

A decorative border made of colorful LEGO bricks in various colors (red, blue, green, yellow, orange) is placed around the edges of the page. The bricks are arranged in a way that they appear to be part of a larger structure, with some bricks having circular studs visible.

Pond Exploration

Building Aquatic Ecosystems

Keywords:

Ponds, Aquatic Ecosystems,
Biodiversity, Environmental Science,
Nature Exploration, LEGO

Target group:

Elementary School
Students
(Ages 8-10)

Objectives:

This activity aims to help participants understand the ecological importance of ponds as vibrant aquatic ecosystems, while exploring the rich biodiversity of plants and animals that depend on these habitats. Through hands-on LEGO building, it encourages creativity and problem-solving as learners construct and analyze pond environments, reinforcing key concepts about ecosystem interactions in an engaging, tactile way.

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.

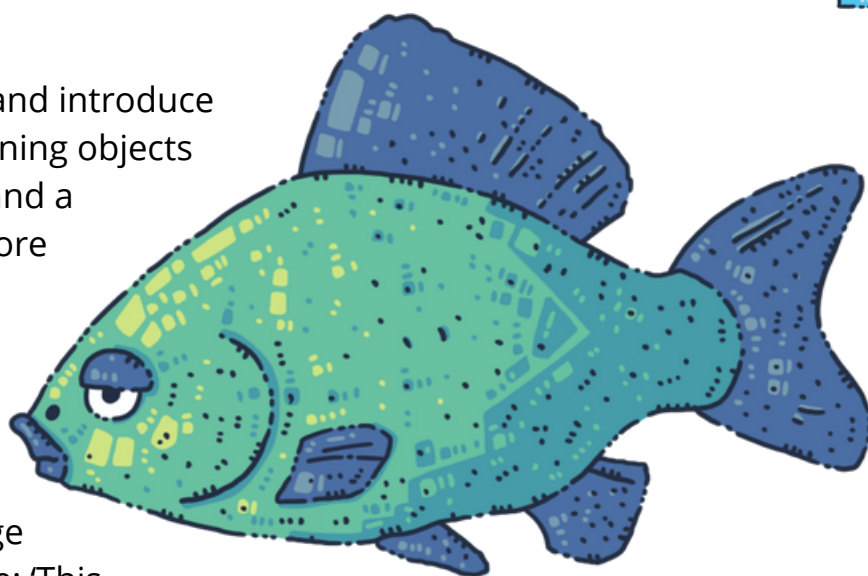
The main construction phase, during which children plan and build their urban element using LEGO bricks, should typically not exceed 45 to 60 minutes. However, this phase often stimulates further curiosity and questions among the children, potentially leading to extended engagement or follow-up activities. 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 and baseplates in various colors and sizes
- Field notebooks or observation sheets
- Magnifying glasses
- Identification guides for aquatic plants and animals

Introduction:

To begin, gather the students and introduce the 'Mystery Pond Bag' (containing objects like a feather, leaf, small net, and a used tea bag). Have them explore the items and ask: 'What place in nature would have all these things? What would happen if something were missing?' Write down their ideas on the board. Then, show an image of a healthy pond and compare: 'This pond is like a home for thousands of creatures! But some are in danger...'



Procedure:

Preparation

Begin by discussing the concept of ecosystems and introducing the idea of ponds as freshwater habitats. Explain the diverse range of organisms that can be found in pond ecosystems and how they interact with each other.

Construction

Set up a designated area as a "LEGO Pond" using blue baseplates to represent water and green baseplates for surrounding land. Place LEGO plant pieces, minifigure animals, and other elements to mimic a pond habitat.

Details

- Aquatic Organism Building: Provide students with LEGO bricks and encourage them to build different aquatic plants and animals that they might find in a pond. Use identification guides to help students create accurate representations.



Tips:

- At the end of the activity, hand out "Pond Guardian Badges" (made with paper and string) where each child can write "I protected a pond today!" and draw their LEGO creature. This simple gesture reinforces their sense of accomplishment and keeps their connection to the ecosystem alive.

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 (*aquatic ecosystems, the ecological role of ponds, and the biodiversity they support; food chains and habitat interdependence*)

Science (*life cycles of plants and animals, observing interactions between species, and identifying ecosystem components*)

Citizenship Education (*environmental awareness and responsibility; respect and care for local natural habitats*)

Language (*descriptive and explanatory language*)

Social Skills (*teamwork, collaboration and sharing of ideas*)

SDG Connections:

- **SDG 14:** Life Below Water – Pupils learn about the importance of preserving freshwater ecosystems like ponds to protect aquatic biodiversity and support sustainable water management practices.
- **SDG 15:** Life on Land – Pupils emphasize the interconnectedness of terrestrial and aquatic habitats, understanding how ponds serve as crucial habitats for many species of plants and animals.



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- LEGO Water Quality Assessment: Introduce LEGO bricks of different colors to represent water quality parameters such as clarity, pH, and oxygen levels. Have students manipulate the LEGO bricks to simulate changes in water quality and discuss the potential impacts on pond ecosystems.

Data Analysis and Reflection:

Facilitate a discussion based on students' LEGO creations and observations. Encourage them to analyze their LEGO pond ecosystems, identify key components, and discuss their importance to aquatic life.

References to Sustainability Goals:

References to the Curriculum:

Science, Environmental studies,
Biology