

Green roof

Building Green Roofs with LEGO

Keywords:

Green Roofs, Sustainability, Architecture, LEGO, Environmental Education

Target group:

primary school pupils
(ages 6-11)

Objectives:

This activity aims to help participants understand the environmental benefits of green roofs, including their role in improving air quality, reducing urban heat, and supporting biodiversity. Through hands-on exploration with LEGO, learners will investigate principles of sustainable architecture by designing and constructing their own eco-friendly roof systems. The project encourages creativity in problem-solving and design while fostering teamwork as participants collaborate to develop innovative solutions that blend functionality with environmental stewardship.



General Guideline on Time Allocation:

The duration needed to carry out this activity may vary depending on the specific group of children. Teachers are encouraged to adapt the implementation according to the needs, interests, and dynamics of the group.

In the preparatory phase, teachers may use a variety of activities to introduce and contextualize the chosen topic. These can include discussions, videos, drawings, storytelling, or even a field trip, depending on the age and background knowledge of the children.

The main construction phase, during which children plan and build their urban element using LEGO bricks, should typically not exceed 45 to 60 minutes. However, this phase often stimulates further curiosity and questions among the children, potentially leading to extended engagement or follow-up activities. For more detailed instructions and pedagogical support on how to implement activities of INNO-kids project, please download the Teacher's Methodological Guide.



Materials Needed:

- LEGO bricks and baseplates
- Green construction paper or fabric
- Small plant models (or real small plants)
- Recycled materials (cardboard, plastic bottles, paper rolls)
- Glue, tape, scissors
- Markers, crayons, or colored pencils
- Chart papers

Introduction:

Discuss what green roofs are and their benefits, such as reducing heat, conserving energy, and improving air quality. Explain how green roofs contribute to sustainable urban living.

Activity Description:

Preparation

Divide into small groups of 3-4.

Design and build a building with a green roof using LEGO and recycled materials.

Discussion: What are green roofs? Why are they important for the environment?

Draw a plan for the building with a green roof on chart paper, including the layout and plant selection.

Choose LEGO bricks for the main structure and green materials for the roof.

Construction

Build the structure using LEGO for the building and recycled materials for additional features.

Create the green roof using green construction paper or fabric, and add small plant models or real plants. Learn about the types of plants suitable for green roofs and how to care for them.



Presentation and Reflection

Each group presents their building with a green roof.

Discuss what was learned about green roofs and their environmental benefits.



Tips:

- Encourage teamwork and creative thinking.
- Ensure safe handling of materials.
- Highlight the importance of sustainability in architecture.

Additional Considerations:

Differentiation:

Provide additional support or simplified instructions for pupils who may require extra assistance. For advanced pupils, offer extension tasks such as researching further sustainable practices or designing more complex models.

Assessment:

Assess pupils based on their participation and engagement during discussions and hands-on activities. Evaluate the creativity, effort, collaboration, depth of understanding demonstrated in their models, critical thinking, ability to provide constructive feedback and presentation skills.

Curriculum Connections:

This activity integrates:

Environmental Studies (*ecological benefits of green roofs - air quality, heat reduction, and biodiversity support*)

Science and Technology (*sustainable architectural principles and environmental engineering concepts*)

Mathematics (*spatial reasoning, measurement, and geometry*)

Citizenship and Social Development (*environmental responsibility and sustainable thinking in community planning*)

SDG Connections:

- **SDG 11:** Sustainable Cities and Communities – Pupils explore ways to promote sustainable urban living.
- **SDG 13:** Climate Action – Pupils learn about and are encouraged to adopt eco-friendly architectural practices to mitigate climate change.