Tunnel

Safe Passageways for People, Nature, and Cities

Keywords:

tunnel, underpass, migration corridor, connectivity, transportation

Target group:

primary school pupils (ages 6-11)

Objectives:

This activity introduces pupils to the many real-world uses of tunnels — not only as passages under hills, but also as safe routes for animals, people, and vehicles. Pupils explore how tunnels can improve traffic safety, reduce accidents at rail crossings, support wildlife migration, and connect places without disturbing nature. Using natural materials and LEGO, pupils will plan and construct a model tunnel that serves a purpose within a broader community or natural system.

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 of various types
- Paper, markers, crayons, and coloured pencils, scissors and glue, recycled materials such as cardboard, plastic bottles, bottle caps, or packaging
- Sand, soil, or snow, shovels, buckets, and scoops (if outdoors)
- Natural materials (branches, stones, leaves, twigs)
- Toy animals, trains, cars, or people (to represent tunnel users)
- Printed images or digital slides showing: Wildlife tunnels under roads or highways; Pedestrian or cyclist tunnels in urban areas; Train tunnels through hills or under cities; Drainage tunnels or service tunnels; Green bridges and eco-corridors

Note: Encourage pupils to repurpose available materials creatively. If LEGO bricks are not available, pupils may use basic craft supplies to bring their ideas to life through drawings and handmade models.

Introduction:

Start by asking pupils: “What is a tunnel, and what is it for?” Many will answer with examples like roads through mountains. Expand the idea: tunnels can also be built under railway tracks to prevent accidents, beneath cities for pedestrians or bikes, or as corridors for animals to move safely across highways or railways without danger.

Procedure:

Preparation

Guide pupils to choose the type of tunnel they want to design. Ask:

- Who is using your tunnel?
- What would happen if the tunnel didn’t exist?

Construction

Split pupils into small groups. Provide them with natural materials and LEGO bricks. Each group will:

- Choose a site (sand hill, pile of soil, snow, or a cardboard base)
- Build a tunnel from one side to the other — digging if outdoors or designing with bricks and packaging if indoors
- Create an environment around it: e.g. a road, forest, or train tracks
- Add models of users (animals, people, cars, trains)
- Label the tunnel’s name

Encourage groups to test their designs with a toy animal or vehicle passing through the tunnel.

Details

As the tunnel projects take shape, encourage pupils to slow down and look closely at their designs. Ask them to imagine the tunnel in action — not just as a hole in the ground, but as a space that solves a problem or makes life easier. Guide them to think about:

- Who will use this tunnel every day?
- What would happen if the tunnel didn't exist?

Invite pupils to improve their design with small but meaningful additions. For example:

- A wildlife tunnel might include bushes and fences to guide animals toward it.
- A pedestrian tunnel could have lights, colourful walls, or benches to feel welcoming.

Stories

Invite pupils to create a story that takes place in or around their tunnel. The main character could be:

- A fox looking for a safe way to reach its den
- A child riding their bike through a tunnel on the way to school
- A train driver glad there's no level crossing
- A car getting quicker to the other side of the hill

Presentation

Once the tunnels are complete, each group gathers around their construction to present their work to the class. Pupils explain the purpose of their tunnel — who it is designed for, what challenge it solves, and how it fits into its environment. They describe how they built it, which materials they chose, and any special features they added to improve safety, comfort, or environmental protection. As part of the presentation, groups demonstrate how their tunnel works using toy animals, people, or vehicles. Pupils are encouraged to speak clearly, support one another, and answer questions from their classmates.

Tips:

- Remind pupils that tunnels are not just about digging — they're about solving problems.
- If working outdoors, leave the landscape as natural as possible afterward.

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.

Extension Activities:

- Research local wildlife crossings or underpasses.
- Map where tunnels exist in your region — and where they could be added.

Curriculum Connections:

This activity integrates:
Science *(habitats, animal migration, natural systems, protecting species)*
Social Studies *(infrastructure, urban safety, human-wildlife interaction)*
Art *(design, creativity, construction)*
Language *(storytelling, discussion, presentation skills)*

SDG Connections:

- **SDG 11:** Sustainable Cities and Communities – Pupils design infrastructure that improves safety, mobility, and quality of life.
- **SDG 12:** Responsible Consumption and Production – Pupils use and reuse natural and recycled materials for creative, low-impact building.
- **SDG 15:** Life on Land – Pupils explore ways to support biodiversity and protect wildlife through thoughtful landscape design.

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or SAAIC. Neither the European Union nor the granting authority can be held responsible for them.