



Co-funded by
the European Union

ERASM2025-1-DE03-KA210-SCH-000354855



SUSTAINABLE
TECHNOLOGY
FOR THE
ENVIRONMENT
PROTECTION
ERASMUS+

GREEN SCHOOL

SCIENTIFIC MAGAZINE

Environmental Science · Innovation · Sustainability



STEP – SUSTAINABLE TECHNOLOGY FOR ENVIRONMENT PROTECTION

Project No. 2025-1-DE03-KA210-SCH-000354855

2026 Edition · A Scientific Magazine for Students (B2 English Level)

SUSTAINABLE TECHNOLOGY · RENEWABLE ENERGY · RECYCLING · BIODIVERSITY · STEP ACTIVITIES

IN THIS ISSUE

Contents

01	Welcome to Green School Scientific Magazine.....	3
02	Sustainable Technology: Creating a Better Future.....	5
03	Renewable Energy at School – Powering the World Naturally.....	7
04	Recycling: Science Behind the Process.....	9
05	Green Buildings and Eco Design.....	111
06	Water Protection and Innovation.....	133
07	Biodiversity: Protecting Life on Earth.....	155
08	STEP Project Activities.....	177
09	Interview: A Green Future.....	199
10	Eco Quiz (B2 Level).....	21
11	Conclusion.....	23

Welcome to Green School Scientific Magazine



“ Sustainability begins with knowledge,
but it grows through action.”



Knowledge takes root: STEP invites every reader to grow new ideas about sustainability.

Welcome to Green School Scientific Magazine, a publication created within the STEP (Sustainable Thinking and Environmental Protection) project. This magazine has been designed to inspire students, teachers, and readers to discover the importance of environmental science and sustainable development.

Today, our planet faces many challenges, including climate change, pollution, the loss of biodiversity, and the excessive use of natural resources. These global issues require creative solutions, responsible decisions, and the active involvement of young people. Through education, research, and collaboration, we can all contribute to a healthier environment.

In this edition, you will explore fascinating topics such as sustainable technology, renewable energy, recycling science, green buildings, water protection, and biodiversity conservation. Each article explains how innovation and scientific progress can help create a more sustainable future while protecting nature.

The magazine also highlights practical STEP activities that encourage students to become active citizens. By recycling, saving energy, planting trees, participating in environmental projects, and promoting conservation, students can make a real difference in their schools and communities.

“Sustainability begins with knowledge, but it grows through action.”

We believe that sustainability begins with knowledge, but it grows through action. Every small step we take today can have a positive impact on tomorrow's world.

We hope this magazine will encourage you to ask questions, explore new ideas, and become part of the global effort to protect our planet. Together, through science, creativity, and responsibility, we can build a greener, cleaner, and more sustainable future for generations to come.

Enjoy reading and be inspired to make a difference!



DID YOU KNOW? *The word “sustainability” comes from the Latin *sustinere*, meaning “to hold up” or “to support” — a reminder that today's choices support tomorrow's world.*

SUSTAINABLE TECHNOLOGY · ARTICLE 02

Sustainable Technology: Creating a Better Future



Smart cities combine innovation with environmental responsibility.

Technology has changed the way people live, work, and communicate. However, it has also created many environmental problems, such as pollution, waste, and high energy consumption. Sustainable technology is designed to reduce these negative effects while improving people's quality of life. It combines innovation with environmental responsibility and aims to protect natural resources for future generations.

One important example of sustainable technology is renewable energy systems. Solar panels and wind turbines produce electricity without burning fossil fuels. As a result, they reduce greenhouse gas emissions and help fight climate change. Many countries are investing in renewable energy because it is becoming more affordable and efficient.

Another area of sustainable technology is transportation. Electric cars produce fewer emissions than traditional vehicles powered by gasoline or diesel. Many cities are also encouraging people to use bicycles, electric buses, and public transport to reduce traffic and air pollution. In addition, modern trains and shared mobility services help decrease fuel consumption.

Smart homes are another example of sustainable technology. They use intelligent systems to control heating, lighting, and water usage. These systems reduce energy waste and lower electricity bills. Some smart homes even produce their own electricity through rooftop solar panels.

“Sustainable technology is not only about creating new inventions but about using resources wisely.”

Agriculture has also benefited from sustainable technology. Farmers now use sensors, drones, and weather forecasting systems to monitor crops more efficiently. These technologies reduce water use, prevent the excessive use of fertilizers, and increase food production while protecting the environment.

Despite these advantages, sustainable technology also faces challenges. The production of batteries and electronic devices requires rare materials, and electronic waste is becoming a growing problem worldwide. Recycling electronic products and developing environmentally friendly materials are essential for making technology truly sustainable.

Governments, businesses, and individuals all have an important role to play. By supporting innovation, investing in green technologies, and making responsible choices, society can build a cleaner and healthier future.

In conclusion, sustainable technology is not only about creating new inventions but also about using resources wisely. It offers practical solutions to environmental challenges and helps create a balance between economic development and environmental protection.



DID YOU KNOW? *A single smart LED streetlight system can cut a city's outdoor lighting energy use by half compared to older lighting technology.*

RENEWABLE ENERGY · ARTICLE 03

Renewable Energy at School – Powering the World Naturally



Sun and wind: two of the fastest-growing sources of clean electricity.

Solar energy, energy saving systems and responsible consumption can transform schools into examples of sustainability. Students can investigate energy use and propose improvements.

KEYWORDS sustainability · innovation · renewable energy · biodiversity · conservation

Renewable energy comes from natural sources that are constantly replenished, such as sunlight, wind, water, and geothermal heat. Unlike fossil fuels, renewable energy produces little or no pollution and plays a key role in reducing climate change.

Solar energy is one of the fastest-growing renewable energy sources. Solar panels convert sunlight into electricity, making them suitable for homes, schools, and businesses. As technology improves, solar panels become more efficient and less expensive.

Wind energy is another important source. Large wind turbines capture the power of moving air and convert it into electricity. Wind farms can produce enough energy to supply thousands of homes without releasing harmful gases into the atmosphere.

Hydroelectric power uses flowing water to generate electricity. Large dams and smaller hydroelectric plants provide reliable energy in many countries. Although hydroelectric power is renewable, it must be carefully managed because dams can affect local ecosystems and wildlife.

“Small actions by millions of people can have a significant impact.”

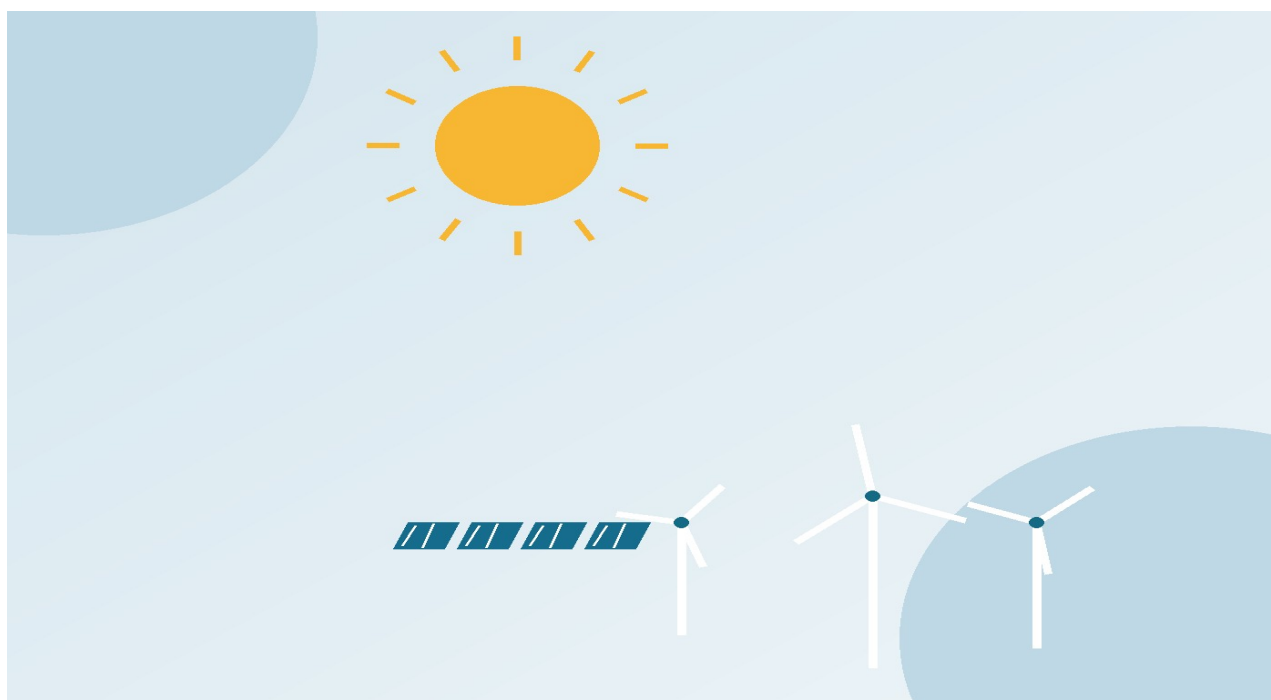
Biomass energy comes from organic materials such as wood, agricultural waste, and food scraps. When used responsibly, biomass can replace fossil fuels in heating and electricity production. However, forests must be protected to ensure that biomass remains sustainable.

Renewable energy creates many economic benefits. It generates new jobs in engineering, construction, maintenance, and scientific research. Many countries see renewable energy as an opportunity to improve energy security and reduce dependence on imported fuels.

However, renewable energy also presents some challenges. Solar panels only generate electricity during daylight hours, and wind turbines depend on weather conditions. Scientists are developing better battery storage systems to store excess energy for later use.

Everyone can contribute by saving electricity, supporting renewable energy projects, or installing solar panels if possible. Small actions by millions of people can have a significant impact.

Renewable energy is one of the most effective ways to create a cleaner planet while meeting the world's growing energy needs. It represents hope for future generations and demonstrates that economic progress and environmental protection can go hand in hand.



DID YOU KNOW? *Sunlight reaches the Earth in about eight minutes, and in that time the sun delivers far more energy than the whole planet uses in a year.*

◆ RECYCLING · ARTICLE 04

Recycling: Science Behind the Process



From bin to raw material: recycling gives everyday objects a second life.

Recycling Science

Recycling is a scientific process that gives materials a new life. Proper waste collection and recycling reduce environmental impact.

KEYWORDS sustainability · innovation · renewable energy · biodiversity · conservation

Recycling is an essential process that helps reduce waste, conserve natural resources, and protect the environment. Recycling science explains how different materials can be collected, processed, and transformed into new products.

Paper recycling begins with collecting used paper, removing ink and impurities, and producing new paper products. Recycling paper reduces the need to cut down trees and saves water and energy during manufacturing.

Plastic recycling is more complex because different types of plastic require different treatment methods. Some plastics can be melted and reshaped into new containers, clothing fibers, or construction materials. Scientists continue to develop new technologies that improve plastic recycling efficiency.

Glass is one of the easiest materials to recycle because it can be melted repeatedly without losing quality. Recycling glass saves raw materials such as sand and limestone while reducing energy consumption.

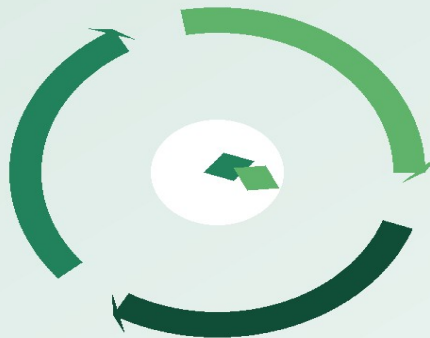
“Recycling is an important part of the circular economy, where materials remain in use instead of becoming waste.”

Metal recycling is highly valuable. Aluminum cans, steel products, and copper wires can be recycled many times. Producing aluminum from recycled materials uses far less energy than producing it from raw ore.

Electronic waste has become one of the fastest-growing waste streams worldwide. Old computers, smartphones, and televisions contain valuable metals but also harmful substances. Proper recycling prevents pollution and allows valuable materials to be recovered.

Successful recycling depends on individuals as well as industries. People should separate waste correctly, avoid contaminated recycling bins, and choose products made from recycled materials whenever possible.

Although recycling cannot solve every environmental problem, it is an important part of the circular economy, where products and materials remain in use for as long as possible instead of becoming waste.



DID YOU KNOW? *Glass and aluminum can be recycled over and over again without ever losing quality — an aluminum can could be back on a shelf as a new can within weeks.*

◆ GREEN BUILDINGS · ARTICLE 05

Green Buildings and Eco Design



Green roofs, solar panels and efficient design shape the buildings of tomorrow.

Green Buildings: Designing Sustainable Cities

Modern green buildings use natural resources efficiently. Sustainable architecture creates healthier learning environments.

KEYWORDS sustainability · innovation · renewable energy · biodiversity · conservation

Buildings consume large amounts of energy and natural resources. Green buildings are designed to minimize environmental impact while providing healthy and comfortable living and working spaces.

One important feature of green buildings is energy efficiency. High-quality insulation, energy-saving windows, and LED lighting reduce electricity consumption. Smart systems automatically adjust heating and cooling according to occupancy and weather conditions.

Many green buildings use renewable energy. Solar panels, geothermal heating systems, and small wind turbines reduce dependence on traditional electricity sources. Some buildings even generate more energy than they consume.

Water conservation is another priority. Rainwater collection systems, low-flow faucets, and efficient irrigation reduce water waste. Some buildings also recycle greywater from sinks and showers for toilet flushing or gardening.

“Green roofs and vertical gardens improve air quality and create habitats for birds and insects.”

Sustainable construction materials are carefully selected. Recycled steel, certified wood, bamboo, and environmentally friendly concrete reduce the environmental footprint of construction projects.

Green roofs and vertical gardens improve air quality, reduce urban temperatures, and create habitats for birds and insects. These natural features also make cities more attractive and healthier for residents.

Although green buildings often require higher initial investment, they save money over time through lower energy and maintenance costs. Governments increasingly encourage sustainable construction through financial incentives and environmental regulations.

As cities continue to grow, green buildings will become essential for creating sustainable urban environments where people and nature can coexist successfully.



DID YOU KNOW? *A well-planted green roof can lower the temperature of the room beneath it and helps insulate a building in both winter and summer.*

Water Protection and Innovation



Clean water depends on responsible use, treatment and protection at every level.

Water Protection: Every Drop Matters

Water conservation technologies help communities protect one of Earth's most important resources.

KEYWORDS sustainability · innovation · renewable energy · biodiversity · conservation

Water is one of Earth's most valuable resources. Every living organism depends on clean water for survival, yet pollution, climate change, and excessive consumption threaten water supplies around the world.

Industrial pollution is one of the major causes of water contamination. Chemicals released into rivers and lakes can harm aquatic life and make water unsafe for human use. Governments enforce environmental regulations to reduce industrial pollution.

Agriculture also affects water quality. Fertilizers and pesticides can enter rivers through rainfall and irrigation. Sustainable farming techniques help reduce chemical pollution while maintaining food production.

Plastic waste represents another serious problem. Millions of tons of plastic enter oceans each year, harming marine animals that mistake plastic for food. Beach clean-up campaigns and reducing single-use plastics help protect marine ecosystems.

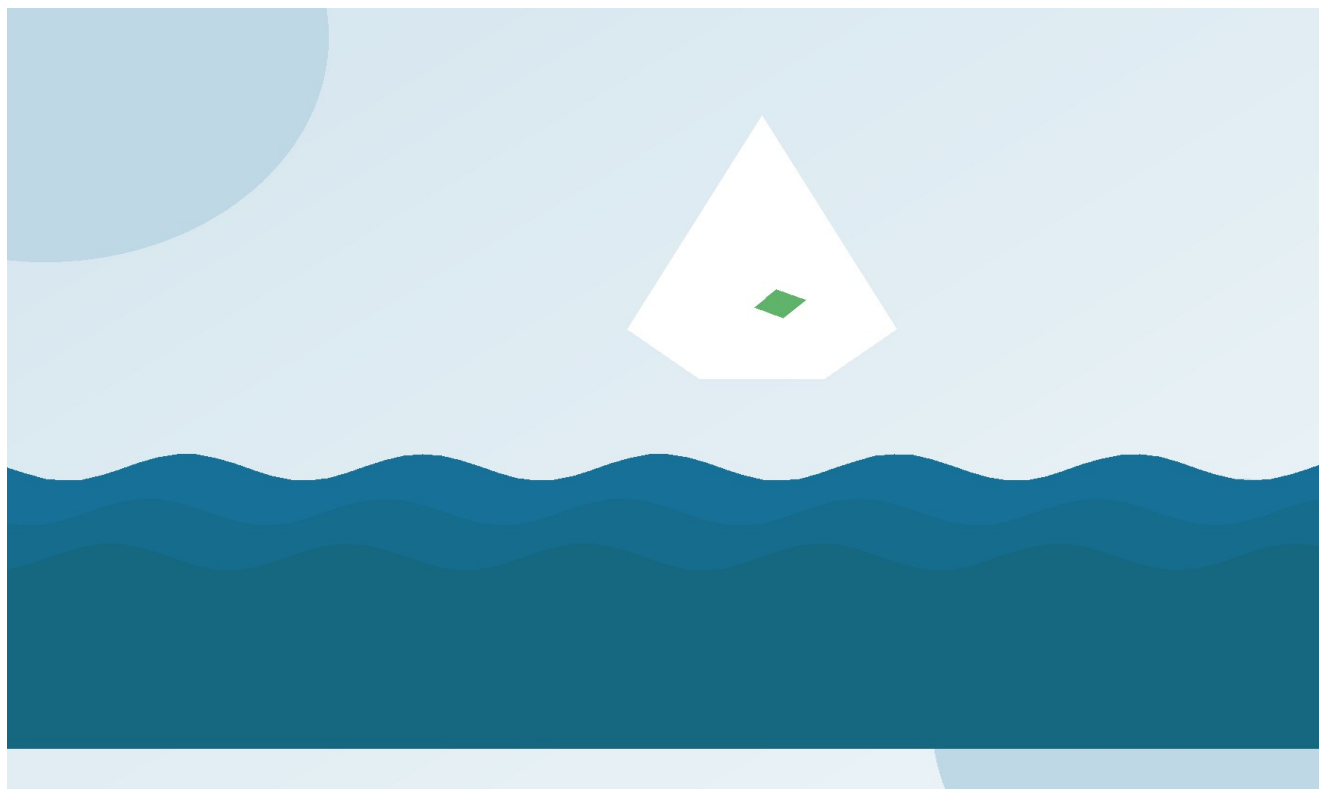
“Clean water is essential for human health, agriculture, industry, and ecosystems.”

Water conservation is equally important. Simple actions such as repairing leaking taps, taking shorter showers, and using water-efficient appliances can significantly reduce household water consumption.

Many countries invest in modern wastewater treatment plants that remove harmful substances before water returns to rivers or oceans. These facilities play a vital role in protecting public health and biodiversity.

Education and public awareness encourage responsible water use. Schools, environmental organizations, and local communities organize activities that teach people about the importance of protecting water resources.

Clean water is essential for human health, agriculture, industry, and ecosystems. Protecting it requires cooperation between governments, businesses, and citizens.



DID YOU KNOW? *Although water covers most of the Earth's surface, only a small fraction of it is fresh water that people can actually drink or use for farming.*

◆ BIODIVERSITY · ARTICLE 07

Biodiversity: Protecting Life on Earth



Forests, pollinators and wetlands form the web of life that sustains our planet.

Protecting plants and animals means protecting the natural systems that support life.

KEYWORDS sustainability · innovation · renewable energy · biodiversity · conservation

Biodiversity refers to the variety of living organisms on Earth, including animals, plants, fungi, and microorganisms. Healthy ecosystems depend on biodiversity because each species plays an important role in maintaining ecological balance.

Forests, oceans, wetlands, and grasslands provide habitats for countless species. Unfortunately, human activities such as deforestation, pollution, and urban expansion destroy many natural habitats.

Climate change also threatens biodiversity by altering temperatures, rainfall patterns, and ecosystems. Some species cannot adapt quickly enough and face extinction.

Conservation efforts include creating national parks, wildlife reserves, and protected marine areas. Scientists monitor endangered species and develop breeding programs to increase their populations.

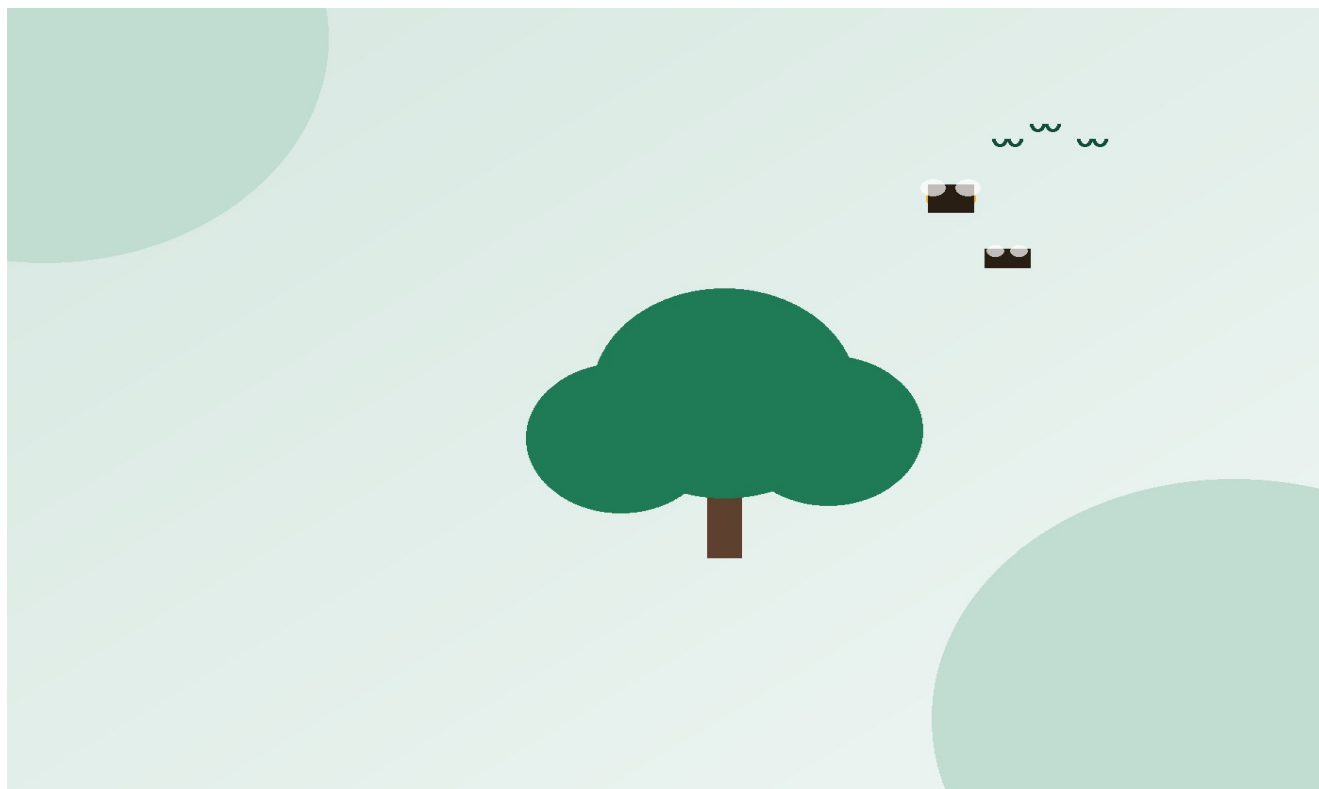
“Protecting biodiversity means protecting life itself.”

Pollinating insects such as bees are especially important because they help plants reproduce and support food production. Protecting pollinators benefits both agriculture and natural ecosystems.

Individuals can contribute by planting native flowers, reducing pesticide use, recycling, and supporting conservation organizations. Even small gardens can provide valuable habitats for wildlife.

Biodiversity also has economic importance. Healthy ecosystems provide food, medicine, clean water, tourism opportunities, and protection against natural disasters.

Protecting biodiversity means protecting life itself. Every species contributes to the complex web of life that supports human well-being and the health of our planet.



DID YOU KNOW? *Bees and other pollinating insects help produce a large share of the fruits, vegetables and nuts that people eat every day.*

◆ STEP PROJECT CORNER · ARTICLE 08

Sustainable Thinking and Environmental Protection (STEP) Activities



Hands-on learning: STEP students turn environmental ideas into real action.

The STEP project encourages cooperation, research activities, workshops and environmental awareness among students.

KEYWORDS sustainability · innovation · renewable energy · biodiversity · conservation

Environmental education becomes more effective when students actively participate in practical activities. STEP Activities encourage teamwork, creativity, critical thinking, and environmental responsibility.

One popular activity is organizing a school recycling campaign. Students collect paper, plastic, batteries, and electronic waste while learning about proper waste management.

Tree planting events help improve local biodiversity and reduce carbon dioxide in the atmosphere. Students gain practical experience while contributing directly to their community.

Energy-saving challenges encourage participants to monitor electricity use at home and school. Students compare results and discover practical ways to reduce energy consumption.

“STEP Activities show that everyone can contribute to environmental protection through simple but meaningful actions.”

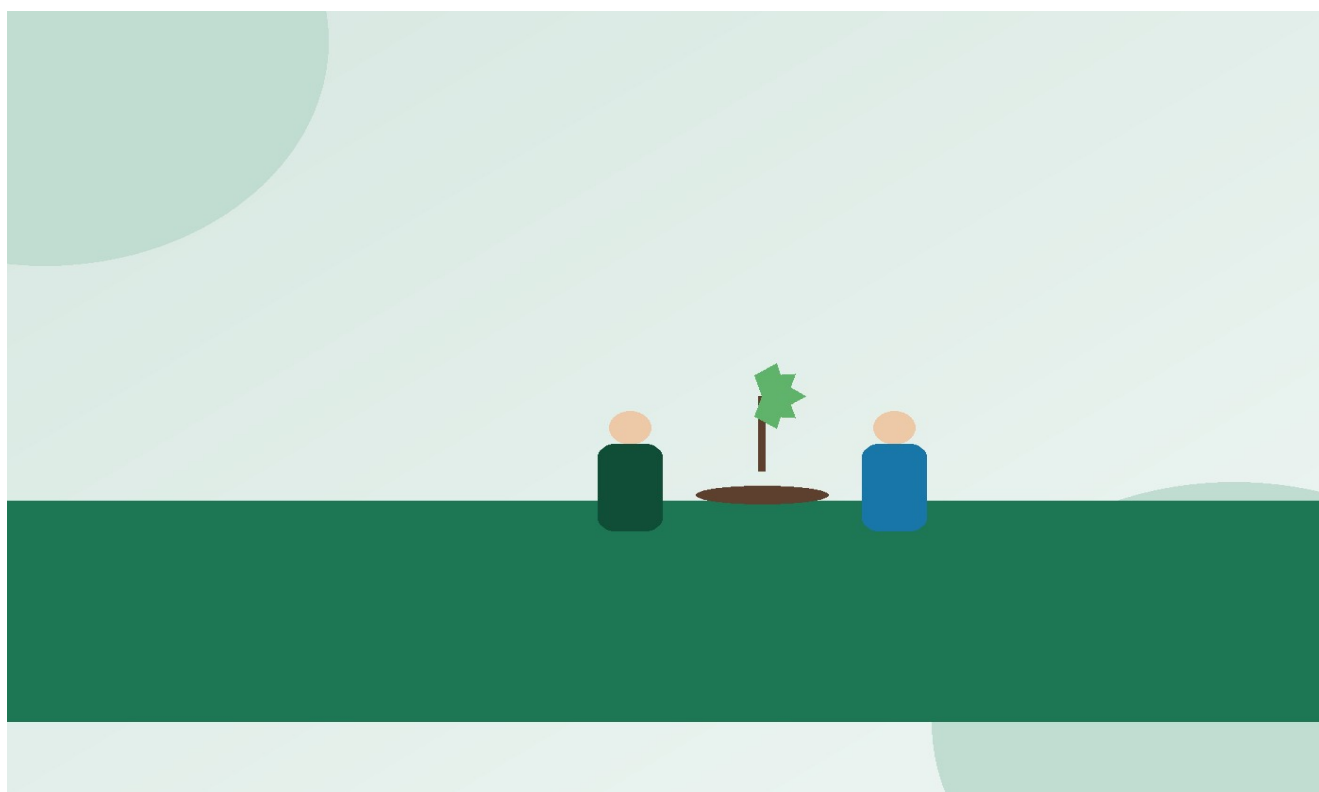
Water conservation projects involve measuring daily water use and identifying methods to reduce waste. Participants often create awareness posters or presentations for classmates.

Nature observation walks allow students to identify plants, birds, insects, and other wildlife. These activities increase appreciation for local biodiversity and develop scientific observation skills.

Creative workshops transform recyclable materials into useful or artistic objects. Students learn that many everyday items can have a second life instead of becoming waste.

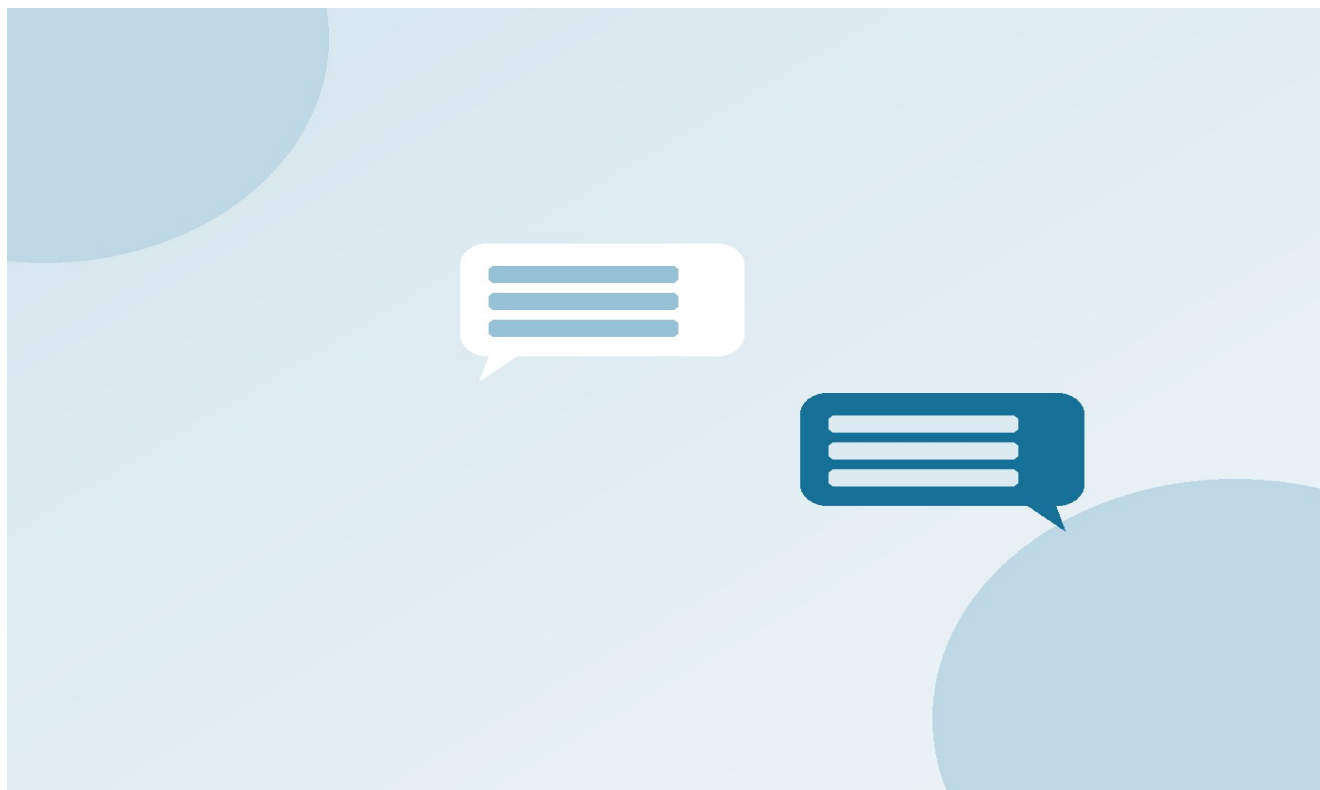
Finally, environmental debates help students discuss topics such as climate change, renewable energy, and sustainable development. These discussions improve communication skills while encouraging informed decision-making.

STEP Activities show that everyone can contribute to environmental protection through simple but meaningful actions.



DID YOU KNOW? *A single young tree can absorb a meaningful amount of carbon dioxide each year as it grows — which is why school tree-planting days matter more than they might seem.*

Interview: A Green Future



A student's perspective on sustainability, innovation, and what young people can do today.

KEYWORDS sustainability · innovation · renewable energy · biodiversity · conservation

Q Why is environmental protection important today?

A Environmental protection is essential because it helps preserve natural resources and ensures a healthier future for everyone. By focusing on sustainability, we can meet today's needs without harming future generations.

Q What can students do to help the environment?

A Students can make a big difference by saving energy, recycling paper, plastic and glass, planting trees, reducing waste, and participating in environmental campaigns. They can also create scientific projects that promote green solutions.

Q How does innovation help protect nature?

A Innovation allows scientists and engineers to develop cleaner technologies, improve recycling systems, and create products that are more environmentally friendly. New ideas can solve many environmental problems more efficiently.

Q Why is renewable energy so important?

A Renewable energy comes from natural sources such as the sun, wind, and water. It reduces pollution, lowers greenhouse gas emissions, and helps fight climate change while providing clean electricity.

Q *What does biodiversity mean?*

A Biodiversity is the variety of living organisms, including plants, animals, and microorganisms. Healthy biodiversity keeps ecosystems balanced and provides food, clean water, medicine, and many other benefits.

Q *How can people contribute to biodiversity conservation?*

A People can protect biodiversity through conservation activities such as planting native trees, protecting wildlife habitats, reducing pollution, avoiding single-use plastics, and supporting national parks and environmental organizations.

Q *Can small actions really make a difference?*

A Yes, absolutely. Every small action counts. If millions of people recycle, save water, reduce energy consumption, and make environmentally responsible choices, the positive impact on the planet can be significant.

Q *What message would you like to give to young people?*

A I would encourage everyone to care about nature every day. Sustainability starts with simple actions, and together we can build a cleaner, greener, and healthier future for all.

Eco Quiz (B2 Level)



Test what you have learned in this issue of Green School Scientific Magazine.

Choose the correct answer.

KEYWORDS sustainability · innovation · renewable energy · biodiversity · conservation

1. What is the main goal of sustainable technology?

- a) Increase pollution b) Protect natural resources while improving life c) Produce more waste d) Replace education

2. Which energy source is renewable?

- a) Coal b) Oil c) Solar energy d) Natural gas

3. Why is recycling important?

- a) It increases waste. b) It conserves natural resources. c) It pollutes rivers. d) It destroys forests.

4. What is a feature of green buildings?

- a) High energy consumption b) Poor insulation c) Energy-efficient design d) More pollution

5. Which activity helps protect water?

- a) Throwing plastic into rivers b) Wasting water c) Repairing leaking taps d) Burning waste

6. What does biodiversity mean?

- a) Only plant life b) The variety of living organisms c) Different weather conditions d) Types of pollution

7. Which STEP activity improves biodiversity?

- a) Burning leaves b) Tree planting c) Throwing rubbish away d) Wasting electricity

8. Which material can be recycled many times without losing quality?

- a)** Glass **b)** Food waste **c)** Coal **d)** Oil

9. Why are bees important?

- a)** They produce electricity. **b)** They pollinate plants. **c)** They recycle plastic. **d)** They clean rivers.

10. Which action reduces carbon emissions?

- a)** Using bicycles **b)** Burning more coal **c)** Wasting electricity **d)** Cutting forests

ANSWER KEY 1b 2c 3b 4c 5c 6b 7b 8a 9b 10a

Take the online quiz: https://docs.google.com/forms/d/e/1FAIpQLSf2xWRw2ab5-TJrh5EyFMYpJ4nMKAL68lddN_gfQwKULZyEkg/viewform?usp=header

Conclusion

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Enjoy reading and be inspired to make a difference!

— *STEP Project Team* —

