



Hands-on

SUPERHERO LAB HANDBOOK

Sustainability Best
Practices from
Kindergarten Educators



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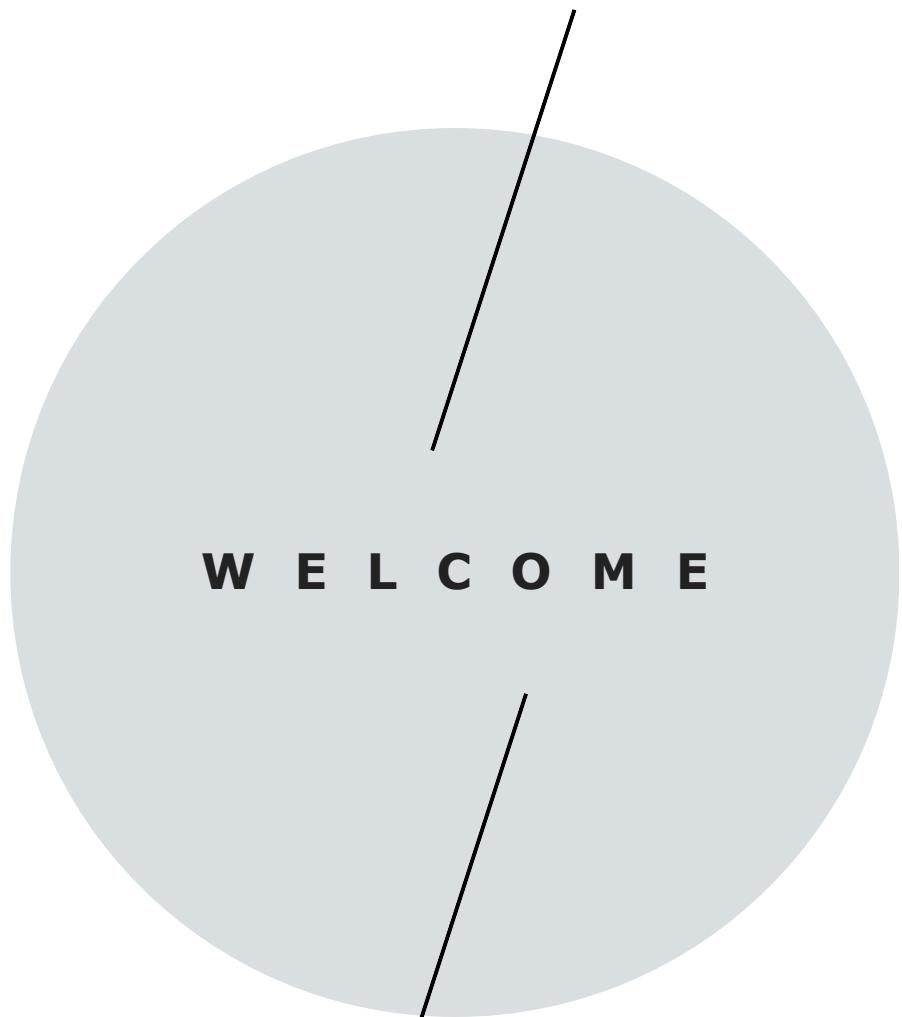
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01



01



WELCOME

A collection created by
kindergarten educators

The Superhero Lab Best Practice Handbook is a special resource **created by kindergarten teachers** who are dedicated to teaching sustainability to young children. Developed as a part of the Superhero Lab Erasmus+ project, this handbook includes real activities that have already been successfully **tested** in kindergartens. By sharing their experiences, these teachers are helping others bring sustainability into early childhood education in a fun and practical way.

Today, it's more important than ever to teach children about taking care of our planet because we are facing unprecedented environmental challenges that will shape their futures. Climate change, deforestation, pollution, and the rapid loss of biodiversity are having **far-reaching effects on the planet**, impacting air quality, water availability, food security, and the health of ecosystems that support all life. As these issues intensify, the need to equip children with the **knowledge, values, and habits to live sustainably becomes critical**. By teaching them early about environmental responsibility, we empower them to make informed choices and adopt practices that can help protect natural resources, reduce waste, and conserve biodiversity.

Each example in the handbook includes:

- Brief overview
- GreenComp competence designation
- Learning goals
- Materials needed
- Estimated duration
- Step-by-step implementation

19 HANDS-ON EXAMPLES FROM 10 EUROPEAN COUNTRIES.



1

Hands-on learning by doing

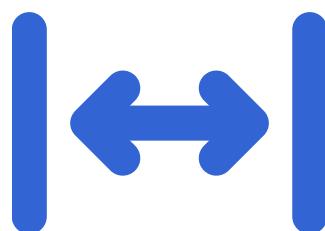
Give children opportunities to explore with their hands, observe what happens, and see how their actions can make a difference. Encourage them to use all their senses, especially touch. Focus on the process rather than the end result, allowing children to pause and fully experience each step.

2

Zone of proximal development

Think about each child's needs, interests, and abilities. Every child learns differently, and activities may need to be adapted to match their age and level. Zone of proximal development means the learning zone where children can do more with a little help than they could do alone.

Tasks a child can do **without** assistance.



With assistance.

GETTING THE MOST OUT OF THIS HANDBOOK

3

Work with your local community

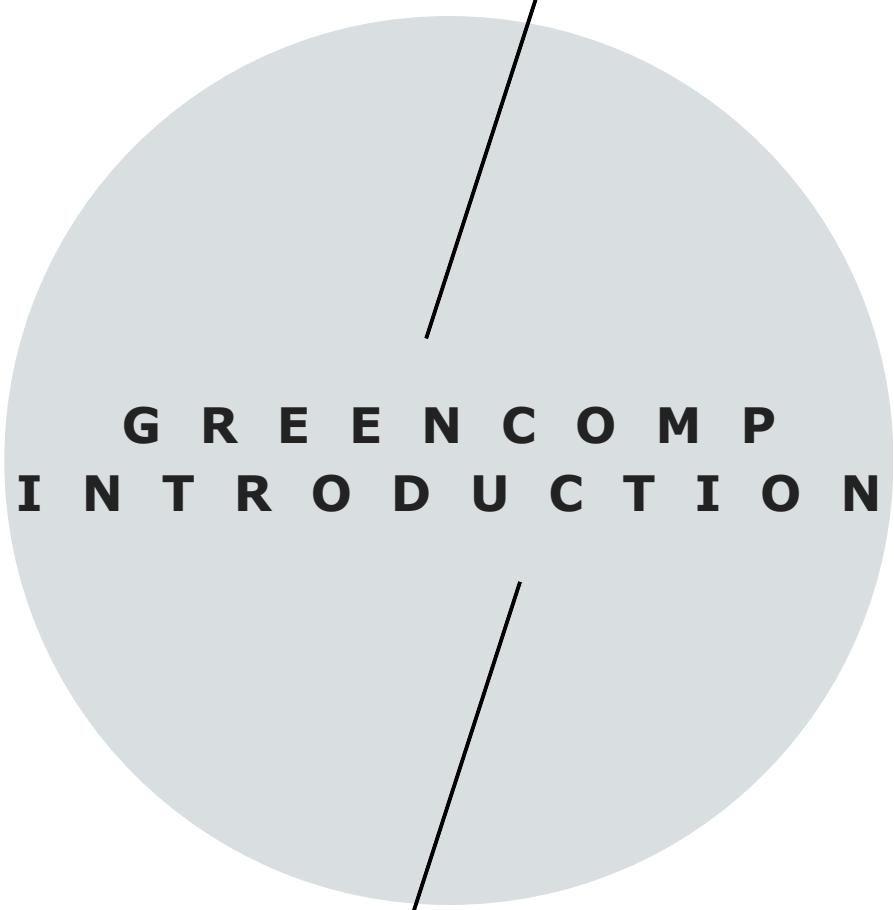
Work with parents, other teachers, and community members to make sustainability learning a shared goal. This collaborative approach strengthens children's learning experiences, showing them that everyone has a role in taking care of the environment.

4

Incorporate reflection

Take a moment to guide children in reflecting on what they learned and experienced. Simple questions like, "What did we discover today?" or "How did we help the environment?" encourage children to think about the impact of their actions and reinforce the value of sustainability.

02



GREEN COMP
INTRODUCTION

02



GREENCOMP

The European sustainability competence framework

GreenComp is a framework designed by the European Commission to promote sustainability and environmental awareness through education within the EU. The idea behind GreenComp is to equip individuals with the knowledge, skills, and attitudes necessary to engage in sustainable practices and contribute to the green transition. At first glance, GreenComp might seem theoretical, but its content can be applied across the entire educational spectrum, from kindergarten to higher levels of schooling. Teachers can adapt and modify the content according to the age of the children or students.

Since preschool marks our children's first step into the education sector, it is crucial to begin working towards our common future from an early age. Therefore, we, the partners in Superhero Lab, believe it is of utmost importance to integrate elements of GreenComp into our work.

The GreenComp is available in [24 languages](#).



By fostering a deep understanding of ecological principles and sustainable practices, GreenComp aims to empower individuals to take meaningful actions towards environmental preservation and climate resilience.

GreenComp consists of **four competence areas**, each focusing on specific aspects of sustainability.

1

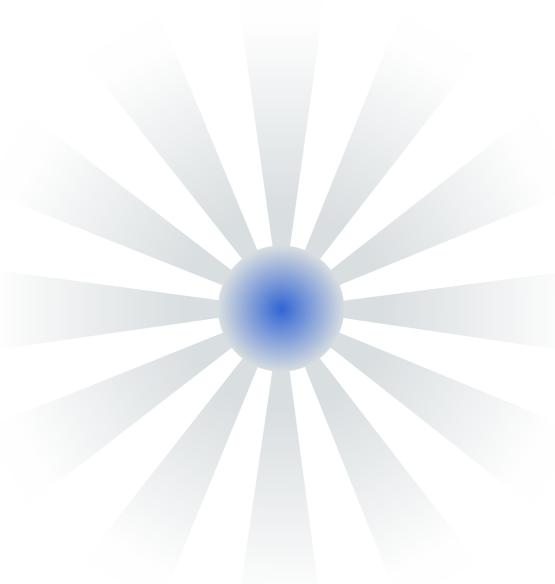
Embodying sustainability values

This area emphasises the importance of developing personal and collective values that support sustainable living. It encourages individuals to internalize sustainability principles, fostering a sense of responsibility and ethical commitment to environmental stewardship.

2

Embracing complexity in sustainability

The practical knowledge and skills required for sustainable living. It includes understanding ecological principles, resource management, and sustainable consumption patterns. The goal is to empower individuals to make informed choices that minimize environmental impact.



FOUR COMPETENCE AREAS OF GREENCOMP

3

Envisioning sustainable futures

The need for economic literacy in the context of sustainability. It encompasses green jobs, sustainable business, and the circular economy. The goal is to prepare individuals to participate in and drive environmentally friendly and socially responsible economic activities.

4

Acting for sustainability

The ability to actively participate in solving environmental problems. It includes skills in critical thinking, problem-solving, and collaborative actions. Individuals are encouraged to engage in civic activities, policymaking, and community initiatives aimed at environmental protection and sustainability.

GREENCOMP IN EDUCATION



Interdisciplinary learning

The framework can provide a basis for developing curricula, training programs, and educational resources that promote sustainability competencies. It encourages interdisciplinary learning, combining science, social studies, economics, and ethics to provide a holistic understanding of sustainability.

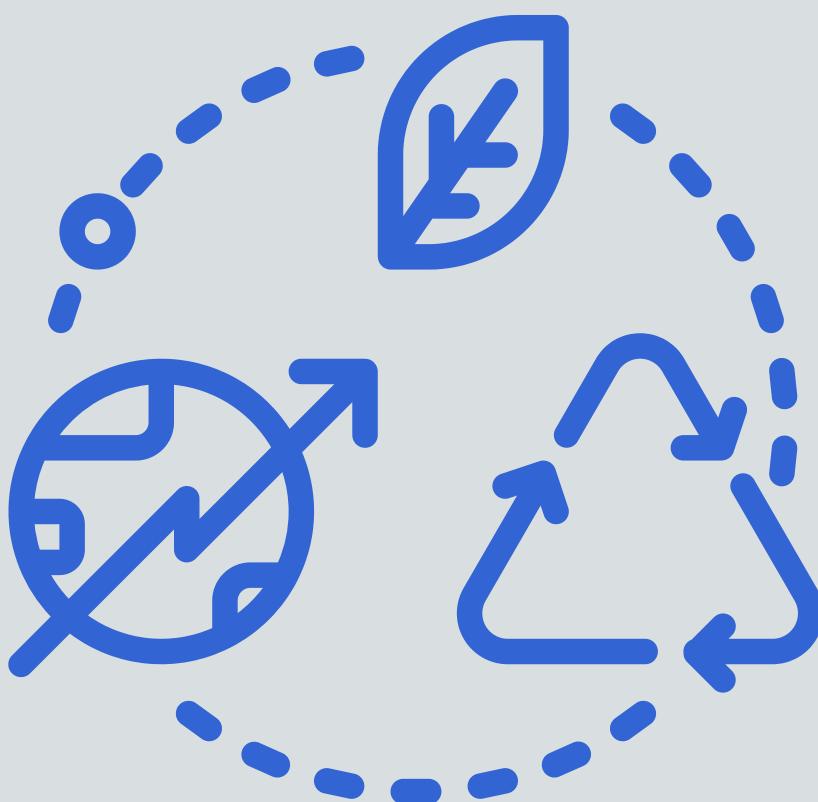
Curriculum development: Educational institutions are encouraged to integrate GreenComp principles into their curricula. This involves designing courses and programs that include sustainability topics and promote critical thinking about environmental issues.

Teacher training: Teachers play a crucial role in the implementation of GreenComp. Training programs are necessary to equip teachers with the knowledge and skills to effectively teach sustainability concepts and foster a culture of sustainability in their classrooms.

Experiential learning: GreenComp advocates for practical learning experiences that allow students to engage directly with environmental issues. This can include field trips, community projects, and simulations that provide practical insights into sustainability challenges and solutions.

Assessment and evaluation: To ensure the effectiveness of GreenComp, it is important to develop assessment tools that measure students' sustainability competencies. This involves evaluating not only their knowledge but also their attitudes and behaviors towards sustainability.

**THE IDEA BEHIND IS
TO CREATE A
GENERATION OF
ENVIRONMENTALLY
CONSCIOUS
INDIVIDUALS READY
TO LEAD THE
TRANSITION TO A
SUSTAINABLE FUTURE.**



The holistic approach ensures that sustainability is not treated as an isolated subject but is integrated into all aspects of education and everyday life.

03



GREEN COMP
DESIGNATION

03

GreenComp Designation

		Competence area	Competence									
			Introduction to sustainability	Let's get loud	Toy-free month	Celebration of special days	Why is the Earth crying?	Plastic waste through STEAM	Ice melting experiment	Happy birthday, water!	Windmill construction	Making recycling paper
Embodying sustainability values	1.1 Valuing sustainability		●			●		●	●	●	●	●
	1.2 Supporting fairness		●			●		●	●	●	●	●
	1.3 Promoting nature		●			●		●	●	●	●	●
Embracing complexity in sustainability	2.1 Systems thinking		●	●			●	●				
	2.2 Critical thinking		●	●			●	●				
	2.3 Problem framing		●	●			●	●				
Envisioning sustainable futures	3.1 Futures literacy						●	●	●		●	
	3.2 Adaptability						●	●	●		●	
	3.3 Exploratory thinking						●	●	●		●	
Acting for sustainability	4.1 Political agency		●	●	●			●				
	4.2 Collective action		●	●	●	●		●				●
	4.3 Individual initiative		●	●	●	●		●				●

GreenComp Designation

		Competence area		Competence			
		Embodying sustainability values	Embracing complexity in sustainability	Competence	Competence area		
Acting for sustainability	Envisioning sustainable futures	1.1 Valuing sustainability	•	•	•	•	•
		1.2 Supporting fairness	•		•	•	•
		1.3 Promoting nature	•	•	•	•	•
	2.1 Systems thinking	2.1 Critical thinking			•	•	•
		2.2 Problem framing			•	•	•
		3.1 Futures literacy				•	•
	3.2 Adaptability	3.2 Exploratory thinking				•	•
		4.1 Political agency					•
	4.2 Collective action	4.2 Individual initiative	•	•	•		•
	4.3 Individual initiative		•	•	•		•

04



04

INTRODUCTION TO SUSTAINABILITY

Julia Pérez

Independent sustainability consultant, Berlin, Germany

Brief Overview

This plan outlines a series of 10 sustainability workshops designed to introduce the topic of sustainability to kindergarten children. The workshops aim to teach children the importance of protecting animals, plants, and the environment. The project fosters a love for nature and develop mindsets toward sustainability practices.

Keywords: Sustainability, Environmental protection, Community, Creativity, Vocabulary enrichment.

Materials

- Recycled cardboard and paper
- Art supplies (markers, crayons, paint)
- Seeds and planting materials
- Books on sustainability and the environment
- Craft materials (modelling clay, wooden sticks)
- Containers for recycling activities
- Musical instruments for songs and dances

Duration

- Each session lasts from 1 to 1,5 hours.

Learning goals

- 1 Introduce children to the concept of sustainability in a playful and engaging manner.
- 2 Empower children to take active roles in protecting the environment.
- 3 Enrich children's vocabulary related to sustainability and environmental protection.
- 4 Develop creativity, teamwork, critical thinking, and respect for the environment.
- 5 Encourage practical actions such as recycling and water conservation.



HOW TO DO IT?

Select one or two sessions or implement the whole package.

Green Comp

- **Embodying sustainability values**
- **Acting for sustainability**

Step-by-step

1 Introduction

Start with a song and dance related to nature. Introduce the project and its objectives. Conduct a presentation round where children share their favorite plant and animal. Engage in movements mimicking trees, stones, etc. Treasure hunt: Take the children on a short nature walk around the kindergarten premises or a nearby park. Provide each child with a small bag or basket and a simple checklist of natural items to find (e.g., a leaf, a small rock, a flower petal).

2 Making the diary

Read the interactive book "Planet Rescue." Create a project diary using recycled cardboard and paper. Provide each child with two pieces of recycled cardboard for the front and back covers of their diary. Give each child several sheets of recycled paper for the inside pages of their diary. Show them how to punch holes along one edge of the paper and the covers. Assist the children in binding their diaries by threading string or yarn through the punched holes and tying it securely. Decorate the diary with drawings and collages. Invite the children to write their names on the front cover and decorate the first page with a drawing of their favorite aspect of nature.

3 Our planet

Discuss the planet and its importance. Ask questions like, "What do you love about our planet?" and "What can we do to keep our planet healthy and beautiful?" Create a garland out of recycled cardboard. Make a collage depicting a happy and sad planet with items that are good and bad for the environment. Divide a large poster board into two sections: one labelled "Happy Planet" and the other labelled "Sad Planet." Provide the children with images from magazines depicting various environmental scenes (e.g., clean rivers, littering, recycling, deforestation). Have the children cut out images and make a collage.



HOW TO DO IT?

Celebrate each child's contributions through verbal praise, stickers, or showing their work.

Resources

Books:

A. Frith (2011). See Inside Recycling and Rubbish.

S. Turnbull (2005). Rubbish and Recycling.

Step-by-step

4 The role of bees

Learn about bees' lives and their importance. Show pictures or a short video about bees and their role in pollination and the ecosystem.

Craft bees using recycled materials:

- Provide the children with recycled materials and art supplies to create their own bees.
- Show them how to use bottle caps for the bee's body, pipe cleaners for antennae, and googly eyes.
- Assist the children in assembling their bees using glue and other materials.
- Encourage them to be creative and add their personal touches to their bees.

5 Plants and nature

Learn about different parts of plants:

- Show pictures or diagrams of plants highlighting different parts (roots, stem, leaves, flowers).
- Discuss the function of each part: roots (absorb water and nutrients), stem (supports the plant), leaves (photosynthesis), and flowers (reproduction).

Create a plant puzzle:

- Provide each child with a puzzle pieces template cut from cardboard.
- Have the children colour and label each part of the plant on the puzzle pieces.
- Assist them in assembling the puzzle on a piece of recycled paper or cardboard, gluing the pieces in place.
- Encourage them to add drawings of roots, stems, leaves, and flowers to their puzzle.

Go outside to plant seeds.



HOW TO DO IT?

Relate the activities to the children's everyday lives.

Resources

Book:

E. Hasler (1987). The City of Flowers.

Quote:

One ton of recycled paper saves 17 trees.

-- The World Counts

Step-by-step

- 6 Living in our neighbourhood**
Read a story about neighbourhood and community, such as "The City of Flowers" by Eveline Hasler. Draw and build a dream playground using modelling clay and recycled materials. Encourage children to include elements that promote sustainability, like recycling bins or community gardens. Allow them to use modelling clay to create small figures or objects, and wooden sticks for structures like swings or slides.
- 7 Session 7: Observing nature**
Visit a park to observe and create street art. Engage in nature observation activities. Take the children to a safe area where they can use chalk. Encourage them to create large drawings of the plants, animals, and insects they observed during the walk.
- 8 Session 8: Recycling and waste management**
Read a book about garbage collection. After the story, ask the children to share what they learned or found interesting about recycling and waste management. Explain how garbage is collected from homes and taken to recycling centres or landfills. Discuss the benefits of recycling for the environment, such as reducing waste and conserving resources. Conduct a recycling activity using different containers:
 - Provide the children with different containers or bins labelled for various types of recyclables (plastic, paper, metal, etc.).
 - Give them art supplies and let them decorate the bins to make them colourful and easy to identify.
 - Encourage them to add symbols or drawings that represent the type of materials each bin is for.
 - Spread out a collection of recycled materials (plastic bottles, paper, cardboard, cans) on a table or the floor.
 - Have the children take turns sorting the items into the correct bins, discussing why each item belongs in a particular bin.



HOW TO DO IT?

Movement and physical activity can help reinforce learning.

Resources

Proverbs:

The best time to plant a tree was 20 years ago. The second best time is now.

We do not inherit the earth from our ancestors; we borrow it from our children.

Step-by-step

9 Session 9: Superhero actions

Finish the diary:

- Provide the children with their sustainability diaries or dictionaries created in previous sessions.
- Allow them time to add final touches, drawings, or entries related to what they have learned about sustainability.
- Encourage them to share their favorite pages or entries with the group.

Play superhero games where children choose an action to protect the planet:

- Superhero Relay: Set up a relay race where children perform different superhero actions at each station (e.g., picking up litter, sorting recyclables, watering plants). Divide the children into teams and let them race through the stations, completing the actions as quickly as possible.
- Superhero Pledge: Have each child stand in front of the group and make a superhero pledge, stating one action they will take to protect the planet.

Record their pledges on the poster board.

Create superhero masks:

- Provide the children with recycled cardboard or paper to create superhero masks.
- Give them art supplies to decorate their masks with colours, patterns, and superhero symbols.
- Help them attach elastic bands or strings to their masks so they can wear them.
- Allow them to add superhero stickers or decorations to make their masks unique.

10 Session 10: Exhibition preparation

Prepare materials for the exhibition.

Create colourful handprints and a big poster for the family.

Invite families to see the children's work and discuss their learnings.

LET'S GET LOUD

Anita Hegedüs & Esther Karner
Kindergarten Schmetterling, Vienna, Austria

Brief Overview

This activity outlines a holistic week-long environmental programme for kindergarten children, involving creative works, hands-on activities, and community participation. The activities aim to instill environmental awareness and sustainable practices in children, encouraging active participation from both the children and their parents.

Keywords: Environmental awareness, Community involvement, Demonstration, Climate protection, Recycling, Upcycling.

Materials

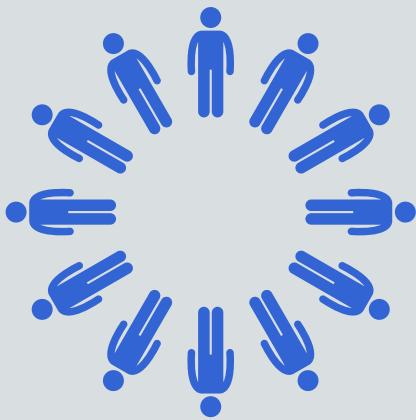
- **Recycled materials**
(cardboard, wooden sticks, old toys, shoe boxes)
- **Art supplies** (paint, markers, glue, scissors)
- **Gardening tools, seeds**
- **Bicycles and repair tools**
- **Survey forms**
- **Posters and t-shirts for demonstrations**
- **Musical instruments**
- **Materials for building windmills and other crafts**
- **Kitchen supplies for cold meals**

Duration

- **1 week**

Learning goals

- 1 Develop an understanding of environmental conservation and sustainability.
- 2 Foster creativity through upcycling and recycling activities.
- 3 Instill habits of reducing, reusing, and recycling in daily life.
- 4 Promote community involvement and teamwork in sustainability education.
- 5 Enhance problem-solving and critical thinking skills through practical work.



HOW TO DO IT?

Involve children, parents, and broader community.

Green Comp

- Embracing complexity in sustainability
- Acting for sustainability

Step-by-step

1 Monday: Creativity

Morning circle: Introduce the theme of environmental awareness.

Activity: Create posters and t-shirts with environmental messages.

Songs: Teach and sing songs about the environment.

Art: Use recycled materials to create art pieces.

Discussion: Talk about the importance of protecting the environment.

2 Tuesday: Upcycling and recycling

Activity: Organise an upcycling workshop where children create new items from old materials (e.g., making a bookshelf from an old guitar).

Creative work: Create ornaments and decorations from unused materials.

Bazaar: Prepare items for a Friday bazaar.

3 Wednesday: Clean and care

Activity: Parents and children bring bicycles to repair and clean together.

Community cleanup: Assign groups to clean designated areas around the kindergarten.

Sorting: Collect and sort garbage into recyclables and non-recyclables.

Interactive learning: Discuss the impact of waste on the environment and how recycling helps.

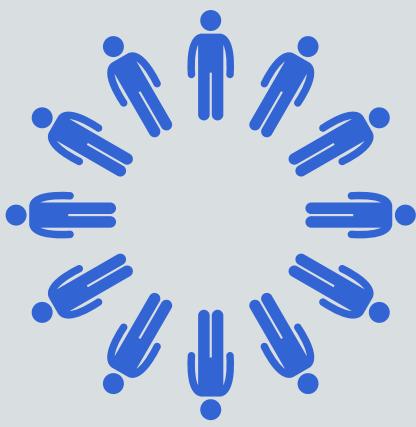
4 Thursday: Think twice day

Transportation challenge: Encourage families to use public transport or walk to the nursery.

Energy conservation: No use of electricity for the day; prepare cold meals.

Survey: Conduct surveys to see how families travelled to the kindergarten.

Science project: Build windmills and cars powered by wind energy.



HOW TO DO IT?

Environmental week shows children the impact of their actions.

Resources

[Environmental week in pictures](#) 

Books:

C. Brown & W. Robins (2017). Secrets of Our Earth (Shine-A-Light).

E. Bone & S. Effort (2017). It all starts with a seed... How food grows.

K. Daynes (2015). Lift-the-flap. First Questions and Answers How do flowers grow?

K. Daynes (2020). Lift-the-Flap. Looking After Our Planet.

A. James & P. Allen (2017). See Inside Energy.

Step-by-step

5 Friday: Get loud and demonstrate

Preparation: Finalize posters and t-shirts for the demonstration.

Demonstration: Children and parents march to demonstrate for better environmental care, holding posters and singing songs.

Bazaar: Hold a bazaar to sell the upcycled and recycled items created during the week.

Games and activities: Set up stations in the garden with games focused on sustainability, such as sorting garbage and planting seeds.

6 Follow-up activities

Weekly trips: Organise weekly trips to natural locations or educational sites to reinforce environmental learning.

Gardening: Maintain a garden where children can plant and care for different types of plants.

Continuous learning: Incorporate books and resources about the environment into daily activities and reading time.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

TOY-FREE MONTH

Mojca Krajšek
Kindergarten Dobrna, Dobrna, Slovenia

Brief Overview

By removing conventional toys from the classroom, children are encouraged to explore, create, and learn using natural and recycled materials. This project helps children understand the importance of sustainability, waste reduction, and recycling through practical learning and imaginative play.

Keywords: Recycling, Natural materials, Imaginative play, Waste reduction, Environmental awareness.

Materials

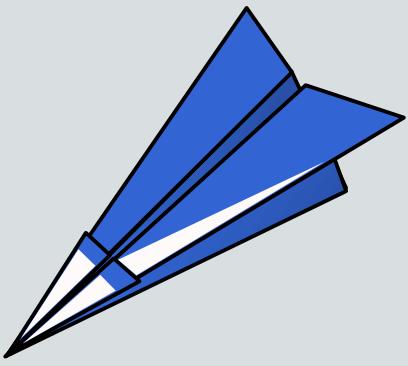
- **Recycled materials**
(cardboard, plastic bottles, buttons, fabric scraps)
- **Natural materials** (sticks, leaves, stones, seeds)
- **Art supplies**
- **Visual aids**
- **Containers for sorting**
- **Basic tools** (hammers, nails, string)
- **Gardening supplies**
(seeds, soil, pots)
- **Books and puppets for storytelling**

Duration

- **1 month with daily activities and weekly themes.**

Learning goals

- 1 Encourage children to use their creativity to make toys and play items from natural and recycled materials.
- 2 Develop problem-solving skills by creating and playing with non-traditional materials.
- 3 Instill habits of reducing, reusing, and recycling in daily life.
- 4 Enhance social interaction and teamwork as children collaborate on projects and play activities.
- 5 Provide sensory experiences through the use of diverse natural materials.



HOW TO DO IT?

Daily activities and weekly themes keep the children engaged and learning.

Green Comp

- Embracing complexity in sustainability
- Acting for sustainability

Step-by-step

1 **Introduction: Day 1**

Discuss with the children what Toy-free month is and why it's important.

Show videos and pictures about waste, recycling, and sustainability.

Explain the objectives and what will be done throughout the month.

2 **Material Collection: Day 2-3**

Ask children to bring recyclable and natural materials from home.

Organise materials into categories for easy access during activities.

3 **Creating toys and games: Week 1**

Encourage children to create their favorite toys using the collected materials.

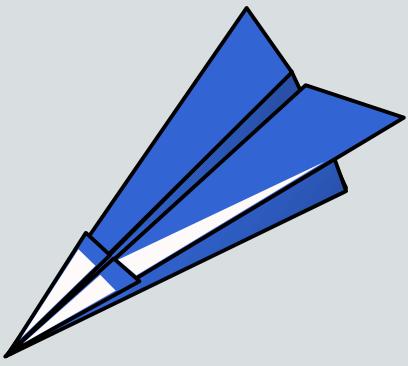
Provide guidance and support as they explore different ways to make toys.

4 **Didactic games and learning tools: Week 2**

Introduce didactic games made from recycled materials (e.g., sorting games, matching games).

Use these games to teach concepts such as numbers, shapes, and colours;

- Using cardboard pieces, help children create a set of dominoes with numbers and corresponding dots. Guide them in decorating and numbering each domino piece. Explain how to play dominoes, matching numbers to numbers or dots to dots.
- Help children cut out various shapes (circles, squares, triangles) from the cardboard. Guide children in colouring and decorating their shapes. Have children match the cut-out shapes to the shapes on the board. Have children trace the shapes with their fingers.
- Use bottle caps or small containers and paint or markers. Help children paint or colour each bottle cap/container in different colours. Create a sorting board with colour-coded slots or areas. Guide children in sorting the bottle caps/containers by colour.



HOW TO DO IT?

By practical immersion children develop a deeper appreciation for recycling and reuse.

Resources

[Sensory path guide](#) 

Step-by-step

5 Art and storytelling: Week 3

Engage children in creating art projects using natural and recycled materials.

Use books and puppets to tell stories about environmental themes.

Have children make their own puppets and costumes for role-playing.

Teach children how to use cardboard boxes and tubes to create cars, trucks, and small houses. Assist with cutting and assembling pieces, and encourage children to decorate their creations with markers and stickers. Discuss different types of vehicles and buildings to inspire diverse creations.

6 Sensory paths: Week 4

Create sensory paths and encourage children to explore different textures and materials:

- Planning: Provide paper and markers for children to draw their ideas for the sensory path. Discuss the sequence of textures and materials they want to include. Assign different sections of the path to small groups of children to design and build.
- Making texture panels: Provide mats or large pieces of cardboard as the base for each section of the path. Help children glue or tape different materials onto the base to create texture panels.
- Example panels: Soft textures: Fabric scraps, cotton balls, grass. Rough textures: Sandpaper, bark, stones. Squishy textures: Bubble wrap, playdough. Natural textures: Leaves, pine cones, soil. Encourage children to decorate the panels with paints and markers. Rotate groups.
- Lay out the texture panels in a designated area of the classroom or outdoors. Use tape or glue to secure the panels in place, creating a continuous path. Guide children through the path, encouraging them to describe how each texture feels.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

CELEBRATION OF SPECIAL DAYS

Mónika Sári
Montessori Kindergarten Angolpalánta, Fót, Hungary

Brief Overview

This plan is designed to introduce young learners to the concepts of sustainability and environmental conservation by celebrating three special days: European mobility week in September, Earth day in April, and Water day in March. Children learn about the environmental protection, using resources wisely, and understanding the interconnectedness of all living things.

Keywords: Mobility, Water conservation, Renewable resources, Pollution, Nature.

Materials

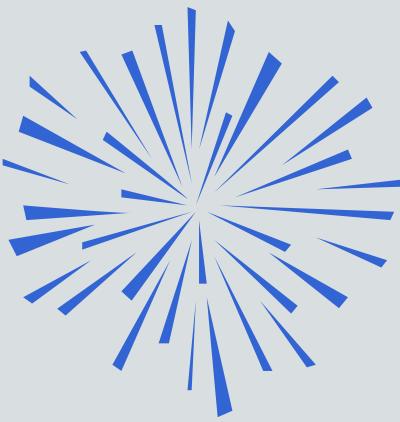
- Bicycles, scooters, and decorating supplies
(Mobility day)
- Animal pictures, plush toys, and real animal interactions (Earth day)
- Water-related teaching aids, recycled materials for boats (Water day)
- Gardening tools, seeds, watering cans
- Art and craft supplies: clay, leaves, stones, paints

Learning goals

- 1 Develop an understanding of sustainability and why it is important.
- 2 Learn about different modes of transportation and their environmental impact.
- 3 Understand the significance of Earth Day and ways to protect our planet.
- 4 Recognize the importance of water conservation and practical ways to save water.
- 5 Foster a sense of responsibility and care for the environment.

Duration

- Each special day can be celebrated over a week, with daily activities lasting 1-2 hours.



HOW TO DO IT?

Daily activities and weekly themes keep the children engaged and learning.

Green Comp

- **Embodying sustainability values**
- **Acting for sustainability**

Step-by-step

1 Mobility day / week

Inform parents about Mobility day and encourage them to help children decorate their bikes or scooters. Discuss with children why using public transport, bikes, or walking is better for the environment. Organise a decorated bike/scooter parade in the kindergarten courtyard. Use visual aids to show different modes of transportation and discuss their environmental impact. Have a storytelling session about different modes of transportation and their environmental impacts. Encourage children to share their thoughts on how they can reduce car usage.

2 Earth day

Arrange for a visit from an animal expert or a parent with pets. Explain the significance of Earth day and what it means to protect our planet. Allow children to interact with a real animal brought to the classroom. Take a nature walk to a nearby forest or park. Use visual aids to identify plants and animals. Each child plants a flower or tree in the garden and marks it with their name. Create nature-themed art projects using clay, stones, and leaves.

3 Water day

Collect recycled materials for boat-making activities. Discuss where water comes from and why it is essential for life. Teach children practical ways to save water (e.g., turning off the tap while brushing teeth). Make boats from recycled materials and test them in a controlled water environment. Visit a nearby river or lake and observe aquatic life. Have children wear blue T-shirts to symbolize water and discuss its importance.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

WHY IS THE EARTH CRYING?

Orinta Laureckienė & Vaida Klimavičienė
Kindergarten Ziedelis, Siauliai, Lithuania

Brief Overview

This project plan aims to teach children about the environmental challenges our planet faces and how they can contribute to its protection. The project "Why is the Earth Crying" engages children through discussions, educational videos, hands-on activities, storytelling, and interactive games to understand and address issues like pollution, recycling, and sustainability.

Keywords: Pollution, Recycling, Greenhouse effect, Protection, Waste management.

Materials

- Model of the Earth
- Videos on the greenhouse effect and recycling
- 2 jars
- 2 thermometers
- Bins for sorting waste
- Recyclable materials
- Tablets or computers for interactive games
- ChatterPix Kids app
- Art supplies (markers, scissors, glue, buttons)
- Reusable shopping bags
- Used T-shirts and shoes
- Screen and projector for video presentations

Duration

- Approx. 4 hours spread over multiple days.

Learning goals

- 1 Understand the causes and effects of environmental degradation, such as the greenhouse effect.
- 2 Learn the importance of recycling and how to properly sort waste.
- 3 Develop critical thinking skills related to environmental issues.
- 4 Encourage participation in local recycling programs and community activities to promote sustainability.
- 5 Inspire creativity by using recyclable materials in innovative ways.



HOW TO DO IT?

Offer children different types of learning about the same topic.

Green Comp

- Embracing complexity in sustainability
- Envisioning sustainable futures
- Acting for sustainability

Step-by-step

1 Introduction: 20 min

Present a "crying" model of the Earth and ask children why they think the Earth is crying.

Show an educational video about the greenhouse effect.

Discuss ways to protect the environment, emphasizing the importance of reducing pollution and conserving resources.

2 Greenhouse effect experiment: 30 min

Conduct a simple experiment showing that air in a closed jar is hotter, illustrating the greenhouse effect:

- Gather the children around a table where they can clearly see the materials.
- Show them the two glass jars and the thermometers. Explain that one jar will be open and the other will be closed to see the difference in temperature.
- Place a thermometer inside each jar and secure the lid on one of the jars, leaving the other open.
- Place both jars in a sunny spot where they will get the same amount of sunlight.
- Ask the children to predict which jar will get warmer and why.
- While waiting for the temperature to rise (about 10 minutes), engage the children in a discussion about why they think the closed jar might get warmer. Relate this to the greenhouse effect, where the "closed jar" represents the Earth's atmosphere trapping heat.
- After 10 minutes, check the temperatures in both jars. Record the temperatures on a chart paper for everyone to see.

Discuss the results and relate them to the broader concept of global warming.

3 Recycling education game: 30 min

Show the video "Sort Smart & Recycling Right."

Play an interactive game where children sort different items into appropriate recycling bins.

Discuss the importance of recycling and the impact of waste on the environment.



HOW TO DO IT?

Use more activities to teach ongoing environmental protection efforts.

Resources

ChatterPix Kids: Model of the crying Earth and animated talking pictures about recycling



Kahoot



Find educational videos on the greenhouse effect and sorting waste in your own language.

Step-by-step

- 4 Waste separation: 30 min**
Teach children how to segregate waste into different categories.
Practice sorting recyclable materials using provided bins.
Use ChatterPix Kids app to create animated talking pictures about recycling.
- 5 Supporting recycling programs: 30 min**
Introduce local recycling programs and explain how families can participate.
Encourage children to bring recyclable materials from home for a recycling drive at the kindergarten.
- 6 From trash to treasure: 40 min**
Conduct art projects where children create new items from recyclable materials, like making reusable shopping bags from old T-shirts:
 - Give each child an old T-shirt and a pair of scissors. Show them how to cut off the sleeves of the T-shirt. These will form the handles of the bag.
 - Instruct them to cut out the neckline to create an opening at the top of the bag.
 - Turn the T-shirt inside out. Show the children how to tie the bottom of the T-shirt to create the bottom of the bag.
 - Turn the bag right-side out again. Let the children decorate their bags using fabric markers, paint, buttons, ribbons, and patches.
- 7 Truth or lie game: 20 min**
Play a Kahoot game where children answer questions about reducing pollution and protecting the Earth.
- 8 Buy Nothing Day: 30 min**
Celebrate Buy Nothing Day (the 24th of November) by exchanging toys and other items that children no longer use.
Discuss the benefits of reusing and sharing instead of buying new items.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

PLASTIC WASTE THROUGH STEAM

Artemis Papadimitriou
Kindergarten Stefanovouno, Galanovrisi, Greece

Brief Overview

These activities aims to teach young children about the environmental impact of plastic bags and how they can contribute to sustainability efforts. Through interactive science, engineering, math, and art, children will explore plastic's properties, understand its effects on the environment, and learn ways to reduce plastic waste.

Keywords: Plastic waste, Recycling, STEAM, Critical thinking, Inquiry-based learning.

Materials

- Translucent Bowl
- Pieces of plastic bag
- Measuring paper
- Plastic bags
- Scissors
- Tape
- Ribbons
- Art paintings
- Bee Bot (educational robot)
- Plastic or paper animals
- Piet Mondrian painting (1930): “Composition With Red, Blue And Yellow”

Duration

- 1 week
- Break activities into several days to keep the children's motivation high.

Learning goals

- 1 Understand the properties and environmental impact of plastic bags.
- 2 Introduce basic STEAM concepts in the context of environmental education.
- 3 Develop critical thinking, problem-solving skills, and creativity.
- 4 Promote positive attitudes and behaviors towards the environment.
- 5 Support teamwork and collaborative learning.



HOW TO DO IT?

Integrate multiple subjects, developing a holistic understanding of sustainability.

Green Comp

- **Embodying sustainability values**
- **Embracing complexity in sustainability**
- **Envisioning sustainable futures**
- **Acting for sustainability**

Step-by-step

1 **Introduction: 30 min**

Read the book "Plastic Bag's Journey" to the children. Discuss the journey and environmental impact of plastic bags.

Let children to draw a journey of the bag.

2 **Science: Experiments with plastic bags: 30 min**

Ask children to predict what happens to plastic bags in water:

- What are the features and properties of plastic bags?
- How durable are they?
- What is their weight?
- What happens if they are in water?
- Are they recyclable?
- Why are they bad for the environment?

Perform experiments by placing different pieces of plastic bags in water and observing if they float or sink.

To test the durability of plastic bags, leave a piece of the bag in water and observe it daily over a two-week period.

Record observations and discuss durability and recyclability of plastic bags.

3 **Engineering: Plastic bag parachute: 30 min**

Show pictures of Da Vinci's flying machines.

Guide children to make parachutes using plastic bags and ribbons:

- Cut the plastic bag: Cut a square or circle from the plastic bag to form the canopy of the parachute.
- Attach strings: Cut four pieces of string or ribbon of equal length. Tape each piece to a corner or edge of the plastic canopy.
- Connect the strings: Gather the free ends of the strings and tie them together. Attach a small weight to the tied ends.

Test the parachutes and discuss how plastic can be reused creatively.



HOW TO DO IT?

Integrate multiple subjects, developing a holistic understanding of sustainability.

Resources

L. Usupova (2023). Plastic Bag's Journey: A heartwarming Children's book for young readers who love adventure and care about the environment.

Read aloud video of 'One Plastic Bag' Book.



Or any other children's book about plastic bags if available in your language.

Step-by-step

- 4 **Math: Creating patterns: 30 min**
Introduce Piet Mondrian and his art style.
Have children create their own patterns using cut pieces of plastic bags on paper.
Discuss shapes, colours, and patterns.
- 5 **Technology: Educational robotics: 40 min**
Explain the problem of plastic waste in the ocean.
Use the Bee Bot to simulate a cleanup mission, collecting fish trapped in plastic.
Program the Bee Bot to navigate through a course, reinforcing basic coding skills: Place the arrows on the track-sea to guide the Bee Bot to the fish. Then, write the path-code with the arrows on a piece of paper.
Finally, press the buttons to start the Bee Bot's journey.
- 6 **Art: Designing an ecological poster: 40 min**
Brainstorm ideas for an ecological message about plastic reduction.
Divide children into groups to create drawings, write messages, and compile information.
Assemble the poster and display it outside the classroom.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

ICE MELTING EXPERIMENT

Irena Godnič and Barbara Stožir Curk
Kindergarten Solkan, Solkan, Slovenia

Brief Overview

This activity introduces children aged 3-5 to the concept of ice melting and its effects on the environment, particularly focusing on polar regions. Through a hands-on experiment, children explore the differences in ice melting in Antarctica versus the Arctic and understand the impact on animals and human life.

Keywords: Climate change, Hypothesis, Observation, Ice melting, Environment.

Materials

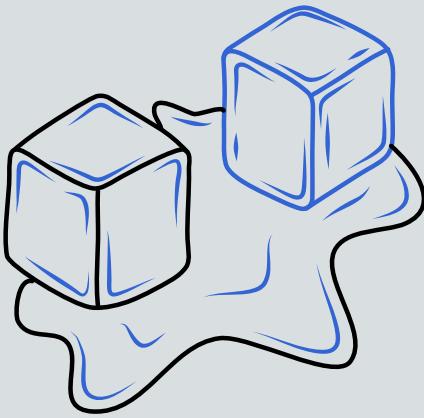
- Two glass containers
- 0.5 liters of cold water
- Plasticine (dark blue and white)
- Alcohol marker
- Small scoop (for measuring)
- Ice cubes (preferably in the shape of spruce trees, but regular cubes will work)
- Timer
- Paper for recording observations

Learning goals

- 1 To understand the basic characteristics of polar regions and the impact of ice melting.
- 2 To learn the scientific method: hypothesis, experiment, observing results, and drawing conclusions.
- 3 To develop critical thinking, anticipation, and observation skills.
- 4 To foster awareness of climate change and its effects on the environment and animal life.

Duration

- 90 min



HOW TO DO IT?

Hypothesis, experiment, observing results, and drawing conclusions.

Green Comp

- Embodying sustainability values
- Envisioning sustainable futures

Step-by-step

1 Introduction: 10 min

Begin by showing videos and pictures of Antarctica and the Arctic, discussing the animals and environment in these regions.

Ask children questions to gauge their existing knowledge about ice and polar regions.

2 Forming hypotheses: 5 min

Present the research questions to the children:

- How does ice melt in both poles?
- Why does ice melt quicker in one place than the other?
- How does ice melting affect animals and humans?

Help children form simple hypotheses such as:

- Ice melts quicker in the Arctic.
- Animals in Antarctica will lose their homes slower than in the Arctic.

3 Preparing the experiment: 10 min

Divide the children into small groups for better engagement.

In the first glass container, create a "land" base using plasticine to represent Antarctica.

Pour four scoops of water and place four ice cubes in the container. Mark the water level with the alcohol marker.

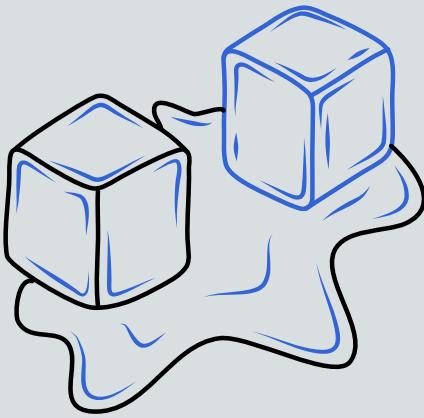
In the second glass container, simply pour four scoops of water and place four ice cubes, without the plasticine base. Mark the water level.

4 Conducting the experiment: 30 min

Set a timer and observe the containers at intervals of 10 and 30 minutes.

Encourage children to note the changes in water levels and ice melting.

Discuss observations at each interval.



HOW TO DO IT?

**Hypothesis,
experiment, observing
results, and drawing
conclusions.**

Resources

Science buddies



Step-by-step

- 5 Recording and comparing results: 10 min**
Compare the water levels in both containers.
Discuss which ice melted quicker and why.
Relate the observations to the real world, explaining how ice melts differently in polar.
- 6 Drawing conclusions: 5 min**
Summarize the findings with the children.
Confirm or reject the initial hypotheses based on the observations.
Discuss the importance of understanding climate change and its effects on the environment.
- 7 Reflection and discussion: 10 min**
Have a group discussion about what they learned from the experiment.
Encourage children to express their thoughts on how ice melting can affect animals and human lives.
Involve parents by showing them the children's work and discussing how they can support learning at home.
- 8 Possible extension**
Build models of icebergs using recycled materials, simulating the melting process over a week.
Observe and record the changes daily.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

HAPPY BIRTHDAY, WATER!

Laura Mihaela Fotin
Kindergarten no. 13, Alba Iulia, Romania

Brief Overview

This activity plan focuses on introducing kindergarten children to the importance of water through interactive activities, experiments, and visits. The activity is part of a bigger initiative in Romania entitled G.R.I.L. - Garden of Relaxation, Peace and Learning.

Keywords: Water, Sustainability, Experiment, Rain, Conservation.

Materials

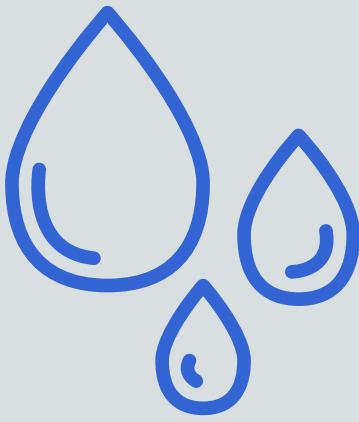
- Containers of various sizes
- Water
- Food colouring
- Ice cubes
- Thermometer
- Measuring cups
- Recycled materials for a simple water filter (sand, gravel, cotton)

Learning goals

- 1 Understand the importance of water in daily life and the environment.
- 2 Explore the different properties and states of water through scientific experiments.
- 3 Learn about the water cycle and the role of rain in nature.
- 4 Discover how water is used in gardening and the importance of sustainable practices.
- 5 Gain awareness of recycling and conservation efforts related to water.

Duration

- 90 min
- 2 hours for each field trip



HOW TO DO IT?

**Hypothesis,
experiment, observing
results, and drawing
conclusions.**

Green Comp

- Embodying sustainability values

Step-by-step

1 Introduction and musical games: 30 min

Play a song about water in your language.

Discuss the importance of water and ask children to share their thoughts about water.

Engage children in singing and dancing activities that mimic the sound and movement of rain.

2 Water experiments: 45 min

Conduct simple experiments to explore the properties of water:

- Floating and sinking: Use different objects to see what floats and what sinks in water.
- colour mixing: Add food colouring to water and mix colours to see the changes.
- Water temperature: Use a thermometer to measure the temperature of ice water, room temperature water, and warm water.
- Water states: Show water in its solid (ice), liquid (water), and gas (steam) states.

3 Field trips: 2 hours each

Plan different field visits to explore water, such as a local green factory to see the role of water in recycling, and a local water management facility to learn how water is treated and distributed.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

WINDMILL CONSTRUCTION

Marijana Karapetrić
Kindergarten Maksimir, Zagreb, Croatia

Brief Overview

In this activity, children explore the concept of sustainable energy by constructing a simple windmill using everyday materials. They learn about wind as a natural phenomenon and how it can be used to produce energy. This hands-on activity encourage curiosity, creativity, and a basic understanding of mechanical energy conversion.

Keywords: Windmill, Wind energy, Sustainable energy, Mechanical work, Lifting force.

Materials

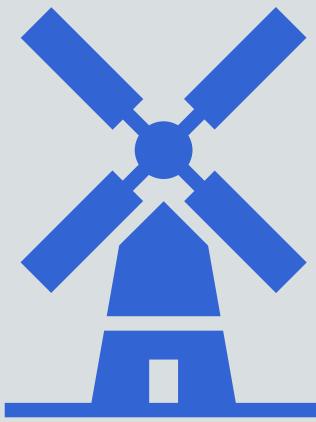
- Roll of paper towel
- Two rolls of toilet paper
- Three straws
- One nasal swab
- Square piece of cardboard (for the stand)
- Glue
- Twine
- Small cardboard cup

Learning goals

- 1 Develop positive attitudes towards natural energy sources.
- 2 Understand wind as a natural phenomenon and its potential for energy production.
- 3 Learn about the conversion of wind energy into mechanical work.
- 4 Develop awareness of the importance of preserving natural energy sources.

Duration

- 90 min



HOW TO DO IT?

Combine practical learning with creative thinking.

Green Comp

- Embodying sustainability values
- Envisioning sustainable futures

Step-by-step

1 Introduction: 10 min

Start with a discussion about wind and its uses. Ask the children if they have ever seen a windmill or know what it does.

Explain how wind can be used to produce energy and introduce the activity of making a windmill.

2 Constructing the windmill base: 15 min

Distribute the materials to each child or group. Ensure they have all the necessary items.

Take the roll of paper towel and stand it upright as the main tower of the windmill.

Attach the two rolls of toilet paper horizontally on either side of the paper towel roll to act as stabilizers.

3 Creating the propellers: 10 min

Use the straws to make the windmill's propellers.

Attach them together at one end using the nasal swab as the central axis.

Glue the propeller structure to the top of the paper towel roll.

4 Making the lifting mechanism: 10 min

Attach a piece of twine to the propellers and connect it to the small cardboard cup.

Explain that as the wind turns the propellers, it will raise the cup, demonstrating the lifting force.

5 Setting up the stand: 10 min

Glue the square piece of cardboard to the bottom of the paper towel roll to create a stable base for the windmill.

Ensure the windmill can stand on its own.

6 Testing and observation: 20 min

Take the windmills outside or use a fan to simulate wind indoors.

Observe how the propellers turn and lift the cup.

Discuss what happens and why.

Ask children to share their thoughts on how wind energy can be used in real life.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

MAKING RECYCLED PAPER

Dimitra Brella

The 21st Kindergarten of Larisa, Larisa, Greece

Brief Overview

This plan aims to teach kindergarten children the importance of recycling and environmental sustainability through a hands-on project of making recycled paper. The activity incorporates cooperative learning, experimentation, and storytelling to engage children and enhance their understanding of ecological concepts.

Keywords: Recycling, Sustainability, Storytelling, Vocabulary, Critical thinking.

Materials

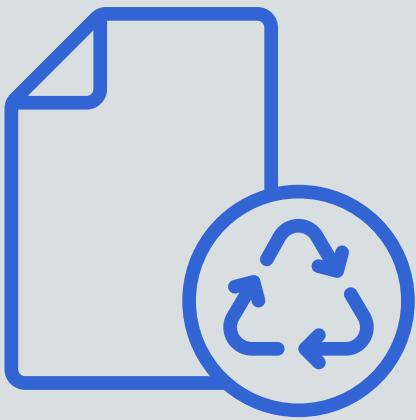
- Old newspapers
- Hot water
- Tempera paint
- Strainer
- Blender
- Buckets
- Oil
- Instant starch
- Sturdy glue
- Bowls
- Paint brushes and paints
- Photos of recyclable and non-recyclable materials
- Books and pictures related to recycling

Learning goals

- 1 Understand the concept of recycling and why it is important for the environment.
- 2 Learn how to make recycled paper from old newspapers.
- 3 Develop a sense of personal responsibility towards protecting the environment.
- 4 Enhance fine motor skills, following instructions, and completing a project from start to finish.

Duration

- 90 min spread over several days to allow drying time for the paper pulp.



HOW TO DO IT?

Create new, usable paper from old materials.

Green Comp

- Embodying sustainability values
- Acting for sustainability

Step-by-step

- 1 Introduction: 10 min**
Discuss with the children what recycling is and why it is important.
Show pictures of recyclable and non-recyclable materials.
Introduce the project of making recycled paper and explain the process briefly.
- 2 Preparation: 15 min**
Have children tear old newspapers into small pieces.
Place the pieces in bowls with hot water to soak.
- 3 Creating paper pulp: 20 min**
Blend the soaked paper pieces into a pulp.
Strain the water from the pulp using a strainer.
Mix in 3 tablespoons of oil and 3 tablespoons of starch to make the pulp clean and white.
Add sturdy glue to make the mixture hard and sturdy.
- 4 Forming the paper: 15 min**
Spread the pulp mixture onto a flat, non-stick surface (like a covered table) or into a mold if you have one.
Press the pulp down evenly to form a thin, uniform layer.
Leave the paper pulp to dry in a warm, dry area for about four days.
- 5 Painting and decorating: 30 min**
Once the paper pulp has dried and is ready, allow children to paint and decorate their recycled paper.
Encourage creativity and let them paint pictures or patterns related to the environment.
- 6 Discussion and reflection: 15 min**
Discuss what the children learned from the activity.
Compare their knowledge before and after the activity.
Encourage them to express their opinions on recycling and share any new ideas they have.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

COMPOSTING IN KINDERGARTEN

Orinta Laureckienė & Vaida Klimavičienė
Kindergarten Ziedelis, Siauliu, Lithuania

Brief Overview

This activity aims to introduce kindergarten children to the concept of composting. Through hands-on activities and discussions, children learn about the environment, recycling, and the natural cycle of decomposition. The activities are designed to be engaging and educational, promoting sustainable behaviours and practices among young learners.

Keywords: Composting, Decomposition, Recycling, Organic waste, Soil enrichment.

Materials

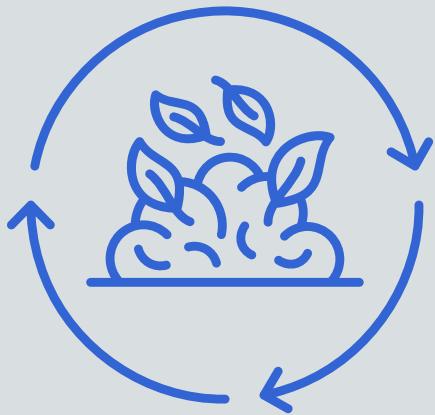
- Compostable materials
- Compost bin or designated compost pile area
- Seeds for planting
- Gardening tools (small shovels, gloves)
- Visual aids (posters or pictures showing the composting process)
- Small containers for collecting compostable materials

Learning goals

- 1 Understand the basic concept and importance of composting.
- 2 Identify different types of compostable materials and recognize the environmental benefits of composting.
- 3 Learn the process of creating and maintaining a compost pile.
- 4 Develop sustainable habits related to waste management.

Duration

- Initial activity: 90 min
- Daily monitoring: 10 min



HOW TO DO IT?

Teach and practice patience, as composting is a slow process.

Green Comp

- Embodying sustainability values
- Acting for sustainability

Step-by-step

1 Introduction: 15 min

Begin with a discussion about waste and where it goes. Use visual aids to show a landfill. Explain composting using simple terms and pictures. Discuss how composting helps reduce waste and improves soil health. Show examples of what compost looks like and how it is used to help plants grow.

2 Exploration of compostable materials: 20 min

Present a variety of compostable materials and non-compostable items. Let children sort these items into compostable and non-compostable categories. Explain the difference between "green" materials (rich in nitrogen) and "brown" materials (rich in carbon).

3 Collecting materials: 30 min

Take the children on a scavenger hunt to collect compostable materials around the kindergarten. Discuss proper sorting and preparation of materials for composting.

4 Monitoring and maintenance: 10 min daily

Schedule regular times for the children to check the compost pile, mix it, and add new materials. Use this time to discuss what is happening inside the compost pile and how decomposition works.

5 Using the compost: seasonal

Once the compost is ready, show the children how to use it in the garden. Plant seeds using the compost-enriched soil and take care of the plants as they grow.

6 Plant market: 1 day

Help children pot their plants in small, labelled containers using the compost they helped create. Create signs and decorations for the Plant Market with the children's help. Invite parents, other classes, and community members to visit the Plant Market.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

GROWING TOMATOES: PROCESS & PRACTICE

Blerina Sallova & Jaana Blixt
Kindergarten Rockaden, Landskrona, Sweden

Brief Overview

This activity focuses on teaching young children about sustainability through growing tomatoes. The children participate in every step of the process, from planting seeds to harvesting tomatoes, learning about the life cycle of plants, the importance of sustainability, and basic concepts in science, math, and language along the way.

Keywords: Gardening, Plant life cycle, Environment, Responsibility, Inquiry.

Materials

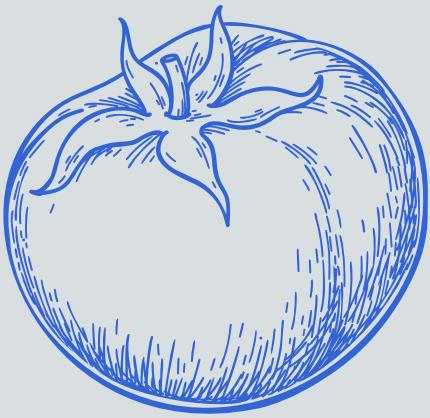
- Tomato seeds
- Small pots and soil
- Watering cans
- Gardening tools
- Labels and markers
- Books on plant cultivation
- Recyclable materials for creating plant markers and decorations
- Outdoor garden (if available)
- Camera or digital device for documenting the process

Learning goals

- 1 Understand the process of growing tomatoes from seeds to mature plants.
- 2 Learn the basic needs of plants: sunlight, water, and soil.
- 3 Develop fine motor skills through planting and caring for plants.
- 4 Foster a sense of responsibility and care for living things.

Duration

- 60 min longer session, 5 - 15 min for daily care.



HOW TO DO IT?

Involve children in every step of the process. Let children find the information.

Green Comp

- **Embodying sustainability values**
- **Acting for sustainability**

Step-by-step

1 **Introduction to gardening: 30 min**

Begin with a discussion about what plants need to grow (sunlight, water, soil).

Show pictures or a short video about the life cycle of a tomato plant.

Visit the library or use digital tools to find books and information about tomato cultivation.

2 **Planting: 20 min**

Distribute pots, soil, and seeds to each child.

Guide the children step-by-step in filling their pots with soil, planting the seeds, and watering them.

Have the children label their pots with their names and the date.

3 **Daily care and observation: 5 min**

Teach children how to water and care for their plants. Observe the growth and discuss changes noticed each day. Document changes on a board or poster. Use this time for reflection and to answer questions the children may have.

Let children discuss and exchange their knowledge with each other.

Encourage them to note changes in a simple journal with drawings or short descriptions.

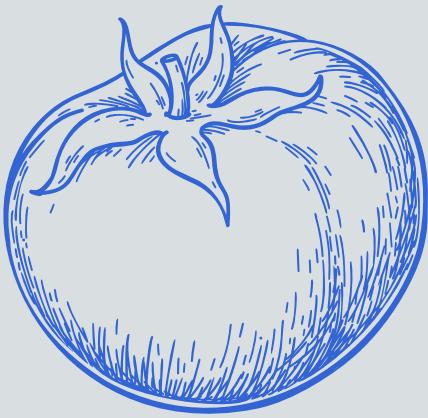
4 **Transplanting outdoors: 60 min**

Once the seedlings are large enough, discuss with the children when and why it's time to move them outdoors (around May).

Move the plants to an outdoor garden space, if available.

Use recyclable materials to create plant markers or decorations for the garden.

Discuss the new needs of the plants now that they are outside.



HOW TO DO IT?

Involve children in every step of the process. Let children find the information.

Resources

Use your local library to find books on gardening and growing tomatoes.

duopress labs: My First Book of Growing Food, Terra Babies at Home (2021).

N. Astley (2018). Peppa Pig: Peppa's Vegetable Garden.

Step-by-step

- 5 Continued care and observation: 15 min daily**
Continue to care for the plants, involving children in watering and weeding.
Use this time to teach new vocabulary and concepts related to plant growth. Ask questions such as:
 - What do your plants need to grow?
 - How have your plants changed since you planted them?
- 6 Harvesting and reflection: 60 min**
When tomatoes are ready, involve children in harvesting. Let children cut the tomatoes and eat them.
Discuss the entire process from planting to harvesting.
Reflect on what was learned and discuss the importance of sustainability and where food comes from.
Use questions such as:
 - Did we achieve the result we expected?
 - Why did it turn out the way it did?
- 7 Parental involvement: 5 min**
Share updates and photos with parents through digital platforms.
Encourage parents to talk with their children about the gardening process and even try it at home.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

GARDENING FOR SUSTAINABILITY

Marju Mik & Kelly Rahumägi
Kindergarten MLA Viimsi Lasteaiad, Viimsi, Estonia

Brief Overview

This project plan aims to teach kindergarten children about sustainability through a hands-on gardening project. Children learn how to grow their own vegetables, understand the life cycle of plants, and appreciate the importance of food and reducing food waste. This project also builds cooperation, patience, and a love for nature.

Keywords: Gardening, Plant life cycle, Food appreciation, Cooperation, Nature care.

Materials

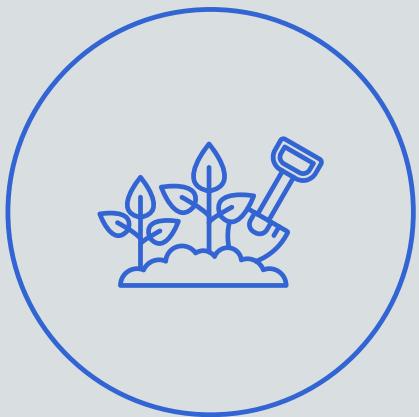
- Growing boxes or garden plots
- Gardening tools (small shovels, watering cans)
- Soil
- Vegetable seeds (e.g., tomatoes, carrots, lettuce)
- Water source
- Labels and markers for plants

Learning goals

- 1 Understand the growth process of vegetables from seeds to harvest.
- 2 Learn responsibility and patience through regular care of the plants.
- 3 Develop cooperation and teamwork skills by working together in the garden.
- 4 Appreciating food sources by experiencing that food does not just come from stores but can be grown.

Duration

- Approximately 18 weeks, from May to September



HOW TO DO IT?

Integrate weekly sessions into the daily routine.

Green Comp

- **Embodying sustainability values**
- **Acting for sustainability**

Step-by-step

1 **Introduction to gardening: Week 1**

Explain the project to the children and discuss why gardening is important for sustainability. Introduce the materials and demonstrate how to use the gardening tools safely.

2 **Sowing seeds: Week 2**

Have each child fill a growing box with soil. Let the children choose seeds and plant them in the soil, covering them lightly. Label each growing box with the type of plant and the child's name.

3 **Caring for plants: Weeks 3 - 15**

Teach children how to water their plants regularly. Show them how to weed the growing boxes to keep the plants healthy. Schedule regular check-ins to observe the growth and discuss any changes. Create a growth chart where children can note the changes in their plants. Encourage children to draw pictures of their plants at different stages.

4 **Harvesting: Week 16**

Once the vegetables are ready, guide the children in harvesting their crops. Discuss the harvesting process and how to determine if a vegetable is ready to be picked.

5 **Cooking and tasting: Week 17**

Plan a cooking activity where children can help prepare a simple dish using their harvested vegetables (e.g., salad, mashed potatoes). Emphasise the importance of not wasting food and enjoying what they have grown.

6 **Reflection and sharing: Week 18**

Have a circle time where children can share their experiences and what they learned. Display photos and drawings of the gardening process around the classroom.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

TEACHING SORTING AND RECYCLING

Blerina Sallova & Jaana Blixt
Kindergarten Rockaden, Landskrona, Sweden

Brief Overview

This plan focuses on teaching young children the importance of sorting and recycling. Through interactive activities, discussions, and hands-on practice, children learn what recycling is, why it is important, and how to sort different materials properly. The plan also includes creative activities to repurpose recyclable materials, reinforcing the concept of sustainability.

Keywords: Recycling, Sorting, Sustainability, Reuse, Repurpose, Garbage monsters.

Materials

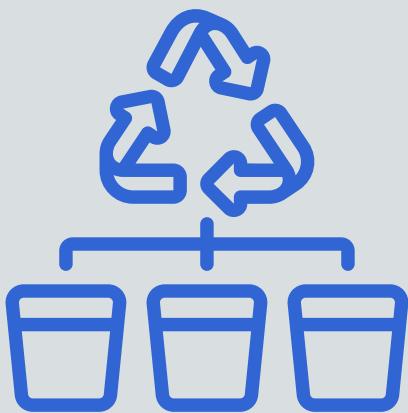
- Different types of recyclable materials (plastic bottles, paper, cardboard, metal cans)
- Recycling bins labelled with categories (plastic, paper, metal, organic)
- Trash Monster puppet or costume
- Art supplies (scissors, glue, markers, paint)
- Old materials for crafting (egg cartons, bottle caps, fabric scraps)
- Books and digital resources on recycling

Duration

- 60 min longer session, 5 - 15 min for daily care.

Learning goals

- 1 Understand the concept of recycling and its importance for the environment.
- 2 Learn to sort different types of waste into appropriate categories.
- 3 Develop awareness of how to repurpose and reuse materials.
- 4 Enhance fine motor skills through hands-on sorting and crafting activities.
- 5 Encourage teamwork and communication through group activities.



HOW TO DO IT?

Use the Trash Monster character to make learning fun.

Green Comp

- **Embodying sustainability values**
- **Acting for sustainability**

Step-by-step

1 **Introduction to recycling: 30 min**

Gather the children and introduce the concept of recycling.

Discuss why recycling is important for the environment.

Read a story or show a short video about recycling.

2 **Interactive discussion: 20 min**

Introduce the Trash Monster character who doesn't know how to recycle.

Engage children in a discussion about what sorting and recycling mean.

Ask questions such as:

- What happens to garbage if we don't recycle?
- Why should we recycle?

3 **Sorting: 45 min**

Provide children with different types of waste materials.

Set up recycling bins with clear labels.

Demonstrate how to sort the materials into the appropriate bins.

Allow children to practice sorting the materials themselves.

Discuss why each item goes into its specific bin.

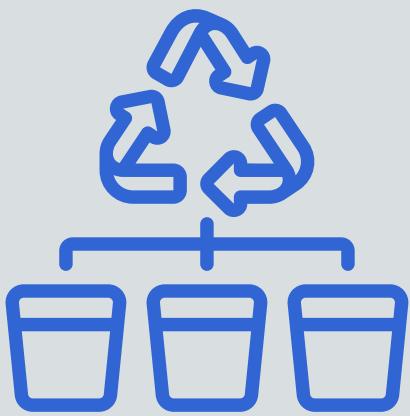
4 **Creative repurposing craft: 60 min**

Explain how some materials can be reused or repurposed instead of thrown away.

Provide a variety of old materials and art supplies.

Guide children in creating something new from the old materials (e.g., making a bird feeder from a plastic bottle).

Encourage children to use their imagination and creativity.



HOW TO DO IT?

Connect recycling with creativity.

Resources

Use your local library to find books on recycling.

Garbage collector monster
- guidance and creative material.



Step-by-step

5 Theatre and role play: 30 min

Use the Trash Monster puppet or costume to act out scenarios where the monster learns to recycle. Have children take turns being the Trash Monster and teaching it how to sort and recycle properly. Discuss how the Trash Monster feels about learning to recycle.

6 Reflection and sharing: 20 min

Gather the children and reflect on what they learned about recycling and sorting. Discuss how they can practice recycling at home and why it's important. Allow children to share their repurposed creations and explain what they made.

7 Parental involvement: Ongoing

Use digital tools to communicate with parents about the project. Share photos and stories of the activities. Encourage parents to involve their children in recycling at home.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

FOREST IN THE FIRE

Anna Magkiosi
Kindergarten Rizario, Trikala, Greece

Brief Overview

This activity plan focuses on teaching kindergarten children about forest protection by incorporating the theme of fire safety. Through storytelling, art, and visits from firefighters, children learn the importance of forests and how to protect them from fires. This lesson aims to foster environmental awareness and community involvement among young learners.

Keywords: Forest, Fire safety, Ecosystem, Environmental protection, Community involvement.

Materials

- Books and videos about forests and fire safety
- Art supplies (paper, crayons, paint, etc.)
- Craft materials for making a forest model
- Poster boards and markers
- Costumes and props for dramatization
- Natural materials (leaves, twigs) and recyclable materials

Learning goals

- 1 Understand the importance of forests and their role in the ecosystem.
- 2 Recognize the dangers that threaten forests, with a focus on fire.
- 3 Learn about the role of firefighters and how they help protect forests.
- 4 Develop creative expression through storytelling and art.
- 5 Foster a sense of responsibility and community action in protecting forests.

Duration

- 6 days, 90 - 120 min a day



HOW TO DO IT?

Use open-ended questions to stimulate curiosity and critical thinking.

Green Comp

- **Embodying sustainability values**
- **Embracing complexity in sustainability**

Step-by-step

1 **Introduction: 10 min**

Begin with a discussion about forests. Use books, pictures, and videos to introduce the concept of a forest ecosystem.

Have children draw their favorite forest animals and plants.

2 **Understanding fire**

Discuss what fire is and how it can affect forests.

Watch a short educational video on forest fires.

Read "The Giving Tree" by Shel Silverstein or other similar story. Discuss the story and its message about nature's generosity.

Ask children to draw or paint scenes from the story.

3 **Firefighters' visit**

Invite firefighters to visit the classroom. They can explain their job and how they protect forests from fires. Or visit with the children your local fire fighter department.

Let children ask questions and see the firefighter's equipment.

Have children role-play as firefighters and forest animals. Discuss how they would feel if they were part of a forest fire.

4 **Creating the story "Fire in the Forest"**

As a class, create a story titled "Fire in the Forest."

Discuss characters, plot, and setting.

Have children illustrate different parts of the story.

Practice acting out the story with costumes and props.

5 **Learning from experts**

Invite a forester to talk about forest protection.

Encourage children to ask questions.

Create a booklet titled "Listen to the Silence of the Forest," including children's drawings and thoughts on forest protection.



HOW TO DO IT?

Engage with the local community at various stages of the project.

Resources

Book:

S. Silverstein (1964). The Giving Tree.

Step-by-step

6 Community action

Organise a tree-planting event or a park clean-up with parents and community members.
Create posters on how to protect forests and display them around the school.
Discuss what they learned throughout the week and what actions they can take to help protect forests.

7 Possible extensions:

Visit a Natural History Museum to learn more about forest ecosystems.
Implement a coding activity with Bee Bot to navigate through a forest-themed obstacle course.
Create puzzles and memory games using forest animal drawings.
Use virtual reality (VR) or online resources to explore different types of forests around the world.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

EXPLORING INSECTS

Denise Müller and Tim Rogas
Kindergarten Zwergenland, Radebeul, Germany

Brief Overview

Children explore the local forest or park, observe nature, and learn about the importance of insects in the ecosystem. The focus is on the process and mindfulness.

Keywords: Nature, Insects, Forest, exploration, observation, biodiversity.

Materials

- Magnifying glasses
- Insect identification guide
- Notebooks and pencils
- Small containers for collecting (if allowed by local regulations)

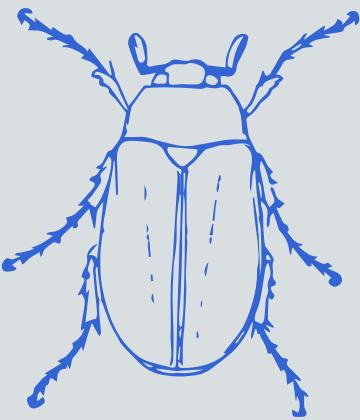
Learning goals

- 1 To develop an appreciation and understanding of nature.
- 2 To identify different insects and understand their roles in the ecosystem.
- 3 To foster curiosity and observational skills in a natural setting.



Duration

- 75 min



HOW TO DO IT?

A nature walk with a focus on observing and learning about insects.

Green Comp

- Embodying sustainability values
- Envisioning sustainable futures

Resources

Saying:

Where there is a lot, take a little. Where there is little, take nothing at all.

Step-by-step

1 Introduction: 10 min

Discuss the day's plan and explain the importance of insects.

Show pictures of common insects they might encounter.

2 Nature walk: 30 min

Walk to the local forest, encouraging children to observe their surroundings.

Use magnifying glasses to look closely at plants and insects.

3 Observation and collection: 20 min

Allow children to carefully collect insects in small containers.

Use the identification guide to name and learn about each insect.

4 Discussion and reflection: 15 min

Return to the classroom and discuss what they observed.

Encourage children to draw their favorite insect and share what they learned.

5 Return the insects to nature

6 Follow-up activities

Plan a "Bug Hotel" project where children create habitats for insects in the garden using recycled materials.

Monitor and observe the bug hotel over time, discussing the types of insects that take residence.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

PROTECTED SPECIES: TURTLES

Sandra Zjačić-Ljubičić
Kindergarten Maksimir, Zagreb, Croatia

Brief Overview

This lesson plan is designed to introduce preschool children (ages 3-6) to the concept of biodiversity and the importance of protecting species, focusing on turtles. Through the activities proposed children develop cognitive, socio-emotional, physical, and communication skills while fostering a love and respect for nature.

Keywords: Biodiversity, Protected species, Turtles, Ecology, Nature.

Materials

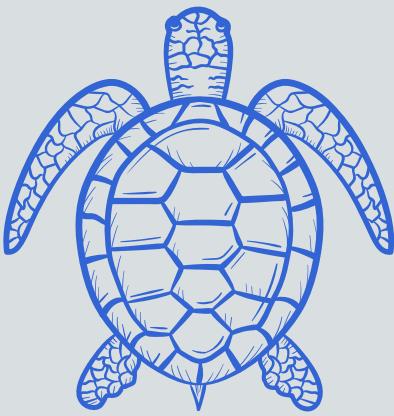
- Books, documentary and photos about turtles
- coloured dough, scissors, collage paper, glue, cups
- Sand, tongs, and bowls
- Markers, papers
- Interactive poster of the "Life cycle of a turtle"
- Dice, pieces for board games, and labyrinth game materials
- Songs related to turtles ("La bella tartaruga")
- Board game on turtles
- Labyrinth game "Path to Salad"

Learning goals

- 1 Understand the concept of biodiversity and the importance of protecting endangered species.
- 2 Gain knowledge about turtles, their physical characteristics, habitat, and life cycle.
- 3 Develop a positive attitude towards nature and animals.
- 4 Enhance cognitive, socio-emotional, and physical development through interactive and sensory activities.

Duration

- 2,5 hours through several days.



HOW TO DO IT?

Connect the developmental areas of children with the topic of turtles.

Green Comp

- **Embodying sustainability values**
- **Embracing complexity in sustainability**

Step-by-step

1 **Introduction: 10 min**

Begin with a group discussion about biodiversity and the importance of protecting animals. Introduce Hermann's tortoise with pictures and a brief story.

2 **Research and knowledge: 30 min**

Show a short documentary about turtles.

Read stories and look through picture books and encyclopedias about turtles.

Play the "Find and transfer small animals" game with sand, tongs, and bowls to simulate turtle habitats:

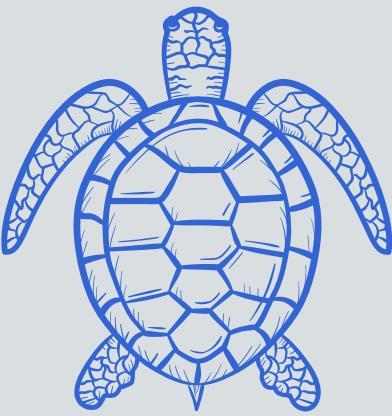
- Fill a large shallow container or sandbox with sand.
- Hide small plastic animals (preferably turtles and other creatures found in turtle habitats) within the sand.
- Place several bowls around the container.
- Gather the children around the container and explain that they will be playing a game to find and rescue small animals hidden in the sand, just like how turtles might search for food or protect their eggs.
- Demonstrate how to use the tongs to carefully pick up the small animals and place them into the bowls.
- Divide the children into small groups if necessary, ensuring each child has a pair of tongs.
- Allow the children to take turns using the tongs to search for and transfer the small animals from the sand to the bowls.
- Encourage them to work gently and carefully, simulating the careful movements turtles use in their natural habitat.

3 **Art activity: 30 min**

Create turtle models using coloured dough.

Decorate the turtle shells with collage materials.

Use the interactive poster to explain the life cycle of a turtle.



HOW TO DO IT?

Create your own board games connected with turtles.

Resources

Song [La bella tartaruga](#)



Step-by-step

- 4 Construction activity: 20 min**
Build a turtle shell and house using cubes and other construction materials.
- 5 Preparation on reading and writing: 20 min**
Read books and magazines about turtles.
Play naming and recognition games with pictures and words.
- 6 Play board games: 30 min**
Engage in the board game connected with turtles.
Navigate the labyrinth game "Path to Salad." Find turtle maze on the internet or create your own.
- 7 Physical activities: 20 min**
Sing and dance to "La bella tartaruga."
Play the "Rabbit and Turtle" game to encourage movement and physical activity:
 - Choose an open space, where the children have enough room to run and move around safely.
 - Mark a starting line and a finish line using cones, tape, or any visible markers.
 - Explain the concept of the game to the children, emphasizing the difference in speed between rabbits and turtles.
 - Gather the children at the starting line and explain the rules of the game.
 - Explain that some children will pretend to be rabbits and others will be turtles. The rabbits can run quickly, while the turtles will move slowly and steadily. Demonstrate the movement for each role.
 - Divide the children into two groups, ensuring an even mix of rabbits and turtles.
 - Once the children reach the finish line, have them switch roles and play another round, so everyone gets a chance to experience both roles.
- 8 Wrap-up: 10 min**
Review what was learned about turtles and biodiversity.
Encourage children to share their favorite activity and something new they learned.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

MAKING HONEY IN THE KINDERGARTEN

Bojana Cvijak & Gordana Novosel
Kindergarten Zvončić, Ozalj, Croatia

Brief Overview

This plan aims to introduce young children to the process of making honey, emphasizing the importance of bees to our ecosystem and promoting sustainability. The activity includes experience in gathering ingredients, following a recipe, observing the process of making honey, and tasting the final product.

Keywords: Sustainability, Bees, Honey, Biodiversity, Ecosystem, Nutrition, Collaboration.

Materials

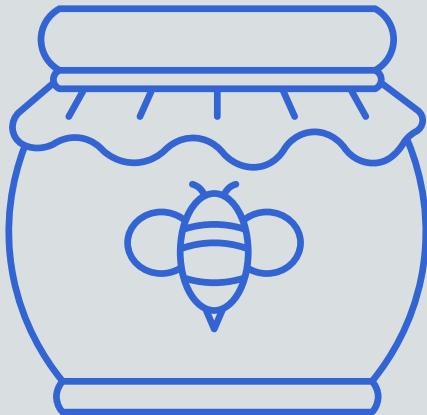
- Fresh dandelions
- Water
- Sugar
- Lemon slices
- Large pot
- Stirring spoon
- Measuring cups
- Recipe cards
- Jars for storing honey
- Labels and markers for jars
- Bee-themed educational materials (books, posters, etc.)

Learning goals

- 1 Understand the role of bees in the ecosystem and their importance in food production.
- 2 Learn the basic process of making honey.
- 3 Develop observational and following-instruction skills.
- 4 Promote collaboration and teamwork among children.
- 5 Encourage appreciation for natural foods and healthy eating habits.

Duration

- 1 day.



HOW TO DO IT?

Promote active learning and appreciation for nature.

Green Comp

- Embodying sustainability values
- Embracing complexity in sustainability

Step-by-step

1 Introduction: 10 min

Begin with a short discussion about bees and their role in the ecosystem.

Visit the local family farm that produces honey.

Show pictures and read a story about bees.

Explain the activity and what the children will be doing.

2 Field trip to the meadow: 30 min

Take the children to a nearby meadow or garden.

Guide them in safely picking dandelions. Discuss the importance of flowers and bees while they pick.

3 Preparing ingredients: 20 min

Return to the classroom or kitchen area.

Wash the dandelions and prepare the ingredients.

Measure out the necessary amounts of water, sugar, and lemon slices: 2 cups of fresh dandelions (make sure they are free from pesticides and thoroughly washed), 4 cups of water, 2 cups of sugar, 1 lemon, sliced thinly.

4 Making the honey: 40 min

Gather the children around a large table or in the kitchen. Follow the recipe to combine the ingredients in a large pot:

- In a large pot, add the dandelion petals and water.
- Bring the water to a boil over medium-high heat.
- Once boiling, reduce the heat and let it simmer for about 30 minutes. After simmering, remove the pot from heat.
- Strain the mixture through a fine mesh strainer or cheesecloth into another large pot or bowl to remove the dandelion petals.
- Squeeze out as much liquid as possible from the petals.
- Return the strained liquid to the large pot. Add the sugar and lemon slices to the pot. Stir well to dissolve the sugar completely.

Allow each child to take turns adding ingredients and stirring.

Supervise the heating process, explaining safety rules.



HOW TO DO IT?

Collaborate with local farms.

Resources

Use your local library to find books on honey and bees.

Step-by-step

5 Cooking the honey: 1-2 hours

- Bring the mixture to a boil again, then reduce the heat to medium-low.
- Let it simmer uncovered for about 1-2 hours, stirring occasionally.
- The mixture should reduce and thicken to a syrupy consistency.

While the honey is cooking, engage the children in a discussion about what they see and smell.

Show them pictures or videos of bees making honey. Ask questions to reinforce their understanding of the process.

6 Tasting and sharing: 20 min

Once the honey is ready, let it cool down.

Give each child a small taste of the honey they made. Encourage them to describe the taste and how they feel about the activity.

7 Closing activity: 15 min

Have the children help label and decorate jars to take home.

Review the key points about bees and sustainability.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

THE GREENCOMP SEMINAR

Marie Kniest & Annika Rickard
K&R Education, Malmö, Sweden

Brief Overview

This seminar aims to introduce preschool teachers to the GreenComp framework, developed by the Joint Research Centre (JRC), the European Commission's science and knowledge service. Participants explore how to integrate sustainable competencies into their teaching practices, promoting sustainability values among young children.

Keywords: GreenComp framework, sustainability, preschool education, sustainable competencies, professional development.

Materials

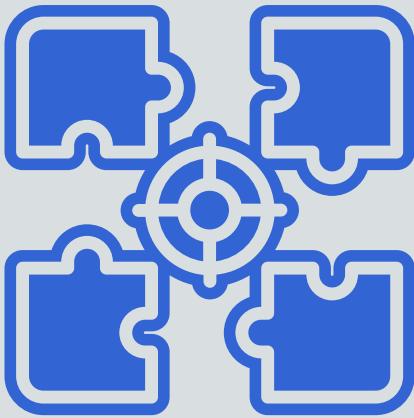
- Copies of the GreenComp framework overview
- Large sheets of paper or flip charts
- Markers
- Post-it notes
- Pens and notebooks for participants
- Projector and screen for presentation
- Digital camera or smartphone for taking pictures of group work

Learning goals

- 1 Understand the GreenComp framework and its relevance to preschool education.
- 2 Identify and discuss the four areas and twelve competencies of the framework.
- 3 Collaborate with colleagues to brainstorm ways to implement these competencies in preschool activities.
- 4 Develop practical strategies for promoting sustainability values in early childhood education.

Duration

- 90 min.



HOW TO DO IT?

Reflect on the importance of learning sustainability in early childhood.

Resources

- The [GreenComp framework](#) available in 24 languages 

Step-by-step

1 Introduction: 10 min

Provide a brief overview of the GreenComp framework and its importance in fostering sustainable development from an early age.

2 Presentation of the Green Comp: 20 min

Explain the four areas of the framework:

- Embodying Sustainability Values
- Embracing Complexity in Sustainability
- Envisioning Sustainable Futures
- Acting for Sustainability

Discuss the three competencies under each area with examples and descriptions.

3 Group formation and instructions: 10 min

Divide participants into four mixed groups, ensuring diversity in terms of background and experience.

Assign each group one of the four areas of the Green Comp framework.

Distribute post-it notes and markers to each group.

4 Group activity: 30 min

Each group discusses their assigned area, focusing on the following questions:

- Which competencies within this area do you feel are already being addressed in your preschool?
- How do you currently implement these competencies in your teaching?
- What new strategies can you develop to better integrate these competencies?

Groups write their responses on post-it notes and attach them to the large sheets of paper.

5 Group presentations: 20 min

Each group presents their findings to the whole seminar, highlighting key points and new ideas.

Encourage questions and discussions after each presentation.

MY INSIGHTS

Relevance:

I want to try this, because ...

I need help with ...

This part I will do differently ...

05



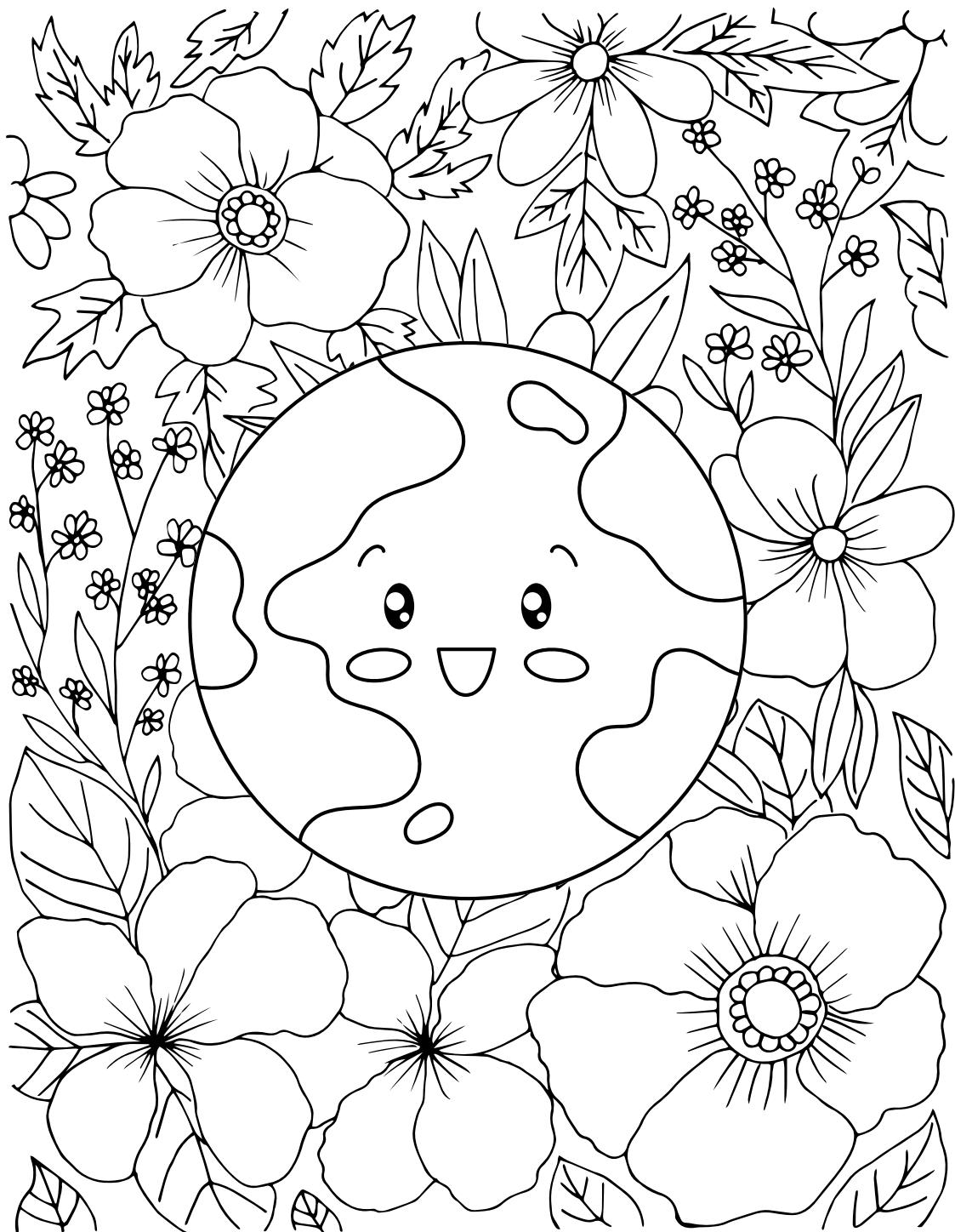
COLOURING
ACTIVITIES

05

**ONE TON OF RECYCLED PAPER
SAVES 17 TREES.**



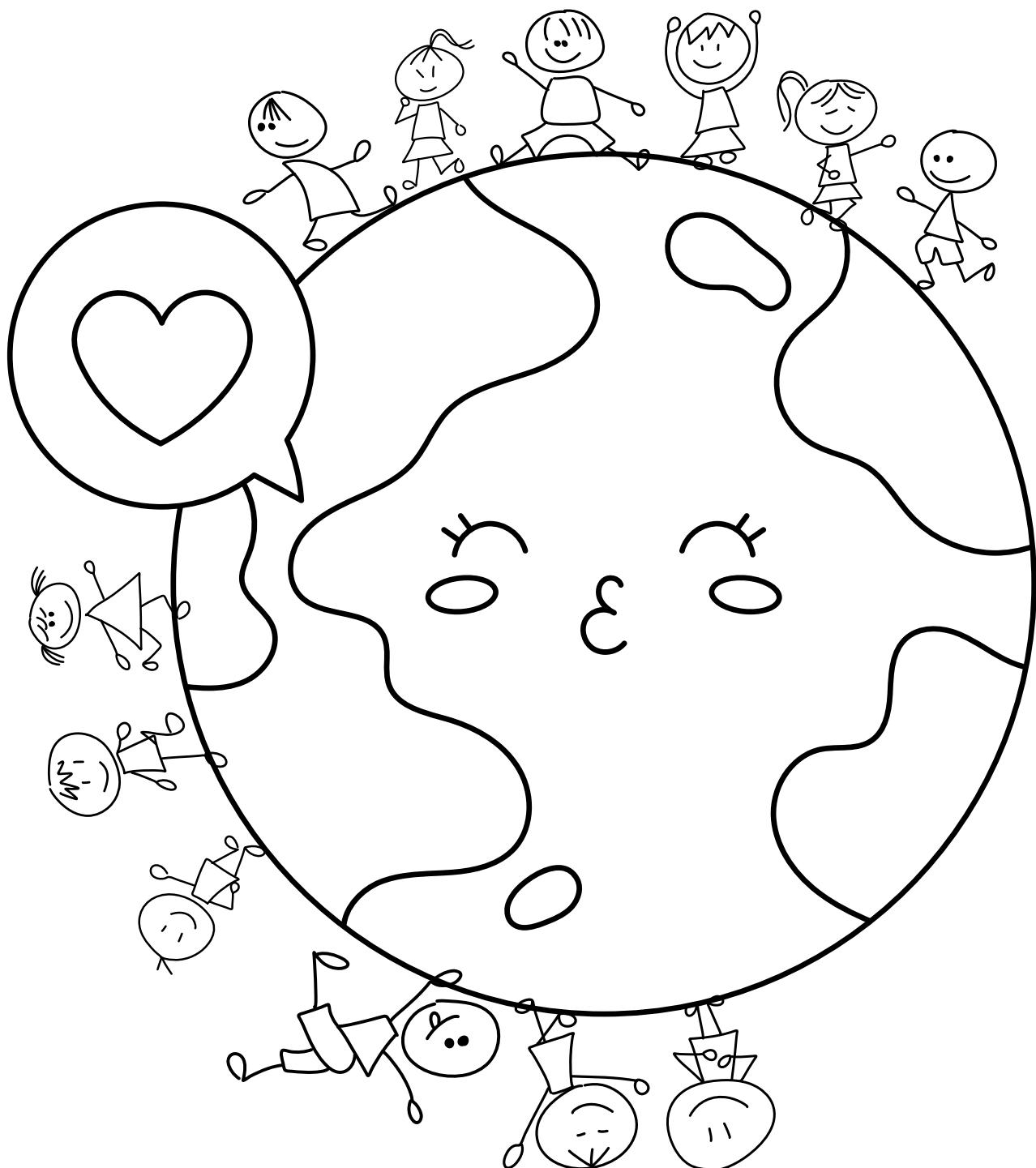
THE EARTH LAUGHS IN FLOWERS.



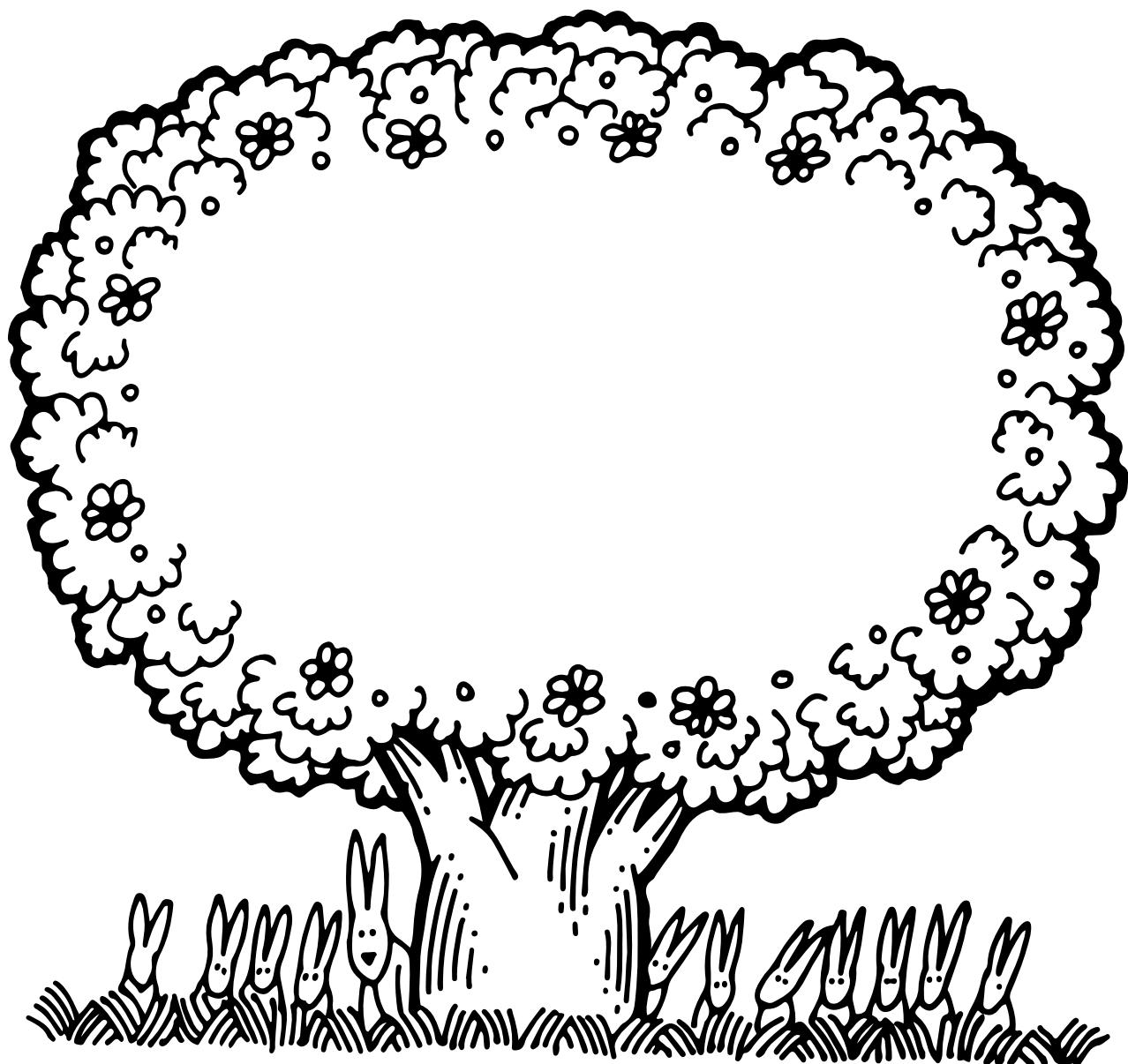
NOT ONLY TREES BUT ALSO CHILDREN GROW IN THE FOREST.



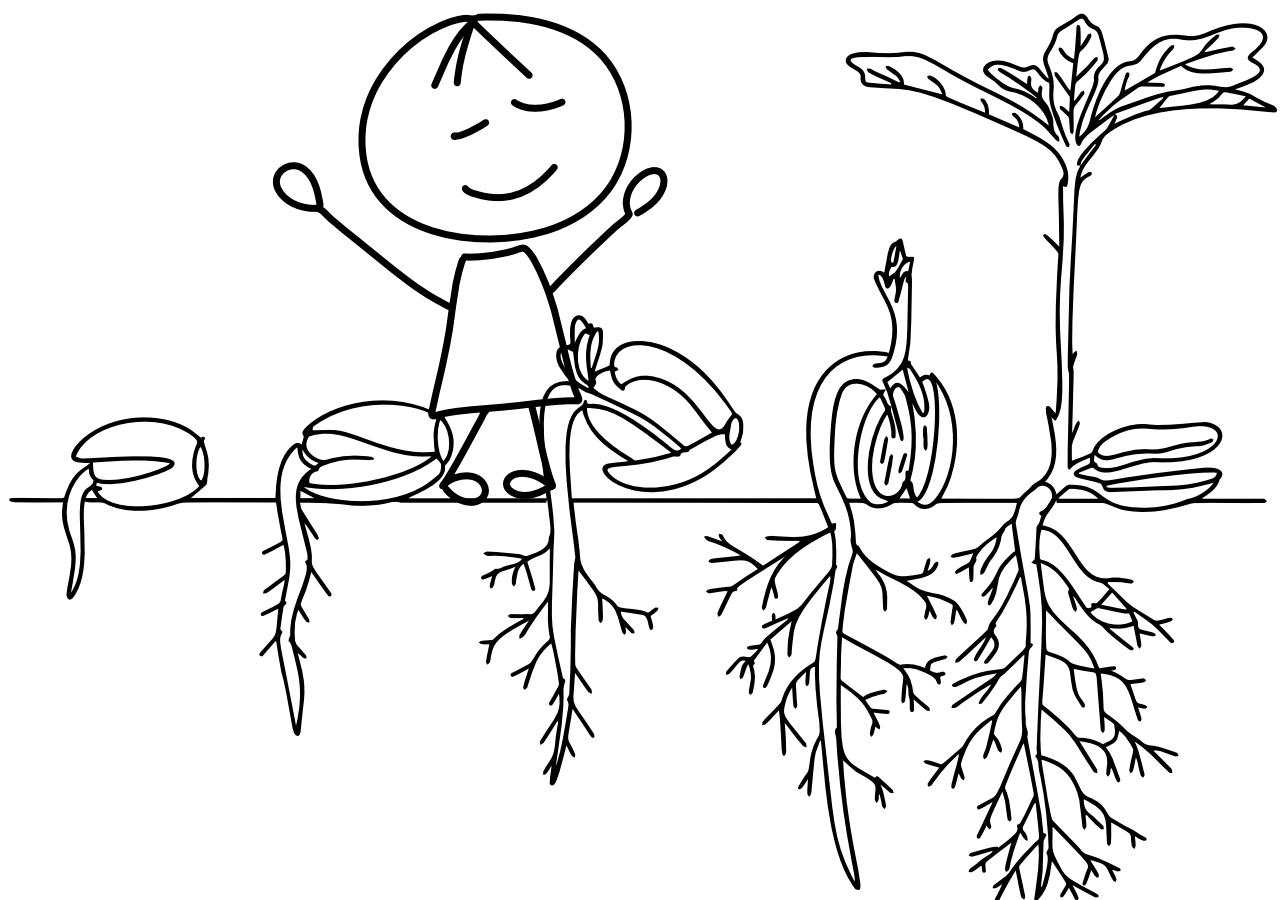
TAKE CARE OF THE EARTH AND IT WILL
TAKE CARE OF YOU.



**WHERE THERE IS A LOT, TAKE A LITTLE.
WHERE THERE IS LITTLE,
TAKE NOTHING AT ALL.**



**THE BEST TIME TO PLANT A TREE WAS 20 YEARS AGO.
THE SECOND BEST TIME IS NOW.**



**WE DO NOT INHERIT THE EARTH FROM OUR ANCESTORS;
WE BORROW IT FROM OUR
CHILDREN.**



06



A B O U T T H E
S U P E R H E R O
L A B

06

ABOUT THE SUPERHERO LAB

Engaging Children as Scientists to Explore Sustainability

The Superhero Lab Project is an Erasmus+ partnership that brings together dedicated organizations from Lithuania, Sweden, Germany, Austria, Slovenia, and Greece. United by a commitment to sustainability education, these partners believe that children learn best about sustainability through hands-on activities, which allow for meaningful exploration and personal engagement with the topic.

However, fostering sustainability isn't just about children; it also requires that we support teachers with resources and opportunities to explore sustainability education. Under the Superhero Lab framework, we've created a range of materials and learning experiences to empower teachers alongside their young students.

Partners:

- Die Brücke, kindergarten teacher training organization from Germany;
- Primera - Zentrum für pädagogische Fortbildung Wien, teacher training association from Austria;
- GoINNO, developer of STEM activities for educators from Slovenia;
- K&R Education, teacher training organization from Sweden;
- E-School, accredited VET provider from Greece;
- Šiauliai, local government from Lithuania;
- Žiedelis, kindergarten from Lithuania.

Associated kindergartens: Zwergenland (Germany), Schmetterling (Austria), Solkan (Slovenia), The 21st Kindergarten of Larissa (Greece), Kindergarten of Stefanovouno (Greece), Rockaden Landskrona (Sweden).

1

Sustainability education best practice handbook

This is the handbook you're currently reading, created by kindergarten educators to offer tested, practical guidance on integrating sustainability into early learning.

2

Collection of hands-on experiments

This resource includes a series of experiments designed for young learners aged 4-6, accompanied by video tutorials and lesson plans for teachers. The goal is to move beyond simple demonstrations and actively engage children in scientific exploration.

PROJECT'S RESULTS

3

International training opportunities

This project offers international training, webinars, and conferences for educators to share best practices, develop experiments, and promote sustainability education across Europe collaboratively.



Join us

www.superherolab.eu

[FB group Erasmus Kindergartens](#)



Co-funded by the
European Union



www.superherolab.eu