesson: 1 hour

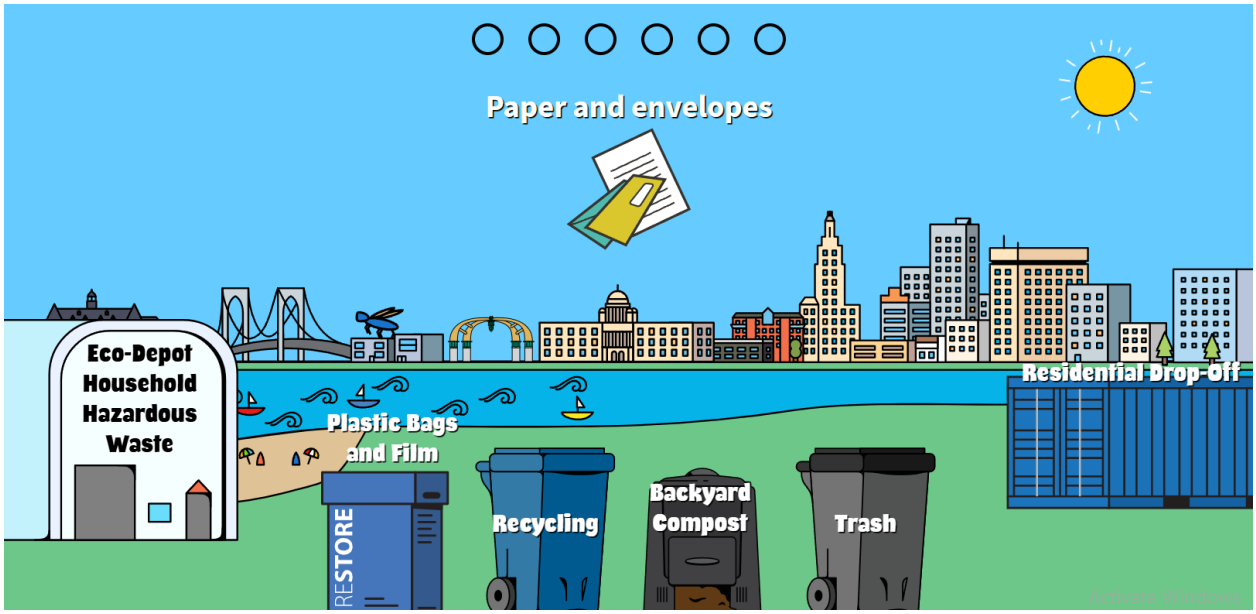
Educator	Learner
Introduction	
- The educator starts the lesson by making a simple survey on the board and asking the learners how much waste they make daily. - *Approximately how much organic waste is made?* - *Approximately how much paper is thrown?* - *Approximately how much glass is thrown?* - *Approximately how many plastic bottles are thrown?*	- The learners answer the questions and discuss the other learners' answers.

- The educator continues the discussion of the places where the waste is thrown and whether it is selected.	
Main part	
- The educator presents the recycling bins and explains the appropriate waste for each one. - The educator shared a link to a game https://rhodeislandresource.recycle.game/	- The learners are divided into small groups and put the realia – waste into the appropriate waste bin. - The learners play the game which gives them multiple options to try until they get to the correct answer. They mark the number of mistakes made.
Conclusion	
- The educator leads a discussion about the most common mistakes made through the game.	- The learner discus their mistakes.

Lesson plan evaluation: The educator continuously evaluates the answers and presentations by providing the learners with relevant oral feedback. The learners evaluate themselves by marking the number of mistakes made and rethinking their answers.

Visual aids:

- **Introduction**



- **Main part**

https://rhodeislandresource.recycle.game/

2. Green skills

MODULE PLAN

Module title: Green Skills

Duration: 5 lessons (1 hour per lesson)

Module objective: By the end of this module, learners will understand the meaning of green skills and their importance for sustainable living and will be able to create projects, campaign flyers and slogans promoting green skills.

Assessment and evaluation:

Formative assessment: Individual and group activities and projects, class discussions, and homework assignments will provide ongoing evaluation of learners' understanding.

Summative assessment: By the end of the module, learners will be able to present their projects, flyers and slogans, which will be assessed based on their understanding of the green skills concept.

Resources and materials: Computer and projector for videos and presentations; sheets of paper and handouts for answering questions, creating projects, flyers and slogans; access to online videos and quizzes; articles and resources for research; blackboard.

Educational principles: Active involvement in guided activities of all learners; supporting and guiding learners to develop critical thinking through assigning problem-solving activities; encouraging and supporting learners to come forward with their ideas and suggestions on the importance of implementing green skills

Forms and methods of work: Frontal; individual; group work; discussions, interactive working groups; project-based learning; digitally based learning; eclectic approach.

Use of technology in class: Projector; computer/laptop; YouTube; various websites and online interactive quiz.

INTRODUCTION TO GREEN SKILLS THROUGH GREEN JOBS AND GREEN INDUSTRIES

Lesson objectives:

- Learners understand the concept of green skills
- Learners be able to identify green jobs and green industries
- Learners understand the significance of green jobs and industries

Forms of work:

- Frontal, individual, and group work

Methods of work:

- Brainstorming, watching a video, writing a description of a green job

Teaching aids:

- Projector, video on the given topic, sheets of paper

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to the information in the presented video
- Learners listen to each other's brainstorming ideas
- Learners listen to each other's presentations on the green job they've chosen to write about

Discussion

- Learners brainstorm on the "in common" things for the jobs they see on the list
- Learners write and read a description of one particular green job

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator starts the lesson by presenting a list of green jobs to the learners asking them if they know what all of them have in common - Educator plays a short video explaining what green jobs and industries are	- Learners look at the list and brainstorm on the possible answers until they guess that they are all green jobs - Learners watch the short video explanation of what green jobs and industries are
Main part	

- Educator divides the class into small groups and each group chooses one sustainable job from the list shown in the introduction. - The educator asks each group to do online research on the job they've chosen and to write a description of what that particular job position includes and why is it considered a green job, but without mentioning which job it is. Other learners from the other groups should guess the name of the job.	- Learners are divided into small groups and get to choose one job from the previously presented list of green jobs. - Learners do online research on the job; write a text describing the requirements for that particular job and why is it considered a green sustainable job, but don't mention the name of the job because the members from the other groups should guess it.
Conclusion	
- The educator asks one learner from each group to step forward and present the results from the research without mentioning the title of the job. All other groups get to guess the job. The guessing game goes on until all groups take their turns.	- One learner from every group reads to the rest of the class the findings from the online research. - The other learners listen carefully and try to guess the job in question. The guessing game goes on until all groups take their turns

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers and presentations by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist.

Visual aids:

- **Introduction**
  https://www.youtube.com/watch?v=2uHdj6d1rSs&ab_channel=C40Cities

A list of sustainable jobs

ENERGY CONSERVATION AND GREEN SKILLS

Lesson objectives:

- Learners understand the importance of energy conservation
- Learners can create campaign flyers for energy conservation

Forms of work:

- Frontal, individual and group work

Methods of work:

- Brainstorming, watching a video, conducting research, creating a mind map, creating a flyer

Teaching aids:

- Projector, computers/laptops, video on the given topic, sheets of paper, mind-map template

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to the information in the presented video
- Learners listen to each other's brainstorming ideas on the given subject
- Learners listen to each other's presentations of the flyers

Discussion

- Learners brainstorm on appliances that consume the most energy
- Learners name 3 ways for energy conservation
- Learners present the flyers on energy consumption

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- Educator asks learners to brainstorm on appliances at home that they think consume the most energy - Educator writes the answers on the blackboard - Educator shows a short clip on the importance of energy conservation. There, the learners can also see a chart of household items that consume energy the most, and compare it with the brainstorming list.	- Learners listen to the educator's instructions and brainstorm on the home appliances that consume the most energy - Learners watch the short clip and compare the list from the video with the one from the brainstorming activity
Main part	
- Educator asks learners to do research and find at least 10 ways for energy conservation. The links containing relevant info are provided by the educator - Educator displays a template of a mind map on energy conservation and fills it in with the answers given by the learners - Educator divides the class into groups of 5 and assigns each group 3 particular ways for energy conservation. Learners should research them and create a flyer with a short informative text and appropriate illustrations depicting and explaining the importance of energy conservation. - Educator hands out pieces of paper needed for the activity.	- Learners listen to the instructions and do the research following the given links - Learners read the answers that are written down on a mind map. - Learners are divided into groups of 5. - Learners conduct research and create a flyer containing visual illustrations and informative text explaining the importance of energy conservation.
Conclusion	
- The educator asks one member from each group to present the flyers, and if necessary, correct the spelling, grammar and syntax used.	- One learner from each group presents the flyer - Learners take into account the educator's remarks

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers and presentations by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist.

Visual aids:

- **Introduction**: **https://www.youtube.com/watch?v=GSc5zo4WjJs&ab_channel=KhanAcademy**

- **Main part:**
  - **https://www.energy.vic.gov.au/households/save-energy-and-money/top-10-energy-saving-tips**
  - **https://energysavingtrust.org.uk/hub/quick-tips-to-save-energy/**
  - **https://www.greenmatch.co.uk/blog/2020/03/how-to-save-energy-at-home**

Mind-map template

SUSTAINABLE WASTE MANAGEMENT

Lesson objectives:

- Learners understand the importance of waste reduction
- Learners understand the importance of recycling

Forms of work:

- Frontal, individual and group work

Methods of work:

- Question answering, decision making and creating lists, playing an educational online game

Teaching aids:

- Illustrations, smart appliances, sheets of paper, blackboard

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to each other's answers to a given question
- Learners listen to each other's presentations

Discussion

- Learners answer the educator's questions
- Learners present their lists
- Learners present their game scores

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator starts the lesson by presenting 4 different bins and asks the learners if they know what are they used for. - The educator listens to their answers and corrects them if they don't guess right	- Learners look at the bins and try to guess what are they used for - Learners take into account the educator's remarks - Learners share opinions on the importance of waste management

- Educator encourages a discussion on the importance of waste management	
Main part	
- Educator asks the learners to make a list of all the waste they produce in a day - The educator divides the class into small groups of 3 and asks them to sort the items from their lists into recyclable, compostable and landfill. Each group is given a sheet of paper to finish the task - Educator asks each group to write a short explanation of why they think waste management is important - The educator asks one learner from each group to step forward and present their group work, and if necessary, correct the spelling, grammar and syntax used.	- Learners make a list of all the waste they produce in a day - Learners, divided into groups of 3, sort the items they've listed into recyclable, compostable and landfill, and mark their answers on a given sheet of paper. - Each group whites a short conclusion on the importance of waste management - One learner from every group presents the activity and reds the conclusion - Learners take into account the educator's remarks
Conclusion	
- Educator shares a link to an online game on waste management and asks learners to follow it and start playing the game. The winner of the game is the learner with the most points.	- Learners follow a link to an online game on waste management and start to play it. The winner of the game is the learner with the most points

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers and presentations by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist.
Homework activity: DIY Recycling Project: Create useful items from waste (e.g., eco-bricks, paper beads, reusable shopping bags…).

Visual aids:

- **Introduction**

Bins:

(correct answers)

- **Conclusion**

Link for the online game
https://seas.umich.edu/assets/games/recycle-game/

SUSTAINABLE AGRICULTURE AS A GREEN SKILL

Lesson objectives:

- Learners understand the term sustainable agriculture
- Learners understand the importance of sustainable agriculture
- Learners can create and present campaign slogans for promoting sustainable agriculture

Forms of work:

- Frontal and individual

Methods of work:

- Discussion, question answering, watching a video, creating and presenting campaign slogans

Teaching aids:

- Projector, handouts

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to the information from the video
- Learners listen to each other's answers
- Learners listen to each other's campaign slogans

Discussion

- Learners answer the educator's question
- Learners read the answers to the questions from the hand-out
- Learners present their campaign slogans

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator starts the lesson by asking the learners "*What is sustainable agriculture?*" and encourages a discussion	- Learners try to answer the question
Main part	
- The educator hands out a list of questions that learners should	- Learners get familiar with the handed-out questions that they

answer after watching a video on sustainable agriculture - Educator plays a video on sustainable agriculture occasionally pausing it to give the learners time to answer the questions	should answer after watching a video - Learners watch the video looking for answers - Learners write down their answers
Conclusion	
- Educator asks the learners to write a short campaign slogan about the importance of sustainable agriculture - Educator asks individual learners to present their slogans and, if needed, correct their spelling, pronunciation and syntax use	- Learners create and present short campaign slogans about the importance of sustainable agriculture - Learners take into consideration the educator's remarks

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers and presentations by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist.

Visual aids:

- **Main part**
  Link to a video:
  https://www.youtube.com/watch?v=divmWrMGkHo&ab_channel=EcoMasteryProject

  Hand-out: Questions

WATCH THE VIDEO CAREFULLY AND TRY TO ANSWER THE FOLLOWING QUESTIONS:

1. What is sustainable agriculture, and why is it important for the environment?
2. List three common techniques used in sustainable farming practices.
3. How does crop rotation benefit soil health and crop yield?
4. Is organic the same as sustainable and why?
5. Explain the role of cover crops in preventing soil erosion.
6. How can be tilling reduced?
7. What are the advantages of integrated pest management over traditional pesticide use?
8. Describe how agroforestry contributes to biodiversity on farms.

SUSTAINABLE URBAN PLANNING AS A GREEN SKILL

Lesson objectives:

- Learners understand the concept of sustainable urban planning
- Learners understand the importance of sustainable urban planning
- Learners create projects on cities with sustainable urban planning

Forms of work:

- Frontal, individual and group work

Methods of work:

- Image description, conducting research; creating and presenting a project

Teaching aids:

- Split-screen image, projector, computer/laptop with access to www, sheets of paper, blackboard

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to each other's description of the split-screen image
- Learners listen to each other's presentations

Discussion

- Learners describe the presented split-screen image
- Learners present their projects

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- Educator presents a split-screen image of contrasting cityscapes and asks the learners to analyse it. - The educator writes the main points beside each side of the image. - The educator guides the learners to guess the topic they are about to cover during the class.	- Learners look at the presented split-screen image and point out the differences - Guided by the educator, learners conclude that the topic of today's lesson will be sustainable urban planning.

Main part	
- The educator divides the class into 2 groups. - Educator tells group one to write a project on a city that has successfully implemented sustainable city transportation and the implications from that to the quality of their present-day living. - Educator tells group two to prepare a project on a city that has successfully implemented sustainable green buildings and the implications from that to the quality of their present-day living. - Educator provides links to initial information needed for the projects and instructs the learners to choose one city from the given links and explore the www for additional info to complete the project.	- Learners are divided into 2 groups - Learners in group 1 have to make a project about a city that has successfully implemented sustainable city transportation and explain the implications of that to the quality of their present-day living. - Learners in group 2 have to make a project about the city that has successfully implemented sustainable green buildings and explain the implications of that to the quality of their present-day living. - Learners choose the cities from the links that the educator provides and additionally search the www for more information
Conclusion	
- Educator asks two members from each group to present the projects - Educator listens to the presentations and, if needed, corrects their spelling, pronunciation syntax and grammar use.	- Two learners from each group present the projects - Learners take into consideration the educator's remarks.

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers and presentations by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist.

Visual aids:

- **Introduction**

  Split – screen image

A split-screen image showing two contrasting cityscapes. On the left side, a futuristic, eco-friendly city with clean air, lush green spaces, and no traffic congestion. The streets are wide and clear, with pedestrians, bicycles, and electric public transport. Buildings have green

rooftops and solar panels, and the atmosphere is bright and clear. On the right side, is a heavily polluted, traffic-jammed city with smog-filled air, crowded roads with honking cars, and litter on the streets. Factories emit thick smoke in the background, and pedestrians wear masks due to air pollution. The contrast between the two sides is stark, highlighting the difference between sustainable urban planning and congestion.

- **Main part**
  Links to initial information needed for the projects:

  - **Links for Group 1**

https://evmagazine.com/top10/top-10-cities-at-the-forefront-of-sustainable-urban-mobility
https://illuminem.com/illuminemvoices/from-cars-to-sustainable-transport-10-cities-leading-the-way

  - **Links for group 2**

https://home.howstuffworks.com/home-improvement/construction/green/10-top-cities-for-green-construction.htm
https://edition.cnn.com/style/article/green-buildings-world-sustainable-design/index.html

Appendix:

INTRODUCTION TO GREEN SKILLS THROUGH GREEN JOBS AND GREEN INDUSTRIES

Introduction: A list of green jobs

ENERGY CONSERVATION AND GREEN SKILLS

Main part: Mind-map

SUSTAINABLE WASTE MANAGEMENT

Introduction:
Bins

(Correct answers)

SUSTAINABLE AGRICULTURE AS A GREEN SKILL

Main part:
Hand-out: Questions

WATCH THE VIDEO CAREFULLY AND TRY TO ANSWER THE FOLLOWING QUESTIONS:

1. What is sustainable agriculture, and why is it important for the environment?

2. List three common techniques used in sustainable farming practices.

3. How does crop rotation benefit soil health and crop yield?

4. Is organic the same as sustainable and why?

5. Explain the role of cover crops in preventing soil erosion.

6. How can be tilling reduced?

7. What are the advantages of integrated pest management over traditional pesticide use?

8. Describe how agroforestry contributes to biodiversity on farms.

SUSTAINABLE URBAN PLANNING AS A GREEN SKILL

Introduction:

Split-screen image

3. Understanding climate change

MODULE PLAN

Module title: Understanding Climate Change

Duration: 5 lessons (1 hour per lesson)

Module objective: By the end of this module, learners will be able to understand the meaning of climate change, its causes and effects, and suggest individual or group actions to address it.

Assessment and evaluation:

Formative assessment: Group activities, class discussions, and homework assignments will provide ongoing evaluation of learners' understanding.

Summative assessment: By the end of the module, learners will be able to present their campaigns for action plans and mind maps, which will be assessed based on their understanding of the science of climate change and proposed solutions.

Resources and materials: Computer and projector for videos and presentations; sheets of paper and handouts for data analysis, mind maps and posters; access to online videos, texts and quizzes; articles and resources for research; blackboard

Educational principles: Active involvement in guided activities of all learners; supporting and guiding learners to develop critical thinking through assigning problem-solving activities; encouraging and helping learners to come forward with their ideas and suggestions on solving the climate change issue.

Forms and methods of work: Frontal; individual; group work; pair work; discussions, interactive working groups; project-based learning; digitally based learning; eclectic approach

Use of technology in class: Projector; computer/laptop; YouTube; Vimeo, various websites and online interactive quizzes.

INTRODUCTION TO CLIMATE CHANGE

Lesson objectives:

- Learners will understand what climate change is
- Learners will understand why is it happening

Forms of work:

- Frontal, individual, pair or group work

Methods of work:

- Discussion, watching a video, creating a mind map

Teaching aids:

- Projector, video on the given topic, sheets of paper

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to the information in the presented video
- Learners listen to each other's opinions on the given subject
- Learners listen to each other's presentations of the mind maps

Discussion

- Learners talk about their prior knowledge of the subject
- Learners create and present a mind map on the causes and effects of climate change.

Duration of the lesson: 1 hour

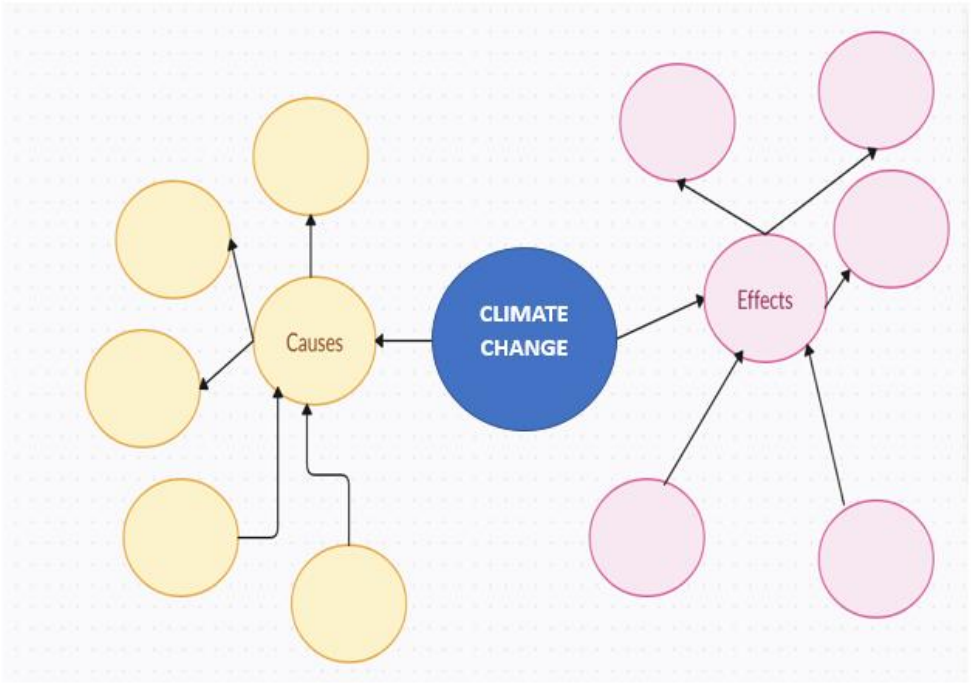
Educator	Learner
Introduction	
- The educator starts the lesson by asking the learners: "*What do you know about climate change?*"	- Learners listen to the educator's questions and provide individual answers.
Main part	
- The educator plays a video on climate change and asks the	- Learners watch the video on climate change

learners to watch closely and listen carefully - The educator divides the learners into groups of 2 or 3 learners and gives them printed outlines of a mind map on the topic. The educator gives instructions to learners on how to fill out the mind map.	- Learners work in groups of 2 or 3 to fill the given mind map with relevant info.
Conclusion	
- Educator asks one member of each group to present and explain the mind map - The educator gives instructions to other groups to listen carefully and to feel free to ask questions - The educator listens and, if necessary, corrects the written spelling on the mind maps as well as the pronunciation and use of grammar and syntax in the oral presentation.	- One learner from each group presents the mind map in front of the others and answers the questions asked by the members of the other groups - Learners take into account the educator's remarks.

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers and presentations by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist.

Visual aids: https://vimeo.com/343644715?utm

MIND MAP ON CLIMATE CHANGE



GREENHOUSE EFFECT

Lesson objectives:

- Learners will understand what the greenhouse effect is
- Learners will understand why is it happening
- Learners will be able to provide possible solutions to the problem

Forms of work:

- Frontal and individual

Methods of work:

- Discussion, reading a text, answering relevant questions

Teaching aids:

- Printed handouts with text regarding the given topic
- Printed handouts with suitable text questions related to the text

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to the text
- Learners listen to each other's answers on the given subject
- Learners listen to each other's opinions and possible solutions to the problem

Discussion

- Learners read the text out loud
- Learners give answers relevant to the text
- Learners give opinions and possible solutions to the problem

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator starts the lesson by asking the learners: "*What do you know about the greenhouse effect?*"	- Learners listen to the educator's questions and provide individual answers.
Main part	
- The educator gives the learners an informative text on the greenhouse	- Several learners read the text in paragraphs

effect; divides the text into paragraphs and asks individual learners to read one paragraph at a time. - Educator explains unfamiliar words - Educator asks the learners to answer the 8 questions regarding the text they have already read. Answers should be written down in a notebook - Educator asks individual learners to give answers to the questions.	- Learners point out unfamiliar words and write down the explanation the educator gives. - Learners answer the 8 given questions in their notebooks - Learners read the answers to the questions.
Conclusion	
- Educator asks the learners to give personal opinions and possible solutions to the greenhouse effect problem.	- Learners speak about their points of view on the subject matter and provide possible solutions.

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist.

Visual aids:

Text: The Greenhouse Effect

The greenhouse effect is a natural process that warms the Earth's surface. When the Sun's energy reaches the Earth, some of it is absorbed by the surface, while the rest is reflected into space. However, certain gases in the atmosphere, known as greenhouse gases, trap some of this heat, preventing it from escaping into space. This helps to keep our planet warm enough to support life.

The main greenhouse gases include carbon dioxide (CO_2), methane (CH_4), water vapor, and nitrous oxide (N_2O). Human activities, such as burning fossil fuels, deforestation, and industrial processes, have significantly increased the concentration of these gases in the atmosphere. As a result, more heat is being trapped, leading to global warming and climate change.

While the greenhouse effect is essential for life on Earth, an enhanced greenhouse effect caused by human activities can lead to rising temperatures, melting ice caps, rising sea levels, and extreme weather conditions. Scientists and policymakers emphasize the importance of reducing greenhouse gas emissions by using renewable energy, increasing energy efficiency, and protecting forests to maintain a stable climate.

Reading Comprehension Questions:

1. What is the greenhouse effect?
2. How does the Sun’s energy interact with the Earth's surface?
3. Name at least three greenhouse gases mentioned in the text.
4. How do human activities contribute to the greenhouse effect?
5. What are some consequences of an enhanced greenhouse effect?
6. Why is the greenhouse effect important for life on Earth?
7. How can we reduce greenhouse gas emissions?
8. What role do scientists and policymakers play in addressing climate change?

Homework project: learners should conduct a simple greenhouse effect experiment using glass jars and lamps. They should place two thermometers inside two separate glass jars—one with a lid and one without and place them both under a heat lamp or in direct sunlight. After 10-15 minutes learners should compare and mark the temperatures and come to a suitable explanation on the findings.

CAUSES OF CLIMATE CHANGE

Lesson objectives:

- Learners will learn to identify natural and human-made causes of climate change
- Learners will learn to distinguish between natural and human-made causes of climate change
- Learners will be able to give possible solutions for the detected causes of the problem at hand

Forms of work:

- Frontal, individual and group work

Methods of work:

- Brainstorming, reading texts to gather relevant info, making posters, presenting a poster

Teaching aids:

- Computers, links to websites containing relevant info, blackboard

Objectives for communicative activities

Listening and comprehension

- Learners listen to the brainstorming ideas
- Learners listen to the instructions given by the educator
- Learners listen to each other's presentations of the posters

Discussion

- Learners brainstorm on the subject matter
- Learners create and present a poster on the causes of climate change and propose a possible solution

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator starts the lesson by asking the learners to brainstorm on the possible causes of climate change - Educator draws the brainstorm chart on the board.	- Learners brainstorm on the possible causes of climate change.
Main part	
- Educator divides learners into two groups. The first group gets an assignment to research the possible natural causes of climate change, while the other group should conduct research regarding the human-made causes of the given problem. - Educator, to both groups, gives relevant links containing the required information - Educator gives instructions to the groups to make a poster containing the results from their research and to propose a solution to the detected causes of the problem.	- Learners are divided into two groups - Learners listen to the instructions on how to conduct research regarding the possible causes of climate change - Learners follow the given links containing relevant info regarding the required research - Each group of learners creates a poster containing the results from their research and some possible solutions to the detected causes.
Conclusion	
- Educator asks one learner from each group to present the findings from their research - The educator listens to the presentation and, if necessary, corrects the written spelling on the posters as well as the pronunciation and use of grammar and syntax in the oral presentation.	- One learner from each group comes forward to present the poster with the findings on the possible causes of climate change and the possible solutions to the causes of the problem - Learners take into account the suggestions given by the educator.

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist.

Visual aids:

Links for info on the Natural causes of Climate Change

https://www.bgs.ac.uk/discovering-geology/climate-change/what-causes-the-earths-climate-to-change/?utm

https://www.ces.fau.edu/nasa/module-4/causes-2.php?utm

https://gml.noaa.gov/education/info_activities/pdfs/TBI_natural_climate_change.pdf?utm

Links for info on the Huma-made causes of Climate Change

https://scienceexchange.caltech.edu/topics/sustainability/evidence-climate-change?utm

https://www.un.org/en/climatechange/science/causes-effects-climate-change?utm

https://www.nrdc.org/stories/what-are-causes-climate-change?utm

EFFECTS OF CLIMATE CHANGE

Lesson objectives:

- Learners will learn to identify global and local effects of climate change
- Learners will learn to distinguish between global and local effects of climate change
- Learners will be able to write a short text on the effects of climate change in their community

Forms of work:

- Frontal, individual and group work

Methods of work:

- Picture description, reading texts for gathering relevant info, writing texts on a given topic, reading a text

Teaching aids:

- Computers, links to websites containing relevant info, blackboard, split-screen image

Objectives for communicative activities

Listening and comprehension

- Learners listen to the description of the split-screen image
- Learners listen to the instructions given by the educator
- Learners listen to each other's texts

Discussion

- Learners describe the split-screen image
- Learners write and read a text on how a specific climate change effect affects their community

Duration of the lesson: 1 hour

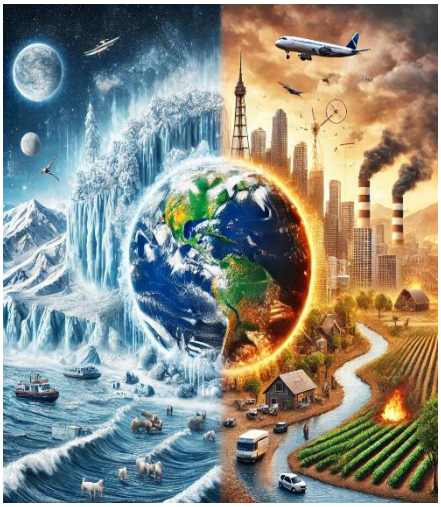
Educator	Learner
Introduction	
- The educator starts the lesson by showing the learners a split-screen image of global vs. local effects of climate change and asks them to discuss what they see - The educator writes the answers given by the learners on the board:	- Learners describe the image the educator presents to them.

the global effect is on the left of the image, and the local ones are on the right.	
Main part	
- Educator divides learners into 3 groups and gives them instructions to write a short text on how climate change affects or might affect their community. The first group considers the melting of ice caps, the second – droughts and the third wildfires. - Educator provides links to relevant info on the subject matter.	- Learners are divided into 3 groups - Learners listen to the instructions on how to write a text regarding the effects of climate change - Each group of learners follows the given links containing relevant info and composes a text on a certain effect caused by climate change.
- Educator asks one learner from each group to read the text - Educator listens to the text and, if necessary, corrects the written spelling as well as the pronunciation and use of grammar and syntax in the oral presentation.	- One learner from each group comes forward to read the text on a particular effect caused by climate change - Learners take into account the suggestions given by the educator.

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers by providing the learners with relevant oral feedback. The educator marks the assessment in his check list.

Visual aids:

A split-screen image of the global vs. local effects of climate change.



Left Side (Global Effects):
Melting ice caps – Large glaciers and ice sheets are shrinking, contributing to rising sea levels.
Rising sea levels – Coastal areas are shown being submerged due to higher ocean levels.
Increased hurricanes – More frequent and intense storms are depicted, showing their devastating impact.
Right Side (Local Effects):

Droughts affecting farmlands – Dry, cracked soil and struggling crops represent how changing rainfall patterns harm agriculture.

Urban flooding – Heavy rains overwhelm city infrastructure, leading to waterlogged streets.

Wildfires near communities – Forest fires burning dangerously close to homes, as a result of hotter, drier conditions.

Links to relevant info:

- **https://www.theguardian.com/news/2025/jan/29/weatherwatch-melting-permafrost-threatens-landscapes-and-lives-in-arctic-regions?utm**
- **https://www.c2es.org/content/wildfires-and-climate-change/?utm**
- **https://mcecleanenergy.org/how-is-climate-change-affecting-your-community/?utm**

CALL TO ACTION

Lesson objectives:

- Learners will be inspired to take action to combat climate change
- Learners will be able to develop concrete strategies for sustainable living

Forms of work:

- Frontal, individual and group work

Methods of work:

- Discussion, watching a video, creating concrete strategies for sustainable living

Teaching aids:

- Projector, video on the given topic, computers/laptops, sheets of paper

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to the information in the presented video
- Learners listen to each other's opinions on the given subject
- Learners listen to each other's presentation of the campaign

Discussion

- Learners talk about the watched video
- Learners create and present a campaign on how to deal with climate change

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator asks learners "*What are some small actions individuals can take to help the environment?*" and writes their responses on the board. - The educator plays a short video on how certain individuals have taken the initiative against climate change	- Learners answer the educator's question. - Learners watch a short video and discuss it.

and supports a short discussion on the video.	
Main part	
- Educator divides learners into small groups and assigns each group a task to create a campaign draft using posters, infographics or a short speech on a different method they might use to raise public awareness regarding climate change (e.g. social media campaign, school-wide initiative, public service announcement etc.) - Educator encourages learners to present their campaigns and, if necessary, corrects the written spelling as well as the pronunciation and use of grammar and syntax in the oral presentation.	- Learners are divided into small groups; - Each group of learners follows the given instructions and tries to find different methods to raise public awareness of climate change. - Learners incorporate their ideas in their campaigns by creating posters, infographics, or short speeches encouraging sustainable actions. - Learners elaborate on where they might start the campaign (social media, schools, public service announcements. - Learners take into account the suggestions given by the educator**.**
Conclusion	
- The educator gives links to online quizzes that test the learner's knowledge of climate change and asks the learners to do the quizzes. - The educator encourages learners to take action beyond the classroom by sharing their knowledge with family and friends or joining environmental groups.	- Learners start the online quizzes and keep track of their scores. - Learners take into account the suggestions given by the educator.

Lesson plan evaluation: The educator conducts an ongoing evaluation of the answers by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist.

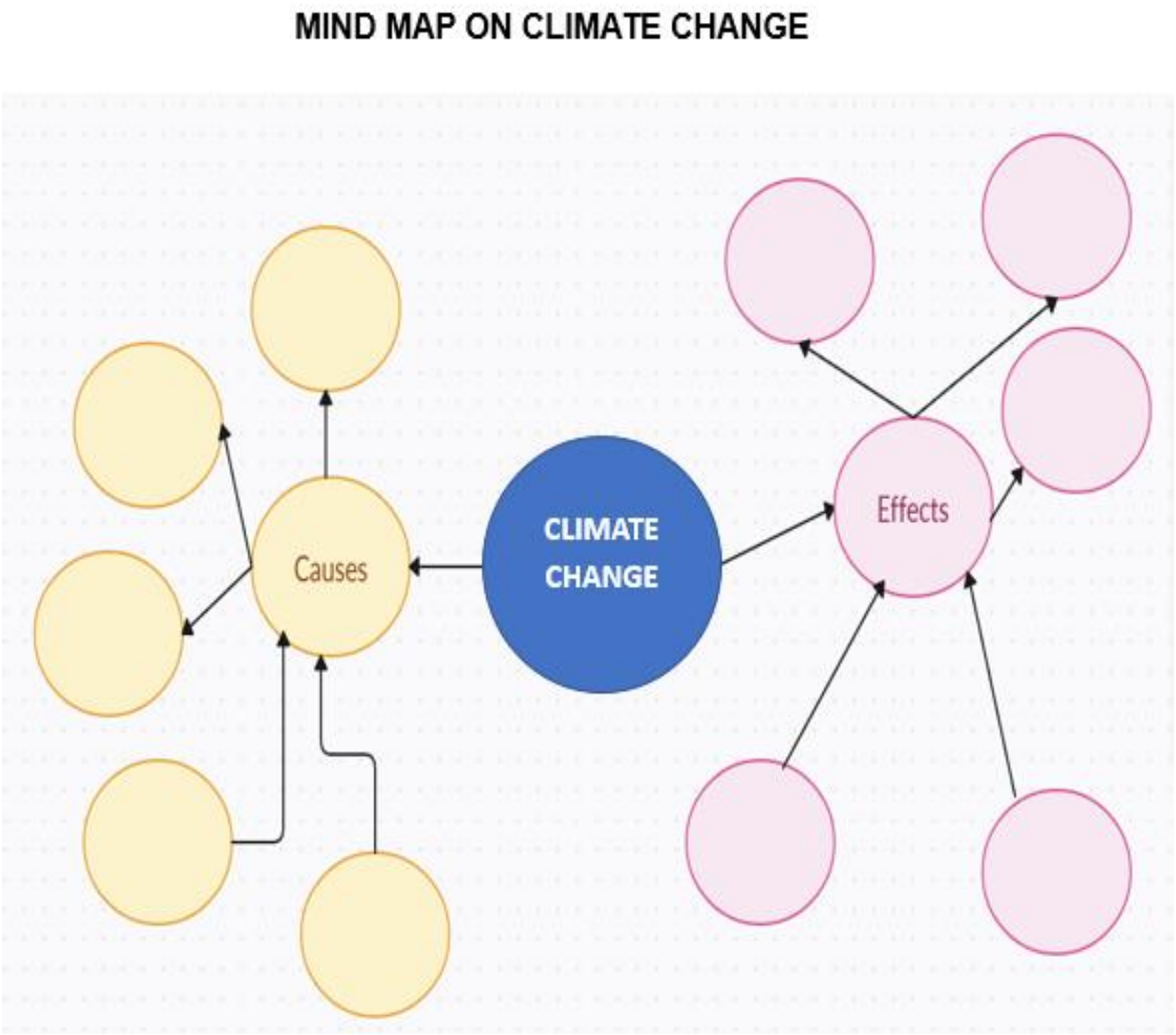
Visual aids:

Link to short video for introductory part
https://www.youtube.com/watch?v=C7dwoqJzETA&ab_channel=UNICEF

Links to quizzes for testing knowledge on climate change:
https://www.epa.gov/climate-change/climate-change-quiz
https://www.uncclearn.org/quiz/test-your-climate-change-iq/

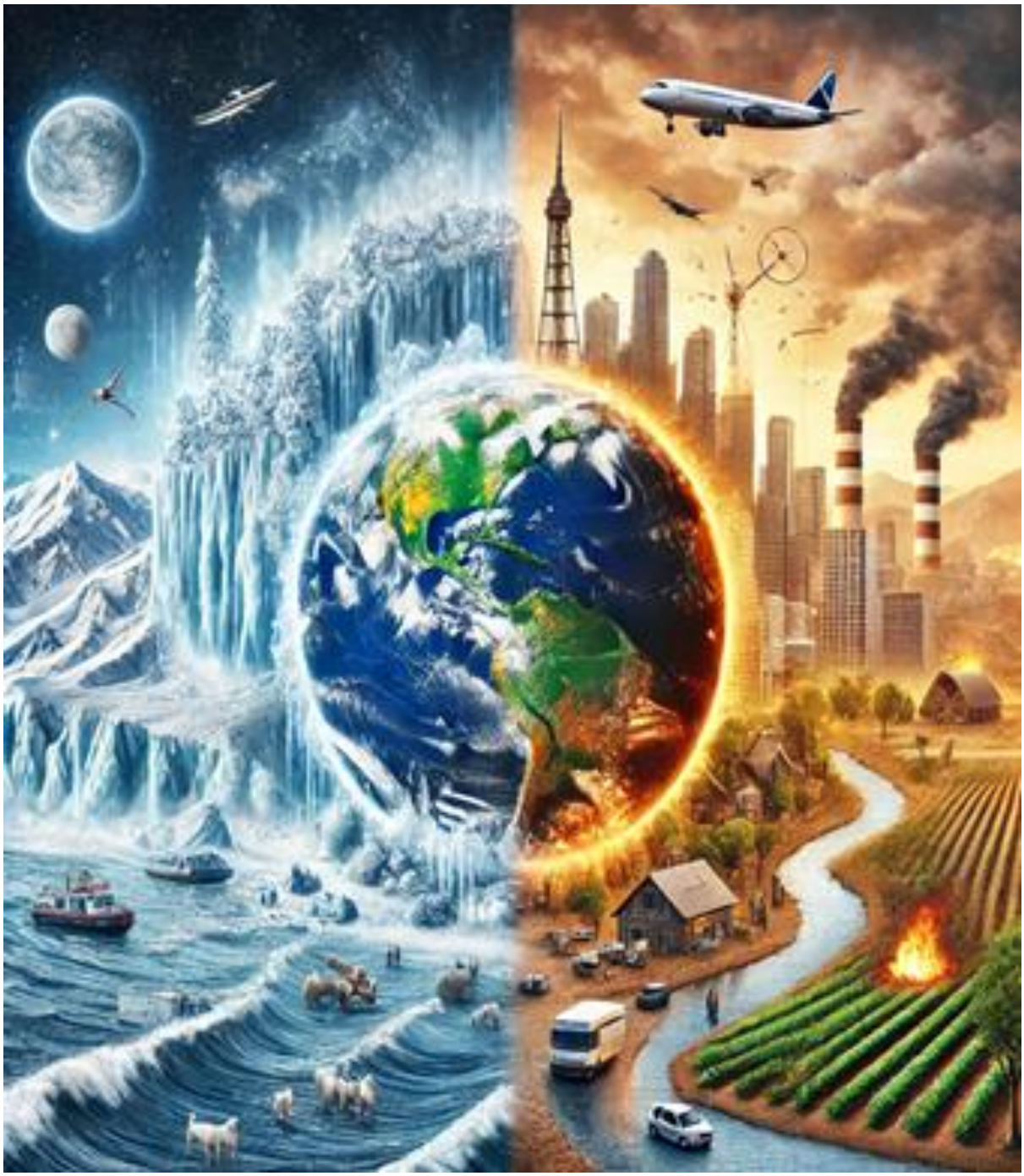
Appendix

INTRODUCTION TO CLIMATE CHANGE



EFFECTS ON CLIMATE CHANGE

A split-screen image



4. Energy and resources

MODULE PLAN

Module title: Energy and Resources

Duration: 4 lessons (1 hour per lesson)

Module objective: By the end of this module learners will be able to identify the different types of energy, understand the real-life application of energy, make the difference between renewable and non-renewable sources of energy, understand the importance of renewable sources of energy, understand the importance of sustainability, they will be able to make the difference between energy efficiency and energy conservation, understand the importance of energy efficiency and energy conservation and understand the environmental and social benefits of using natural renewable resources for producing energy.

Assessment and evaluation:

Formative assessment: Individual and group activities and projects, class discussions, and pre-class assignments will provide ongoing evaluation of learners' understanding.

Summative assessment: By the end of the module, learners will be able to present their projects, which will be assessed based on their understanding of resources and energy.

Resources and materials: Computer and projector for videos and presentations; sheets of paper and handouts, answering questions, creating projects; access to online videos and virtual tour; resources for research; blackboard, projector, flashcards, markers, posters, scissors, markers, dressing pin, bead, cardboard, glue, pencil, eraser, aluminium foil, cardboard boxes, tape, glass, old newspapers.

Educational principles: Active involvement in guided activities of all learners; supporting and guiding learners to develop critical thinking through assigning problem-solving activities; encouraging and supporting learners to come forward with their ideas and suggestions on the importance of appropriate use of resources and energy.

Forms and methods of work: Frontal; individual; group work; discussions, interactive working groups; project-based learning; digitally based learning; eclectic approach; flipped classroom.

Use of technology in class: Projector; computer/laptop; YouTube; various websites and virtual tour.

TYPES OF ENERGY

Lesson objectives:

- Learners will be able to identify the different types of energy
- Learners will understand the real-life application of energy

Forms of work:

- Frontal, individual and group work

Methods of work:

- Brainstorming, discussion, playing a game.

Teaching aids:

- Projector, flashcards, pieces of paper with written types of energy, whiteboard, markers

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to each other's brainstorming ideas
- Learners listen to the information presented in the video

Discussion

- Learners brainstorm on ideas about types of energy and where it can be used

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator starts the lesson by questioning *What is energy?* and starts a discussion. - The educator writes the ideas on the board. - The educator plays a video to introduce five types of energy (mechanical, electrical, light, thermal and sound).	- The learners take an active part in the discussion by giving ideas. - The learners try to explain the types of energy.

Main part	
- The educator divides the class into two groups and gives instructions about the game they will play. - The educator supervises the marking of the objects. - In the end once all objects are marked the educator writes 5 points for each correct answer per group. The group with the most points is the winner.	- Learners are divided into two groups. They are given flashcards of objects (hammer, scissors, bicycle, computer, etc.) and stickers in different colours to mark the type of energy the objects produce. - A representative of each group tells the answers.
Conclusion	
- The educator starts a discussion about the applicability of each energy for new inventions and writes the ideas on the board.	- The learners give ideas for new inventions.

Lesson plan evaluation: The educator conducts an ongoing evaluation by providing the learners with relevant oral feedback. At the end of the game uses points to mark the correct answers.

Visual aids:

- **Introduction**
  Types of energy
  https://www.youtube.com/watch?v=jNkycKCBbgA

- **Main part**

Mechanical energy	Electrical energy	Light energy	Thermal energy	Sound energy

Answers

Mechanical energy	Electrical energy	Light energy	Thermal energy	Sound energy
Hammer Scissors Bicycle	Computer Lamp TV	Flashlight Lamp Sun	Microwave Oven Fire	Speakers Guitar Radio

RENEWABLE VS NON-RENEWABLE SOURCES OF ENERGY

Lesson objectives:

- Learners will be able to make the difference between renewable and non-renewable sources of energy
- Learners will understand the importance of renewable sources of energy
- Learners will understand the importance of sustainability

Forms of work:

- Frontal, individual and group work

Methods of work:

- Brainstorming, discussion, project-based learning

Teaching aids:

- Poster, scissors, markers, dressing pin, bead, cardboard, glue, pencil, eraser, aluminium foil, cardboard boxes, tape, glass, old newspapers

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to each other's brainstorming ideas
- Learners listen to each other's presentations of solution

Discussion

- Learners brainstorm ideas for renewable and non-renewable sources of energy
- Learners listen to the other learners' ideas regarding the construction of the wind turbine

Duration of the lesson: 1 hour

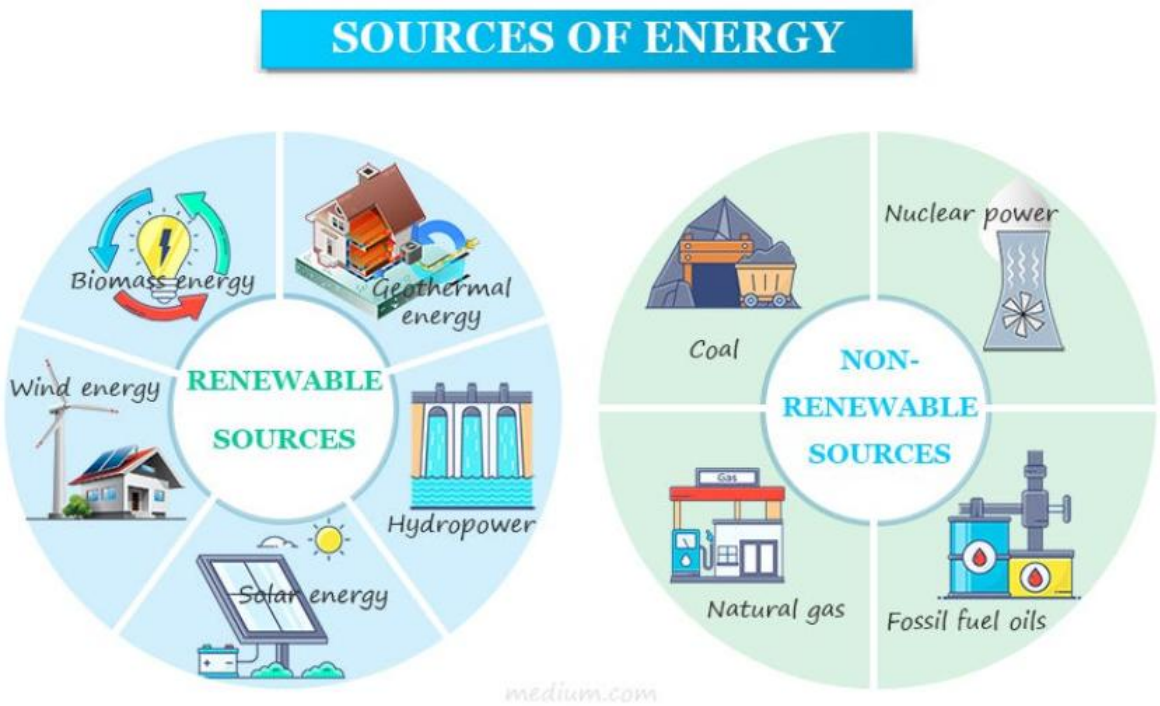
Educator	Learner
Introduction	
- The educator starts the lesson with a discussion about renewable and non-renewable sources of energy. - The educator displays the poster with sources of energy and explains why some of the sources are renewable and some are not.	- The learners take active participation in the discussion.

- The educator comments on the importance of sustainability.	
Main part	
- The educator divides the learners into two groups. - The educator gives instructions for making a wind turbine: 1. Cut out both the tower and the blades; 2. Fold the inside surface of the tower as indicated on the template; 3. Complete the tower; 4. Bend the blades slightly to create a tilt angle; 5. Place the dress pin through the centre of the blade, through a bead, through the top of the tower, and finally through an eraser to keep it all together; 6. Place the wind turbine somewhere with a breeze and watch it spin. - The educator gives instructions for making a solar oven: 1. Line the base of a box with black construction paper; 2. Line the sides of the box with foil; 3. Place a smaller box inside the large box; 4. Put pieces of newspaper between the two boxes; 5. Cover one side of a sheet of cardboard with foil and tape so that it could flap; 6. Place glass on top of the boxes; 7. Direct the sun rays of the collector with wood.	- Group 1 - The learners make a wind turbine together. - Group 1 - The learners make a solar oven.
Conclusion	
- Outside watching the wind turbine spin and the sun oven the educator starts a discussion about the applicability of the devices and asks which other natural sources are important for energy sustainability.	- Discussion of natural sources and their use.

Lesson plan evaluation: The educator continuously evaluates the answers and presentations by providing the learners with relevant oral feedback.

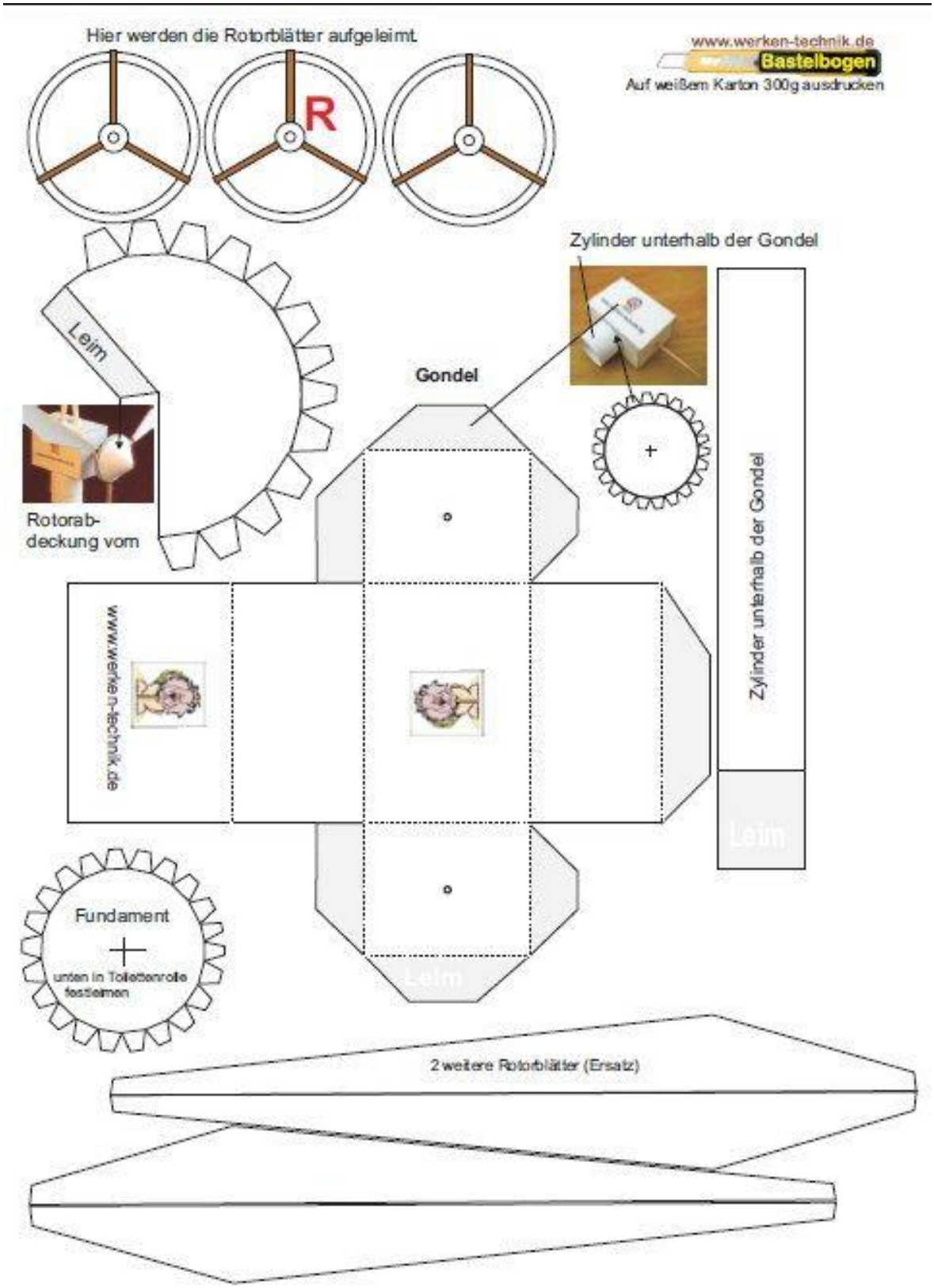
Visual aids:

- **Introduction**
  Poster



Taken from
https://www.udqwmall.shop/?path=page/ggitem&ggpid=750895

- **Main part**
  Group 1: Wind turbine template



Group 2: Instructions for making a solar oven

www.pinterst.com

ENERGY EFFICIENCY AND ENERGY CONSERVATION

Lesson objectives:

- Learners will be able to make the difference between energy efficiency and energy conservation
- Learners will understand the importance of energy efficiency
- Learners will understand the importance of energy conservation

Forms of work:

- Frontal, individual, and group work

Methods of work:

- Brainstorming, discussion, flipped classroom, online class

Teaching aids:

- Computer, internet connection

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to each other's presentations

Discussion

- Learners present about energy efficiency and energy conservation
- Learners discuss their energy-efficient home
- Learners present their future home

Duration of the lesson: 1 hour

Educator	Learner
Pre-class assignment	
- The educator makes a class on Google Classroom and assigns a video to be watched for the class. - The educator divides the class into two groups and assigns research to be done on: Group 1 – energy-efficient homes; Group 2 – energy conservation at home.	- The learners watch the video. - Each group researches the given assignment.

Introduction	
- The educator starts the lesson by giving a short explanation of energy efficiency and energy conservation.	- Each group presents in detail the research they have done about energy-efficient homes and energy conservation at home. -
Main part	
- The educator makes a separate space in Google Classroom for each group and instructs the groups to make a list of all changes that they would make to their homes to be energy efficient and to conserve energy.	- The learners make an online presentation of their ideas about the changes they would make to their homes.
Conclusion	
- The educator follows the presentations and comments.	- One learner from every group presents gives the presentation.

Lesson plan evaluation: The educator evaluates the answers by providing the learners with relevant oral feedback. The educator marks the assessment in his checklist on the research done before the class.

Visual aids:

- **Introduction**

  Energy Efficiency 101

  https://www.youtube.com/watch?v=D11iFUw_ImU&t=1s

THE FUTURE OF ENERGY

Lesson objectives:

- Learners will be able to understand how waste is transformed into electricity or heat
- Learners will understand the environmental and social benefits of using natural renewable resources for producing energy

Forms of work:

- Frontal and individual work

Methods of work:

- Brainstorming, virtual tour, 5 Why's template

Teaching aids:

- Internet, Computer

Objectives for communicative activities

Listening and comprehension

- Learners listen to the instructions
- Learners listen to each other's brainstorming ideas
- Learners listen to each other's answers

Discussion

- Learners brainstorm on ideas for 5 Why questions
- Learners write questions and read their answers

Duration of the lesson: 1 hour

Educator	Learner
Introduction	
- The educator schedules an online class (Google Classroom or Zoom). - The educator starts the lesson with a virtual tour of turning waste into energy to provoke discussion about the use of resources and energy.	- The learners see the virtual tour.

Main part	
- The educator discusses the virtual tour and the use of resources and energy. - The educator explains the following activity and shares the 5 Why's templates with the learners along with the first question - Why is it that many regions still rely on non-renewable energy sources despite the growing need for cleaner alternatives? - After having the questions and answers from the learners the educator directs them to think of new innovative solutions about using resources and energy.	- The learners take an active part in the discussion. - The learners fill out the templates. - The learners read the answers and questions.
Conclusion	
- The educator writes the ideas on the screen and shares them with the learners.	- The learners present their innovative solutions for using resources and energy.

Lesson plan evaluation: The educator continuously evaluates the answers and presentations by providing the learners with relevant oral feedback.

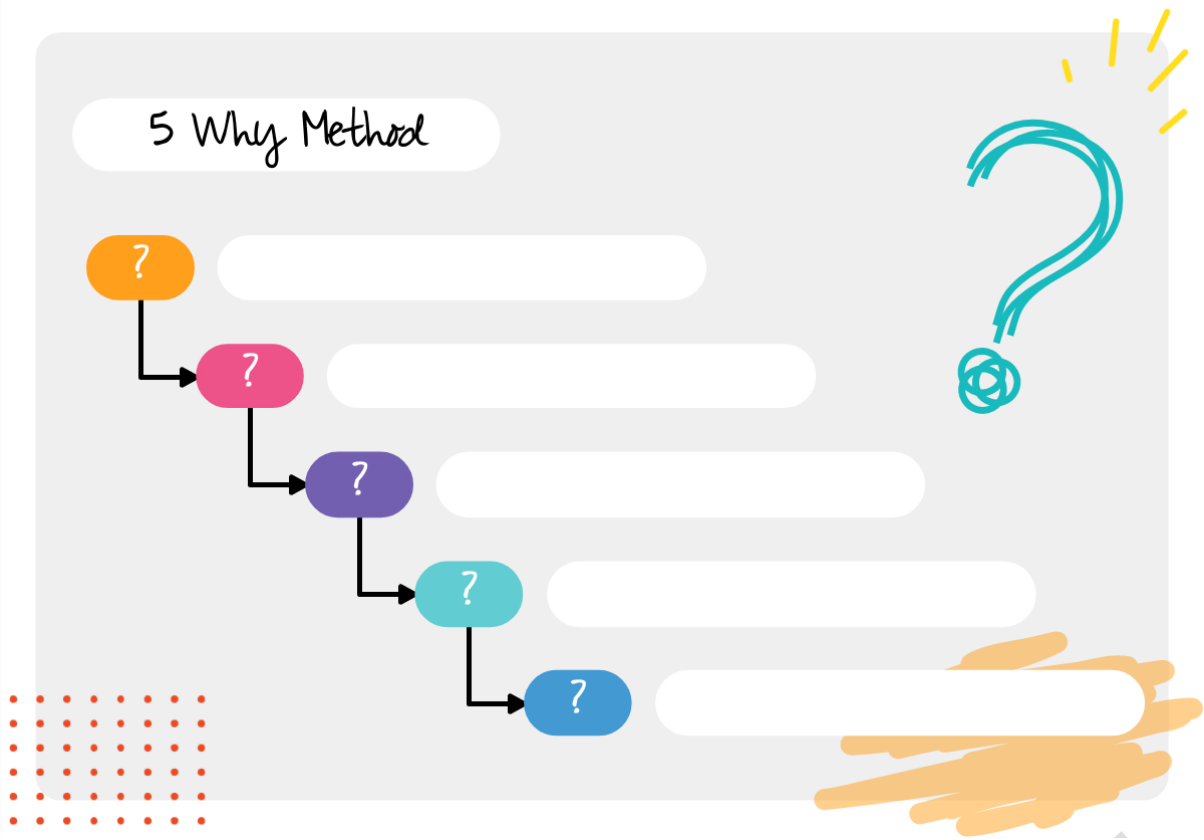
Visual aids:

- **Introduction**

  Waste-to-Energy Virtual Tour

  https://www.youtube.com/watch?v=RAXbohaBGt8

➢ Main part



There is a starting question and each answer to the question is the next WHY question. The educator starts the discussion with the question – Why is it that many regions still rely on non-renewable energy sources despite the growing need for cleaner alternatives?

Here is an example of the learners' answers (AI-generated):

- Start with the problem statement*:* "*Why do many regions still rely on non-renewable energy sources, despite the need for cleaner alternatives?*"

- First "Why*":* Learner's Answer: "Because non-renewable energy sources are often cheaper and more accessible."

- Follow-up question*:* "*Why are non-renewable energy sources cheaper and more accessible?*"

- Second "Why*":* Learner's Answer: "Because fossil fuels are widely available, and infrastructure for extracting and using them is already built."

Follow-up question*:* "*Why is there already extensive infrastructure for fossil fuel extraction and use?*" etc.

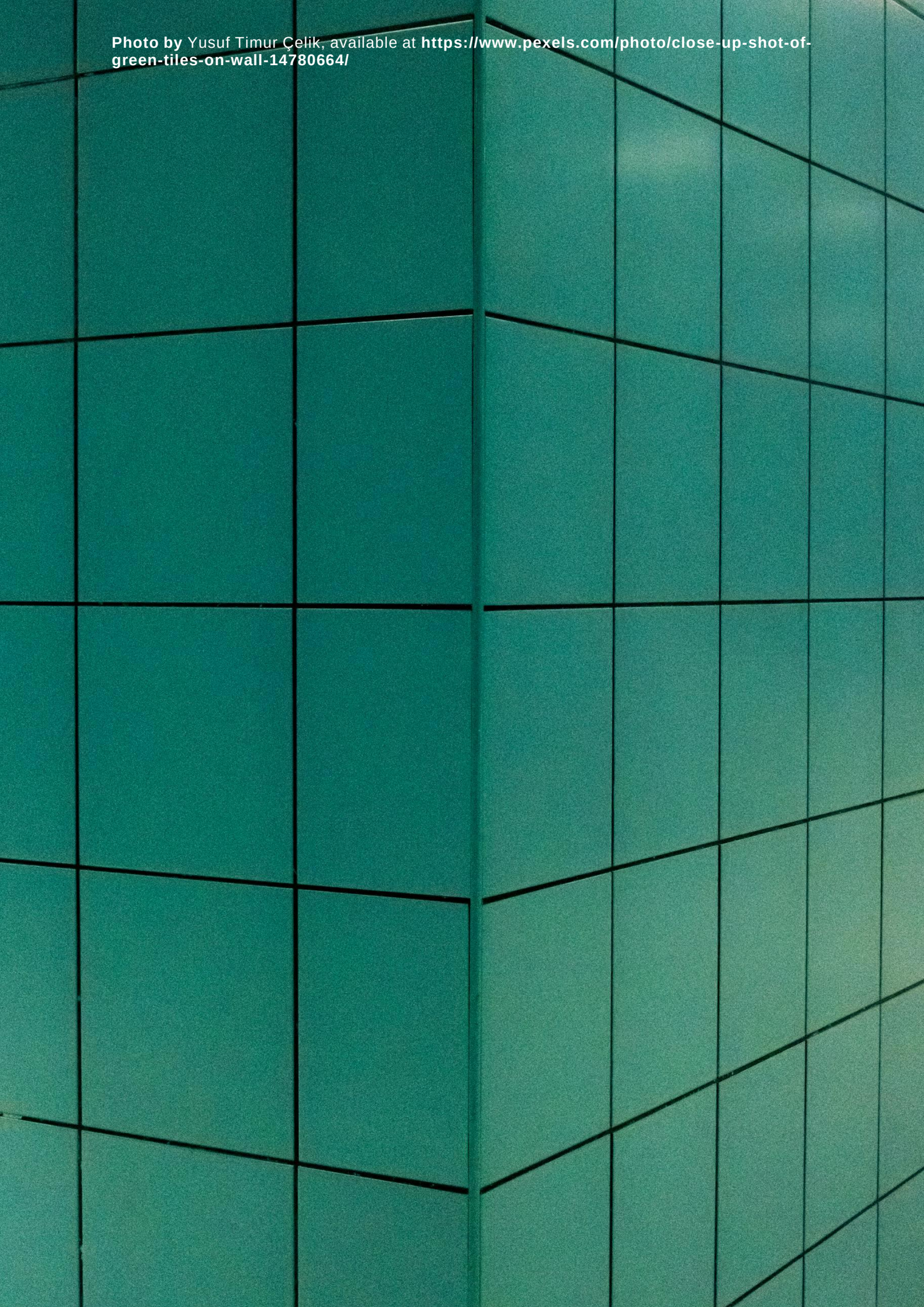


Photo by Yusuf Timur Çelik, available at **https://www.pexels.com/photo/close-up-shot-of-green-tiles-on-wall-14780664/**