



Sustainable Christmas Tree Engineering

STEM4inclusive schools
WP2 – Toolbox

Școala Gimnazială Nr. 7, Galați

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Structure of the activity

A Introduction

about the topic

Understand the concept of sustainability and its importance

Explore the environmental impact of different materials and practices.

B Training phase

about the training

Design and construct a stable and visually appealing Christmas tree





A: About the topic

The concept of sustainability and its importance

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Definition!



What is the sustainability?

Sustainability is the concept of meeting the needs of the present without compromising the ability of future generations to meet their own needs.

It encompasses three main pillars:

Environmental Sustainability: This involves protecting the planet's natural resources and ecosystems.

Economic Sustainability: This focuses on ensuring long-term economic growth while maintaining social equity and environmental responsibility.

Social Sustainability: This focuses on creating equitable and just societies where everyone has the opportunity to thrive.

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The importance of sustainability

Why Sustainability Matters

- **Healthy Planet:** A sustainable planet ensures clean air, water, and a healthy environment for all living beings.
- **Resilient Communities:** Sustainable communities are better equipped to withstand challenges like climate change and natural disasters.
- **Ethical Consumption:** Sustainable choices empower consumers to make ethical decisions that support sustainable businesses.
- **Future Generations:** Sustainability ensures a livable planet for future generations, safeguarding their resources and well-being.



Did you know?



The impact of Christmas trees on sustainability is a topic with arguments for both real and artificial.

Real trees:

Pros:

- Carbon sink
- Renewable resource
- Biodegradable

Cons:

- Transportation and disposal
- Deforestation

Artificial trees:

Pros:

- Reusable

Cons:

- Production and disposal
- Energy intensive

Christmas tree using reusable materials

Pros:

- Environmental Impact
- Cost-Effective
- Customization
- Durability
- Educational

Cons:

- Initial Effort
- Storage



AI Image Generated





Here are some creative ideas for a Christmas tree from recycled materials:

Driftwood Tree: Collect driftwood pieces and arrange them in a tree shape.

Book Tree: Stack old books in a conical shape to form a tree.

Bottle Tree: Use empty glass or plastic bottles to create a tree. Arrange them in layers, starting with a wide base and tapering to the top.

Cardboard Tree: Cut out cardboard pieces in the shape of a tree and assemble them.

Egg Carton Tree: Paint and stack egg cartons to form a tree shape.

Tin Can Tree: Clean and paint old tin cans, then stack them to create a tree.

PVC Pipe Tree: Cut PVC pipes into different lengths and arrange them in a tree shape.

Fabric Tree: Use scraps of fabric to create a tree. You can sew or glue the fabric pieces together and add buttons, beads, or other decorations.





Let's have a look at this
youtube video!

The recycled materials Christmas tree video



Youtube channel name: **Linao Family Vlog**

Name of video: **Unique RECYCLED Christmas Trees**

Link: <https://www.youtube.com/watch?v=kgPqLVozP8U>

Accessed: 9.12.2024





Needed materials:

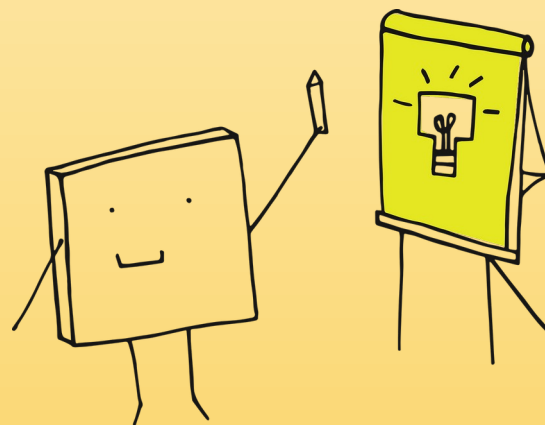
- Recyclable materials (cardboard, paper, plastic bottles, fabrics, egg carton etc.)
- Glue or tape
- Paint or markers
- Scissors
- String or ribbon
- Recycled ornaments or natural materials like pine cones or dried fruit





B: Training phase

Construct your Christmas tree



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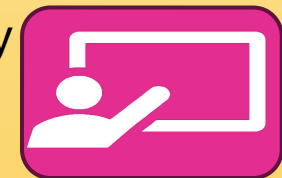
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Task 1:

- Brainstorm ideas for using recycled materials to create a Christmas tree. Sketch out the design, considering the base, trunk, and branches. Think about how to connect the different parts to ensure stability. Plan the decoration scheme, considering the use of recycled or natural materials. Work in **group of four** to complete the task and include also the learners who are not able to draw on their own by integrating their comments and ideas.
- You have **30 minutes** to design an 1 m height Christmas tree. If there are learners with special needs in your group, you will receive an additional **10 minutes** to ensure that their contributions and ideas are fully integrated.
- Ensure that you collaborate effectively with your partner. Support learners who may have visual or physical impairments, ensuring everyone has the opportunity to contribute.



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Task 2:

- Let's have a look at the following video:



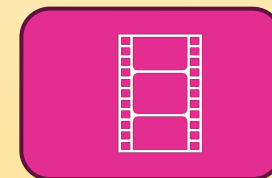
Youtube channel name: **Ecobrisa DIY**

Name of video: **10 Recycled Christmas Trees - Ecobrisa DIY**

Link: https://youtu.be/kRKj-3j3oB8?si=MzxIN1Kwl_5EpeO

Accessed: 9.12.2024

Describe what you saw in a video. Please work together with other person or record an audio about your ideas with your mobile phone.



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Task 3:

- Cut and shape the materials according to the design. Assemble the tree, paying attention to the stability and balance. Decorate the tree with recycled ornaments or natural materials like pine cones or dried fruit.
- Build your Christmas tree and test the stability of the tree by gently shaking it. Evaluate the aesthetic appeal of the tree. Discuss in your group the environmental impact of the materials used and the design process.
- Write down your observations.



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H5P- Tasks 1: What is sustainability?

Sustainability is the concept of meeting the needs of the present without compromising the ability of future generations to meet their own needs.

☐ True

☐ False

☒ Submit

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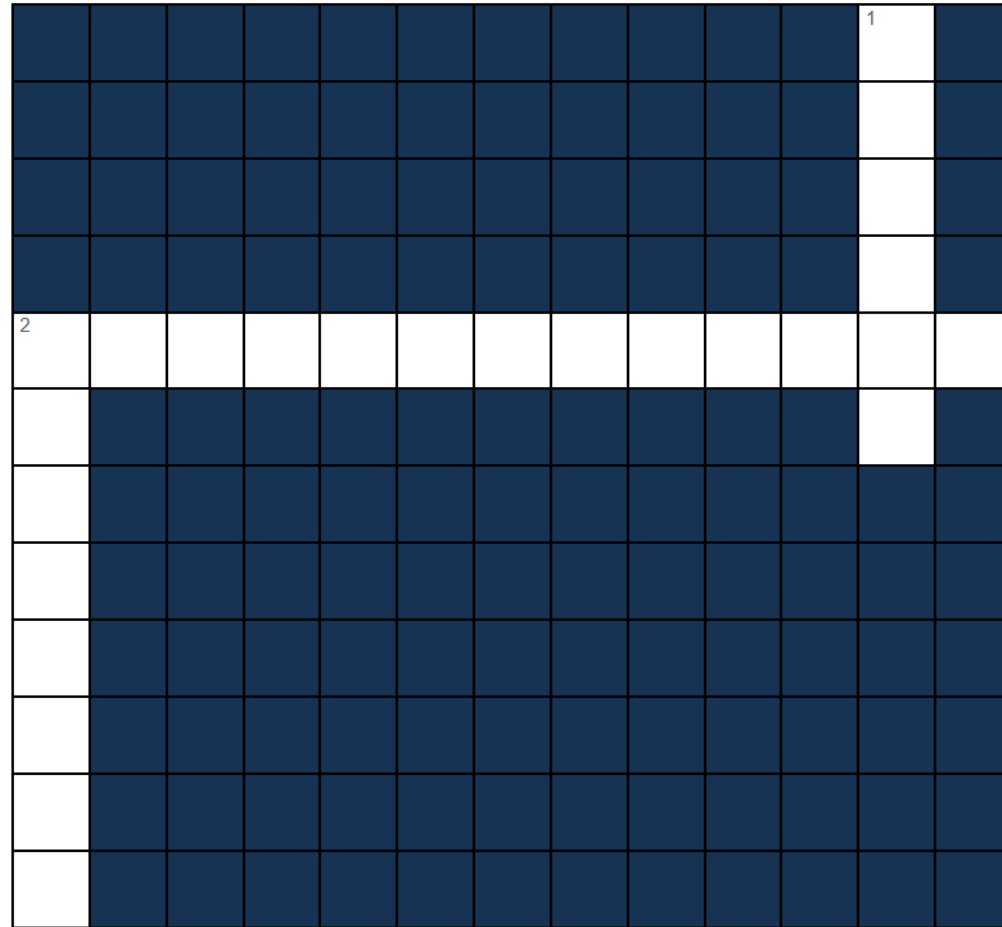
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H5P- Tasks 2: Which are the sustainability pillars?



Across

- 2 This involves protecting the planet's natural resources and ecosystems. (13)

Down

- 1 This focuses on creating equitable and just societies where everyone has the opportunity to thrive. (6)
- 2 This focuses on ensuring long-term economic growth while maintaining social equity and environmental responsibility. (8)

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H5P- Tasks 3: Christmas tree using reusable materials arguments

Pros:



Environmental Impact

Initial Effort

Cons:



Storage

Customization

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Congratulations!

You mastered the activity about sustainability and Christmas tree.

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