LIFE AND LAND: THE JOURNEY OF SUNNY, THE ROBOT FROM PROXIMA

Digital Educational Mat & Coding







FINISH



EduMat.

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) Teaching program set-up

8/9 Y

This project is developed in 4 meetings of about 55 minutes each to be completed sequentially. This kit illustrates the practical indications for each activity and the related timing.

) Scenario

Our planet is facing a range of environmental challenges that threaten the future of all living beings. From the piles of waste that pollute cities and oceans, to the alarming loss of biodiversity as species vanish, and the widespread deforestation that strips away the Earth's natural defenses—these issues require urgent attention. If we want to preserve the environment for future generations, we must take action to find sustainable solutions.

The good news is that there are many ways we can contribute to protecting the environment. By reducing waste through recycling, safeguarding the animals that form a crucial part of ecosystems, and planting trees to improve air quality and combat climate change, we can all make a difference. These actions, though seemingly small, can have a significant impact if embraced by people around the world, especially young minds.

To help children understand these important concepts, our project uses a fictional story that follows Sunny, a robot from the distant planet Proxima. On Proxima, the environment is in trouble, much like on Earth. The planet's ruler, King Kurbi, is worried about the destruction caused by pollution, deforestation, and the disappearance of animals. Desperate to find solutions, he decides to send his son Sunny on a mission across the universe to search for answers.

Sunny's journey brings him to Earth, where he meets Rubi, a helpful and environmentally-conscious child. Together, they embark on an exciting adventure to discover three vital solutions that can save Proxima and help Earth in the process.

By the end of the story, Sunny returns to Proxima with the knowledge and solutions needed to help his planet. Through these fictional adventures, children will be inspired to apply these environmental lessons in their own lives, contributing to the health of our planet.

O Involved subjects







SCIENCE





ART

TECHNOLOGY

• Pedagogical needs	 This project meets several key pedagogical needs for children aged 8-9, focusing on their cognitive, social, and emotional development: Environmental awareness: the project teaches children about pressing environmental issues like waste, biodiversity loss, and deforestation, encouraging responsibility and eco-friendly behaviors; Problem-solving skills: by following Sunny's quest, children engage in critical thinking and learn practical solutions, such as recycling and tree planting; Hands-on learning: activities like sorting waste and planting trees provide experiential learning, helping children better internalize these concepts; Collaboration and empathy: Sunny's partnership with Rubi promotes teamwork and empathy toward nature, fostering emotional and social development; Creative expression: the story and song encourage creativity, making learning fun and engaging while reinforcing environmental values.
• Pedagogical objectives	 These objectives aim to equip children with both knowledge and practical skills, helping them become proactive stewards of the environment. Develop environmental awareness: help children understand key environmental issues like waste management, deforestation, and biodiversity loss, fostering a sense of responsibility for the planet; Promote problem-solving and critical thinking: encourage children to think critically about environmental challenges and explore practical solutions like recycling, protecting animals, and planting trees; Foster teamwork: teach the value of working together to achieve common goals, as demonstrated by Sunny and Rubi's partnership; Encourage hands-on engagement: use interactive activities like waste sorting, observing wildlife, and tree planting to reinforce environmental concepts through experiential learning; Build empathy and ethical understanding: instill empathy for animals and nature, encouraging children to care for the environment and act ethically in their daily lives; Enhance communication and creativity: strengthen storytelling, discussion, and creative expression through engaging narratives, and classroom activities focused on environmental conservation.
O Methodology	The DEMING CYCLE (PDCA Cycle) is a method for implementing improvements continuously, test changes and solve problems.
	PLAN DO CHECK ACT

01_Plan and schedule teaching units/activities.

02_Carry out the activities (teaching units; theoretical training sessions; practical training/laboratory sessions).

03_Continuous control that the objectives are achieved and that all students have acquired new skills in a homogeneous way.

04_At the end of each session the teacher evaluates the work, observes and identifies critical issues and ways to implement corrective actions for the future.





\diamond Section of the map

This section of the map is dedicated to the first lesson. On a graphic level it presents all the elements useful for narration and related activities.



Pedagogical objectives

The objectives for the first part of the project are focused on the problem of waste and pollution, are:

- Understand the impact of waste on the environment: children will learn how improper waste disposal leads to pollution of land, air, and water, affecting ecosystems and human health;
- Recognize the different types of waste: students will identify various forms of waste (explored in more detail in the next lesson) and understand how each can contribute to environmental problems if not managed properly;
- Explore the causes of pollution: children will discuss everyday activities (e.g., littering, industrial waste) that contribute to pollution and how these actions harm the environment;
- Identify the effects of pollution on living beings: they will learn how pollution impacts animals, plants, and humans, leading to issues like habitat destruction, health problems, and ecosystem imbalance;
- Foster responsibility for waste reduction: students will understand their role in minimizing waste production by making better choices, like using less packaging or reusing items.

One Necessary aspects

The story and its steps require:

- an educator who will actively participate during the lesson;
- a display on which to screen the map during and after reading the story and to view the videos proposed for some activities;
- a computer/tablet with which children can carry out part of the activities and programming on Scratch (a free programming environment, with a graphical programming language);
- paper sheets and pencils.

Methodology

ATTENTION: Time of correction

A mistake in STEAM is a fundamental moment: all mistakes teach something and from them we can learn and improve together. The error must be corrected in a positive way without any penalty (reprimand, negative judgement, etc.) The correction involves the whole group in searching for the best solutions and explaining the reasons (cooperative learning – collective intelligence).

NARRATION (STEP 1) - 10 min

The first 10 minutes will be dedicated to a short introduction of the topic and to the storytelling. During the narration the educator will project the map on a screen and involve the children with relevant questions.

CODING ON SCRATCH (STEP 2) - THROUGHOUT THE LESSON

This part is aimed to introduce block programming on Scratch. All activities will be led by the educator.

ACTIVITY 1 / DISCUSSION - 10 min

The educator will engage children in a discussion about the pressing issue of waste. They will delve deeper into the topic by explaining the importance of protecting the places where we live and love from pollution.

ACTIVITY 2 /WRITING SUGGESTIONS - 20 min

Children have to recognize degradation situations and provide solutions. Moreover they have to think about how to fix the problem. At the end they'll write *10 Pieces of Advice to Save the Planet*.

REFLECTION AND SHARING (STEP 3) - 10 min

This phase allows students to reflect on this first part of the project and share their achievements. Children can also summarize the key concepts of the lesson and emphatize the importance of curbing pollution.

Pollution

) Step 1

The educator reads carefully the story to the children encouraging them to participate. This lesson is aimed to introduce the topic of the project. In this first phase the educator

will also introduce the problem of pollution.

Kurbi, the king of the planet Proxima, famous for its resemblance to Earth, decides to send his son Sunny, the robot, around the universe to find three solutions to the growing problems that plague life on their planet.

The planet to land on is Earth, so Sunny prepares his spaceship and leaves. After two days, he arrives at his destination and parks his spaceship in a parking lot near Rome. In the distance, he spots a child his age and explains his problem. The boy, whose name is Rubi, immediately shows his willingness to help him.

Walking through the streets they talk about the problem of waste that invades the city and Rubi tells Sunny how important it is to take care of disposing of waste correctly, carrying out a correct sorting, with the aim of preserving the environment and the humans who populate it.

) Step 2

The educator helps children to carry out the block programming code on Scratch.

ACTIVITY 1

The educator introduces the theme of the project, starting from the story read. In this phase, the involvement of each child will be fundamental. It will be the educator's task to have the class express their opinions and ideas. During this lesson the class led by the educator will use block programming on Scratch following the steps explained in the first chapter of the dedicated additional pamphlet called **MAT6.** Coding literacy for the lessons.

The educator begins by creating a welcoming environment, engaging children in a discussion about the pressing issue of waste. They introduce the topic by explaining that when we don't dispose of waste properly, it ends up polluting the places we live and love: piles of garbage in parks, plastic littering our oceans, and toxic waste damaging the soil where plants grow.

To capture children's interest, the educator shows images or short video clips of polluted environments—beaches filled with plastic, forests littered with trash, and hazy city skies impacted by pollution—helping them visualize how waste affects animals, plants, and people alike.

The educator then connects these real-world visuals to the fictional story of Sunny, the robot from Proxima, explaining that Sunny's planet, much like Earth, suffers from pollution, deforestation, and vanishing species due to unchecked waste. Children are encouraged to imagine how Sunny

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might feel seeing such waste on Earth and are asked, "What do you think he would notice?" As they discuss these ideas, the educator introduces various types of waste (e.g., plastic, food scraps, paper) with simple examples and explains the journey that each item can take – from a single – use product to a long-term environmental hazard, impacting water, air, and wildlife. By linking the waste problem to children's daily lives and helping them reflect on the everyday items they discard, the educator guides them to understand the real consequences of littering and pollution.

In this activity, children, with guidance from the educator, are invited to explore and recognize situations of environmental degradation and brainstorm potential solutions. The educator presents a series of paired images showing degraded and healthy environments—for instance, a polluted beach filled with plastic versus a clean, natural shoreline, or a lush forest compared with a deforested area. As each image pair is shown, the educator prompts students with questions like, "What differences do you see here?" and "How do you think this environment became degraded?" This helps children observe specific issues such as littering, pollution, and deforestation.

The educator encourages the children to imagine practical solutions by asking, "What could we do to make this place healthy again?" They discuss actions such as organizing beach clean-ups, recycling waste, planting trees, and reducing plastic use. In small groups, the children share their ideas, practicing teamwork and problem-solving skills as they connect each environmental issue to a possible solution. Throughout the activity, the educator emphasizes how small, everyday actions—like reusing bags or turning off lights—can help maintain non-degraded environments.

To consolidate their learning, children then collaboratively create a list titled **10** *Pieces of Advice to Save the Planet*, summarizing the ideas they discussed. Suggestions might include actions like "Always recycle," "Plant more trees," "Pick up litter," and "Use less plastic." This list serves both as a guide for their own behavior and as a message they can share with others, reinforcing their role as young environmental advocates. The activity ends with each child choosing one piece of advice they find most important, giving them a sense of ownership and responsibility toward environmental conservation.

) ACTIVITY 2

This activity is divided into two steps. The first is related to the viewing of some environmental degradation simulations, then the class will have to brainstorm potential solutions. Each child will be involved by the educator with appropriate questions.

The second step involves the drafting and enrichment of the brainstormed suggestions. Here, the educator will provide the necessary help.

) Step 3

The educator will guide the discussion among the children, directing it and encouraging them to address all the steps carried out in the lesson. In this phase, the students will reflect on this first part of the project and will have the opportunity to share their results, obtained during the previous activity. The children will also be able to summarize the key concepts of the lesson and underline, talking with their peers, the importance of curbing pollution.



RECYCLING CENTRE



\diamondsuit Section of the map

This section of the map is dedicated to the second lesson. On a graphic level it presents all the elements useful for narration and related activities.



> Pedagogical objectives

The following objectives promote both understanding and practical application, helping children grasp the "why" behind recycling and empowering them with skills to support sustainable practices. These are:

- Understand recycling as the process of turning waste into new materials and learn its benefits in conserving resources, reducing pollution, and protecting natural habitats;
- Recognize common recyclable materials such as paper, plastic, glass, and aluminum, and understand how recycling each helps reduce waste;
- Identify and understand key recycling symbols, like the chasing arrows, which indicate recyclability, and how these markings guide proper waste sorting;
- Understand how symbols make it easier for people to sort items correctly, helping recycling programs function more effectively;
- Practice sorting waste materials through hands-on practice to sort items into recyclable and non-recyclable categories;
- Understand the Importance of Proper Sorting: Learn why sorting waste accurately is essential for recycling facilities to reduce contamination and improve efficiency;
- Identify steps to reduce waste, such as using reusable bags, containers, and bottles instead of single-use items;
- Discuss how "reduce, reuse, recycle" can guide everyday choices, reducing one's environmental impact.

Necessary aspects

The story and its steps require:

- an educator who will actively participate during the lesson;
- a display on which to screen the map during and after reading the story and to view the videos proposed for some activities;
- a computer/tablet with which children can carry out part of the activities and programming on Scratch (a free programming environment, with a graphical programming language);
- paper sheets, pencils, scissors and glue and recyclable materials.

Methodology

ATTENTION: Time of correction

A mistake in STEAM is a fundamental moment: all mistakes teach something and from them we can learn and improve together. The error must be corrected in a positive way without any penalty (reprimand, negative judgement, etc.) The correction involves the whole group in searching for the best solutions and explaining the reasons (cooperative learning – collective intelligence).

NARRATION (STEP 1) - 5 min

The first 5 minutes will be dedicated to a short introduction of the topic and to the storytelling. During the narration the educator will project the map on a screen and involve the children with relevant questions.

CODING ON SCRATCH (STEP 2) - THROUGHOUT THE LESSON During the lesson children will do block programming on Scratch. All activities will be led by the educator.

ACTIVITY 1 / PRACTICAL TIME - 40 min

The educator will help stimulate the creativity of the class in order to create artistic projects using recycled materials. The activity will be structured in steps to ensure order and full participation of each child.

REFLECTION AND SHARING (STEP 3) - 10 min

This phase allows students to reflect on this second part of the project and share their achievements. All the children can also summarize the key concepts of the lesson and emphatize the benefits of using recyclable materials.

Recycling

) Step 1

The educator reads carefully the story to the children encouraging them to participate. The educator will also use this phase to talk about the importance of recycling in order to contribute to environmental conservation.

) Step 2

The educator helps children to carry out the block programming code on Scratch.

ACTIVITY 1

For this activity, the educator will encourage students to be creative by making art projects using recycled materials. To complete the task in an orderly manner, the educator will proceed step by step: discussion on the topic of recyclable

materials, presentation of the materials to be used, designing the work, creation.

The educator will provide all the necessary help so that each kid can express themselves at their best. Sunny and Rubi venture into the woods to reach the recycling center, where they encounter an Owl perched on a tree. The Owl explains how recycling works and educates the robot with examples. She tells them about **Plastic Bottles** (how plastic bottles can be recycled into new bottles or other plastic products. It emphasizes the importance of properly disposing of plastic bottles to prevent pollution and conserve resources. She also tells them about **Paper** and how it can be recycled into new paper products, such as newspapers, cardboard, or office paper. The Owl also tells them **Aluminum Cans** and the benefits of recycling aluminum cans, emphasizing that they can be melted down and reused to make new cans. It points out that recycling aluminum saves energy and reduces greenhouse gas emissions compared to producing aluminum from raw materials.

These examples helps Sunny to understand the various ways recycling contributes to environmental conservation and sustainability, gaining valuable insights to take back to his planet.

Thus, Sunny achieves the first solution.

During this lesson the class led by the educator will use block programming on Scratch following the steps explained in the second chapter of the dedicated additional pamphlet called **MAT6.** Coding literacy for the lessons.

In this activity, students are encouraged to express their creativity by designing and crafting art projects from recycled materials, allowing them to explore both environmental consciousness and artistic expression. The educator begins by introducing the concept of recycled art, explaining that using recycled items in artwork not only reduces waste but also gives materials a new purpose, transforming what would be discarded into something beautiful and meaningful. Students learn that recycled art can help raise awareness about waste reduction and inspire others to think creatively about reusing everyday items.

Introduction to Recyclable Materials

The educator then discusses different materials that can be recycled and the benefits of reusing these items in art projects. Common recyclable items like cardboard, paper rolls, plastic bottles, and bottle caps are presented, with an emphasis on how each material can be transformed through art. The discussion highlights how these items would typically end up in landfills, but by using them for art, they gain a second life, reducing waste and conserving resources.

Material Presentation and Demonstration

The educator displays a collection of recyclable materials, explaining the unique qualities of each one and how they might be used creatively. For instance, cardboard can be folded or layered to create textures, plastic bottles can be cut and shaped into decorative elements, and bottle caps can be arranged as mosaics. The educator then demonstrates basic techniques for working with recycled materials, such as safe cutting methods, folding, layering, and joining pieces together. Children observe these demonstrations as the educator emphasizes creativity, showing how even simple techniques can transform ordinary items into works of art.

Brainstorming and Planning

Students are then encouraged to brainstorm ideas for their art projects based on the available materials. Working either individually or in small groups, they generate ideas for sculptures, collages, or mixed-media pieces, considering the qualities of each material and how they can be combined. The educator provides sketch paper and encourages children to outline their designs or create rough sketches. This planning stage fosters problem-solving as students think critically about how to bring their ideas to life using limited materials.

Creating Recycled Art

With their plans in place, each student begins their project, using the techniques demonstrated to shape, assemble, and decorate their artworks. As they work, the educator circulates, offering support, encouragement, and suggestions to guide them through any challenges. The children are encouraged to experiment and take risks in their art-ma-king process, reinforcing the idea that art from recycled materials is about creativity and exploration.

This activity combines environmental awareness with hands-on creativity, allowing students to see firsthand how waste can become art. Through the process, they gain a sense of accomplishment and a deeper appreciation for sustainable practices, while proudly showcasing their creations as examples of what can be achieved through recycling and artistic innovation.

) Step 3

The educator will guide the discussion among the children, directing it and encouraging them to address all the steps carried out in the lesson. To conclude the lesson, the educator invites students to reflect on their artistic process, sharing both successes and challenges they encountered with recycled materials. This discussion allows students to express how they felt about turning "trash" into art and to consider how they solved any issues they faced in the process. The educator then summarizes the key concepts, emphasizing recycling's role in reducing waste and protecting the environment, and highlighting how their projects demonstrated the power of creativity in giving new life to discarded items. The class ends with an encouragement to think about recycling in their daily lives, inspiring continued eco-friendly actions.

BIODIVERSITY



 \diamond Section of the map

This section of the map is dedicated to the third lesson. On a graphic level it presents all the elements useful for narration and related activities.



Pedagogical objectives

The following objectives provide a solid understanding of biodiversity, its essential role, the threats it faces, and practical ways students can contribute to its conservation. These are:

- Define biodiversity and its role in ecosystems: understand biodiversity as the variety of life on Earth, including plants, animals, and microorganisms, and learn its importance for healthy ecosystems and human well-being;
- Identify different types of biodiversity: recognize and describe species diversity (variety of species), genetic diversity (variation within species), and ecosystem diversity (different ecosystems), and discuss how each supports ecosystem resilience;
- Recognize the value of biodiversity for ecosystem services: learn how biodiversity provides essential services like clean air, water, fertile soil, and pollination, all crucial for human survival and health;
- Understand threats to biodiversity: identify major threats such as habitat loss, pollution, invasive species, and climate change, and understand how these impact ecosystems and resources;
- Explore ways to protect and conserve biodiversity: discover individual and community actions to protect biodiversity, such as habitat preservation, pollution reduction, and supporting conservation efforts, highlighting how small actions can collectively make an impact.

> Necessary aspects

The story and its steps require:

- an educator who will actively participate during the lesson;
- a display on which to screen the map during and after reading the story and to view the videos proposed for some activities;
- a computer/tablet with which children can carry out part of the activities and programming on Scratch (a free programming environment, with a graphical programming language).

Methodology

ATTENTION: Time of correction

A mistake in STEAM is a fundamental moment: all mistakes teach something and from them we can learn and improve together. The error must be corrected in a positive way without any penalty (reprimand, negative judgement, etc.) The correction involves the whole group in searching for the best solutions and explaining the reasons (cooperative learning – collective intelligence).

NARRATION (STEP 1) - 5 min

The first 5 minutes will be dedicated to a short introduction of the topic and to the storytelling. During the narration the educator will project the map on a screen and involve the children with relevant questions.

CODING ON SCRATCH (STEP 2) - THROUGHOUT THE LESSON

During the lesson children will do block programming on Scratch. All activities will be led by the educator.

ACTIVITY 1 / DISCUSSION - 10 min

The educator will start a discussion in class in order to introduce the topic of the lesson which is biodiversity. Each child will be encouraged to participate.

ACTIVITY 2 /GAME - 30 min

The class will play a game that includes questions and challenges related to different species, habitats, and conservation efforts. The educator will provide the children with all the help they need.

REFLECTION AND SHARING (STEP 3) - 10 min

This phase allows the educator to conclude the lesson by retracing all the steps of the previous activity encouraging kids to increase their interest in biodiversity.

Biodiversity

) Step 1

The educator reads carefully the story to the children encouraging them to participate. The educator will also use this phase to explain the importance of protecting biodiversity.

Step 2

The educator helps children to carry out the block programming code on Scratch.

ACTIVITY 1

In this phase the educator starts a discussion in class with the aim of introducing the topic of the lesson. All the children will be encouraged to intervene by sharing their knowledge and theirexperiences. Sunny with friends reach the Tiber River where they meet Mr. Beaver. Mr. Beaver discusses the importance of preserving natural habitats for animals to thrive. He explains how conserving forests, wetlands, and other ecosystems provides animals with shelter, food, and breeding grounds. Mr. Beaver gives examples of conservation efforts, such as creating wildlife reserves or establishing protected areas where animals are free from human disturbance.

Then, Mr. Beaver highlights the harmful effects of pollution on wildlife and ecosystems. He talks about how pollutants like plastic waste, chemicals, and oil spills can endanger animals and their habitats Rubi and Sunny ask him about the impacts of climate change on animals and their habitats. He explains how rising temperatures, habitat loss, and extreme weather events threaten species survival. The two visitors want to learn about the importance of sustainable fishing practices and wildlife conservation laws to prevent overexploitation of marine and terrestrial resources.

Finally, Mr. Beaver emphasizes the need for humans to coexist peacefully with wildlife. He discusses ways to minimize conflicts between humans and animals, such as using wildlife-friendly farming practices, installing wildlife crossings on roads, and promoting responsible ecotourism. Mr. Beaver could share stories of communities working together to protect endangered species and preserve their natural habitats.

During this lesson the class led by the educator will use block programming on Scratch following the steps explained in the third chapter of the dedicated additional pamphlet called **MAT6.** Coding literacy for the lessons.

In this activity, the educator begins by introducing the concept of biodiversity, emphasizing its importance and focusing specifically on marine ecosystems. Using engaging visuals or videos, the educator highlights the diversity of life found in oceans, seas, and rivers – from tiny plankton to vast coral reefs and majestic marine mammals. They explain that marine ecosystems are crucial to life on Earth, providing essential resources like food, oxygen, and even medicines. Marine biodiversity also supports balanced ecosystems that affect not only the oceans but the entire planet, underscoring the global importance of protecting marine environments. Following the introduction, the educator guides a discussion on the serious issue of water pollution and its impact on marine life. They explain how pollutants—such as plastics, chemicals, pesticides, and oil —enter water systems through human activities and how these pollutants cause harm. Real-life examples, like sea turtles mistaking plastic bags for jellyfish or coral reefs bleaching due to chemical runoff, illustrate the severe consequences of pollution on marine species and habitats. The educator helps students understand how these disruptions affect not only individual species but also the health of entire ecosystems, which ultimately impacts human communities that depend on these waters for food and livelihood.

The activity concludes with a class brainstorm on actions to protect marine biodiversity and reduce water pollution. The educator asks questions like, "What simple actions can we take to keep our water clean?" prompting students to think of practical, everyday solutions. Ideas may include reducing plastic use, participating in clean-up efforts, choosing eco-friendly products, and raising awareness about marine protection. This reflection reinforces the idea that even small actions can collectively make a big difference in conserving marine life and protecting water ecosystems.

ACTIVITY 2

The educator introduces the activity where students learn about biodiversity while playing. This game includes questions and challenges related to different species, habitats, and conservation efforts, and encourage teamwork and strategic thinking.

The educator will provide the children with all the help they need, making sure that each one completes the game. In this interactive activity, students will play a board game designed to teach biodiversity concepts through engaging questions, challenges, and teamwork. The game introduces different species, habitats, and conservation efforts, encouraging children to think strategically and work together toward a shared goal of biodiversity protection.

Introduction

The educator begins by underlining the importance of biodiversity and discussing how teamwork and strategic thinking are essential in conservation, as individuals and groups must work together to protect species and habitats. The educator sets the learning goals and establishes the game's relevance, explaining that the activity will show how biodiversity is interconnected with daily life and how teamwork can help address environmental challenges.

Game Overview and Rules

Next, the educator presents the rules and mechanics of the board game, explaining how to move pieces, take turns, and ultimately "win" by reaching the end with the most species cards and conservation achievements. Players will encounter "species cards" and "challenge cards" throughout the game. Species cards introduce animals and plants from various ecosystems, while challenge cards pose questions and scenarios—such as "What would you do if a habitat is threatened?"—that teams must solve using their knowledge of biodiversity. The educator models a few examples, such as answering a sample question or moving a game piece, to ensure students understand the game flow.

Team Formation and Game Setup

The educator divides students into small teams and assigns

specific roles within each team, such as the player who rolls the dice, a timekeeper, and a scorekeeper to track points and cards. Each team receives game materials, including a game board, dice, species cards, and challenge cards. This setup phase promotes collaboration and helps children understand how each role contributes to the team's success.

Gameplay

Teams take turns rolling the dice, moving along the board, and drawing species or challenge cards based on their moves. Species cards introduce new animals or plants and their unique characteristics, while challenge cards present biodiversity-related scenarios or questions (e.g., "Why is the rainforest important for the planet?" or "What happens when a species becomes extinct?"). Teams must discuss these challenges and answer them together, using their combined knowledge to earn points and advance in the game. The educator encourages students to brainstorm solutions, consider each teammate's input, and think strategically about their next moves.

Reflection and Discussion

Periodically, the educator pauses the game for brief group discussions about the biodiversity concepts that arise during gameplay. Students reflect on the challenges they encountered and share insights, such as what they've learned about specific species or the importance of ecosystems like forests and oceans. These discussions reinforce their understanding of biodiversity and prompt them to connect game scenarios with real-world conservation issues.

This structure provides a clear and detailed flow for the activity, from introducing concepts to engaging in gameplay, all while promoting teamwork and reinforcing biodiversity knowledge.

Step 3

The educator concludes this third lesson by referring to the activity just carried out and encouraging the children to increase their interest in knowing and safeguarding biodiversity. To close the lesson, the educator encourages students to keep learning about biodiversity and think of ways they can help protect the environment in their daily lives. The educator provides positive feedback for the previous activity, commending their teamwork and problem-solving efforts, and emphasizes that even small actions can contribute to biodiversity conservation.



\diamondsuit Section of the map

This section of the map is dedicated to the fourth lesson. On a graphic level it presents all the elements useful for narration and related activities.



Pedagogical objectives

The following objectives guide students through an exploration of deforestation, its impacts, and practical actions to help mitigate it, fostering both knowledge and a sense of responsibility. These are:

- Learn about primary drivers of deforestation, including agriculture, logging, urban development, and infrastructure, and how these activities contribute to forest loss;
- Understand how deforestation leads to biodiversity loss, soil erosion, water cycle disruption, and increased greenhouse gases, affecting ecosystems and accelerating climate change;
- Explore deforestation's effects on human communities, such as its impact on local economies, livelihoods, and the long-term economic costs, like reduced agricultural productivity;
- Discover sustainable practices to counter deforestation, including reforestation, agroforestry, land management, and policies that protect forests while supporting economic growth;
- Encourage students to advocate for forest conservation by raising awareness and participating in or supporting conservation initiatives, emphasizing the role of individuals and communities.

> Necessary aspects

The story and its steps require:

- an educator who will actively participate during the lesson;
- a display on which to screen the map during and after reading the story and to view the videos proposed for some activities;
- a computer/tablet with which children can carry out part of the activities and programming on Scratch (a free programming environment, with a graphical programming language);
- all the material needed to plant a seedling.

NARRATION (STEP 1) - 5 min

The first 10 minutes will be dedicated to a short introduction of the topic and to the storytelling. During the narration the educator will project the map on a screen and involve the children with relevant questions.

CODING ON SCRATCH (STEP 2) - THROUGHOUT THE LESSON

During the lesson children will do block programming on Scratch. All activities will be led by the educator.

ACTIVITY 1 / DISCUSSION - 10 min

The educator will start a discussion in class in order to introduce the topic of the lesson which is the deforestation and the possible solutions. Each child will be encouraged to participate.

ACTIVITY 2 /DISCUSSION - 10 min

The educator will briefly talk to the children about the life cycle of trees In order to introduce the third activity.

ACTIVITY 3 / TREE PLANTING CEREMONY - 20 min

The educator conduct a hands-on activity called the "Tree Planting Ceremony".They will provide the children with all the help they need.

REFLECTION AND SHARING (STEP 3) - 10 min

This phase allows students to reflect on this last part of the project and share what they have learned.

) Methodology

ATTENTION: Time of correction

A mistake in STEAM is a fundamental moment: all mistakes teach something and from them we can learn and improve together. The error must be corrected in a positive way without any penalty (reprimand, negative judgement, etc.) The correction involves the whole group in searching for the best solutions and explaining the reasons (cooperative learning – collective intelligence).

Reforestation

) Step 1

The educator reads carefully the story to the children encouraging them to participate. The educator will also use this phase to introduce the last topic of the project. After learning about recycling, marine conservation, and the importance of biodiversity, Sunny's next mission takes him to the lush forests of Terra Verde, a planet known for its vast green landscapes and diverse wildlife. However, upon arrival, Sunny is shocked to discover that large areas of the forest are being cleared rapidly.

Sunny arrives at Terra Verde and is greeted by Flora, a local scientist. Flora explains that Terra Verde is suffering from severe deforestation due to logging and land conversion for agriculture. She shares how this deforestation is threatening the survival of many species and disrupting the climate.

Flora takes Sunny on a tour of the affected areas. They witness the direct impact of deforestation: habitat loss for wildlife, reduced air quality, and disturbed water cycles. Sunny meets various animal characters (e.g., a displaced monkey family, a lost bird) who express their troubles due to their vanishing homes.

Moved by what he's seen, Sunny decides to help. Flora introduces him to a group of local conservationists and scientists working on reforestation projects. Sunny learns about sustainable land management practices and the importance of legal protections for forests.

Sunny helps to implement a new technology solution: drones that can plant seeds at a rapid pace, aiding reforestation efforts. He also helps set up sensors that monitor illegal logging activities in real time.

As trees begin to grow back and the forest starts to recover, Sunny organizes a meeting with Terra Verde's leaders to discuss the importance of sustainable development and strict regulations against illegal logging.

Inspired by Sunny's dedication and the visible recovery of the forest, the leaders agree to enforce stronger conservation laws and promote eco-friendly agricultural practices.

Step 2

The educator helps children to carry out the block programming code on Scratch. During this lesson the class led by the educator will use block programming on Scratch following the steps explained in the fourth chapter of the dedicated additional pamphlet called **MAT6.** Coding literacy for the lessons.

ACTIVITY 1

The educator initiates a short interactive discussion to assess students' prior knowledge and feelings about deforestation. The class will be engaged with thought-provoking questions so that each child is encouraged to express his or her ideas. The educator begins by introducing the topic of deforestation, setting an engaging and thought-provoking stage for the lesson. They start with an interactive discussion, asking questions like, "What do you think happens when forests disappear?" or sharing a startling fact, such as "Every minute, an area of forest the size of 27 soccer fields is destroyed." This initial exchange encourages students to connect emotionally and intellectually, helping the educator gauge students' prior knowledge, feelings, and assumptions about deforestation.

Interactive Lecture

To build foundational knowledge, the educator presents a concise lecture using visuals—slides, infographics, or short video clips—that illustrate the primary causes of deforestation, such as agriculture, logging, and urban expansion. Global and local examples are used to emphasize the real-world consequences, showing how deforestation affects biodiversity, climate, and human communities, including Indigenous groups who depend on forests for their livelihoods. The visuals make complex concepts more accessible and impactful for students, enhancing their understanding of deforestation's broader implications.

Group Discussion on Causes and Solutions

Following the lecture, the educator facilitates a group discussion, inviting students to share their thoughts on why deforestation occurs and explore possible solutions. Guiding questions like, "What alternatives could reduce the need for deforestation?" or "How can we balance human needs with forest conservation?" help focus the conversation and ensure each student has the opportunity to contribute. This collaborative exchange not only deepens students' understanding but also fosters a sense of agency, encouraging them to think critically about solutions and the role they can play in forest conservation.

ACTIVITY 2

In order to introduce the third activity, the educator will briefly talk to the children about the life cycle of trees. Again, the children will be involved with engaging questions. One of the key solutions to deforestation is reforestation planting new trees to restore lost forests. To help students understand the significance of this, the educator introduces the life cycle of trees, explaining how each stage plays a vital role in supporting ecosystems and contributing to biodiversity. Starting with the seed stage, the educator describes how tiny seeds carry the potential for entire forests and explains the conditions they need to sprout, like sunlight, water, and nutrient-rich soil.

The educator then moves through each stage of a tree's life, from a young sapling reaching toward the light to a mature tree providing shelter, food, and oxygen. At each stage, visuals and engaging examples help students visualize the tree's development. For instance, the educator might show how a sapling, while small, is critical for forest regeneration, while mature trees serve as habitats for animals, provide shade, and play a significant role in carbon absorption, helping to combat climate change.

The life cycle discussion concludes with the concept of decay and renewal, as even fallen trees decompose and return essential nutrients to the soil, enabling the next generation of trees to thrive. This overview of a tree's life not only emphasizes the importance of replanting but also instills an appreciation for the intricate role trees play in maintaining a balanced and healthy environment.

ACTIVITY 3

The educator conduct a handson activity called the "Tree Planting Ceremony". If outdoor space isn't available, an alternative could be creating a small "forest" in a box using soil, seeds, and small plants to simulate the growth and importance of trees.

Tree Planting Ceremony

Materials Needed: Several small, native potted trees or shrubs suitable for the local environment, along with gardening tools such as shovels or trowels for each child. Optional name tags for each plant allow children to personalize their experience by naming their tree. Additionally, simple educational posters or handouts illustrating the environmental benefits of trees can enhance understanding. The educator will have chosen a suitable planting area in or near the schoolyard and coordinated logistics and permissions with the school or local authorities.

Introduction: The educator begins with a short, interactive discussion to help students understand the critical importance of trees and forests. They engage children with questions like, "What do you think would happen if all the trees around us were gone?" and "How do you think trees help us and the animals that live around us?" Together, they discuss how trees provide oxygen, improve air quality, shelter biodiversity, stabilize the climate, and play a major role in sustaining ecosystems.

Tree Planting: Moving to the planting site, the educator walks students through the tree-planting process step by step, explaining how each action contributes to the tree's growth and health. The educator demonstrates how to dig a suitable hole, gently place the seedling inside, and cover it with soil. Each student then has a chance to participate by taking turns adding soil, patting it down, or watering the freshly planted trees. If using name tags, the educator encourages students to name their tree, helping them feel a sense of personal connection to it. They write their chosen names on tags, which are then placed beside each new tree as a reminder of their role in supporting the environment.

Re ection: After all trees have been planted, the educator gathers students in a circle for a reflection session. They ask students to share how they feel about planting trees and what they learned from the experience. The educator might prompt them with questions like, "Why do you think planting trees is important for the planet?" and "How do you feel knowing that this tree will grow because of your care?" This discussion reinforces the impact of their actions and allows students to express pride in their contribution.

Educational Outcome: Through active participation in this handson tree-planting project, students gain practical skills in planting and caring for trees. More importantly, they experience the power of collective action to help restore habitats, combat deforestation, and support biodiversity. By planting trees and naming them, children understand that they can play a meaningful role in protecting the environment and see firsthand how small actions contribute to larger conservation efforts.

Step 3

The educator will conclude with a brief recap of what was learned and why it matters. They will ask students to reflect on one new thing they learned and one action they can take to help prevent deforestation. To wrap up the lesson, the educator gathers students together for a thoughtful reflection, aiming to consolidate their learning and connect it to real-world actions. They begin with a brief recap, highlighting the key points covered in the lesson. The educator emphasizes why these topics matter - not just for the environment but for the students' own futures, reinforcing the significance of each student's role in conservation.

The educator then invites each student to reflect on one new insight or fact they learned during the lesson, encouraging them to share verbally or, if time allows, through a quick written exercise. This could be something specific about the tree planting process, a new understanding of biodiversity, or an impactful fact about how trees help mitigate climate change. Next, the educator prompts students to think of one action they can take, however small, to help prevent deforestation, such as reducing paper waste, reusing materials, or sharing what they learned about trees with friends or family.

In this closing reflection, the educator fosters a sense of individual responsibility and empowerment, helping students see themselves as active participants in environmental protection. By discussing both knowledge gained and actions they can take, the educator ensures that students leave with a deeper understanding of deforestation and a commitment to making eco-friendly choices in their daily lives.





) Main partners



ROMANIA

EuroEd Primary School includes a Kindergarten and a primary school. Both are accredited by the Romanian Ministry of Education. It promotes the EU dimension of education and it also encourages multiculturalism and multilingualism by providing education to children of different nationalities or ethnic groups.



ITALY

Sapienza University of Rome, (Department of Planning, Design, Technology of Architecture). Sapienza was founded by Pope Boniface VIII in 1303. It's one of the oldest universities in the world and the second largest University in EU, with 11 faculties, 63 departments, 111.000 students and more than 4.700 professors.

🖒 All partners



ITALY The CISL Scuola (Confederazione Italiana Sindacati Lavoratori - Scuola) is the union of the staff of primary and nursery schools, secondary schools and vocational training of the CISL. It was founded in 1997 by the union of SINASCEL (National Union Ele-mentary School) and SISM (Italian Union of Middle School).



ITALY

Pixel is an education and training institution based in Florence (Italy). Pixel was founded in 1999. Pixel's mission is to promo-te an innovative approach to education, training and culture, this is done mostly by trying to exploit the best potential of ICT for education and training.

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PORTUGAL

The Agrupamento de Escolas Miguel Torga is a school located in Bragança, Portugal, an inland city of the country. The school consists of three buildings, two for preschool and elementary school and one for secondary and high school. There are 88 teachers, 2 psychologists and also a speech therapist.



SPAIN

Esciencia is an SME based in Zaragoza established in 2006 as a spin-off of the University of Zaragoza. Esciencia Eventos Cientí icos S.L. is dedicated to the management and organization of science dissemination projects. The company offers both consulting services and the design of educational programs.



BULGARIA

Zinev Art Technologies Ltd. is a company developing, implementing and managing European projects and providing consultations in the spheres of culture, art, Internet-based activities and education, VET, e-learning and school education development, as well as regional development.





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