# Building Sustainable Communities with LEGO

Exploring the Role of Heating Plants

## Keywords:

Sustainable Communities, Values, Community Building, Sustainable Development Goals, LEGO, Heating Plants

## Target group:

Children aged 10, Educators, Youth Leaders

## Objectives:

This LEGO-based activity aims to explore the principles of building sustainable communities by designing a new society from scratch, with a focus on balancing human needs with environmental preservation. Participants will learn how heating plants and other energy systems contribute to energy efficiency and sustainability while fostering teamwork, creativity, and problem-solving skills. Through hands-on construction and discussion, they will develop an understanding of how infrastructure, resource management, and shared values shape resilient and eco-friendly communities for future generations.

## 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.

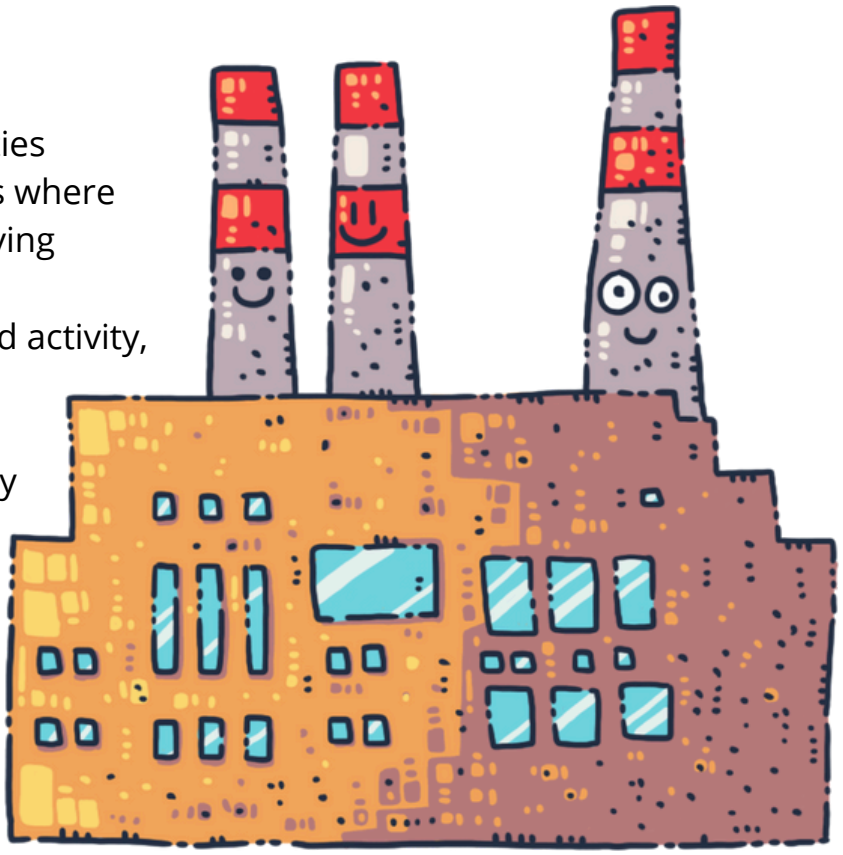
In the preparatory phase, teachers may use a variety of activities to introduce and contextualize the chosen topic. These can include discussions, videos, drawings, storytelling, or even a field trip, depending on the age and background knowledge of the children.

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 and Resources Needed:

- LEGO bricks (assorted colors, including green for nature, gray for infrastructure, and specialized pieces like pipes or solar panels for heating systems)
- LEGO baseplates (one per group) to build their island communities
- Printed or digital prompts (optional: images of renewable energy systems, heating plants, or sustainable cities for inspiration)
- Discussion guides (with key questions about sustainability values and heating technologies)
- Whiteboard/flipchart to note down groups' shared principles (e.g., "zero waste," "clean energy")

## Introduction:



Building sustainable communities involves creating environments where people can thrive while preserving natural resources for future generations. In this LEGO-based activity, we'll explore the concept of sustainable communities and values by creating a new society from scratch, with a special focus on the role of heating plants in ensuring energy efficiency and environmental sustainability.

## Procedure:

**Preparation**

- Divide participants into groups and provide each group with a set of LEGO bricks.
- Task them with creating a new "deserted island society" focused on sustainability using LEGO bricks as their building material.
- Each group should discuss and agree on the three most important values or principles for their sustainable community. They should consider factors like environmental stewardship, social equity, economic prosperity, and cultural diversity.

- Incorporate the concept of heating plants into the discussion by highlighting their role in providing energy-efficient heating solutions for buildings and reducing greenhouse gas emissions.

**Construction**

- Using LEGO bricks, participants should build structures and scenes representing their sustainable community, including heating plants as integral components of the infrastructure.
- Encourage groups to be creative and imaginative in their designs, reflecting their chosen values and principles while showcasing innovative heating plant technologies.

**Reflections**

- Lead a reflection session to discuss the significance of sustainable communities and the role of heating plants in promoting environmental sustainability.
- Prompt discussions on the following questions:
  - How did you incorporate the concept of heating plants into your LEGO model, and what role do they play in ensuring energy efficiency and sustainability within your community?
  - How can values like environmental stewardship and social equity contribute to the design and implementation of heating plant systems in sustainable communities?
  - What are some innovative heating plant technologies or renewable energy sources that can be integrated into sustainable communities, and how did you represent them in your LEGO model?
  - What are the environmental benefits of using heating plants powered by renewable energy sources, and how can they help mitigate climate change and reduce reliance on fossil fuels?

## Tips:

- Before the LEGO building begins, run a quick 5-minute pretend auction where groups use imaginary points (e.g., "We bid 100 points for ‘Clean Energy’!") to "buy" the sustainability values they care about most. Write options like Renewable Heating, Zero Waste, Fair Housing, and Green Spaces on a board. Give each group 200 points to spend, and require them to win at least two values—these will become their must-have priorities

when designing their LEGO sustainable community. This playful debate helps kids weigh trade-offs (like choosing between clean energy or housing equity) and ensures their builds reflect real-world decision-making.

## 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.

## References to the Curriculum:

This activity integrates:
**Science and Technology** *(sustainable energy systems; principles of energy efficiency, infrastructure, and environmental technologies)*
**Environmental Education** *(environmental preservation; sustainable resource management and eco-friendly living)*
**Citizenship and Social Development** *(civic responsibility, and ethical decision-making)*

## SDG Connections:

- **SDG 7:** Affordable and Clean Energy – Pupils highlight the importance of sustainable heating solutions and renewable energy sources in achieving affordable and clean energy access for all.
- **SDG 11:** Sustainable Cities and Communities – Pupils promote discussions on building inclusive, safe, resilient, and sustainable communities, with a focus on integrating heating plants as part of sustainable infrastructure.

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